Klondyke Tailings Removal Report
Klondyke, Graham County, Arizona

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List of Abbreviations and Acronyms

AAC	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ASTM	American Society for Testing and Materials
bgs	below ground surface
c.y.	cubic yards
DBSA	Daniel B. Stephens and Associates, Inc in Albuquerque, NM
E & E	Ecology and Environment, Inc.
EPA R9 Lab	U.S. EPA Region 9 Richmond Laboratory in Richmond, CA
ERRS	Emergency and Rapid Response Services
ft^2	square feet
FOSC	Federal On-Scene Coordinator
GEL Lab	General Engineering Laboratories, LLC in Charleston, South Carolina
HS-0#	Homesite #
IVBA	in vitro bioaccessibility
LTP	Lower Tailings Pile
mg/kg	milligrams per kilogram
mg/m^3	milligrams per cubic meter
NAAQS	National Ambient Air Quality Standard
NCBP	National Contaminant Biomonitoring Program
NIST	National Institute of Standards and Technology
PDR	personal data ram
PM10	particulate matter less than ten microns

List of Abbreviations and Acronyms (cont.)

QA/QC	quality assurance and quality control
R^2	sum of squared residuals value
RSL	U.S. EPA Region 9 Regional Screening Level
r-SRL	ADEQ residential Soil Remediation Level
SAP	Sampling and Analysis Plan
SHPO	State Historic Preservation Office
SRL	ADEQ Soil Remediation Levels
START	Superfund Technical Assessment and Response Team
SWQS	surface water quality standard
TWA	time weighted average
U.S. EPA	United States Environmental Protection Agency
URS	URS Corporation
UTP	Upper Tailings Pile
WQARF	Water Quality Assurance Revolving Fund
XRF	X-ray fluorescence
µg/L	micrograms per liter

1 Introduction

The United States Environmental Protection Agency (U.S. EPA) tasked Ecology and Environment, Inc.'s (E & E's) Superfund Technical Assessment and Response Team (START) to support a U.S. EPA-funded removal action at the Klondyke Tailings Site (site) and four nearby residential properties (residences) in the unincorporated community of Klondyke in Graham County, Arizona. Site work was conducted during two mobilizations, the first in May through June 2012 and the second in October 2013 through November 2013. Removal activities included excavation of surface soils from areas immediately surrounding residences and in selected areas on site; consolidation of excavated waste soils into an existing on-site tailings pile; generation of cap material on site; and restoration and improvement of the soil cap on a second on-site tailings pile. The START provided technical assistance to the U.S. EPA with construction design, confirmation sampling of lead and arsenic in soil, air monitoring, and site documentation during field activities.

The U.S. EPA Emergency Response Section initiated a removal assessment and this subsequent removal action in response to a request by the Arizona Department of Environmental Quality (ADEQ) to assist with addressing lead- and arsenic-contaminated soils at and around the site. The Klondyke Tailings Site is listed on the Arizona Water Quality Assurance Revolving Fund (WQARF) Registry. Previous investigations conducted by ADEQ and their contractor, the URS Corporation (URS), in 2006 and 2007 determined that lead is present in surface and subsurface soils around the site tailings piles at concentrations that exceed 800 milligrams per kilogram (mg/kg), the U.S. EPA's Regional Screening Level (RSL) and the ADEQ's Soil Remediation Level (SRL) for lead in industrial/non-residential soil. The previous assessments also documented arsenic concentrations in the tailings pile soils and surrounding residential soils above the ADEQ residential SRLs (r-SRLs) for lead and arsenic. The START performed a removal assessment of surface soil at five residences in proximity to the site in March and April 2010; the results of this removal assessment confirmed that lead and arsenic were present in residential soils at concentrations that exceeded the site specific screening levels for lead and arsenic. The removal assessment activities are documented in the *Klondyke Tailings Residences Removal Assessment Report* (Removal Assessment Report), *Graham County, Arizona, December 14, 2010* (E & E, 2010b), prepared under START Technical Direction Document number TO-02-09-09-06-0001.

The objectives of the U.S. EPA removal action were to remove surface soils with elevated lead and arsenic concentrations in selected areas at the site and the residences, to document lead and arsenic concentrations in subsurface soils remaining after the removal action (prior to placement of backfill), and to reduce the potential for contaminated soils in on-site tailing piles to migrate within the site and off site. The purpose of this document is to summarize the soil removal actions, the confirmation soil sampling conducted in the removal areas, and the tailings pile stabilization activities.

2 Site Background

2.1 Site Location and Description

The site and residences are located approximately 1.5 miles northeast of the community of Klondyke, Graham County, Arizona (Figure 1, Appendix A). Klondyke is located approximately 45 miles west of the city of Safford, Arizona, and approximately 150 miles southeast of Phoenix, Arizona. Access to Klondyke is principally via Klondyke Road, a maintained dirt road located 12 miles northwest of Safford, Arizona, extending along U.S. Route 70.

The tailings piles are situated immediately upstream of the confluence of Laurel Creek and Aravaipa Creek on parcel number 110-47-003G. The residences are located on parcel numbers 110-47-003B (Homesite 2, HS-02), 110-47-003D (Homesite 5, HS-05), and 110-47-006 (Homesite 3, HS-03) on Klondyke Road and parcel number 110-47-001M (Homesite 4, HS-04) on Grand Reef Mine Road. The approximate center of the area of concern is located at Latitude 32°51'03.60" North, Longitude 110°20'35.45" West. Figure 2 (Appendix A) outlines the features and parcel boundaries relevant to the site and residences that are described in further detail in the following paragraphs.

The site is a former mill containing two mine-waste tailings piles with a combined volume of approximately 70,000 cubic yards (c.y.). The tailings piles are designated as the Upper Tailings Pile (UTP) and the Lower Tailings Pile (LTP) based on the relative up and downstream positions along the northwesterly flowing Aravaipa Creek. For ease of reference, the unvegetated portions of the site near the tailings piles were subdivided into Areas A through D as summarized in Table 2-1 and depicted on Figure 2, Appendix A.

Table 2-1: Summary of On-Site Areas
Klondyke Tailings Removal, Graham County, Arizona

Area ID	Description	Area [square feet (ft^2)]
Area A	northern portion of the LTP where it transitions to native grade	59,000
Area B	northeast of the LTP, former URS construction staging area used during the 2009 removal actions performed by ADEQ and URS	32,000
Area C	between the LTP and the UTP, includes a slight depression south of the LTP	169,000
Area D	northeast of the UTP	35,000

Four residential homesites (designated as HS-02 through HS-05) that are also the subject of this removal action are located north, northeast, and east of the site at distances ranging from

approximately 500 to 2,000 feet away. All four residences contain single-family homes and are occupied year-round. The houses are connected via unsurfaced driveways to Klondyke Road or Grand Reef Mine Road.

Land use in the area is characterized by mixed-use residential and agricultural (e.g., cattle ranching and hay farming) homesites. Vegetation in the area is generally characterized by chaparral vegetation including Mesquite and tamarisk trees, desert shrubs, and cacti populating small hills surrounding the site. The area receives approximately 17 inches of rain per year (URS 2010). According to residents, Laurel Creek and Aravaipa Creek occasionally flood due to short duration, high-intensity rain events common during the summer months. Other land uses in the area are primarily recreational and include fishing and swimming in Aravaipa Creek downstream of the site, all-terrain vehicle use, camping, hunting, and hiking.

According to the ADEQ, remedial actions at the site are important to protect critical habitat of two endangered species in the perennial reach of Aravaipa Creek downstream of the site. Perennial flows in Aravaipa Creek begin approximately two miles downstream of the site. In addition, Aravaipa Creek is a unique waterway under Arizona Administrative Code (AAC) R18-11-112, and the site lies approximately 4 miles upstream of the Nature Conservancy's Aravaipa Canyon Preserve and approximately 6 miles upstream of the Bureau of Land Management's Aravaipa Canyon Wilderness.

2.3 Site Geology and Hydrogeology

The soil in the area of the site is characterized by unconsolidated alluvial fill material from erosion of the surrounding hills. Groundwater in the area exists at two sources: a perched aquifer, sometimes referred to as the Aravaipa Creek subflow, at approximately 4 to 6 feet below ground surface (bgs), and the Aravaipa Valley groundwater aquifer, which varies in depth from 20 feet to 45 feet bgs and from which local residents receive drinking water via private wells (ATSDR 1999, ADEQ-URS 2009). An on-site well is located approximately 100 feet south-southeast of the LTP and draws non-potable groundwater from approximately 50 feet bgs. During the recent removal action, the existing installed pump and well were able to produce water at approximately 300 gallons per minute at an average withdrawal volume of 25,000 to 40,000 gallons per day.

2.3 Site History

According to the ADEQ, lead, zinc, copper, silver, and gold mining were conducted in the Klondyke area of the Aravaipa Mining District in Arizona from the 1870s through the 1950s (ADEQ, 2009). In 1948, the Athletic Mining Company constructed a flotation-processing mill next to Aravaipa Creek and operated until about 1958. During the time of operation, lead, zinc, and copper concentrates were produced, along with two mine waste piles, the LTP and the UTP. The lower pile contains approximately 36,000 c.y. of tailings and the upper pile contains approximately 34,000 c.y. of tailings (ATSDR 1999, ADEQ-URS 2009).

The site was listed on Arizona's WQARF in September 1998 after a U.S. Bureau of Land Management regional surface water quality monitoring program detected concentrations of lead in Aravaipa Creek that exceeded surface water quality standards (SWQS). From 2005 to 2006, ADEQ conducted an early response action that included minor earth moving repairs to contain

storm water runoff on the tailings piles. In 2008, ADEQ and their contractors completed the consolidation, capping, and installation of erosion protection on the UTP. (ADEQ 2012)

2.4 Previous Investigations

Between 1986 and 1993, the U.S. Bureau of Land Management collected surface water samples for metals analysis from the perennial section of Aravaipa Creek as part of a regional surface water quality monitoring program. Laboratory analytical results indicated a maximum concentration of lead that exceeded the 15micrograms per liter (µg/L) SWQS for lead in a domestic water source in Arizona (AAC-Title 18, Chapter 11-Appendix A).

In 1993, the U.S. Fish and Wildlife Service reported to the ADEQ that erosion from the tailings piles could be affecting the water quality of Aravaipa Creek. As a result, the ADEQ collected sediment, groundwater, surface water, and soil samples from the area. Three sediment samples, one upgradient, one adjacent to, and one downgradient of the tailings piles, were also collected from Aravaipa Creek and analyzed for metals using U.S. EPA Method 6010. The three sediment samples contained concentrations of metals below the ADEQ r-SRLs. Three surface water samples were collected downstream of the tailings piles during a rain event and an additional three samples were collected from the perennial section of Aravaipa Creek and analyzed for metals using U.S. EPA Method 6010. All of the surface water samples contained concentrations of metals below the ADEQ SWQSs. Groundwater samples were collected at approximately 6 feet bgs from Aravaipa Creek downgradient of the tailings pile and analyzed for total metals using U.S. EPA Method 200 series. Results from the shallow groundwater indicated samples exceeded the SWQSs for full body contact for arsenic and lead (ADEQ-URS 2009). Concentrations of arsenic ranged from 0.012 to 0.055 µg/L, and lead concentrations ranged from 0.63 to 13.2 µg/L (ADEQ 1993).

Ten soil samples were collected from the tailings piles and analyzed for metals using U. S. EPA Method 6010 and for mercury using U.S. EPA Method 7471. Soil sample results indicated concentrations of lead and arsenic exceeded the ADEQ r-SRLs. Concentrations of arsenic ranged from less than 100 mg/kg to 170 mg/kg, and concentrations of lead ranged from 32 mg/kg to 10,000 mg/kg (ADEQ-URS 2009).

A study of possible impacts on the native fish in the perennial reaches of Aravaipa Creek was conducted in 1997 by Kirke King of the U.S. Fish and Wildlife Service on behalf of ADEQ. The 1997 data were compared to the 1990 National Contaminant Biomonitoring Program (NCBP) to determine how trace element concentrations in fish from Aravaipa Creek compared to national levels. Arsenic, cadmium, and lead were detected above the NCBP 85th percentile in the fish in Aravaipa Creek.

ADEQ contracted URS to conduct an extensive surface and subsurface soil sampling investigation between 2006 and 2007. The investigation identified elevated levels of lead and arsenic in residential soils at concentrations above the r-SRLs of 400 mg/kg and 10 mg/kg respectively at nine parcels adjacent to or near the two tailings piles. Lead was detected in samples through X-ray fluorescence (XRF) analysis at concentrations up to 18,000 mg/kg on residential properties. On site, lead was detected at concentrations up to 50,000 mg/kg in samples collected from the tailings piles. Antimony, arsenic, beryllium, cadmium, copper, lead,

manganese, and zinc were also detected at concentrations above their respective Arizona r-SRLs in samples collected from the piles (ADEQ 2008). As an additional part of this investigation, a floodplain analysis of Aravaipa Creek was performed that indicated the UTP was within, and subject to, erosion from 25, 50, and 100 year flood events on Aravaipa Creek, as well as erosion by the potential lateral movement of Aravaipa Creek (ADEQ 2008). URS determined that the downstream pile (the LTP) was not at risk from 10, 25, and 50-year return period flood events on Aravaipa Creek. However, a portion of LTP was within and subject to erosion from 100-year flood events on Aravaipa Creek as well as the potential lateral migration of Aravaipa Creek. The study also indicated the LTP was potentially subject to erosion from 10, 25, 50, and 100-year flood events on Laurel Creek, a tributary to Aravaipa Creek (ADEQ 2008).

In June 2008, ADEQ and their contractors completed the consolidation of a portion of nearby surface soils onto the UTP. Approximately 10,000 c.y. of tailings from the portion of the LTP closest to Aravaipa Creek was also consolidated onto the UTP during this action. The UTP was compacted in lifts then capped with a 2-foot soil cover. Gabion rock mattresses were installed around the edges for erosion and scour protection. Except for the portion closest to Aravaipa Creek, this action did not include consolidation or armoring of the LTP, and several areas of lead-contaminated surface soils located around the LTP and UTP were left in place. (URS 2008)

In April 2010, the START conducted a removal assessment of five residential homesites (HS-01 through HS-05) near the tailings piles. The results of this assessment are reported in detail in the Removal Assessment Report (E & E 2010b). At each home site, the START collected soil from an approximately 200-foot-by-200-foot area around the primary residential living area (i.e., the house, garage, and other structures in the immediate area around the primary residence). Due to the large size of the properties surrounding the residences, each property was subdivided into up to eight approximately equal subdivisions, with a five-point composite sample collected from each subdivision. In addition, discrete sample locations (e.g., gardens, play areas, rain gutter discharge points) were determined and collected during the sampling event. A total of 53 composite samples, each consisting of five-point aliquots, and 13 discrete samples were collected. Laboratory and field XRF results indicated lead and arsenic concentrations in surface soils exceeded the site screening levels of 400 mg/kg and 10 mg/kg respectively. Lead in soil was detected as high as 17,000 mg/kg. Arsenic in soil was detected as high as 290 mg/kg.

3 Assessment and Removal Field Activities

Based upon the 2010 U.S. EPA residential site assessment and the data generated by the 2008 ADEQ WQARF investigation, the U.S. EPA determined that removal of surface soils from four residential properties and consolidation of on-site tailings was necessary to mitigate the threats posed by the lead and arsenic contamination.

Removal activities were conducted May through June of 2012 and October through November of 2013 under the authority of Federal On-Scene Coordinator (FOSC) Harry Allen with operations assistance and oversight provided by FOSCs Martin Powell, Richard Rupert, and Craig Benson. Prior to and in between the two removal activity mobilizations, several mobilizations occurred for planning purposes including one conducted in November 2011 and one in June 2013. In several instances, additional removal characterization was conducted concurrently with removal activities to investigate specific additional areas around or upgradient of the homesites and to evaluate potential cap material. Soil in residential yards was excavated and incorporated as a temporary cap on the LTP, and the yards were backfilled with clean fill. Backfill material required for residential restoration and UTP cap augmentation was generated from the Aravaipa Creek borrow area and stockpiled on site. Surface soil in several on-site areas was excavated and placed on the LTP. Underlying clay material in Area D was determined to be suitable for augmenting the UTP cap and was excavated and stockpiled in Area D. The UTP cap was augmented with cap material generated on site, graded, compacted, and reseeded.

During the soil removal action, START conducted air monitoring, documentation of site activities and conditions, additional characterization and confirmation soil sampling, soil sampling for geotechnical analysis, and construction oversight documentation. Field activities performed by the U.S. EPA, the U.S. EPA's Emergency and Rapid Response Services (ERRS) contractor, and the START during these two mobilizations are described in further detail in this section. Photographs of removal action activities are included in Appendix B.

3.1 Pre-Removal Planning

3.1.1 Bioaccessiblity Study

As part of the removal assessment in 2010, START submitted 40 soil samples from the residential assessment sampling to the U.S. EPA National Risk Management Research Laboratory in Cincinnati, Ohio for an assessment of the bioaccessbility of the sample's lead content using EPA Method 9200.1-86. At the time the Removal Assessment Report (E & E 2010b) was submitted, the results had not yet been received. Draft results for in vitro bioaccessibility (IVBA) received in July 2011 showed varying IVBA for lead ranging from 13.1 percent IVBA (an outlier) to 100 percent IVBA with a median of 83 percent IVBA. The *Draft-Bioaccessibility of Lead Associated with Klondyke Tailings Samples* report is included in Appendix C (U.S. EPA 2011). Removal decisions were made based on total lead concentrations and the RSLs and no attempt was made to account for bioaccessibilty.

3.1.2 Cultural Resources Survey

On May 15, 2012, and June 12, 2012, an E & E archaeologist conducted the field survey portions of a cultural resources study to identify whether artifacts of potential cultural significance were present on HS-03, HS-04, or HS-05 prior to any removal action activities. A fourth home site, HS-02, which was originally identified as qualifying for removal actions based on the removal assessment work conducted in 2010, was also included in the cultural resources survey. However, the homeowner subsequently elected not to be included in the removal action and refused access.

The Klondyke tailings pile area had previously been the subject of a cultural resources survey during the ADEQ and URS assessment activities in 2006 (Morton et. al, 2006); therefore, that area was not included in the START cultural resources survey.

The results of the START cultural resources survey indicated artifact scatter at HS-02 and the presence of a historical smelter site at HS-03; however, it was determined that these findings did not meet eligibility criteria for inclusion on the Arizona Register of Historic Places and the National Register of Historic Places. Therefore, it was recommended that no measures were necessary to mitigate the impacts of the removal action activities on site cultural resources. The E & E *Cultural Resources Survey for the Klondyke Tailings Remediation on Private Residences, Klondyke, Graham County, Arizona, August 2012*, which is included as Appendix D, was submitted to the Arizona State Historic Preservation Office (SHPO) on August 29, 2012. On September 17, 2012, the Arizona SHPO concurred with the results and recommendations of the report and stated that a "No Historic Properties Affected" finding was warranted (Appendix D).

3.1.3 Sampling and Analysis Plan

Prior to mobilizing to the site in May 2012, the START reviewed the existing data and prepared a Sampling and Analysis Plan (SAP) for the post-removal confirmation sampling activities (E & E 2012). A copy of the SAP is included in Appendix E.

The SAP described the principal focus of the removal activities, which was to identify and document lead and arsenic concentrations after excavation in residential and industrial removal decision areas within the Klondyke Tailings site. The SAP also described secondary tasks, which included the documentation of site activities associated with the soil excavation and backfill, placement of the excavated soils on the tailings piles, and stabilization and capping of the tailings piles.

3.1.4 Construction Plans and Specifications

Prior to the October 2013 mobilization, START and ERRS collaborated to develop the *Klondyke Tailings Removal Work Plan* (Work Plan) dated October 2013 to guide the U.S. EPA-led removal activities, which are described in more detail in the following sections (E & E 2013). A supporting Construction Quality Assurance/Quality Control Plan was included in the Work Plan to communicate construction specifications. The Work Plan is included in Appendix F.

3.1.5 Evaluation of Aravaipa Borrow Area

Proposed site activities required a variety of clean fill material for backfill at residences, cap material for the tailing piles, and rock to fill proposed gabion baskets. Prior to the removal mobilization and due to the increased costs, risks, and environmental impacts associated with

importing earth backfill materials over the relatively long haul distance to the site, the U.S. EPA attempted to locate a suitable cap material on site. Based on a review of the panel maps and sample data included in the URS Site Characterization Report, areas along the Aravaipa upstream of the site were known to have near background levels of lead and arsenic (URS 2010). The area outlined on Figure 2 as "Aravaipa Borrow Area" was identified as the most suitable borrow area for generating earth and rock materials. During a site walk on November 4, 2011, START collected a soil sample (KRB1) in this area for analysis of geotechnical and water holding properties to assess its suitability for various clean fill needs. Results are presented in Appendix G. See Table 3-2 for a summary of all geotechnical analysis conducted in support of removal activities.

3.2 Removal Activities

Removal activities were conducted during between May 31 and June 28 of 2012 and between October 10 and November 5 of 2013. In residential areas, the removal action excavation and capping areas were based on the results of the 2010 U.S. EPA Klondyke Tailings Residences Removal Assessment Report (E & E 2010b). The ERRS contractor, Environmental Quality Management Inc., excavated lead and arsenic contaminated soil to a depth of 1 foot bgs in residential yards (2 feet bgs in garden areas) at HS-03, HS-04 and HS-05 and transported the excavated soil to the LTP. After the removal work was performed, START collected samples at the bottom of the excavations to document the concentrations of lead and arsenic remaining in the subsurface soils. The excavated areas were backfilled to the original grade with Aravaipa Creek borrow material mixed with an imported soil amendment. Selected areas were subsequently hydroseeded.

At the site, contaminated surface soil in Area D was excavated and placed on the LTP. Underlying clay material in Area D was determined to be suitable for use as cap augmentation material and was stockpiled in Area D. Surface tailings in small portions of Area A and Area C were consolidated onto the LTP. Soil excavated from the homesites was used to cap a portion of the LTP. The UTP cap was reinstalled then augmented with a blend of Area D clay and Aravaipa Creek borrow area material. The original cap material was graded and compacted in two approximately 8-inch-thick lifts, and the cap augmentation material was placed and graded as a single lift. The final surface was ripped to a depth of approximately 6-inches and seeded with a mulch, straw, seed and tackifier mixture that was hydraulically applied.

Air monitoring was conducted by START during all contaminated soil disturbing activities to document concentrations of particulates and ensure that elevated concentrations of fine particulate matter (particulate matter less than 10 microns [PM10]) were not migrating off site or into residences. Photographic documentation of site activities is presented in Appendix B.

Except where noted, START followed all pre-determined standard operating procedures, as outlined in the removal SAP for confirmation sample collection and documentation procedures during the field investigation phase of this project. In general, surface and confirmation soil samples were collected with a dedicated plastic scoop and vertical composite samples or samples at depth were collected with a stainless steel hand auger that was decontaminated with a triple rinse procedure. In instances when the hand auger was used, a rinse blank sample was collected at a frequency of one per day. All samples were analyzed in the field using the XRF analyzer in accordance with U.S. EPA Method 6200 and as described in Section 3.2.7. A subset of up to 20

percent of these samples was additionally submitted for laboratory analysis of lead and arsenic by Method 6010B at either General Engineering Laboratories LLC in Charleston, South Carolina (GEL Lab) or U.S. EPA Region 9 Richmond Laboratory in Richmond, California (EPA R9 Lab) to develop a correlation study.

3.2.1 Deviations from the SAP

With the following exceptions, removal field sampling activities were conducted in accordance with the SAP (Appendix E):

- The SAP did not clearly identify a lead action level for the removal action. The site qualifies as a Tier II site according to the guidance of the Superfund Lead-Contaminated Residential Sites Handbook and is eligible for use of the urgent threat lead removal action level of 1,200 mg/kg. This level was lowered at the direction of the U.S. EPA to establish a site specific lead action level of 800 mg/kg at residences that did not report children visiting and 400 mg/kg at properties where the homeowner reported that children visit.
- The SAP did not clearly identify an arsenic action level for the removal action. An arsenic action level was established at the U.S. EPA Region 9 noncarginogenic RSL of 34 mg/kg; however, lead was the driver in determining removal areas.
- The homeowner of HS-02 requested that the U.S. EPA not perform work on his property; therefore, that property was eliminated from the proposed removal action. The pre-removal property assessment form maintained in the START project file documents that the homeowner declined removal work.
- During the June 2012 removal activities, the U.S. EPA requested that START collect surface and subsurface soil samples from a hill area north of HS-03 where a former smelter was located. The purpose was to determine the feasibility of removing a pile of possible source material from the hill as part of residential soil removal activities planned for HS-03. A total of 22 surface soil samples (SH-01-00 through SH-22-00) and two background samples (SH-BKG-00 and SH-BKG2-00) were collected. A total of six subsurface soil samples were collected: three samples were collected at 6 inches bgs (SH-25-06, SH-26-06, and SH-09-06 [the latter was co-located with surface sample location SH-09-00]); two samples were collected at 1 foot bgs (SH-23-12 and SH-24-12); and one sample was collected at 2 feet bgs (SH-24-24).
- The U.S. EPA directed the START to collect two samples (SH-27-06 and SH-28-06) subsequent to the removal of source material by ERRS from the hill north of HS-03. The purpose of the samples was to document the concentrations of lead and arsenic left in place.
- An additional decision unit, Y7, was added at HS-05 and additional characterization sampling was conducted in accordance with the sampling protocol from the April 2010 Removal Assessment SAP (E & E 2010a). START collected a five-point composite surface soil sample labeled as H5-Y7-COMP from Y7 (an area approximately 3,000 ft^2 located in the eastern portion of the homesite). Additionally, two discrete dripline samples (H5-Y7-F and H5-Y7-G) were collected from surface soils beneath the roof overhang within HS-Y7.
- Extra soil sample aliquots (H5-Y6-A and H5-Y6-B) were collected at HS-05 in the removal confirmation sample in decision unit Y6 after it was observed that a trailer previously located at the homesite had been removed. Removal was conducted in the area where the trailer was previously positioned, and the resulting confirmation soil sample

consisted of 5 aliquots rather than the reduced 3 aliquots collected during the 2010 assessment.

- Based on information provided by the homeowner, the garden area of HS-05 was redefined from the northwest portion of the property in April 2010 to the northeast portion of the property. As a result of the relocation of the HS-05 garden area, decision unit Y1, which contained lead concentrations above the homesite action level, was added to the yard removal area.
- Some portions of the decision units slated for removal were left undisturbed due to the request from various property owners to preserve established vegetated areas. As a result, some confirmation sample aliquots were not collected in the same locations as those used during the 2010 assessment work.
- A co-located duplicate composite sample was not collected. Instead, split duplicate samples were collected from homogenized composite samples.
- The START collected five 5-point composite samples (SP-F1-COMP, SP-F2-COMP, RFSP-COMP-01, RFSP-COMP-02, RFSP-COMP-03) from the 1.5-inch minus material excavated from the Aravaipa borrow area and processed through the screen plant. The purpose was to confirm that the concentrations of lead and arsenic in backfill material were below the action level. The samples were prepared and analyzed using the XRF.
- The START collected four 5-point composite samples (UTP-CAP-01-COMP1, WR-COMP-North, WR-COMP-Center, WR-COMP-West) from cap material atop the UTP. The purpose was to determine lead and arsenic concentrations.
- The START collected one 5-point composite sample (AD-SP-01-COMP) from an approximately 500c.y. stockpile of unknown origin located along the northern portion of Area D to determine lead and arsenic concentrations.
- At the direction of the U.S. EPA, START collected additional samples from portions of Area D for analysis of lead and arsenic. The purpose was to further characterize soils in Area D. The START collected seven surface soil samples from Area D, labeled AD-01-00 through AD-06-00, from grid locations Area D 44, 45, 46, 48, 49, and 50. During sampling of Area C, the START and USCG PST inadvertently resampled grid locations Area D 49 and 50 (labeled AC-01-00 and AC-02-00). An additional sample location was created at grid location Area D 51 and sample AD-07-00 was collected from this location. Additionally, the U.S. EPA directed the START to collect and analyze vertical composite samples from 0 to 1 foot bgs at eight sample locations in Area D (AD-44-12-COMP through AD-51-12-COMP).
- START collected four surface soil samples from the southern portion of Area C (AC-03-00 through AC-06-00) to supplement the assessment sampling of the northern portion of Area D.
- Although the SAP called for complete surface soil removal in on-site areas A through D, removal was limited to portions of Area D and Area A. Only the confirmation grid samples within the excavation boundaries were subject to confirmation sampling.
- At the request of U.S. EPA, START collected two grab samples (AD-PH-S and AD-PH-N) from north-south traversing pothole in Area D. The pothole was excavated from Area D in attempts to discover clean clay material to be used in developing a suitable UTP cap augmentation material. Samples were analyzed in a plastic bag using the XRF.

- At the request of U.S. EPA, START collected sample AD-CLAY-48 as a 5-point composite from an excavator bucket removed from 4 feet bgs in Area D.
- Once the clay material mined from Area D was stockpiled, START collected three 5-point composite samples (AD-SP-WEST, AD-SP-EAST, AD-SP-NORTH) from the stockpile to document concentrations of lead and arsenic.
- As the cap augmentation material (a blend of two parts Area D Clay and three parts 1.5 inch minus screen fines from the Aravaipa Borrow Area) was transported to the UTP, a 5 point composite soil sample was collected every 20 truckloads (2:3-BLEND-SP-1 through 13). The purpose was to document concentrations of lead and arsenic in the cap augmentation material.
- Prior to consolidation efforts in Area A, surface soil samples were collected from the confirmation sample grid locations proposed in the SAP. The purpose was to have more recent U.S. EPA generated documentation of surface soil concentrations prior to removal. The START collected ten surface soil samples from Area A, labeled AA-01-00 through AA-10-00.
- At the request of ADEQ, a portion of the samples from each stockpile remaining on site were submitted for laboratory analysis of the full Target Analyte List metals list by U.S. EPA Method 6010B. The purpose was to document metals concentrations in stockpiles remaining on site that may be used in future ADEQ site construction activities.
- At the request of U.S. EPA, perimeter air monitoring was conducted by START.
- Samples were submitted to the laboratory in the plastic XRF cups rather than a 4 to 8 ounce jar. Additional volume was provided for MS/MSD.

3.2.2 Action Levels

As discussed in the SAP, this U.S. EPA interim removal action on an ADEQ WQARF site consulted relevant established screening levels, action levels, and guidance documents prior to determining site action levels. These sources included the U.S. EPA RSLs, the ADEQ SRLs and the U.S. EPA guidance document *Superfund Lead-Contaminated Residential Sites Handbook* (U.S. EPA 2003). At the decision of the FOSC, varying action levels for lead and arsenic were applied across the site and residences and lead was treated as the contaminant of primary concern. On-site non-residential areas were assigned an action level of 800 mg/kg lead. Residential areas were assigned an action level of 800 mg/kg lead or 400 mg/kg lead if the homeowner indicated the presence of children on the property. This methodology resulted in an action level of 800 mg/kg lead at HS-03 and HS-05 and an action level of 400 mg/kg at HS-02 and HS-04. Both the on-site and the residential the action levels for arsenic were 34 mg/kg. Application of these action levels to 2010 assessment data resulted in the residential removal areas outlined in Figures 3 through 6 (Appendix A).

3.2.3 Additional Characterization Activities

At times during this removal action, additional characterization sampling was directed by the U.S. EPA to evaluate possible removal areas, verify proposed removal areas that were based on older data from ADEQ, and to assess possible borrow material sources. The following section describes the additional characterization sampling that occurred to support the removal action. In general these samples were not proposed in SAP, but except where noted, they were collected in accordance with the sampling and analysis procedures outlined in the SAP.

3.2.3.1 Additional Characterization Activities – HS-05

On June 14, 2012, representatives from U.S. EPA, START, and ERRS conducted an initial removal site walk of the HS-05 property and identified an area that had not been included in the 2010 removal assessment work. The approximately 3,000 ft^2 area was outlined as decision unit Yard Number 7 (Y7) and assessment was conducted according to the methods outlined in the April 2010 Removal Assessment SAP (E & E 2010a). XRF results showed that concentrations of lead in surface soil in Y7 were above the home site action level. The area was added to the removal area at HS-05 as shown on Figure 6. Additional information on the analytical results of this additional decision unit is presented in Section 4.2.1.

3.2.3.2 Additional Characterization Activities – HS-03 Hillside

During the 2010 assessment, START and U.S. EPA personnel observed what appeared to be mill tailings and an abandoned smelting operation on the low hill behind the residence at HS-03. On June 7, 2012, prior to conducting a removal in the down gradient area around the residence, the FOSC directed that START assess the hillside to evaluate options for minimizing recontamination of the yard. The sampling area was defined visually to include disturbed areas and areas that were down gradient of disturbed areas that contribute flow toward HS-03.This generally translated to a 100 to 150 foot vertical swath along 300 feet of the hillside. Within this area biased judgmental sampling resulted in the collection of 19 discrete surface samples, 3 subsurface soil samples at 6 inches bgs, 2 subsurface soil samples at 12 inches bgs, and one subsurface soil sample from 24 inches bgs. Sample locations were biased toward historic smelter features, level terraces, drainages and uniform coverage. An additional 3 discrete surface soils samples were collected further west along a road accessing the hilltop. Two discrete background surface soil samples were collected up gradient of the disturbed area of the hillside. Sample locations are depicted on Figure 7, Appendix A. Field and laboratory analytical results demonstrated that many sample locations had elevated levels of lead and arsenic on the surface and at depth. Results are discussed in greater detail in Section 4.2.2 and are depicted on Figure 7.

3.2.3.3 Additional Characterization Activities – Area D Surface Soil and Borrow Area

Although the SAP called for uniform removal of the top 1 to 2 feet of soil in all of Area D, this delineation was based on URS's surface soil sampling results from 2006 and 2007, which were collected prior to the 2008 ADEQ UTP consolidation effort. In June of 2012, the U.S. EPA directed START to assess the Area D removal area to delineate removal areas within Area D with soil lead concentrations above an action level of 800 mg/kg. At the direction of the U.S. EPA, the soil sampling grid described in the SAP was generally applied as an assessment sampling grid. Two samples were generally collected at each location: one discrete surface sample and one sample as a 0 to 12 inch bgs vertical composite sample from a single core. Sample locations are depicted on Figure 8, Appendix A. Area D additional characterization results are discussed in Section 4.2.4 and depicted on Figure 8.

3.2.3.4 Additional Characterization Activities – Area A Surface Soil

Although the SAP called for uniform removal to 1 to 2 feet of surface soil within all of Area A, this delineation was based on URS's surface soil sampling results from 2006 and 2007, which were collected prior to the 2008 ADEQ UTP consolidation effort. Once on site, visual observations of site topography and vegetation revealed that tailings may be present significantly deeper than the maximum proposed removal depth of 2 feet bgs. Therefore, the U.S. EPA

determined that removal efforts in Area A would focus on work that facilitated potential future ADEQ actions rather than complete removal of all contaminated soil. To document conditions in Area A prior to consolidation, the soil sampling grid described in the SAP was used to collect ten surface soil samples for additional characterization as depicted in Figure 9, Appendix A. No effort was made to delineate the extent of contamination as areas within the tree line were not easily accessible. These additional characterization sampling results are discussed in Section 4.2.5.

3.2.4 Excavation and Removal Activities

Excavation and dirt-moving activities were conducted from June 8 to 27, 2012 and October 14 to 23, 2013. Prior to the start of removal activities, the U.S. EPA obtained access from each property owner. The signed access agreements were retained by the FOSC.

Lead and arsenic contaminated soil removed from each excavation area was loaded into haul trucks and transported to the LTP. The incorporation of soil from removal actions into the LTP is described in more detail in Section 3.2.5. ERRS employed water to suppress dust at the site, and START conducted air monitoring during dirt moving activities to document concentrations of total dust and PM10 to evaluate whether dust was migrating off site or towards the residences at levels that may pose a health risk. Dust monitoring activities are described in more detail in Section 3.2.8. Additional details on post-excavation sampling and backfill are discussed in Sections 3.2.6 and 3.2.11, respectively.

3.2.4.1 Excavation Activities – HS-05

Excavation and dirt-moving activities at HS-05 were conducted from June 18 to 25, 2012. The ERRS contractor excavated and removed the top 1 foot of soil from yard areas at HS-05 with assessment sample results greater than 800 mg/kg lead (decision units Y2, Y5, Y6 and Y7, see Figure 6, Appendix A). Additionally, the garden area was shifted slightly to the northwest of its previously identified location at the direction of the homeowner during a site walk on June 16, 2012 and was excavated to 2 feet bgs. Since the garden removal area no longer included locations in decision unit Y1 that were known to have elevated concentrations of lead, decision unit Y1was also included in the yard removal area at the direction of the FOSC. A total of approximately 390 c.y. of waste soil was removed from HS-05. Figure 10, Appendix A, provides details on excavation at this property.

3.2.4.2 Excavation Activities – HS-03

Excavation and dirt-moving activities at HS-03 were conducted on the hillside from June 13 to 18, 2012 and in the yard from October 14 to 18, 2013. In 2012, the ERRS contractor improved an existing roadbed to allow equipment access to the top of the hillside and removed an approximately 80 c.y. pile of suspected source material. No additional efforts were made to clean up areas with known elevated levels of lead and arsenic surrounding this pile on the face of the hillside due to limited equipment access, concerns about slope stability, and the homeowners' request that no vegetation be disturbed. In 2013 the ERRS contractor excavated and removed the top 1 foot of soil from yard areas with assessment sample results greater than 800 mg/kg lead (decision units Y1, Y3, Y5 and Y6, see Figure 4, Appendix A). Several areas within these removal areas with established vegetation were designated by the homeowners for exclusion from excavation activities. A total of approximately 430 c.y. of waste soil was removed from yard areas of HS-03. Figure 11, Appendix A, provides details on excavation at this property.

3.2.4.3 Excavation Activities – HS-04

Excavation and dirt-moving activities at HS-04 were conducted from October 18 to 23, 2013. Prior to excavation work, the ERRS contractor graded the access road to the property to allow for equipment access. The ERRS contractor excavated and removed the top 1 foot of soil from yard areas with assessment sample results greater than 400 mg/kg lead (decision units Y3, Y5, Y6, Y7 and Y8, see Figure 5, Appendix A). One area within the Y3 removal area with established vegetation was designated by the homeowner for exclusion from excavation activities. A total of approximately 610 c.y. of waste soil was removed from HS-04. Figure 12, Appendix A, provides details on excavation at this property.

3.2.4.4 Excavation Activities – Area D

Excavation and dirt-moving activities were conducted by the ERRS contractor in Area D from June 8 to 27, 2012. The additional characterization sampling discussed in Section 3.2.3.3 and its results were used to define a more limited Area D excavation area encompassing an approximately 500 c.y. stockpile of mine waste, areas with visual surface staining, and all sample locations with either surface or 0 to 1 foot bgs vertical composite soil sample results exceeding 800 mg/kg lead. Areas that did not have visible staining and were located near sample locations where the surface soil sample and the 0 to 12 inch bgs vertical composite sample contained concentrations of lead below 800 mg/kg were not included in the removal area.

The reduced surface removal area was excavated to 1 foot bgs. After initial excavation, post-excavation samples were collected from a75-foot grid at the bottom of the excavation in accordance with the SAP. At the direction of the FOSC, additional excavation to 2 feet bgs occurred where XRF analysis showed lead concentrations exceeded 800 mg/kg lead in two 1 foot bgs confirmation samples. Additional post-excavation samples were then collected from a 75-foot grid at the bottom of the 2 foot bgs excavation area. Two confirmation sample locations were added near the northeast edge of the excavation boundary. Samples were prepared and analyzed on site for lead and arsenic using the XRF analyzer in accordance with U.S. EPA Method 6200 and as described in greater detail in Section 3.2.7. A total of approximately 1,600 c.y. of waste soil was removed from Area D.

The FOSCs determined that areas surrounding grid locations at the north end of Area D that continued to have elevated lead concentrations at depth would be backfilled with clean fill from the Aravaipa borrow area. Furthermore, after an initial potholing investigation utilizing in situ XRF, the FOSCs determined that all other areas in Area D (with post excavation soil sample lead concentrations below 800 mg/kg lead) would be further excavated to generate high clay content material. This material could be mixed with Aravaipa borrow area soil to create a soil blend appropriate for UTP cap augmentation. Excavation occurred at depths up to 15 feet bgs. This material was designated “Area D Clay” and approximately 4,700 c.y. was stockpiled within Area D. Figure 13, Appendix A, provides details on sample locations, removal areas and excavation depths in this area.

3.2.4.5 Excavation Activities – Area A

In October 2013, the FOSC directed ERRS to begin consolidation efforts on the north end of the LTP. Excavation and dirt-moving activities in Area A were conducted from October 14 to 23, 2013. Beginning at the northern tree line where the LTP begins to key into native grade, the

ERRS contractor excavated the top 1 to 4 feet of contaminated tailings and consolidated it onto southern end of the LTP in an effort to shrink the pile footprint. The excavation area was defined based on accessibility (which excluded grubbing) and did not attempt to delineate the edge of contamination. The depth of excavation varied from 1 to 3 feet, with one area of excavation up to 6 feet, and was guided by the visual presence of tailings as judged by color and texture. In areas on the east side of the excavation, potholing revealed that tailings extended more than 10 feet bgs therefore in many instances the vertical extent of contamination was not reached as documented by confirmation sampling. A total of approximately 3,350 c.y. of tailings were removed from Area A. Figure 14, Appendix A, provides details on excavation depths and grading in this area.

3.2.5 Waste Soil Disposal

During the removal work, approximately 6,460 c.y. of waste soil from the residences and other areas of the site were added to the LTP. A summary of the volumes excavated from each area and added to the LTP is included as Table 3-1. In general soil was added to the LTP such that soil with the lowest lead and arsenic concentrations would be at the surface. Material was added to the LTP in 1-foot thick lifts. Each lift of material placed on the LTP was spread by a bulldozer and compacted with a pad foot vibratory compactor. The final lift was graded to ensure maintenance of pre-project surface drainage patterns prior to compaction. Site features and other pertinent information related to the LTP grading are depicted on Figure 14.

Table 3-1: Waste Soil Accounting
Klondyke Tailings Removal, Graham County, Arizona

Removal Area	**Volume Removed to LTP (c.y.)**
Area A	3,350
Area D	1,600
HS-03 Hillside	80
HS-03 yard	430
HS-04 yard	610
HS-05 yard	390
TOTAL	***6,460***

3.2.6 Post Excavation Sampling

Sample collection and analysis in the residential excavation areas was conducted to document soil lead and arsenic concentrations remaining in the soils exposed in the excavation bottoms prior to placement of the clean fill. START collected samples from the bottom of excavations in HS-03 decision units Y1, Y3, Y5 and Y6, HS-04 decision units Y3, Y5, Y6, Y7 and Y8, and HS-05 decision units Y1, Y2, Y5, Y6, Y7 and the garden area. A total of 15 samples and one duplicate sample were collected.

The sampling design for the excavation bottoms at residences is described in the SAP (Appendix E) and was based on the strategy used in the 2010 U.S. EPA removal assessment (E & E 2010a). The samples collected from excavation bottoms were from approximately the same locations and generally retained the same decision unit identifications as those sampled in the 2010 U.S. EPA removal assessment. Decision units were sized such that one soil sample represented approximately 2,500 ft^2. Samples collected from within each decision unit consisted of five aliquots of equal volume that were then composited. Composite sample aliquots were collected

from 0 to 1 inch into the soil using a dedicated plastic scoop and were homogenized in a 1-gallon plastic bag prior to extracting a single composite sample for analysis.

Sample collection and analysis in the on-site excavation areas was conducted to document soil lead and arsenic concentrations remaining in the soils exposed in the excavation bottoms prior to placement of clean fill or final grading. START collected samples from the bottom of each round of excavation in Area D (6 grid locations and two additional locations) and Area A (4 grid locations). A total of 14 confirmation samples were collected.

The sampling design for the excavation bottoms in on-site areas is described in the SAP (Appendix E) as a 75 foot square grid. The samples collected from excavation bottoms were generally from the locations proposed in the SAP that fell within the reduced excavation areas. Samples were collected from discrete grid points from 0 to 1 inch into the soil using a dedicated plastic scoop and were homogenized in a 1-gallon plastic bag.

Once homogenized, all samples were subject to the same XRF preparation and analysis procedures. In some cases, moist soil samples were air-dried on a clean coffee filter prior to sieving. Once the moist sample dried, it was passed through a #60-mesh sieve to remove large particles. Sieved sample material was transferred to a pre-labeled polyethylene cup and covered with mylar film to be analyzed on site for lead and arsenic using the XRF analyzer in accordance with U.S. EPA Method 6200 (U.S. EPA 2007).

3.2.7 XRF Analysis Procedures

START performed XRF analysis on soil samples to allow for real-time analytical data that could be used immediately to make informed decisions at the site. During this field assessment, a total of 141 individual soil samples were analyzed using a field portable XRF unit operated in accordance with the manufacture's guidance and U.S. EPA SW-846 Method 6200, including field duplicates and preparation duplicates. The energy calibration and resolution check analysis, standard reference material sample analysis, control standard sample analysis, and sand blank sample analysis used for XRF calibration, performance, and quality control are discussed in the SAP.

Standard reference materials used for XRF calibration were obtained from the National Institute of Standards and Technology (NIST) and referenced as NIST 2702, NIST 2711, or NIST 2781 when analyzed. Once calibrated, a sand blank sample was analyzed to evaluate instrument performance.

All XRF sample analyses were performed in the intrusive mode with a 180-second count time for measurement within a designated field laboratory (U.S. EPA Method 6200, 2007). Lead and arsenic concentrations were recorded on the site XRF field data sheets. Lead and arsenic concentrations for soil samples analyzed by XRF and laboratory methods are presented in the tables in Appendix H.

3.2.8 Dust Monitoring

Prior to the commencement of excavation during the October 2013 mobilization, the START set up two DataRAM4 aerosol monitoring devices at the perimeter of the work zone. The air

monitor ran approximately 4 hours to establish background respirable particulate concentrations in ambient air.

The START performed either perimeter air monitoring with DataRAM4^{TM} aerosol monitors that measure PM10 respirable dust or total particulate monitoring with a personal Data RAM ^{TM} (pDR)-1000 monitor during activities that had the potential to generate contaminated dust. Each day of earthwork (e.g. excavation, import and spreading of cap material, etc.), the START located air monitors such that at least one device was located upwind, downwind and crosswind at the site boundary. Additionally, when relevant, the START set up one monitor in close proximity to the residence to monitor exposure to residents. The START relocated these air monitors as needed to accommodate shifting wind direction and work zone areas. Additionally, pDRs were occasionally placed within the immediate work zone.

In general, immediately prior to the start of work each day, the DataRAM4^{TM} monitors were turned on and then initialized (internal zeroing process) and the pDR-1000 monitors were manually zeroed prior to being deployed at the site. The START then set the air monitors in place in the field and started the monitoring. The START turned off and purged the monitors after a monitoring period typically lasting 8 to 10 hours. The START periodically downloaded and reviewed the data for 15-minute maximum time weighted averages (TWAs) to determine compliance with site specific action levels. The calculated 15-minute TWA action levels for total dust based on maximum detected concentrations of lead and arsenic in the soil were 0.83 milligrams per cubic meter (mg/m^3) in industrial areas of the site and 1.47 mg/m^3 near the residences. The action level for PM10 at the perimeter of the site was 0.15 mg/m^3. This standard is based on the U.S. EPA's National Ambient Air Quality Standard (NAAQS) for PM10 (U.S. EPA 2012).

Though there were instantaneous readings of concentrations above the respective action levels, all time weighted averages for PM10 were below the NAAQS for PM10 and all 15-minute TWAs for total dust were below site action levels with one exception on June 7, 2012. The exception occurred when the ERRS contractor was removing the existing mine waste stockpile from Area D. All workers were in enclosed air conditioned cabs and the air monitors were placed at the edge of the work zone, in close proximity to earth moving activities, rather than at the site perimeter. Despite the one possible exception, these results indicate that no unacceptable exposures occurred to workers or the general public. Daily average and maximum dust levels are presented in Appendix I. Based on air monitoring results obtained during the project, and because all contaminated areas were capped, the U.S. EPA determined on October 25, 2013, that air monitoring was no longer necessary and monitoring activities ceased.

3.2.9 Geotechnical Sampling and Analysis

To support construction design and construction quality, a series of geotechnical samples were collected from materials on site prior to and during the removal action. Table 3-2 below summarizes the geotechnical samples collected to support this removal action. Results are presented in Appendix G and many are interpreted in Appendix J.

Table 3-2: Summary of Geotechnical Samples
Klondyke Tailings Removal, Graham County, Arizona

Sample Name	Material and/or Location Description	Laboratory	Date Submitted	Particle Size (D422)	Atterburg Limits (D4318)	Modified Proctor (D1557)	Standard Proctor (D698)	Saturated Hydraulic Conductivity (D2434)	Percent Organic Matter (D2974)	Moisture Retention Characteristics(D6836)	Moisture Content (D2216 and D4318)
KRB1	Aravaipa Borrow Area	DBSA	Mar-12	X	X	X		X	X	X	X
100% Area D	Area D Clay Stockpile		Oct-12	X							
K-cap 1:2	Bench scale blends for cap augmentation (ratio specifies Area D Clay to 1.5-inch minus from Aravaipa Borrow Area)		Nov-12	X	X	X		X	X	X	X
K-cap 1:3											
K-cap 1:4											
K-cap 2:3											
Area D Clay	Area D Clay Stockpile	Speedie & Associates	Oct-13	X	X	X		X			
UTP-Cap	UTP cap imported by ADEQ in 2008			X	X		X				X
KLONDYKE 2:3 BLEND #1	Stockpile of 2:3 blend cap augmentation material (2 parts Area D Clay, 3 parts 1.5-inch minus from Aravaipa Borrow Area)			X	X		X				X
KLONDYKE 2:3 BLEND #2							X				
KLONDYKE 2:3 BLEND #3							X				

(D###) = American Society for Testing and Materials (ASTM) method number
UTP = Upper Tailings Pile
DBSA = Daniel B. Stephens and Associates, Inc. in Albuquerque, NM
Speedie & Associates = Speedie and Associates, Inc. in Phoenix, AZ

3.2.10 Generation of Backfill and Cap Material

During the course of the removal action, START collected 23 samples (including two duplicates) from stockpiles of the various backfill material stockpiles for analysis of lead and arsenic by XRF analysis, seven samples of the various backfill materials were submitted for laboratory analysis and five of these samples were analyzed for a full list of metals. Analytical results are discussed in Section 4.3. The following Table 3-2 describes the various materials excavated and processed on site as well as the minimal amounts of imported material. The material stockpiles that remained on site are depicted in Figure 15, Appendix A.

Table 3-3: Backfill Materials Generated/ Delivered and Quantities Remaining On Site
Klondyke Tailings Removal, Graham County, Arizona

Material Name	**Source**	**Approximate Quantity Produced or Delivered (c.y)**	**Areas of Application**	**Approximate Volume Remaining (c.y.)**
1.5-inch Minus	Aravaipa Borrow Area, specified sizes generated through screen plant processing	9,100	75% to 100% of residential backfill, 60% of 2:3 blend	3,900
2 to 4 inch gravel		1,100	None	1,100
4 to 8 inch rock		760	None	760
unscreened backfill		5,825	Area D	0
mulch amendment	GrowWell/Western Organics in Phoenix	80	Up to 25% of residential backfill	0
Area D Clay	Area D subsurface soils	4,700	40% of 2:3 blend	2,100
2:3 blend	mix of 2 parts Area D clay and 3 parts 1.5-inch minus	6,500	UTP cap augmentation	80

3.2.11 Excavation Backfill and Restoration Activities

3.2.11.1 Residential Excavation Backfill and Restoration Activities

After the removal of contaminated soils from the residential yards, the U.S. EPA restored the yards to a condition mutually agreed upon between the homeowner and U.S. EPA FOSC. The excavations at HS-03, HS-04, and HS-05 were generally backfilled to grade with 1.5-inch minus material in driveways and a blend of 75 percent 1.5-inch minus material 25percent amended mulch product in landscaped and garden areas. Excavations were backfilled to grade and driveway areas were compacted with a smooth drum roller. Figures 10 through 12, Appendix A, provide excavation and restoration details.

The SAP called for sampling of residential backfill material at a frequency of once per front and back yard. In addition to the five samples collected from the 1.5 inch minus stockpile, four samples were collected after placement of residential backfill material (HS-03-BF-SIDE, HS-03-BF-BACK, HS-04-BF-SIDE, and HS-04-BF-BACK). All samples were analyzed for lead and arsenic by on-site XRF analysis.

Following backfill activities, areas at HS-03 that received the amended backfill were seeded with a mulch, straw, seed and tackifier mixture that was hydraulically applied by Desert Seeders, LLC of Casa Grande, Arizona under an ERRS subcontract. A native seed mix similar to that applied to the UTP was used with the exception of a few seeds that were requested to be removed from the mixture by the homeowner. See Appendix K for seed and mulch specifications and certificates. At the request of the homeowner, all areas of HS-04 were backfilled as driveway.

On November 5, 2012, the U.S. EPA conducted final site inspection of HS-03 with the property owners and they indicated that they were satisfied with the restoration of their property. On November 1, 2012, the U.S. EPA conducted final site inspection of HS-04 with the property owner and he indicated that he was satisfied with the restoration of the property.

3.2.11.2 Area D Excavation Backfill and Restoration Activities

At the conclusion of the June 2012 removal activities, the generation of Area D clay was complete and the entire area was backfilled with approximately 5,800 c.y. of unscreened material from the Aravaipa borrow area. The material was placed in lifts and compacted.

At the conclusion of November 2013 removal activities, the area was graded to prevent surface flow toward the UTP. An approximately 2,130 c.y. stockpile of Area D clay and an approximately 80 c.y. stockpile of the 2:3 blend remain in Area D.

3.2.11.3 Area A and LTP Restoration Activities

At the conclusion of consolidation activities, the Area A excavation was graded evenly at approximately 0.5 percent slope toward the northwest to approximate pre-removal surface runoff conditions. A berm was constructed of Area D clay to the northeast of the excavation area to divert surface water from the north from entering the excavation area. Approximately 60 c.y. of 1.5-inch minus material were required to bring the eastern edge of the excavation up to grade.

On October 12, 2013 the ERRS contractor deepened the existing depression south of the LTP in order to build a containment basin to flush the site well. Earlier that day, the water from the site well was observed to contain an oily residue and floating fibers. Allen Pump arrived on site and serviced and flushed the well, resolving the issue. Once the containment basin dried, the ERRS contractor excavated approximately twenty truckloads from the berms and the bottom of the basin up onto the LTP. Following this removal, the now deepened basin was evenly graded into a bowl shape. This sedimentation basin is intended to capture tailings that may erode off of the steep southern face of the LTP and prevent them from entering Aravaipa Creek.

Waste soil was added to the LTP as discussed in Section 3.2.5. The existing approximately 2 foot high berm wrapping around the southern half of the top of the LTP was reconstructed and the top of the pile was graded toward the center at an approximately 2 percent slope to limit surface runoff down the steep side slopes of the pile. A small berm was reconstructed on the LTP access ramp to deter recreational vehicles that may enter the site from accessing the top of the pile.

3.2.11.4 UTP Restoration Activities

In June of 2012, the top 12 to 18 inches of the clean clay cap that ADEQ installed on the UTP in 2008 was removed by the ERRS contractor and stockpiled in windrows on top of the UTP to allow for proposed addition of residential removal soils. The disposal location for residential

removal soils was subsequently changed to the LTP. Therefore, the UTP cap was replaced without the addition of any waste soil and augmented with additional cap material.

The UTP restoration activities included replacement of the portion of the cap that was stripped in June 2012, augmentation of the cap with additional 2:3 blend material (as outlined in Appendix J), and the application of hydroseed, mulch, and straw.

Prior to placing any cap material, the ERRS contractor prepared the existing surface of the UTP by moisture conditioning and compacting. On October 15, 2013 Souder Miller & Associates, a licensed surveyor, brought in the survey control points from the URS As-Built drawings and marked cut/fill to final cap surface. The ERRS contractor moisture conditioned the windrowed original UTP cap material and replaced it in two approximately 8-inch loose lifts. Each lift was compacted with a vibratory pad foot roller and a smooth drum roller then tested by a field technician from Speedie and Associates.

After an on-site meeting with ADEQ, augmentation of the UTP cap with the blend of two parts Area D Clay to three parts 1.5-inch minus material began on October 24, 2013. As the material from the blended stockpile was loaded into haul trucks for transport to the UTP, a 5-point composite sample was collected every 20 truckloads (approximately every 500 c.y.) for analysis of lead and arsenic by on-site XRF analysis. This material was applied as a single lift with a 24-inch lift thickness at the UTP ridgeline that tapered down to meet the top of the gabions. This final lift was graded and compacted, then tested by a field technician from Speedie and Associates. Field compaction testing was performed according to American Society for Testing and Materials (ASTM) D1556/ASTM D3017 (nuclear densometer) and ASTM D4718 (sand cone) on October 17, October 21, and October 31, 2013 and compared to laboratory analysis of either UTP-Cap or KLONDYKE 2:3 BLEND #1. All compaction field tests achieved greater than 85 percent maximum dry density as required by construction specifications. See Appendix L for compaction field testing results.

Upon completion of final grading and compaction, the land surveyor returned to conduct an As-Built survey of the UTP cap surface on a 50-foot grid spacing. The generated drawing is included as Appendix M and shows that specified uniform 3 to 5 percent grades were achieved.

Upon completion of the As-Built survey, the cap was prepared for seed application according the original construction specifications from the 2008 ADEQ action. The cap surface was moisture conditioned and ripped to a depth of approximately 6 inches. An attempt was made to break up large clods that formed during this process. On November 5, 2013 Desert Seeders, LLC hydraulically applied a seed, mulch, straw, and tackifier mixture that complied with the original construction specifications from the 2008 ADEQ construction. Seed was applied first and immediately followed by a separate application of mulch, tackifier, and straw. Seed specifications and certificates are provided in Appendix K.

4 Analytical Results

The field and laboratory analytical results of the removal assessment and removal action sampling at the Klondyke Tailings Removal site are discussed below. A total of 141 samples, including 13 field duplicates, were analyzed in the field for lead and arsenic by XRF Analysis by U.S. EPA Method 6200. Approximately 23 percent of these samples (32 samples, plus two duplicates) were submitted for laboratory analysis of lead and arsenic by U.S. EPA Method 6010B. Sample results tables are presented in Appendix H.

4.1 Correlation Between XRF and Laboratory Analytical Results for Lead and Arsenic

START used the least-squares regression method to compare the field and laboratory data for lead and arsenic. The sum of squared residuals value (R^2) of 0.995 for lead in soil (or 0.988 if samples with results greater than 2,000 mg/kg lead were removed from the regression) is considered an excellent correlation. The R^2 value of 0.873 for arsenic in soil (or 0.740 if samples with results greater than 1,000 mg/kg arsenic are removed from the regression) is lower than the lead correlation but above the minimum acceptable R^2 value of 0.70. XRF data was considered suitable for use for the field detection of lead and arsenic given that the R^2 values for lead and arsenic had an acceptable correlation to laboratory data. Figures 16 and 17(Appendix A) present graphs depicting the relationships between the results of laboratory and XRF analysis methods for lead with and without samples with results above 2,000 mg/kg lead. Similarly, Figures 18 and 19 (Appendix A) present graphs depicting the relationships between the results of laboratory and XRF analyses for arsenic with and without samples with results above 1,000 mg/kg arsenic.

4.2 Soil Sampling Analytical Results

As discussed in Section 4.1, laboratory data was used to determine the suitability of field generated XRF data. However, because laboratory data is not available for all samples, the discussion in this section focuses on data generated in the field using the XRF analyzer.

4.2.1 HS-05 Sampling Results

On June 14, 2012, an additional decision unit was added to HS-05. The 5-point surface soil composite sample H5-Y7-COMP collected from new decision unit (Y7) had a lead concentration of 880 mg/kg, which is above the home site action level of 800 mg/kg. Concentrations of lead documented in drip line samples were all below the action level and arsenic concentrations were below the detection limits of the XRF analyzer. Therefore decision unit Y7 was added to the removal area for the property and the drip line was not included in the excavation area. Additional characterization sample results for residences are presented in Table 1, Appendix H, and proposed excavation areas for HS-05 are depicted in Figure 6.

Composite soil samples were collected from the bottoms of all excavated decision units: Y1, Y2, Y5, Y6, Y7 and the garden area. The XRF field analytical result from decision unit Y2 exceeded the action level of 800 mg/kg lead with a concentration of 1,300 mg/kg. All other decision unit

sample results ranged from 170 to 560 mg/kg lead and had arsenic concentrations below the detection limit of the XRF analyzer. Post-excavation soil analytical results for residences are presented in Table 2, Appendix H.

4.2.2 HS-03 and HS-03 Hillside Sampling Results

From June 9 through 13, 2012 an assessment of soils surrounding historic smelter features on the hillside upgradient of HS-03 was conducted. Within the study area, lead concentrations ranged from 750 to 62,000 mg/kg and arsenic concentrations ranged from below the detection limit of the XRF analyzer to 1,200 mg/kg. Results of this additional characterization sampling are presented in Table 1, Appendix H. Although sample results indicated that a majority of the hillside was above the home site action level for yard cleanup of 800 mg/kg, limited equipment access, concerns about slope stability, and a request from the property owner that no vegetation be disturbed defined the scope of feasible remedial options. Figure 11 depicts the removal area, which consisted of the pile of fine grained material at the top of the hillside near sample location SH-01-00, which had a soil lead concentration of 30,000 mg/kg and concentrations of arsenic below the detection limit of the XRF.

Following removal of this pile from the hillside, two discrete samples were collected from the excavation area. These samples had lead concentrations of 790 and 18,000 mg/kg lead and arsenic concentrations below the detection limit of the XRF analyzer. In the yard of HS-03, composite soil samples were collected from the bottoms of all excavated decision units: Y1, Y3, Y5 and Y6. Confirmation sample results for lead ranged from 120 to 510 mg/kg, and results for arsenic ranged from below the detection limit of the XRF analyzer to 11 mg/kg. Two discrete soil samples of the backfill material were collected after placement from the side yard and the back yard. Lead was detected at a maximum concentration of a 33 mg/kg and arsenic at a maximum of 5 mg/kg. Post-excavation soil analytical results from the residences are presented in Table 2, Appendix H.

4.2.3 HS-04 Sampling Results

Composite soil samples were collected from the bottoms of all excavated decision units: Y3, Y5, Y6, Y7, and Y8. Confirmation sample results for lead ranged from 140 to 220 mg/kg, and results for arsenic were all below the detection limit of the XRF analyzer. Two discrete soil samples of the backfill material were collected after placement from the side yard and the back yard. The backfill consisted of 1.5-inch minus material and had lead concentrations ranging from 24 to 29 mg/kg and arsenic concentrations below the detection limits of the XRF analyzer. Post-excavation soil analytical results from the residences are presented in Table 2, Appendix H.

4.2.4 Area D Sampling Results

A summary of data generated from the additional characterization activities in Area D is included in Table 3 in Appendix H and is depicted on Figure 8, Appendix A.

- The sample collected from an existing stockpile in Area D had a lead concentration of 6,200 mg/kg, which is above the industrial area action level of 800 mg/kg lead.
- START collected nine surface soil samples and eight vertical composite samples (from 0 to 12 inches bgs) from sample grid locations in Area D. Surface soil concentrations ranged from 440 to 1,200 mg/kg lead and all arsenic concentrations were below the detection limit of the XRF analyzer. Subsurface soil XRF analysis results at the eight grid locations sampled in Area D ranged from 100 to 2,900 mg/kg lead and from below the

detection limit of the XRF analyzer to 19 mg/kg arsenic. When the two data sets were overlaid, two grid locations had both surface and subsurface soil concentrations of lead and arsenic below the site action levels and were excluded from the removal area.

- In June of 2012, limited surface soil sampling was conducted in Area C. The four samples collected had soil lead concentrations ranging from 2,700 mg/kg to 59,000 mg/kg, which were all above the action level of 800 mg/kg. However, it was later determined that Area C was not within the scope of this removal and only minimal areas were included in the removal area to allow for easy access to the ramp on the UTP.
- Sample AD-CLAY-48 was collected to determine if subsurface soils in Area D may be appropriate cap amendment material. The sample had a lead concentration of 86 mg/kg and an arsenic concentration below the detection limit of the XRF analyzer.

Based on Area D characterization sampling results, a reduced surface removal area was excavated to 1 foot bgs. After initial 1 foot bgs excavation, eight post-excavation discrete soil samples were collected from the bottom of the excavation. Two samples (AD-49-12 and AD-53-12) had concentrations of lead greater than the action level of 800 mg/kg lead. At the direction of the FOSC, additional excavation to 2 feet bgs occurred around these two sample locations. Additional post-excavation samples were then collected from the bottom of the 2 foot bgs excavation area. One sample (AD-49-24) still exceeded the action level with a lead concentration of 2,200 mg/kg. This area was subsequently backfilled with clean fill, while other portions of Area D were excavated to generate clay material for UTP cap augmentation. Post-excavation sampling results for on-site areas are presented in Table 4, Appendix H.

4.2.5 Area A Sampling Results

On October 14, 2013 ten surface soil samples and two duplicates were collected from Area A to document concentrations of lead and arsenic at the surface prior to consolidation efforts in the area as discussed in Section 3.2.4. Lead concentrations ranged from 2,300 to 8,700 mg/kg and arsenic concentrations ranged from below the detection limit of the XRF analyzer to 200 mg/kg. Results are presented in Table 3, Appendix H.

Following the consolidation efforts in Area A, 4 discrete soil samples were collected from the bottom of the excavation to document concentrations of lead and arsenic left in exposed surface soils. Lead concentrations ranged from 920 to 4,800 mg/kg, and arsenic concentrations ranged from below the detection limit of the XRF analyzer to 69 mg/kg. Post-excavation sampling results for on-site areas are presented in Table 4, Appendix H.

4.3 Backfill Material Stockpile Sampling Analytical Results

During the course of the removal action, START collected 27 samples (including three duplicates) from stockpiles of the various backfill material stockpiles for analysis of lead and arsenic by XRF analysis, seven samples of the various backfill materials were submitted for laboratory analysis. All samples of backfill material had concentrations of lead or arsenic below the site specific action levels for backfill soil of 24 mg/kg arsenic or 400 mg/kg lead specified in the Work Plan. Results are presented in Table 5, Appendix H. A subset of five of these samples of backfill materials that remained on site were submitted to the EPA R9 Lab for a full list of metals by EPA Method 6010B/7471A. Results are available in Table 6, Appendix H.

5 Data Quality

A review of START's data validation and a discussion of quality assurance and quality control (QA/QC) issues are presented below. Data were found to be usable to meet project objectives. Complete laboratory analytical reports and START data validation reports are included in Appendix N.

5.1 START Analytical Data

A Tier II data validation was performed by a START chemist on all laboratory data generated during this removal at both GEL Lab and EPA R9 Lab. Except for one batch of five samples where the serial dilution analysis for arsenic exceeded the control limit of 10 percent, all data were considered acceptable for use as definitive level data without qualification. Arsenic concentrations in the sample group where the serial dilution exceeded the control limit were considered estimates (marked with a J-flag). Data validation reports are presented in Appendix N.

5.2 Field QA/QC Samples

5.2.1 Duplicate Samples

Field duplicates and preparation duplicates were prepared by collecting and homogenizing a sample, then splitting it prior to sieving and preparation of XRF cups. A total of 13 field and preparation duplicate samples were prepared and analyzed during this removal action equating to approximately 9 percent of all samples. No field duplicates had an RPD exceeding the threshold value of 35 percent of the original sample.

As part of the XRF QA/QC procedures, a preparation duplicate or an analytical duplicate was each run once every twenty samples in an alternating pattern such that there was either a preparation or an analytical duplicate every ten samples. An analytical duplicate consisted of running the same sample twice. No analytical duplicates had an RPD exceeding the threshold value of 25 percent of the original sample.

5.2.2 Blanks

In general an instrument blank was run at the beginning of each batch and once every ten samples thereafter. All prepared sand blanks resulted in lead and arsenic concentrations below the detection limit of the XRF analyzer. Sand blank data suggests that decontamination procedures during XRF sample preparation appear to have been adequate and are unlikely to have resulted in cross-contamination between samples.

5.3 Laboratory QA/QC Samples

QA/QC samples were collected to assess sample variability. Matrix spike/matrix spike duplicate samples were submitted to the laboratory and were evaluated as part of data validation procedures.

5.3.1 Duplicate Samples

Field duplicate samples were collected to evaluate field sampling procedures at a rate of approximately one duplicate sample for every 17 samples, which was a deviation from the SAP. One duplicate was submitted to GEL Lab and one duplicate was submitted to EPA R9 Lab for lead and arsenic analysis. Relative percent difference for field duplicate samples ranged from 3 to 12 percent for arsenic and from 6 to 7 percent for lead, which is within the control limit of 35 percent. For analytical batches that did not include a field duplicate, a laboratory duplicate was analyzed. Three laboratory duplicates were analyzed by GEL Lab for lead and arsenic. Relative percent difference for laboratory duplicate samples ranged from 0 to 1 percent for arsenic and from 0 to 2 percent for lead, which is within the control limit of 35 percent. Additional information on duplicate samples can be found in the data validation reports located in Appendix N.

5.3.2 Rinse Blank Samples

A total of two daily rinse blanks were collected by START to evaluate whether contaminants could have been transferred between samples on decontaminated collection surfaces of non-dedicated sampling equipment. The rinse blank was collected by pouring distilled water over the decontaminated sample collection device (hand auger) and collecting the water in a nitric acid preserved plastic bottle. The rinse blanks were submitted to GEL Lab for analysis of lead and arsenic by U.S. EPA Method 6010B. In one rinse blank sample, lead was detected above the method detection limit of 3.3 µg/L with a result of 3.32 ug/L, however this concentration was below the practical quantitation limit. Decontamination procedures for site activities appear to have been adequate and are unlikely to have resulted in cross-contamination between samples.

6 Summary

Removal activities at the Klondyke Tailings Removal site and residences were conducted by the U.S. EPA during May and June of 2012 and October and November of 2013. Approximately 1,500 c.y. of surface soils with elevated concentrations of lead and arsenic were excavated from three residential yards and added to the LTP as temporary cap material. Concentrations of lead and arsenic left in place at the residences were documented and the properties were backfilled and seeded as described herein. Approximately 5,000 c.y. of surface soil were excavated from several on site areas and consolidated onto the LTP. At the time of this report it is anticipated that ADEQ will conduct more permanent capping and stabilization of the LTP.

The UTP cap was reinstalled according to the construction specifications used by ADEQ in 2008, then augmented with an additional layer of the blend of materials generated on site. Clay material in Area D was determined to be useable cap augmentation material and was blended with material from the Aravaipa borrow area then used to augment the UTP cap. Several material stockpiles generated by the U.S. EPA removal action remain on site. This report concludes the U.S. EPA interim action at this ADEQ WQARF site.

7 Report References

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Appendix A:
Figures

Basemap Source: ESRI World Street Map

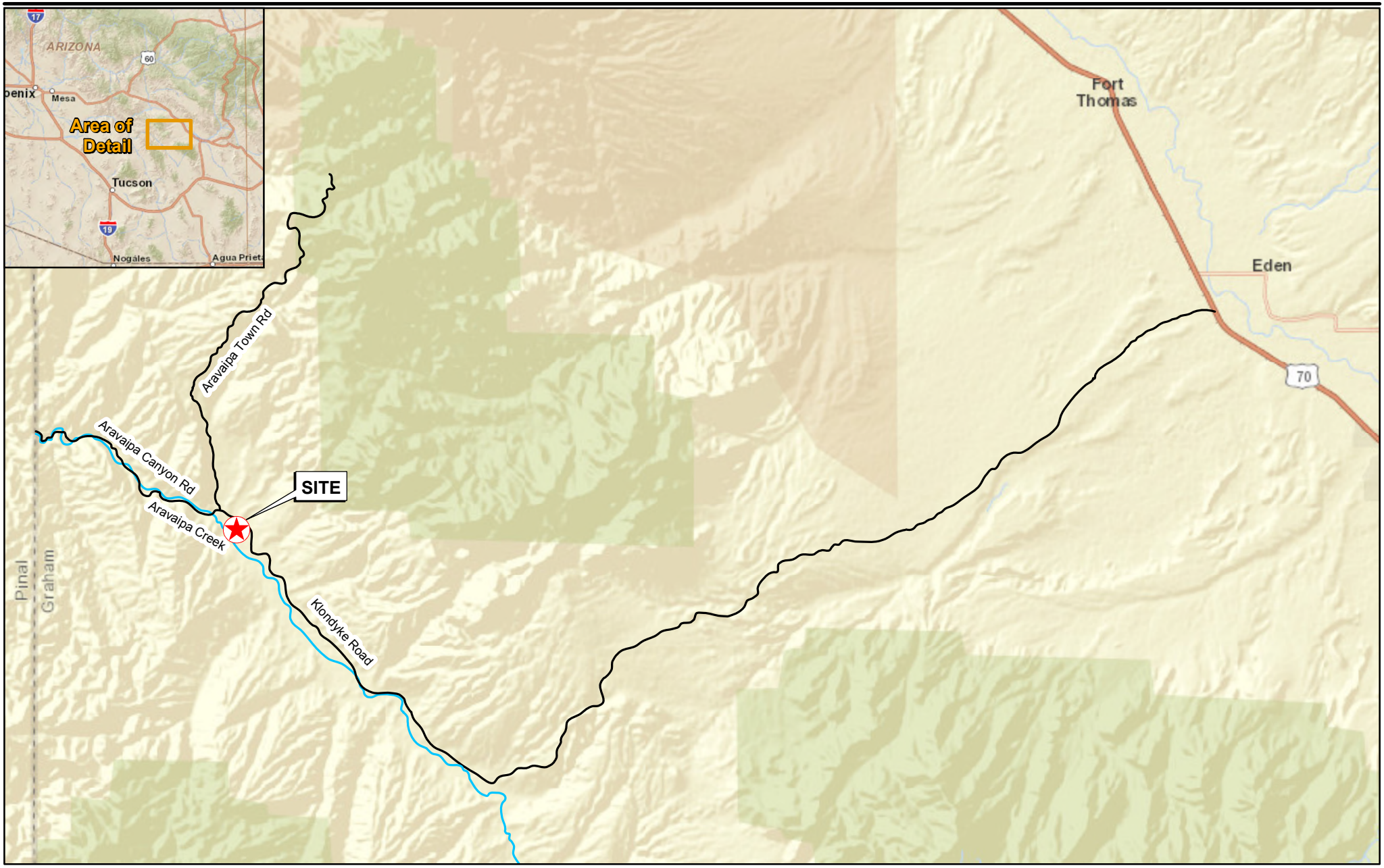

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Figure 1

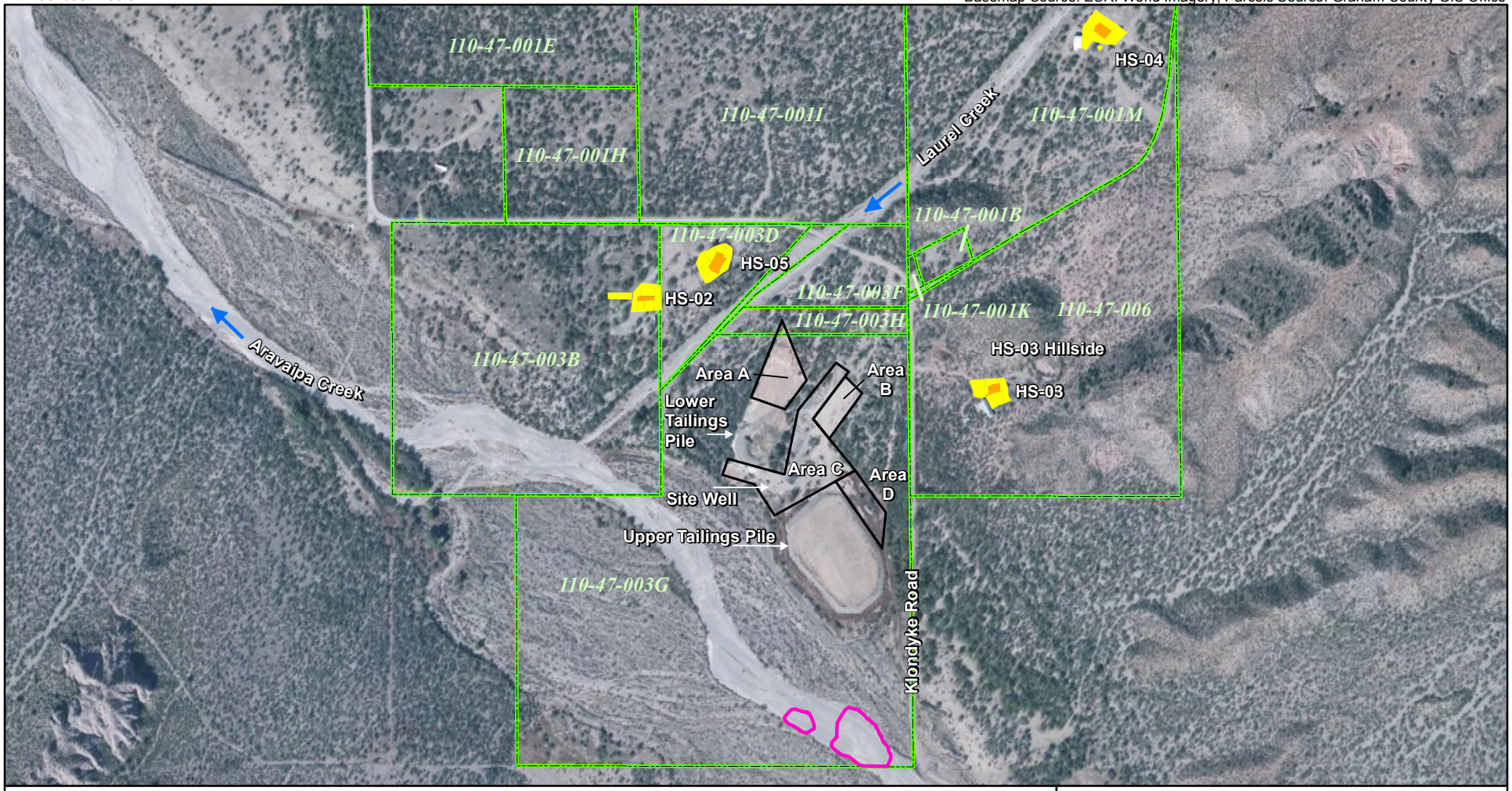
Site Vicinity
Klondyke Tailings Removal
Graham County, Arizona 85643

N

0 4 8 Miles

TDD No. TO-02 09-11-09-0001
PAN 002693.2156.01RF

Basemap Source: ESRI World Imagery, Parcels Source: Graham County GIS Office



LEGEND

- Aravaipa Borrow Area
- Homesites and Surrounding Yards and Gardens (HS-## = homesite designation)
- Graham County Assessor's Parcel Boundary
- 110-47-003G — Graham County Assessor's Parcel Number
- Direction of Flow

N

0 700 1,400 Feet

Figure 2

Site Features
Klondyke Tailings Removal
Graham County, Arizona 85643

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TDD No. TO-02 09-11-09-0001
PAN 002693.2156.01RF

Basemap Source: ESRI World Imagery

LEGEND

- Sample area, no excavation proposed
- Proposed Excavation Area
- Decision unit area
- Assessment area perimeter

ABBREVIATIONS

Y1 Indicates yard section number 1 composite sampling area

G1 Indicates garden section number 1 composite sampling area

N

0 50 100 Feet

NOTE:
Green = lead below 400 mg/kg investigation level
Red = lead above 400 mg/kg investigation level

Figure 3
Homesite HS-02
Site Features
Klondyke Tailings Removal
Graham County, Arizona 85643

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PAN 002693.2156.01RF

Basemap Source: ESRI World Imagery

LEGEND

- Sample area, no excavation proposed
- Proposed Excavation Area
- Decision unit area
- Assessment area perimeter

ABBREVIATIONS

Y1 — Indicates yard section number 1 composite sampling area

N

0 50 100 Feet

NOTE:
Green = lead below 800 mg/kg investigation level
Red = lead above 800 mg/kg investigation level

Figure 4
Homesite HS-03 Site Features
Klondyke Tailings Removal
Graham County, Arizona 85643

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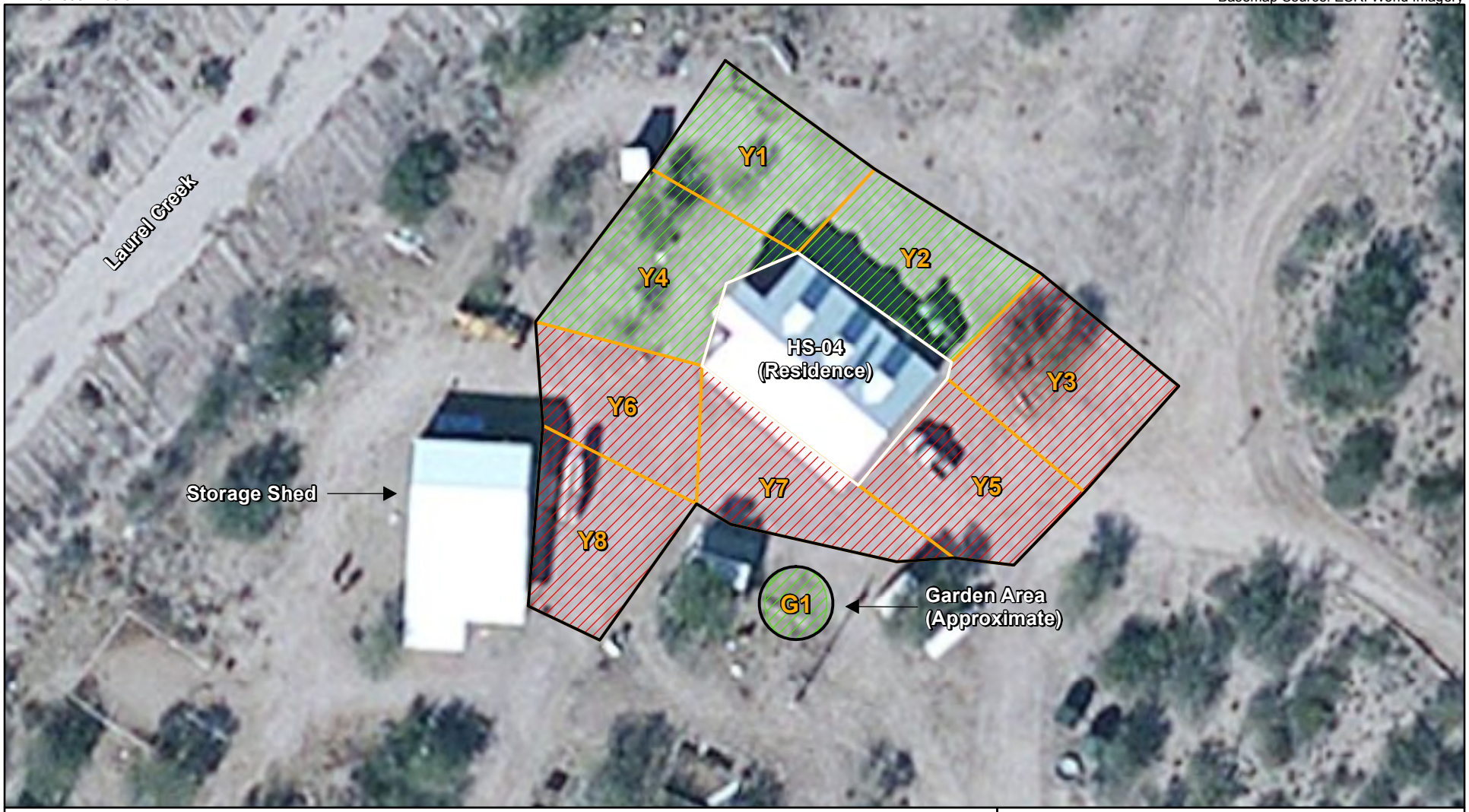
Basemap Source: ESRI World Imagery



LEGEND

- Sample area, no excavation proposed
- Proposed Excavation Area
- Decision unit area
- Assessment area perimeter

ABBREVIATIONS

- Y1 Indicates yard section number 1 composite sampling area
- G1 Indicates garden section number 1 composite sampling area

N

0 50 100 Feet

NOTE:
Green = lead below 400 mg/kg investigation level
Red = lead above 400 mg/kg investigation level

Figure 5
Homesite HS-04
Site Features
Klondyke Tailings Removal
Graham County, Arizona 85643

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Project No.: 002693.2156.01RF

Basemap Source: ESRI World Imagery

LEGEND

- Sample area, no excavation proposed
- Proposed Excavation Area
- Decision unit area
- Assessment area perimeter

ABBREVIATIONS

Y1 Indicates yard section number 1 composite sampling area

G1 Indicates garden section number 1 composite sampling area

N

0 50 100 Feet

NOTE:
Green = lead below 800 mg/kg investigation level
Red = lead above 800 mg/kg investigation level

Figure 6
Homesite HS-05
Site Features
Klondyke Tailings Removal
Graham County, Arizona 85643

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TDD No.: TO-02-09-11-09-0001
Project No.: 002693.2156.01RF

Basemap Source: ESRI World Imagery

LEGEND

Samples from multiple depths at the same point overlap with the following symbology (28 unique locations):

- Surface Discrete Sample Location (n=24)
- 6 in bgs Discrete Sample Location (n=3)
- 12 in bgs Discrete Sample Location (n=2)
- 24 in bgs Discrete Sample Location (n=1)

in = inches
bgs = below ground surface
XRF = X-ray fluorescence

XRF Results for Lead (mg/kg)

- 291 - 400
- >400 - 800
- >800 - 1,200
- >1,200 - 30,000
- >30,000 - 60,000
- >60,000

- Area contains apparent mine waste or historic smelter features
- 2010 Residential Assessment Area Perimeter
- Decision Unit Area

Figure 7

Homesite HS-03 Hillside Assessment XRF Sampling Results for Lead in Soil Klondyke Tailings Removal

Graham County, Arizona 85643

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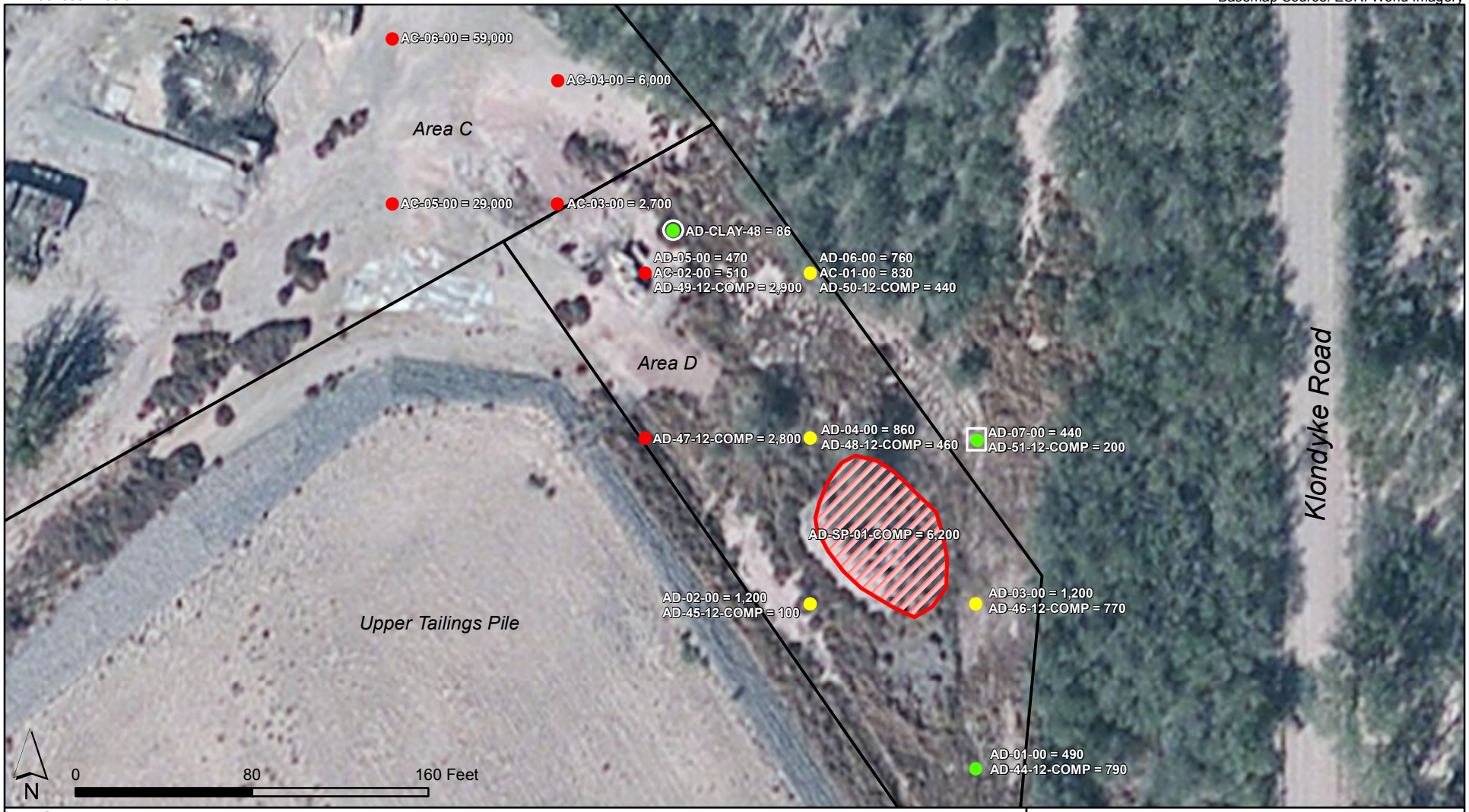
TDD No. TO-02 09-11-09-0001
PAN 002693.2156.01RF

Basemap Source: ESRI World Imagery



LEGEND

Maximum Lead Concentration Detected (mg/kg) using XRF analyzer operated in accordance with US EPA Method 6200

- 86 - 800
- 801 - 1,600
- 1,601 - 59,000

} *Discrete sample location from 75' confirmation sampling grid in SAP Labeled with Sample ID (e.g. AD-01-00) and Result*

Stockpile of material of unknown origin, AD-SP-01-COMP collected as a 5 point composite

Area Boundaries

(Outline) Discrete sample location added in the field to extend grid across all unvegetated areas XRF = X-ray fluorescence

(Outline) 5 point composite of material in excavator bucket collected from 4 feet below ground surface

NOTES

Samples with IDs formatted as "AD-##-12-COMP" are vertical composite soil samples from 0 to 12 inches below ground surface from a single core. All other samples are discrete surface soil samples.

Figure 8

Areas C and D Assessment Sample Locations Klondyke Tailings Removal

Graham County, Arizona 85643

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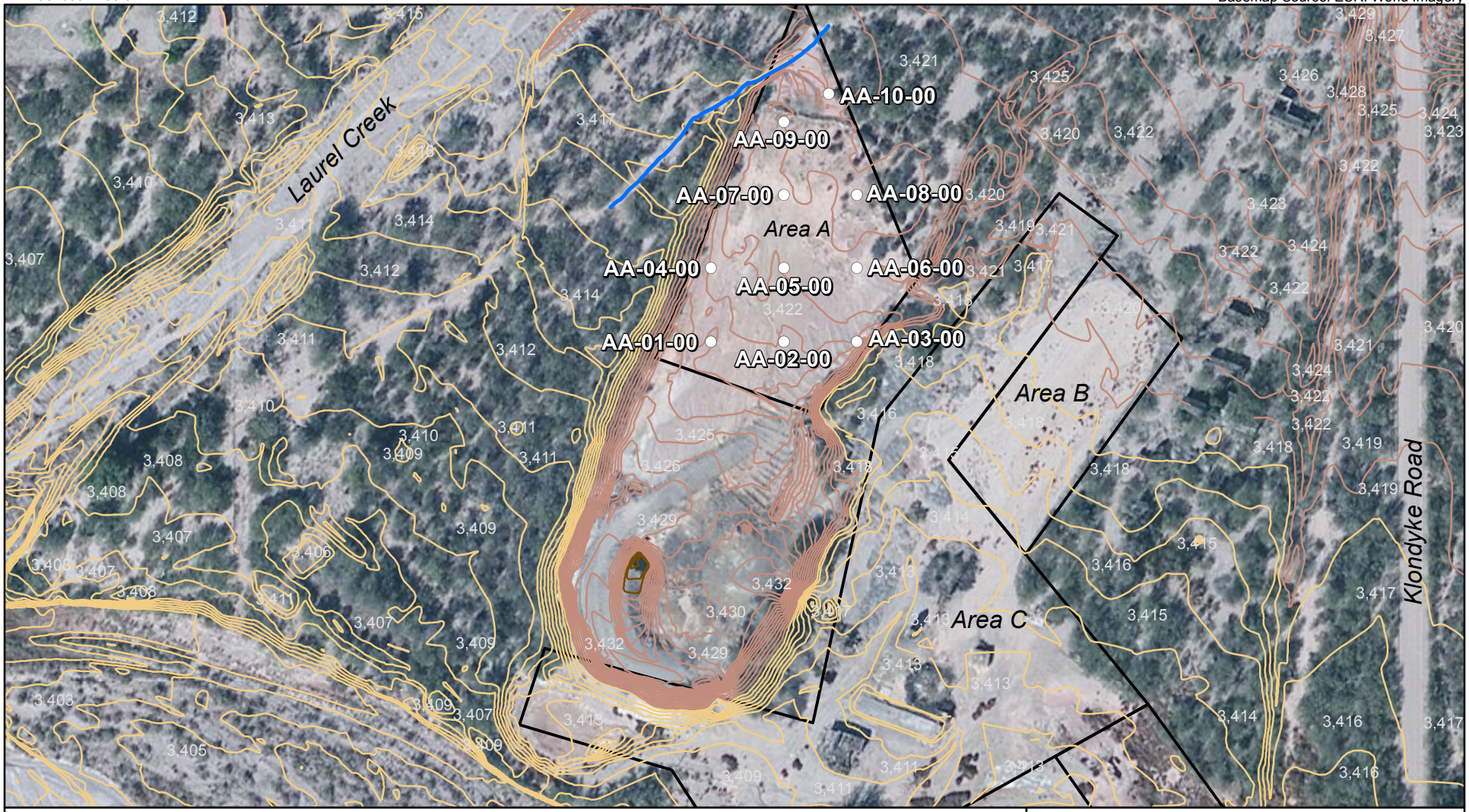
Basemap Source: ESRI World Imagery



LEGEND

- Assessment Sample Locations
- Existing drainage

Elevation in Feet Above Mean Sea Level

- 3,399 - 3,418
- 3,419 - 3,438
- 3,439 - 3,661
- Area Boundaries

N

0 250 500 Feet

Figure 9

Area A Assessment Sample Locations Klondyke Tailings Removal

Graham County, Arizona 85643

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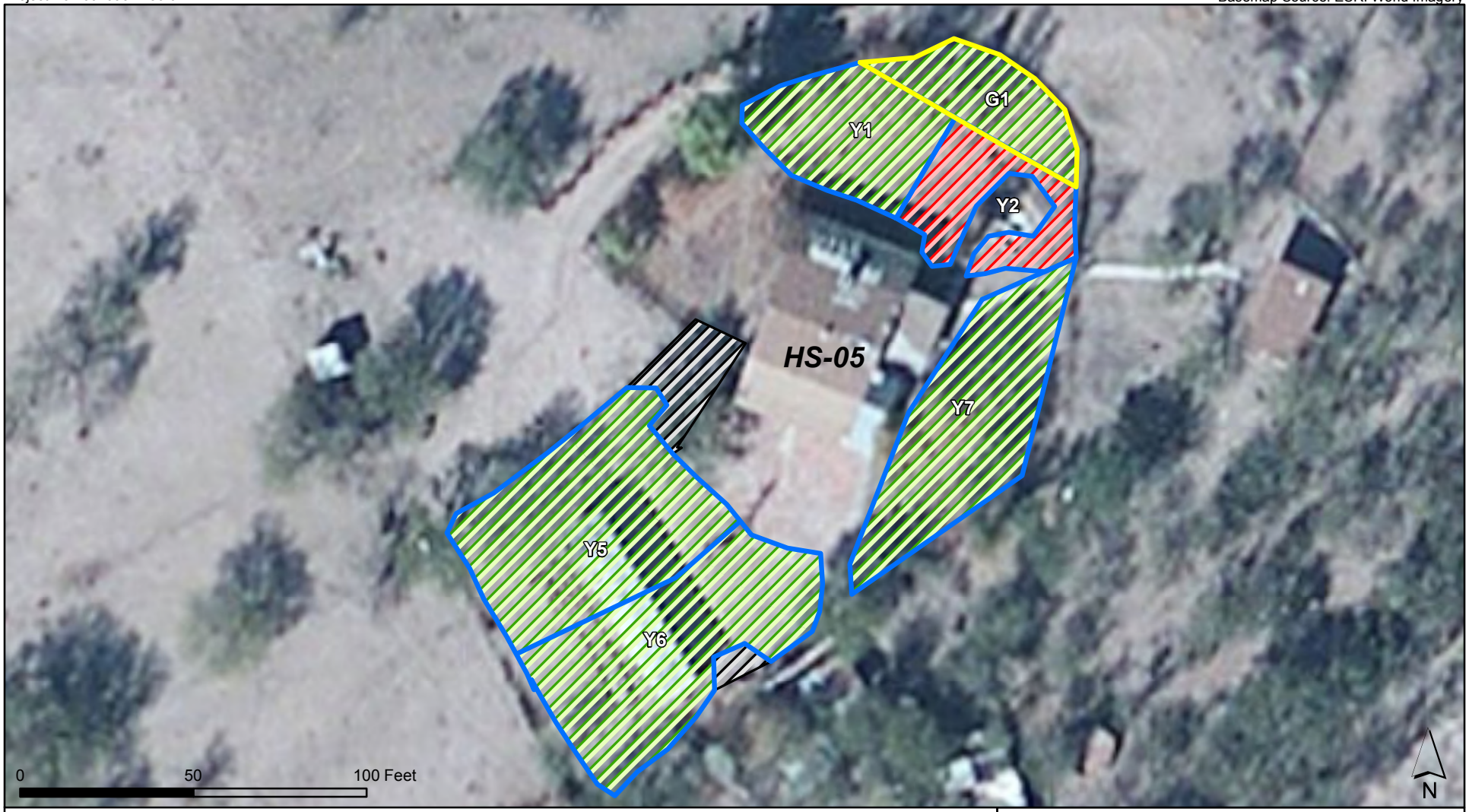
TDD No.: TO-02-09-11-09-0001
Project No.: 002693.2156.01RF

Basemap Source: ESRI World Imagery



LEGEND

- Decision Unit Excavation Boundary 1 foot below ground surface
- Decision Unit Excavation Boundary 2 feet below ground surface
- Undisturbed Area of Vegetation

5 point composite confirmation sample results:

- Bottom of excavation prior to backfill is < 800 lead mg/kg investigation level
- Bottom of excavation prior to backfill is > 800 lead mg/kg investigation level

NOTE: All excavation areas were backfilled to native grade with 1.5-inch minus material blended with mulch. At the request of the homeowner, some areas were backfilled with soil that did not contain mulch.

ABBREVIATIONS

Y1	Indicates yard section number 1 composite confirmation sampling area
G1	Indicates garden section number 1 composite confirmation sampling area

Figure 10

Homesite HS-05 Removal Features Klondyke Tailings Removal

Graham County, Arizona 85643

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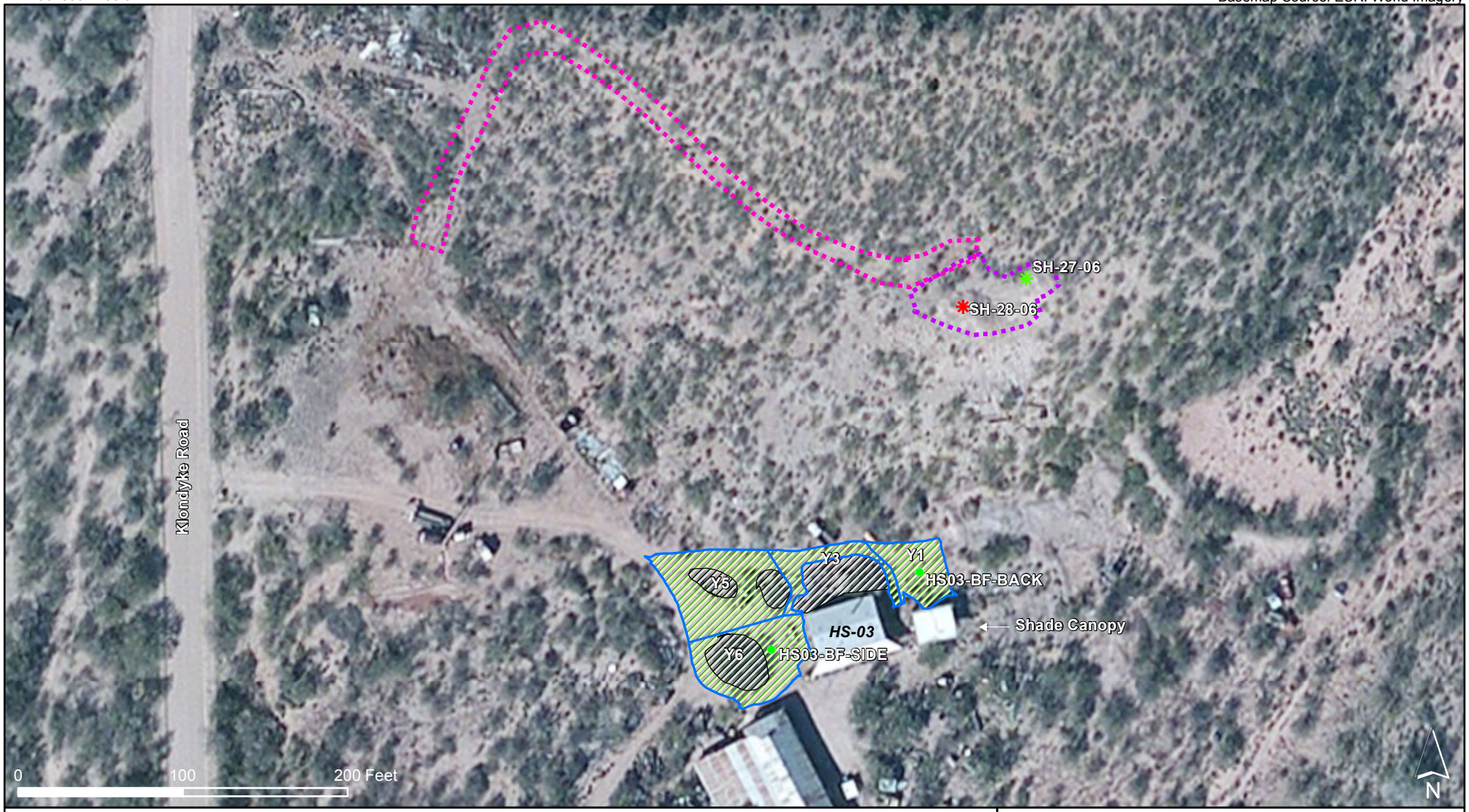
Basemap Source: ESRI World Imagery



LEGEND

- Improved Equipment Access Road
- Excavation Boundary
- Undisturbed Area of Vegetation
- 5 point composite confirmation sample from bottom of excavation prior to backfill is < 800 lead mg/kg investigation level
- Decision Unit Excavation Boundary 1 foot below ground surface
- Discrete backfill sample < 800 mg/kg Lead investigation level
- Discrete confirmation sample prior to backfill is < 800 mg/kg lead investigation level
- Discrete confirmation sample prior to backfill is > 800 mg/kg lead investigation level

ABBREVIATIONS

Y1 Indicates yard section number 1 composite confirmation sampling area

NOTE: All excavation areas were backfilled to native grade with 1.5-inch minus material blended with mulch. At the request of the homeowner, some areas were backfilled with soil that did not contain mulch.

Figure 11

Homesite HS-03 Removal Features Klondyke Tailings Removal

Graham County, Arizona 85643

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Basemap Source: ESRI World Imagery

LEGEND

- Discrete backfill sample < 400 lead mg/kg investigation level
- Undisturbed Vegetation
- 5 point composite confirmation sample from bottom of excavation prior to backfill is < 400 lead mg/kg investigation level
- Decision Unit Excavation Boundary 1 foot below ground surface

ABBREVIATIONS

Y1 Indicates yard section number 1 composite confirmation sampling area

G1 Indicates garden section number 1 composite confirmation sampling area

NOTE: All excavation areas were backfilled to native grade with 1.5-inch minus material. At the request of the homeowner, backfill soil was not amended with mulch.

Figure 12

Homesite HS-04 Removal Features Klondyke Tailings Removal

Graham County, Arizona 85643

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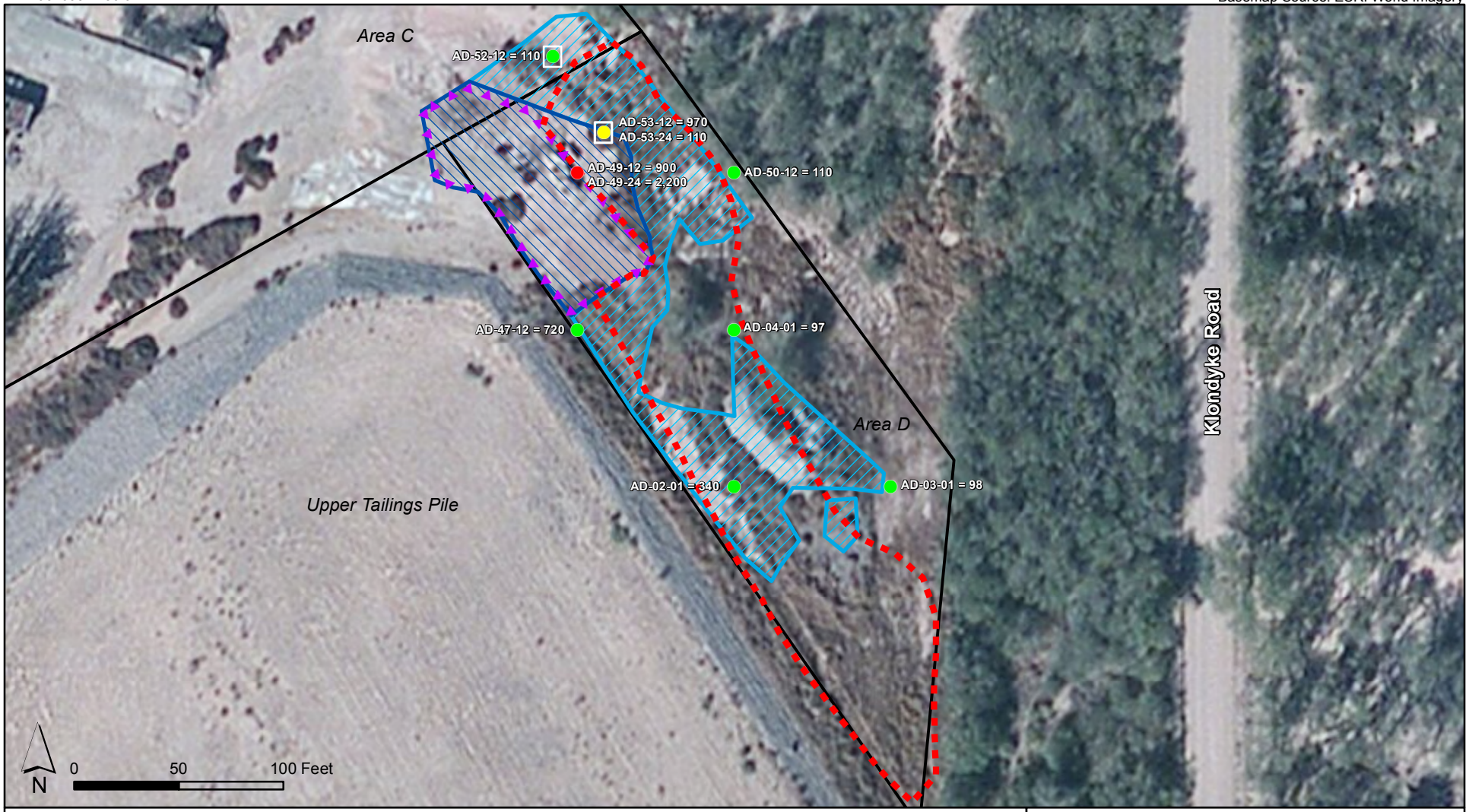
TDD No. TO-02 09-11-09-0001
PAN 002693.2156.01RF

Basemap Source: ESRI World Imagery



LEGEND

Maximum Soil Lead Concentration Detected (mg/kg) using XRF analyzer operated in accordance with US EPA Method 6200

- 97 - 800
- 801 - 1,600
- 1,601 - 2,200

} *Discrete sample location from 75 ft confirmation sampling grid in SAP Labeled with Sample ID (e.g. AD-02-01) and Result*

- Approximate Borrow Area for 'Area D Clay' cap material. After contaminated surface soils were removed to the LTP, this area was excavated at depths up to 15 ft bgs for high clay content soil.
- Vertical extent of contamination was not reached during excavation.
- 2 ft bgs excavation area. Material removed to LTP.
- 1 ft bgs excavation area. Material removed to LTP.
- Area Boundaries
- (Outline) Discrete sample location added in the field to extend grid across all unvegetated areas

NOTES

Samples with IDs ending in:
-01 or -12 = Taken 12 in bgs
-24 = Taken 24 in bgs

XRF = X-ray fluorescence
bgs = Below ground surface

All areas excavated below grade were backfilled with unscreened material from the Aravaipa borrow area to restore previous surface drainage patterns.

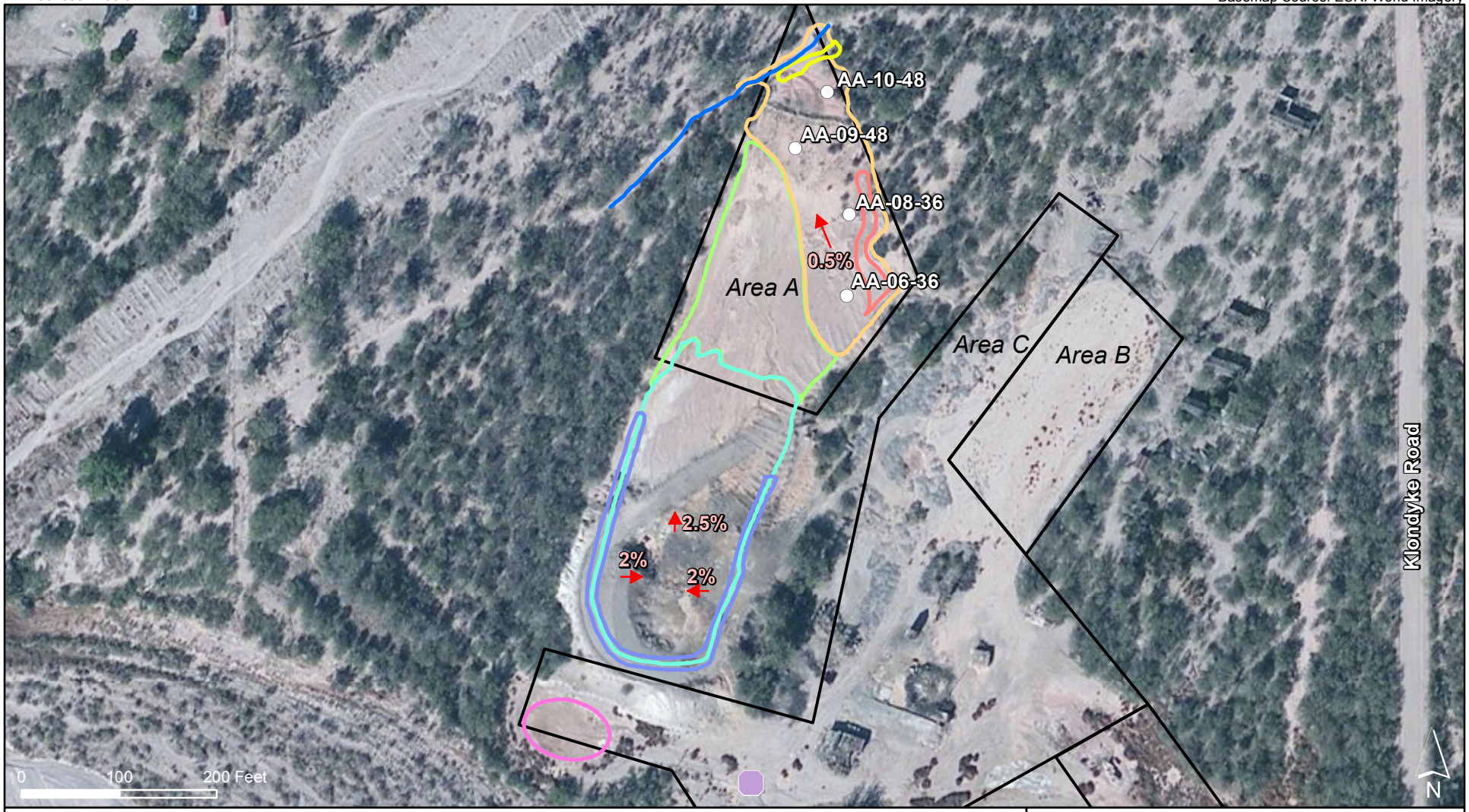
Figure 13

Area D Removal
Klondyke Tailings Removal
Graham County, Arizona 85643

ecology and environment, inc.
International Specialists in the Environment

TDD No. TO-02 09-11-09-0001
PAN 002693.2156.01RF

Basemap Source: ESRI World Imagery



LEGEND

- Existing drainage
- Constructed Surface Water Diversion Berm
- 4-6 ft bgs Excavation Area
- 1-4 ft bgs Excavation Area
- Remaining Exposed Tailings
- Temporary Cap Extent (Residential Removal Soils)
- Berm to prevent surface runoff down steep side slopes of Lower Tailings Pile
- Approximate extent of Sediment Basin
- Area Boundaries
- Site Well
- Confirmation sample collected at the bottom of the excavation, suffix of the label indicates approximate depth below native grade in inches

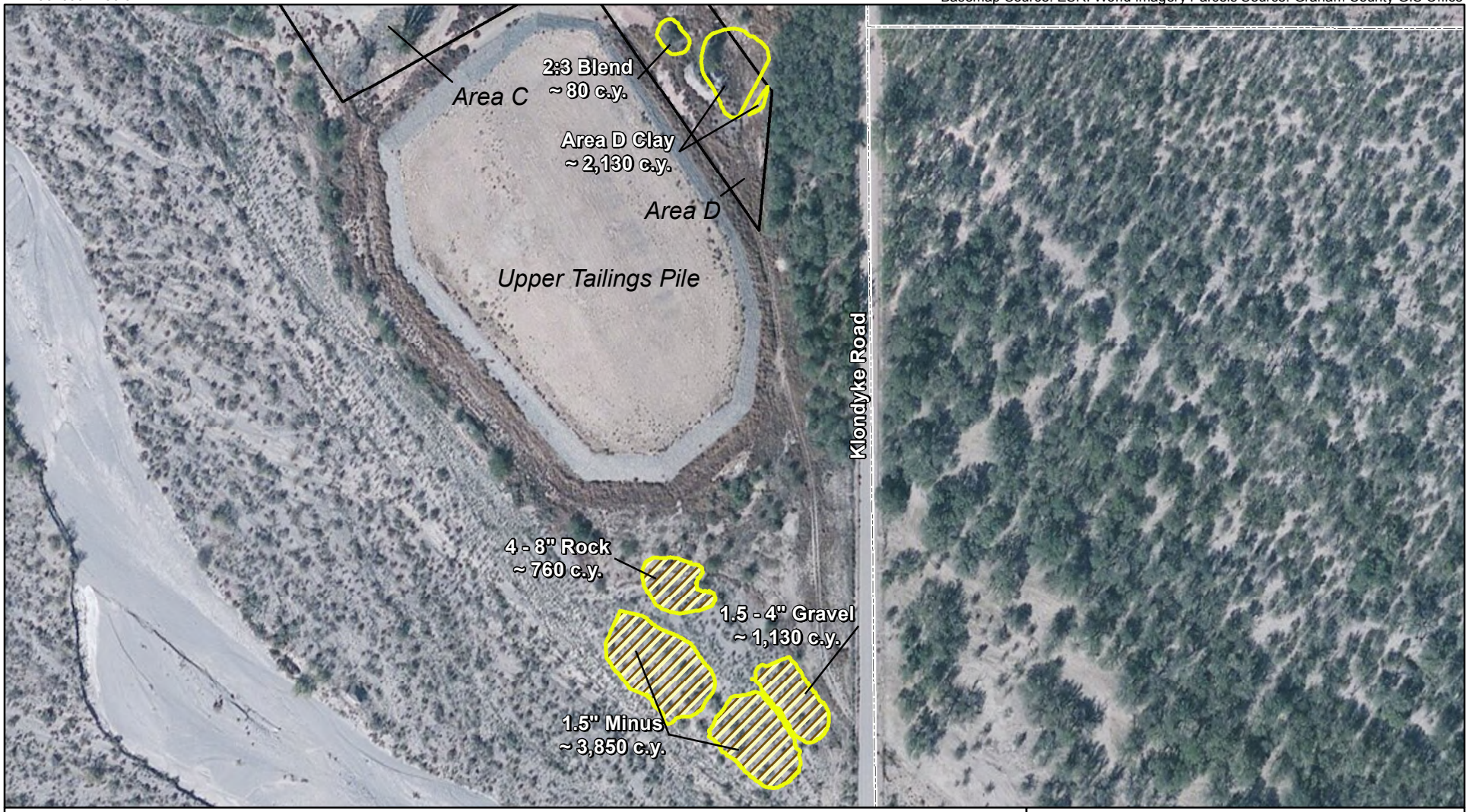
Figure 14

Area A Removal and LTP Restoration Klondyke Tailings Removal

Graham County, Arizona 85643

ecology and environment, inc.
International Specialists in the Environment

Basemap Source: ESRI World Imagery Parcels Source: Graham County GIS Office



LEGEND

- Stockpiles Remaining On Site
- Stockpiles Remaining On Site of Screen Plant Product, Generated From Aravaipa Borrow Area
- Area Boundaries
- Parcel Boundaries

2:3 Blend is 2 parts Area D Clay mixed with 3 parts 1.5" Minus

N

0 250 500 Feet

Figure 15

On-Site Stockpiles Klondyke Tailings Removal

Graham County, Arizona 85643

ecology and environment, inc.
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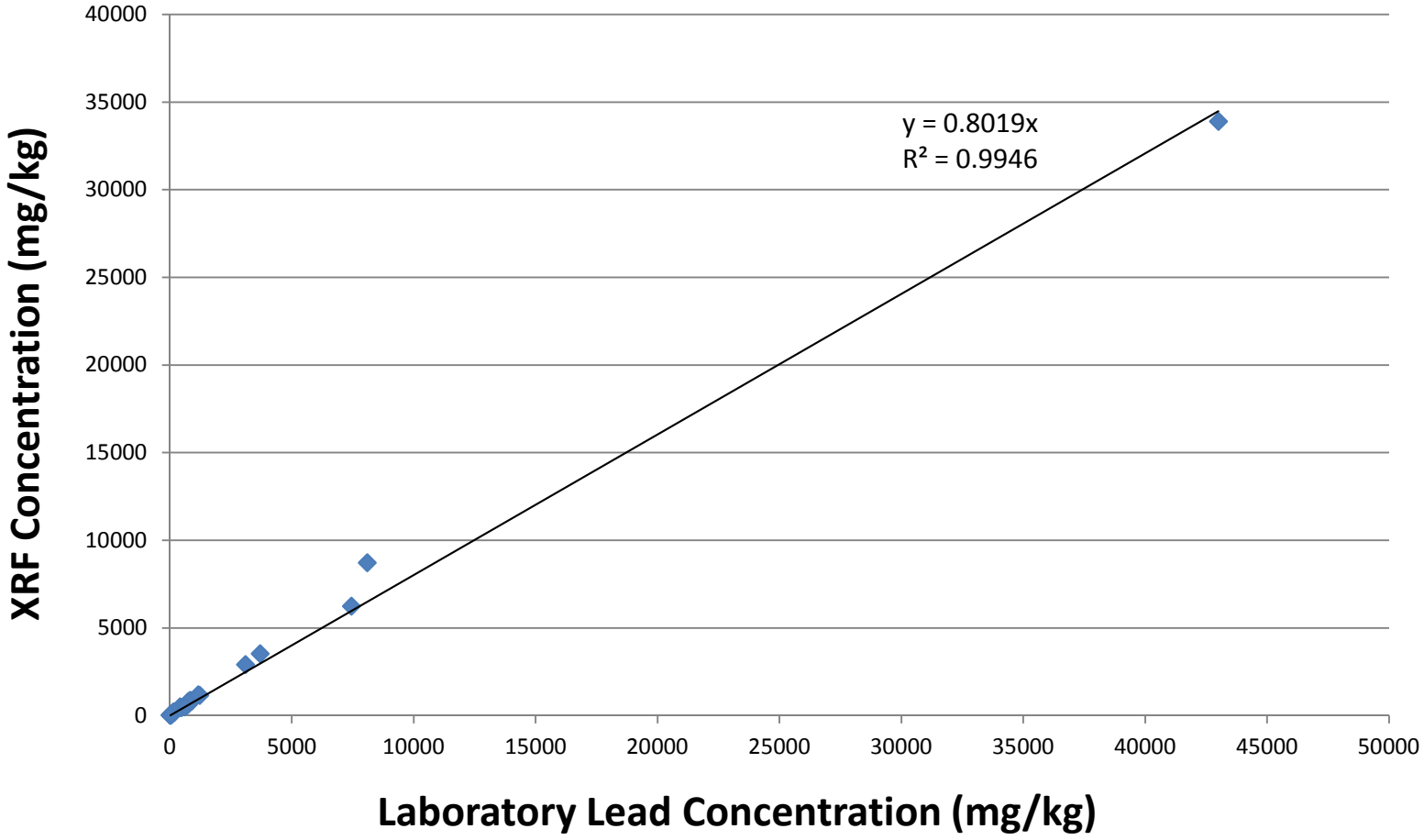
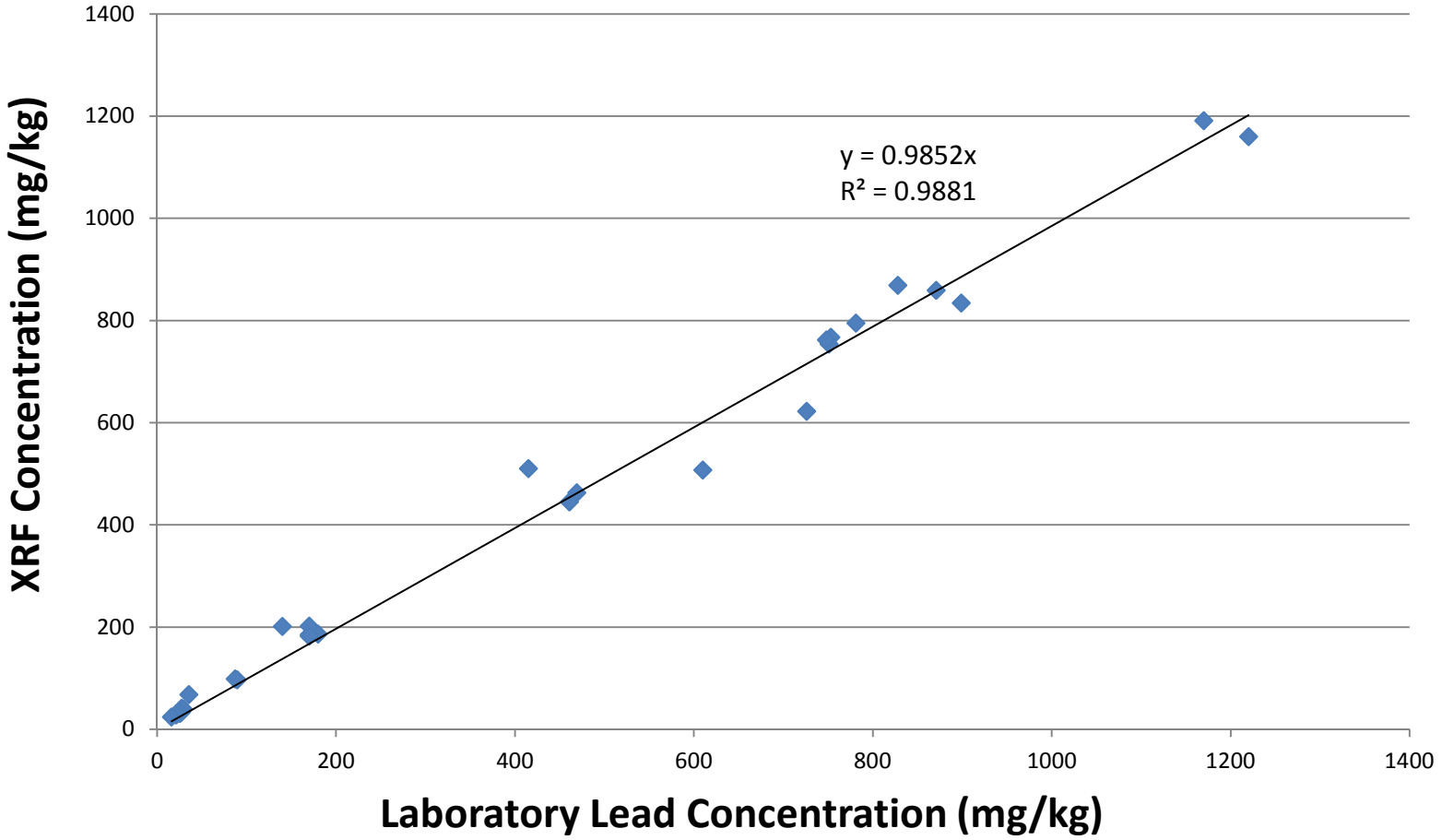
Figure 16: Laboratory vs. XRF Concentrations for Lead in Soil Samples at Klondyke Tailings Removal, Graham County, Arizona



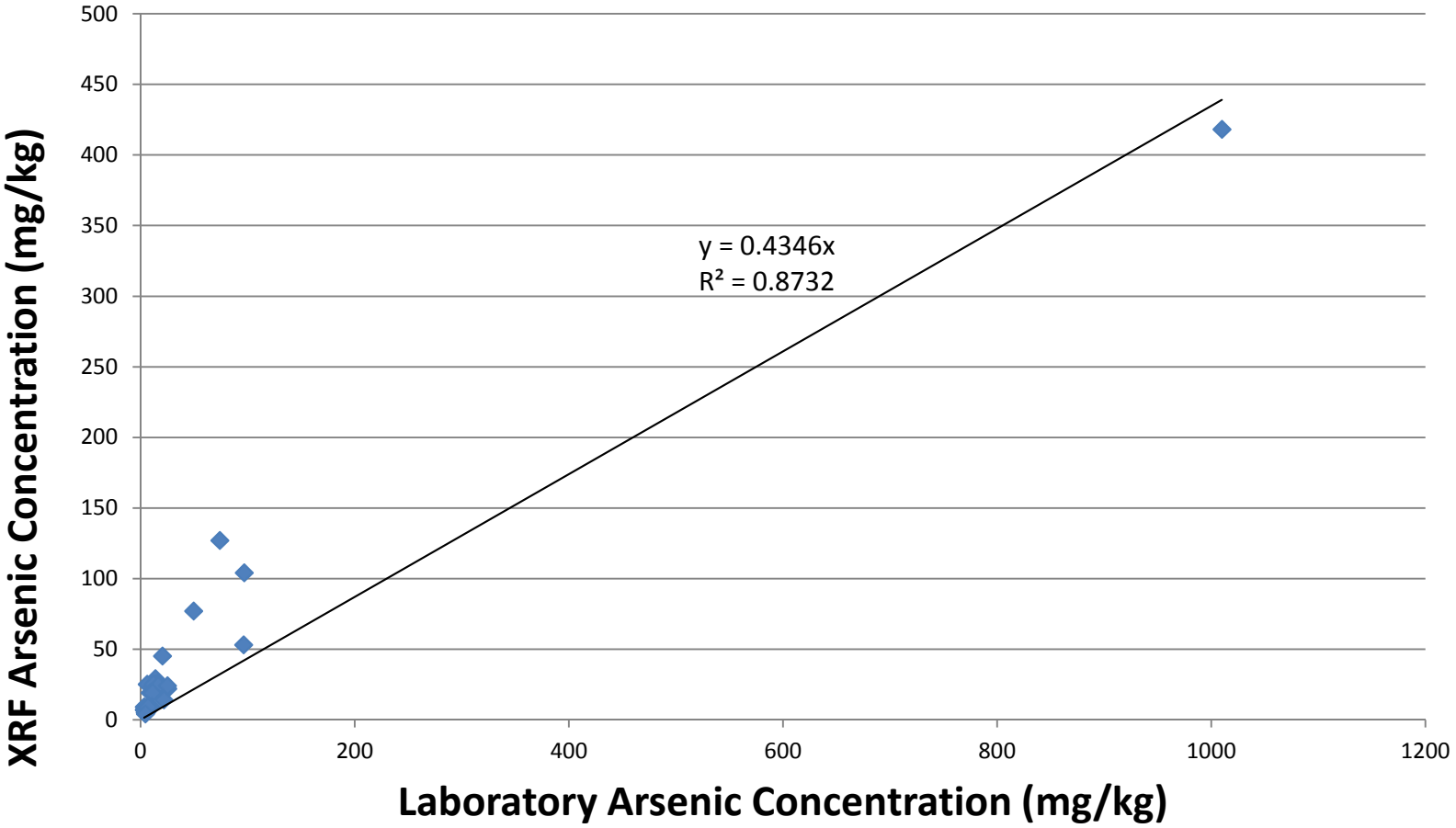
1. Laboratory analysis by U.S. EPA Method 6010B at either GEL Laboratories in Charleston, South Carolina or U.S. EPA Region 9 Laboratory in Richmond, California.

Figure 17: Laboratory vs. XRF Concentrations for Lead in Soil Samples with Concentrations <2,000 mg/kg at Klondyke Tailings Removal, Graham County, Arizona



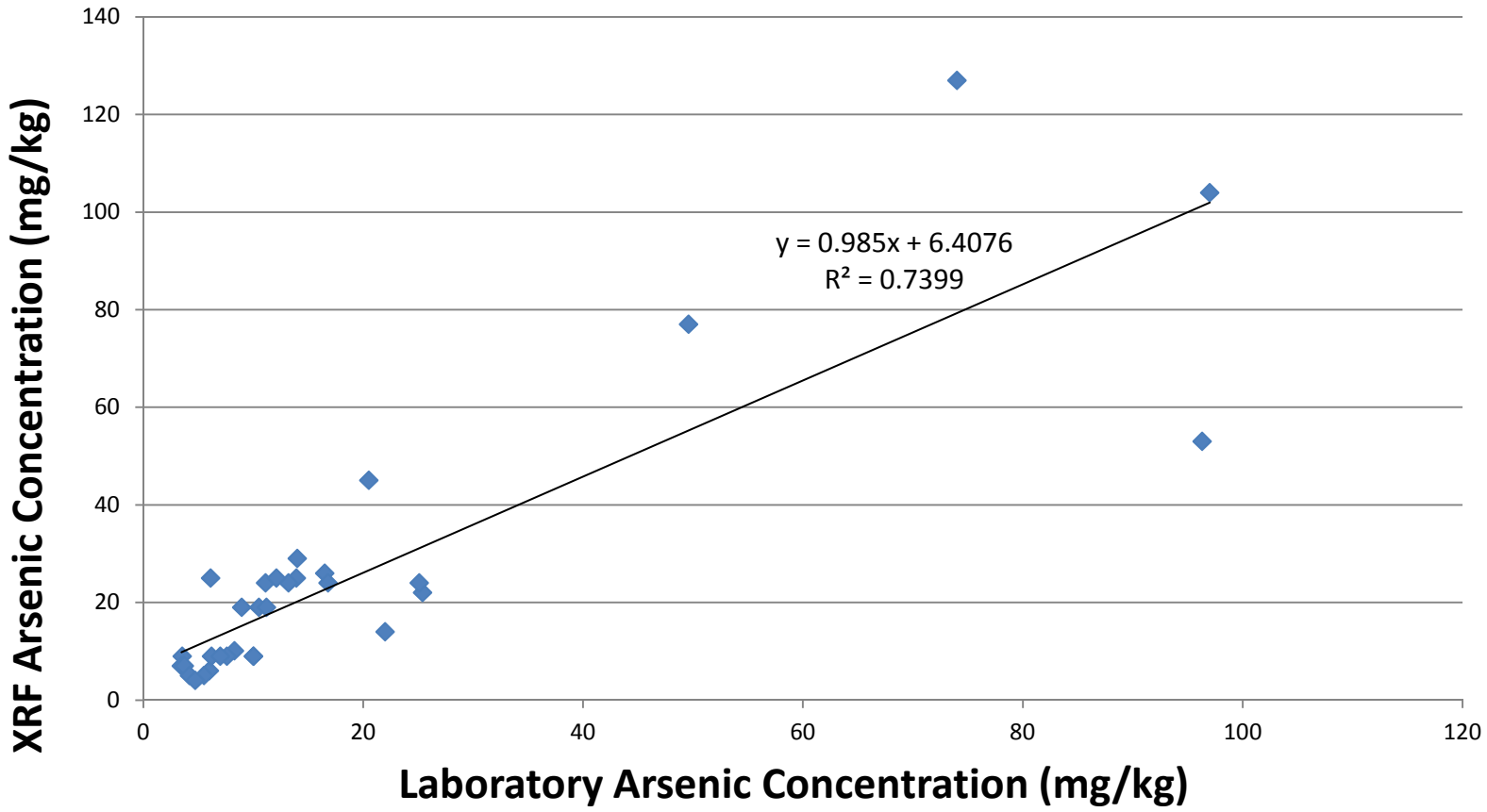
1. Laboratory analysis by U.S. EPA Method 6010B at either GEL Laboratories in Charleston, South Carolina or U.S. EPA Region 9 Laboratory in Richmond, California.

Figure 18: Laboratory vs. XRF Concentrations for Arsenic in Soil Samples at Klondyke Tailings Removal, Graham County, Arizona



1. Laboratory analysis by U.S. EPA Method 6010B at either GEL Laboratories in Charleston, South Carolina or U.S. EPA Region 9 Laboratory in Richmond, California.

Figure 19: Laboratory vs. XRF Concentrations for Arsenic in Soil Samples with Arsenic Concentrations <2,000 ug/kg at Klondyke Tailings Removal, Graham County, Arizona



1. Laboratory analysis by U.S. EPA Method 6010B at either GEL Laboratories in Charleston, South Carolina or U.S. EPA Region 9 Laboratory in Richmond, California.

Appendix B:
Photographic Documentation

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 1

Date: May 31, 2012

Direction: West

Photographer: R. Kelly

Location: Aravaipa borrow area

Description: Screen plant sorts borrow material into three grain sizes: (1) 1.5-inch minus, (2) 2 to 4 inch gravel, and (3) 4 to 8 inch rock.

PHOTO 2

Date: June 2, 2012

Direction: down

Photographer: A. Smith

Location: Command post

Description: START prepares an XRF sample.

PHOTO 3

Date: June 2, 2012

Direction: North

Photographer: A. Smith

Location: UTP/Area D

Description: View of Area D prior to removal activities. Note stockpile of mine waste.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 4

Date: June 15, 2012

Direction: East

Photographer: K. Villars

Location: Area D

Description: Excavator conducts excavation to 2 feet bgs in Area D. DataRAM4s monitor perimeter concentrations of PM10.

PHOTO 5

Date: June19, 2012

Direction: North

Photographer: M. Diener

Location: Area D

Description: Backfill is placed in portions of Area D where vertical extent of contamination was not reached.

PHOTO 6

Date: June 25, 2012

Direction: Northeast

Photographer: M. Diener

Location: Area D

Description: ERRS excavates clay material underlying Area D and stockpiles in Area D. Perimeter air monitor in foreground.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 7

Date: November 3, 2011

Direction: South

Photographer: A. Smith

Location: HS-03 Hillside

Description: START Milton stands on a pile of suspected source material on top of the hillside behind HS-03.

PHOTO 8

Date: June 16, 2012

Direction: Northwest

Photographer: M. Diener

Location: HS-03 Hillside

Description: ERRS excavates source material from top of HS-03 hillside and loads into a loader bucket for transport down the hill. Water truck provides dust suppression.

PHOTO 9

Date: June 19, 2012

Direction: Northwest

Photographer: M. Diener

Location: HS-03 Hillside

Description: Removal is complete at HS-03 Hillside.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 10

Date: June 22, 2012

Direction: East

Photographer: M. Diener

Location: HS-03 Hillside

Description: Backfilled source area at HS-03 hillside.

PHOTO 11

Date: June 14, 2012

Direction: South

Photographer: K. Villars

Location: HS-05

Description: START assesses new decision unit Y7 at HS-05**.**

PHOTO 12

Date: June 20, 2012

Direction: South

Photographer: M. Diener

Location: HS-05

Description: ERRS excavates to 1 foot below ground surface in decision units Y5 and Y6 at HS-05.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 13

Date: June 21, 2012

Direction: West

Photographer: M. Diener

Location: HS-05

Description: Excavation is competed in decision units Y1 and Y2 at HS-05

PHOTO 14

Date: June 24, 2012

Direction: South

Photographer: M. Diener

Location: HS-05

Description: Amended 1.5-inch minus backfill material is compacted in decision unit Y7 following removal at HS-05.

PHOTO 15

Date: October 10, 2013

Direction: Southwest

Photographer: K. Villars

Location: UTP

Description: Windrowed material that was removed from the top foot of the UTP cap in 2012 is intact upon arrival to site in 2013.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 16

Date: October 10, 2013

Direction: Southwest

Photographer: K. Villars

Location: LTP

Description: View of LTP from Area A. Note vegetation growth at the south end of the pile where waste soil was placed the previous year.

PHOTO 17

Date: October 14, 2013

Direction: West

Photographer: S. Heller

Location: HS-03

Description: ERRS conducts removal in decision unit Y1 at HS-03 to 1 foot below ground surface.

PHOTO 18

Date: October 15, 2013

Direction: South

Photographer: S. Heller

Location: HS-03

Description: ERRS conducts removal in decision unit Y6 at HS-03 to 1 foot below ground surface.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 19

Date: October 18, 2013

Direction: Southeast

Photographer: S. Heller

Location: HS-03

Description: ERRS compacts 1.5-inch minus backfill material in driveway in decision unit Y1 at HS-03.

PHOTO 20

Date: October 19, 2013

Direction: Northwest

Photographer: C. Sullivan

Location: HS-04

Description: ERRS conducts removal in decision units Y3 and Y4 at HS-04 to 1 foot below ground surface.

PHOTO 21

Date: October 23, 2013

Direction: West

Photographer: C. Sullivan

Location: HS-04

Description: Placement and compaction of 1.5-inch minus backfill is complete at HS-04.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 22

Date: October 15, 2013

Direction: Southeast

Photographer: S. Heller

Location: UTP

Description: ERRS begins spreading the previously windrowed UTP cap material in an 8 inch lift on the UTP.

PHOTO 23

Date: October 21, 2013

Direction: West

Photographer: C. Sullivan

Location: UTP

Description: Speedie and Associates conducts a sand cone test to test compaction on the UTP.

PHOTO 24

Date: October 25, 2013

Direction: North

Photographer: C. Sullivan

Location: Area D

Description: ERRS uses the loader to blend 2 parts Area D clay with 3 parts 1.5-inch minus material to generate UTP cap augmentation material.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 25

Date: October 29, 2013

Direction: West

Photographer: C. Sullivan

Location: UTP

Description: ERRS places 2:3 blend for UTP cap augmentation and grades according to grade stakes placed by START along the ridgeline of the UTP.

PHOTO 26

Date: October 30, 2013

Direction: South

Photographer: C. Sullivan

Location: Area D/UTP

Description: ERRS completes final compaction of the UTP.

PHOTO 27

Date: October 16, 2013

Direction: Northwest

Photographer: K. Villars

Location: Area A

Description: ERRS excavates material in Area A for consolidation onto the LTP.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 28

Date: October 22, 2013

Direction: South

Photographer: C. Sullivan

Location: LTP

Description: START and USCG survey the grade on top of the LTP. Find average slope of 1.5 percent falling to the north.

PHOTO 29

Date: October 25, 2013

Direction: South

Photographer: K. Villars

Location: Detention pond south of LTP

Description: Regraded and compacted sedimentation basin south of the LTP. Aravaipa Creek runs left to right in background.

PHOTO 30

Date: October 25, 2013

Direction: Southwest

Photographer: C. Sullivan

Location: LTP

Description: Waste soil on LTP is graded. View of reconstructed outer berm on west side of pile.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 31

Date: October 25, 2013

Direction: North

Photographer: C. Sullivan

Location: Area A

Description: View of Area A consolidation area. Berm in background diverts surface runoff from the north.

PHOTO 32

Date: October 25, 2013

Direction: Southeast

Photographer: C. Sullivan

Location: LTP/Area A

Description: View of Area A consolidation. Grade break in background is approximately 3 to 1 slope.

PHOTO 33

Date: October 29, 2013

Direction: North

Photographer: C. Sullivan

Location: LTP/Area A

Description: View of east side of Area A consolidation.

Appendix B: Photographic Documentation
Klondyke Tailings Removal
Graham County, Arizona

PHOTO 34

Date: October 29, 2013

Direction: South

Photographer: C. Sullivan

Location: LTP

Description: Residential waste soils are spread in an approximately 1 foot lift over the southern half of the LTP to act as a temporary cap over the tailings.

PHOTO 35

Date: October 30, 2013

Direction: southeast

Photographer: C. Sullivan

Location: Screen plant stockpiles

Description: Stockpiles of screen plant generated material remain on site.

PHOTO 36

Date: October 30, 2013

Direction: North

Photographer: C. Sullivan

Location: Area D

Description: Remaining stockpiles of Area D clay (right) and 2:3 blended cap augmentation material (left) in Area D.

Appendix C:
2010 Bioaccessibility Study

Table 1. Recommended control limits and results for in vitro soil quality control samples according to EPA Method 9200.1-86

In vitro QCs	Frequency	Recommended Control Limits	Pass/Fail
Reagent blank	Once per batch (n = 14 batches)	<100 µg/L Pb	Pass
Blank spike (6 mg/L)	Once per batch (n = 14 batches)	85-115% recovery	Pass
Matrix spike (6 mg/L)	Once per batch (n = 14 batches)	75-125% recovery	Pass
Duplicate sample	One per test soil (n=40 soils)	±20% RPD*	Pass
Control soil (NIST 2710a)	Once per batch (n = 14 batches)	± 10% RPD**	Pass

RPD = relative percent difference
*****Duplicate samples are only required once per batch according to EPA Method 9200.1-86. However, based on discussions with Regional offices and the EPA Bioavailability Committee about their needs for site specific adjustment and remediation work, this protocol has been modified by EPA National Exposure Research Laboratory to include duplicate extractions of each soil sample.
**Based on the EPA Round Robin consensus in vitro bioaccessibility value for NIST 2710a of 67.5%

DRAFT

Table 2. In vitro bioaccessibility (IVBA) results for Klondyke Tailings samples.

Soil ID	IVBA (%)	S.D.	Soil ID	IVBA (%)	S.D.
H3-Y7-COMP	83.8	3.9	H2-Y2-COMP	100.0	--
H3-Y5-COMP	13.1	0.1	H2-Y4-COMP	89.9	1.4
H3-Y2-COMP	87.9	1.5	H2-Y6-COMP	82.6	0.3
H4-G2	78.1	1.0	H2-Y7-COMP	64.8	2.3
H3-R1	58.6	0.1	H2-Y8-COMP	83.1	2.4
H3-Y6-COMP	91.0	0.4	H2-R2	59.7	1.1
H3-D1-3-COMP	*Reanalyzing archive sample via ICP-MS*		H2-D2	86.0	14.0
H3-Y3-COMP	94.4	2.4	H2-R1	86.0	3.8
H3-Y4-COMP	90.4	0.3	H2-G1-COMP	100.0	--
H4-Y3-COMP	86.8	0.3	H2-Y5-COMP	81.6	0.2
H3-Y1-COMP	84.9	3.1	H5-G5	58.7	2.9
H5-G1	82.9	1.0	H5-G6	70.0	1.0
H5-G2	78.8	0.0	H5-Y1-COMP	59.9	0.9
H5-G3	80.1	1.0	H5-Y2-COMP	57.4	2.5
H5-G4	83.9	0.0	H5-Y4-COMP	75.2	0.9
H2-D1-4-COMP	88.9	1.5	H5-Y3-COMP	76.2	0.5
H1-Y1-COMP	96.4	1.7	H5-Y5-COMP	81.4	3.7
H1-Y5-COMP	90.8	2.3	H5-Y6-COMP	69.4	0.1
H2-Y3-COMP	90.5	0.4	H5-D1-4-COMP	59.4	1.2
H2-Y1-COMP	100.0	--	LC-1	96.6	2.8

DRAFT

Appendix D: Cultural Resources Survey

NHA / VOE

Janice K. Brewer
Governor

Bryan Martyn
Executive Director

Arizona State Parks
AZStateParks.com

Board Members

Walter D. Armer, Jr., Vail, *Chair*
Maria Baier, State Land Commissioner, *Vice Chair*
Kay Daggett, Sierra Vista
Alan Everett, Sedona
Larry Landry, Phoenix
William C. Scalzo, Phoenix
Tracey Westerhausen, Phoenix

17 September 2012

Harry Allen
On-Scene Coordinator, Emergency Response Section Chief
United States Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

RE: Klondyke Tailings Remediation project at Athletic Mining Company Mill, Graham County; EPA; **SHPO-2012-0320 (107434)**

Dear Mr. Allen:

Thank you for continuing to consult with our office regarding the above referenced federal undertaking. Pursuant to 36 C.F.R. Part 800, the implementing regulation for Section 106 of the National Historic Preservation Act, we have reviewed the documentation submitted and have the following comments:

1. We have reviewed the report, *Cultural Resource Survey for the Klyondyke Tailings Remediation on Private Residences, Klondyke, Graham County, Arizona,* and the report is acceptable as submitted.

2. We concur that site AZ BB:3:66(ASM) is not eligible for inclusion in the National Register of Historic Places. We also concur that the isolated occurrence, a historic artifact scatter, is not eligible for the National Register.

3. It is our opinion that a *no historic properties affected* finding is warranted.

If you have any questions or concerns, then please do not hesitate to contact me via e-mail, elaurila@azstateparks.gov, or by phone, 602-542-7120.

Sincerely,

Erick M. Laurila
Compliance Specialist/ Archaeologist
Arizona State Historic Preservation Office

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

August 29, 2012

James Garrison
State Historic Preservation Office
Arizona State Parks
1300 W. Washington Street
Phoenix, AZ 85007
Attention: Erick Laurila, Compliance Specialist/Archaeologist

Cultural Resource Survey for the Klondyke Tailings Remediation on Private Residences, Klondyke, Graham County, Arizona. EPA No. AZN000908810

Dear Mr. Garrison:

The EPA is conducting a rapid response remediation of lead contamination from soils in and around the Athletic Mining Company Mill site near Klondyke, Arizona. The area of primary remediation was previously surveyed for cultural resources, and the cultural resources encountered were evaluated as not being eligible for the Arizona or National Register of Historic Places. As the project developed, three residences outside the surveyed area were found to have contaminated soils in their yards.

The work in the yards of these residences would consist of removing the top foot of soil and transporting it to a containment area. The soil would be replaced with uncontaminated soil. In the area of the old smelter site (AZ:BB:3:66(ASM)) recorded at the residence labeled HS-03 the EPA plans to remove an old tailings pile (Feature 1) and to remove soils behind retaining walls in an area of walls and foundations (Feature 2). In the area of Feature 2 the soils would be removed to about a foot and replaced as on the residential lots. Work around the retaining walls would be done by hand (crews using shovels) so as not to damage the walls.

A cultural resources survey was conducted for the three residences. The area of potential effects was defined as the areas that were tested for lead levels and would be subject for remediation. Field surveys were conducted on May 15, 2012 and on June 12, 2012. Historic research was conducted to augment the field surveys.

Two cultural resources were located, an artifact scatter and an old smelter site (AZ:BB:3:66(ASM)). The EPA considered the potential eligibility of these resources for inclusion on the Arizona Register of Historic Places and the National Register of Historic Places and determined that neither resource was eligible.

Because there are no National or Arizona Register eligible sites in the project area of potential effects, the EPA has determined that the proposed remediation will have no effect on cultural resources.

The EPA requests concurrence with our determination that the resources found on survey are not eligible for the Arizona or National Registers. Further, the EPA requests concurrence with our determination that the remediation will have no effect on cultural resources.

Thank you for your consideration of our requests.

Sincerely,

Harry L. Allen
On-Scene Coordinator,
Emergency Response Section Chief

Enclosure

Cultural Resource Survey for the Klondyke Tailings Remediation on Private Residences

Klondyke, Graham County, Arizona.

CERCLAS/FPN # AZN000908810

August 2012

Prepared for:

Environmental Protection Agency

Prepared by:

Ecology and Environment, Inc.

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Abstract

Agencies: Environmental Protection Agency

Report Title and Date: *Cultural Resource Survey for the Klondyke Tailings Remediation on Private Residences, Klondyke, Graham County, Arizona*.

August 2012

Project Number: E&E Project Number EE-002693-2156

Permit: None required.

Project Description: The EPA is conducting a rapid response remediation of lead contamination from soils in and around the Athletic Mining Company Mill site near Klondyke, Arizona. The area of primary remediation was previously surveyed for cultural resources (Morton et al. 2006), and the cultural resources encountered were evaluated as not being eligible for the Arizona or National Register of Historic Places. As the project developed, three residences outside the surveyed area were found to have contaminated soils in their yards. The EPA requested that a cultural resource survey be conducted of these three properties.

Historic research and a field survey were undertaken as a component to support EPA's compliance with the Arizona Antiquities Act and the State Historic Preservation Act, including consultation with the State Historic Preservation Office. The project archaeologist designed the survey and historic research to identify and evaluate the historical significance of the resources found during the survey. Impacts to these resources are also assessed. This report describes the cultural resource survey in accordance with guidelines issued by the State Historic Preservation Office and the Arizona State Museum.

Location: Located near the small town of Klondyke in Graham County, the project area is approximately 40 miles west of Safford, Arizona. The only areas to be effected by the remedial activities considered here are the yards of three residences (although a fourth residence that had been surveyed previously was also surveyed for this project). Approximately 1.5 acres were surveyed on the three properties that are considered here. The properties surveyed are all within Section 6, Township 7 South, Range 20 East, Gila and Salt

River Baseline and Meridian, Klondyke U.S. Geological Survey 7.5-minute topographic quadrangle.

Acreage and Jurisdiction: Approximately 1.5 acres of private land were intensively surveyed.

Personnel and Dates of Fieldwork: Archaeologist G. Timothy Gross served as project archaeologist and conducted the field surveys on May 15, 2012 and on June 12, 2012. Less than one person-day was spent on the surveys.

Register-Eligible Properties: None

Register-Ineligible Properties: The artifact scatter on HS-02 and the smelter site (AZ BB:3:66 (ASM)) on HS-03.

Recommendations: If the State Historic Preservation Office concurs with the finding that there are no resources eligible for the National Register of Historic Places or the Arizona Register of Historic Properties within areas that could be affected by the project, there would be no need to mitigate impacts of the remediation.

If undocumented cultural resources or human remains and associated objects are encountered during this project, the Environmental Protection Agency should stop work immediately at that location and take reasonable steps to secure the preservation of those resources. In accordance with the Arizona Antiquities Act and State Historic Preservation Act, and, in the case of unanticipated human remains, the federal Native American Graves Protection and Repatriation Act, the Environmental Protection Agency should notify the Arizona State Museum and State Historic Preservation Office and make arrangements for evaluation of the find, assessment of project effects, and treatment, if warranted.

1.0 Introduction and Background

The EPA is conducting a rapid response remediation of lead contamination from soils in and around the Athletic Mining Company Mill site near Klondyke, Arizona. The area of primary remediation was previously surveyed for cultural resources (Morton, et al. 2006), and the cultural resources encountered were evaluated as not being eligible for the Arizona or National Register of Historic Places. As the project developed, three residences outside the surveyed area were found to have contaminated soils in their yards. The EPA requested that a cultural resource survey be conducted of these three properties.

1.1 Project Location

The remediation area is located approximately 40 miles west of Safford, Arizona, in Graham County (Figure 1). The home sites are all found in Section 6, Township 7 South, Range 20 East of the Gila and Salt Rivers Baseline and Meridian. They are all near the confluence of Aravaipa Creek and Laurel Canyon. The small community of Klondyke is approximately 1.5 miles southeast of the subject properties. All of the areas surveyed are on private land and are accessed from Klondyke road. The Klondyke 7.5 minute U.S. Geological Survey Geological Survey Quadrangle covers the area where the properties occur.

1.2 Environmental Setting

The previous cultural resources report (Morton, et al. 2006) provides a good summary of the environmental setting. The general geographic setting or the project is the Basin and Range province of the American Southwest. The principal geographic features of this province are roughly parallel northwest-southeast trending mountain ranges separated by sediment-filled valleys.

The project area is in the northern Aravaipa Valley. Aravaipa creek carries only seasonal water through most of its course, but approximately eight miles downstream (northwest) from the remediation site the stream flows around the Galiuro Mountains where bedrock forces the water to the surface. The narrow Aravaipa Canyon in this area not only has perennial water, but it also supports a strong riparian community. Aravaipa Creek ultimately flows into the San Pedro River approximately 21 airline miles west of the project area.

Aravaipa Creek is an intermittent stream in the project area. Both Laurel Canyon and Spring Canyon, located just south of Laurel Canyon, are also shown as carrying broken blue line streams. The Name Spring Canyon also suggests that spring water may have been available in the vicinity of the project. The availability of water is one of the critical factors in human settlement in an arid area, both in the prehistoric past and in the historic period.

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Source: (Morton, et al. 2006:Figure 1)

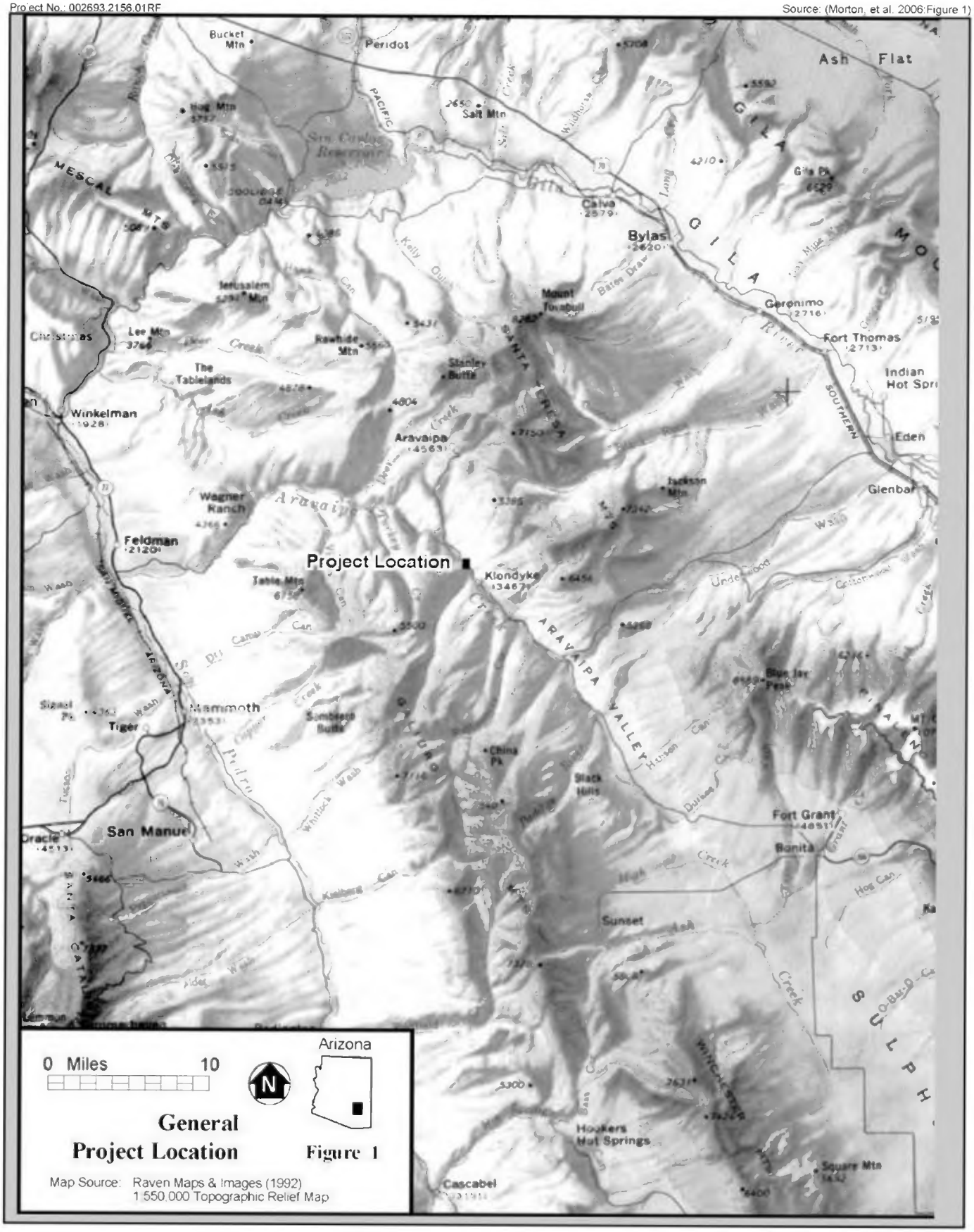

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Figure 1
Project Location in Arizona
Klondyke Tailings Residences
Graham County, Arizona 85643

The area around Klondyke is in the Sonoran Desert, one of the warmest and driest environments in North America. It has a warm steppe climate, with little rain. Weather records summarized in the the previous cultural resources report (Morton, et al. 2006) indicate variable precipitation, ranging from 8 to more than 21 inches during the 20 years from 1952 through 1972, with snow falling three times during that period.

The URS report describes the natural vegetation of the area as belonging to the transition zone between Sonoran desertscrub and the desert grassland/semidesert scrubland biotic communities. Areas of scrubland and low leguminous woodlands are the major vegetation types (Morton, et al. 2006). Important plants in the area include mesquite (*Posopis* spp.), juniper *(Juniperus* spp.), cresosotebush (*Larrea tridentata),* jojoba *(Simmodsia chinensis),* paloverde (*Cercidium floridum*), catclaw acacia (*Acacia greggii*), and ocotillo *(Fouquieria splendens),* many of which provided edible seeds, fruits, or other parts for the prehistoric occupants of the area. Various cacti and succulents also occur in the area (Morton, et al. 2006).

The geology of the subject properties is sedimentary rock—consolidated conglomerates overlain by Pleistocene and recent Alluvium. The presence of recent alluvium means there is a possibility of buried sites in the region, though none have been reported. The uplands to the east include metamorphic and plutonic rock. Patches of volcanic (rhyolite, andesite, and latite) occur as islands in the alluvium. This diverse lithic topography would have provided raw materials for prehistoric occupants of the area, and the uplands have ore deposits that attracted and supported early mining activity (Ross 1925).

2.0 Cultural History Context

URS report (Morton, et al. 2006) presents a discussion of the culture history of the area in order to provide a context for the cultural resources discussion. The following summary is based on that discussion.

The prehistory of southeastern Arizona can be broken down into six periods: Paleoindian from about 12,000 to 8,500 B.C.E.; Archaic from about 8,500 to 1500 B.C.E.; Late Archaic/Early Agricultural from about 1500 B.C.E.to C.E. 650: Formative and Classic from about C.E. 650 to 1400; Ethnohistoric (aboriginal protohistoric and historic) from about C.E. 1400 to 1950; and Euroamerican historic from about C.E. 1500 to 1950(Morton, et al. 2006). The last two periods overlap. Each of these periods will be discussed briefly below.

The Paleoindian period represents the earliest well-documented material found in Arizona. Older occupations of Arizona have been proposed, however the early occupations proposed in Arizona are not generally accepted by archaeologists. It is quite possible that earlier occupations may be discovered, as such occupations of the western United States are now being documented at sites on the California Channel Islands and at Paisley Cave in Oregon (Erlandson and Braje 2011).

The Paleoindian period (about 12,000 to 8,500 B.C.E.) in Arizona is associated with fluted projectile points called Clovis points and made by people who hunted mammoths and other large game. Well-documented Clovis sites are found, generally deeply buried in alluvium, in the San Pedro River area of Arizona, a little over 100 miles south of the project area, but in the rest of the state the period is represented primarily by isolated finds of the distinctive points. One, for example, is reported from near Safford, Arizona, but none have been reported in the Aravaipa Valley (Morton, et al. 2006).

The Archaic period (about 8,500 B.C.E. to 1,500 B.C.E.) is characterized by hunting and gathering adaptations geared to the adaptation to diverse plant and animal resources. Sites of the Archaic period, often limited to isolated artifacts, had not been identified in the vicinity of the project area (Morton, et al. 2006).

Late Archaic/Early Agricultural Period (about 1500 B.C.E.to C.E. 650) was the time when both villages and agriculture were adopted. Pottery also makes its appearance during this period. Sites of this period are also not recorded in the vicinity of the project area(Morton, et al. 2006).

The Hohokam and Mogollon traditions are both recognized in the Formative and Classic period in Arizona (about C.E. 650 to 1400). Though major Hohokam villages were to the west and southwest along the Gila, Salt, Santa Cruz, and San Pedro rivers, Safford, just east of the project area seems to be the eastern extent of Hohokam occupation, but there is little evidence of Hohokam occupations in the project area (Morton, et al. 2006). Mogollon sites are also found in the Safford area, and the project area appears to have been in the territory of the San Simon variant of the Mogollon (Morton, et al. 2006).

The end of the Formative and Classic period is appearance of the Salado tradition in Arizona. This tradition is poorly understood, although it has some relationship to both the Mogollon and the Hohokam. The Salado tradition is characterized by changes in village layout and in ceramics, among other things. Salado sites are found in the Aravaipa Valley, with one being reported very close to the project area (Morton, et al. 2006).

The Ethnohistoric period represents the people who were living in the area when European explorers and settlers arrived in Arizona. The ethnographic peoples of the project area were the Western and the Chiricahua Apache. Mobile hunter/gatherers, the Apache became raiders after they acquired the horse. Targets of the U.S. Army after Arizona became a territory in 1863, the Apache were placed on reservations in 1873, although there were conflicts up to 1886 (Morton, et al. 2006).

The exploration and settlement of the Southwest marks the beginning of Euroamerican Historic period, although records for the Aravaipa area do not show activity until the last part of the nineteenth century. Settlement of the valley began in the 1870s with framing, ranching, and mining activities. Klondyke is the nearest settlement to the project area, and it was established in

the late nineteenth century as a commercial center with stores, a post office, a saloon, and a school (Morton, et al. 2006). The history of mining in the area will be discussed in the next section.

3.0 Background Research

This section presents the background research done for this project. Since the current survey area is so close to the area surveyed for the tailings remediation, the record search information discussed below is taken from that report (Morton, et al. 2006). The results of that survey are then summarized. Examination of the Government Land Office records for the area is also discussed, and additional historical research on the area is presented.

3.1 Record search

URS conducted a record search for the Athletic Mining Company mill site survey area and a 1-mile radius around that area using the AZSITE system, State Historic Preservation Office, and Bureau of Land Management files.

The records searches located information about three surveys in the area conducted between 1978 and 1998. Each of these surveys recorded one site in the area. The Athletic Mining Company Mill was recorded on one of these surveys, and the other two sites were prehistoric. One was a scatter of sherds and the other was a Salado site which included an artifact scatter accompanied by a possible room blocks and a rock alignment. This site was given the number AZ BB:3:19 (BLM)(Morton, et al. 2006). The record search is summarized on Figure 2.

3.2 Previous survey

The survey of the Athletic Mining Company mill site (Figure 2) was conducted June 2 and 3, 2004 (Morton, et al. 2006). That survey resulted in the recordation of the milling site as AZ BB:3:37(ASM). Ten isolated artifacts were also recorded, but no other archaeological sites were found. Thirty-five features were recorded in three general areas—the mill processing area, the residential area, and the community area. The 35 features ranged from various buildings to foundations and artifact scatters. The report presents a detailed description of the features and a discussion of the history of the mill. The report concludes that the site is not eligible for inclusion on the National Register of Historic Places based primarily on a lack of integrity (Morton, et al. 2006).

3.3 General Land Office Records

Government Land Office files were checked online for information on the patenting of claims on the property being considered in this report. The western-most residence examined (HS-02) and a neighboring residence (HS-05) are both on land that was first patented on July 11, 1903 to James W. Payne. The eastern properties examined (HS-03 and HS-04) are both on land that was patented to Charles E. Chambers June 10, 1916 (Bureau of Land Management 2012).

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Source: (Morton, et al. 2006:Figure 2)

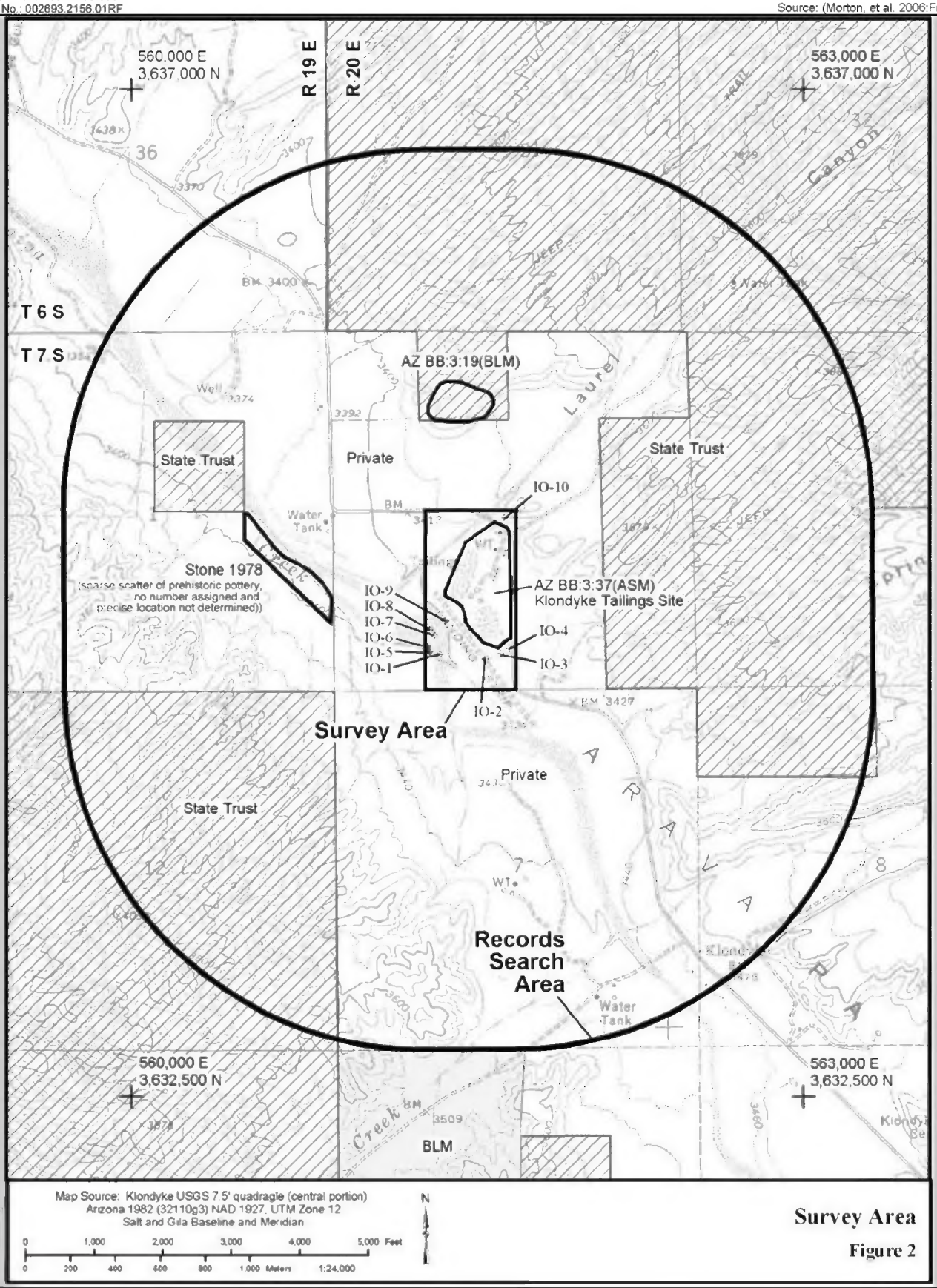

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Figure 2
Record Search Results and Previous Survey Area
Klondyke Tailings Residences
Graham County, Arizona 85643

3.4 Historic Research

The 2006 survey report presents a detailed history of mining in the area, particularly the Athletic Mining Company Mill and the process of floatation milling of lead (Morton, et al. 2006). Mining in the area appear to have started in the 1870s, trouble with the Apache making prospecting difficult before this time. The 1890s saw development of the mines of the area, with the nearby Grand Reef mine, located about two and a half miles northeast of the survey area reaching its greatest depth in this decade. The early decades of the twentieth century were quiet in the Aravaipa mining district, with operations picking up a bit 1906 and 1920. Ross (1925) notes that "The Grand Reef mine was leased to local people in 1915. A mill was erected and ore in small quantities was shipped until the final shutdown in 1921." It is not certain where this mill was located. A map (Figure 3) in Ross (Ross 2012, Plate II) that was surveyed in 1922 shows a structure near HS-03.

In the late 1920s, mining picked up again in the area, but the Great Depression put a damper on activity. With the shadows of war looming on the horizon, operations began again in 1937, and in 1942 the Athletic Mining Company Mill began operation. It closed in 1952 (Morton, et al. 2006). As mentioned above, the operation of this mill is well-documented in the 2006 survey report

4.0 Field Survey

Field surveys were conducted on the three private home sites that are targets of the remediation (Figure 4). Because it was not completely clear in the field whether or not a forth home site was completely in the area previously surveyed for the remediation project, a fourth site was surveyed, as well. The methods and results of those surveys are detailed here.

4.1 Methods

The primary survey was conducted on May 15, 2012. Accompanied by Scott D. Goodwin, Project Manager for the Arizona Department of Environmental Quality, each of for home sites was visited. The first property visited was HS-02 (Figure 5). The project archaeologist walked the survey area, an area coinciding with the area sample for testing to determine the need for remediation, in transects that were roughly 5-meters apart. Spacing was determined by pacing. The areas around the house were walked first and then a rectangular garden area that was on the west side of the property was walked. Ground visibility was very good over most of the property, although one area small area (approximately 1 meter by 1 meter) was obscured by ashes.

HS-05 was the next site visited (Figure 6). This property had several large areas covered with concrete paving. The archaeologist examined all exposed ground, using the 5-meter transects where there was room. This property has been part of the 2004 survey area (Morton, et al. 2006).

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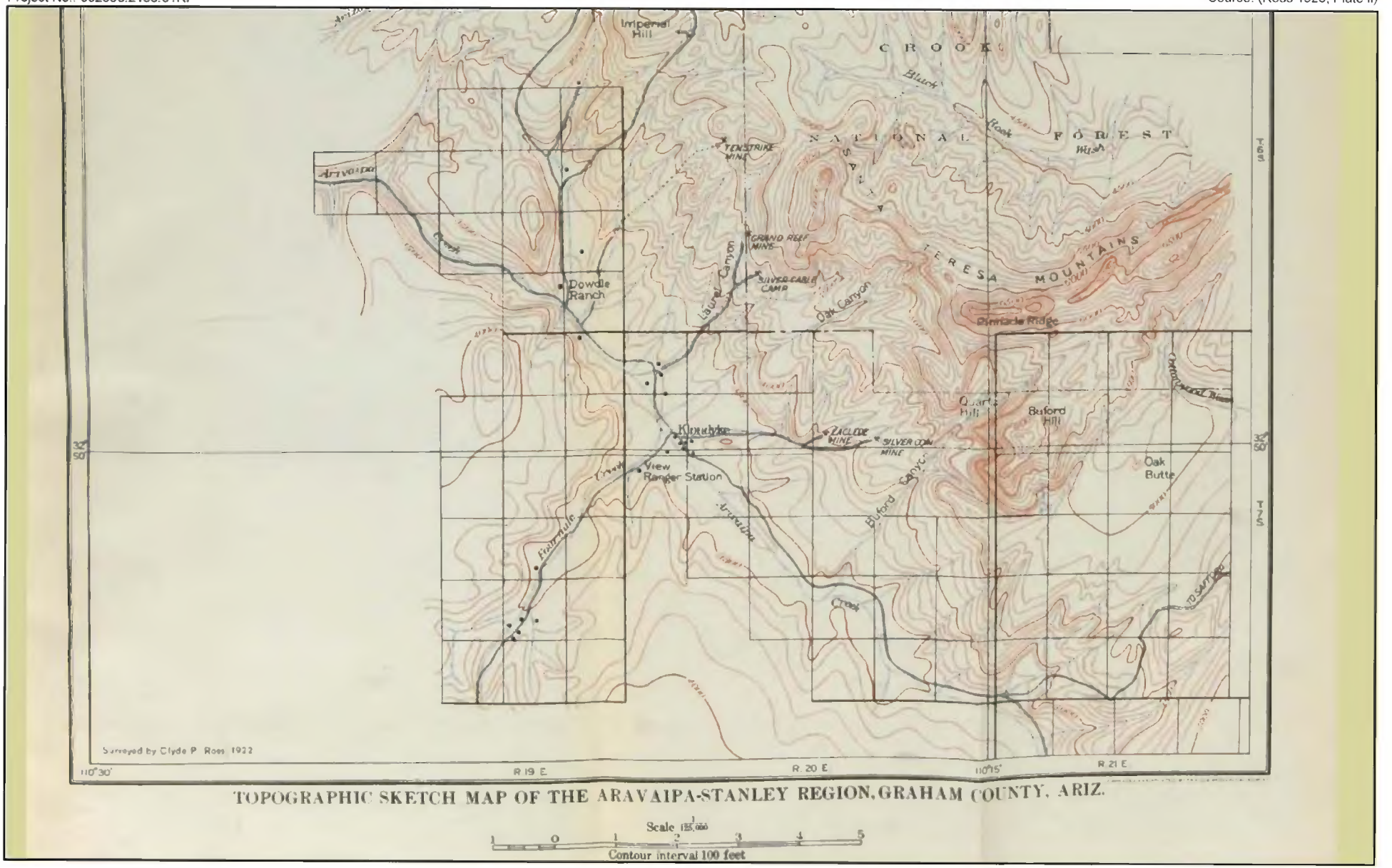
Project No.: 002693.2156.01RF

Source: (Ross 1925, Plate II)



TOPOGRAPHIC SKETCH MAP OF THE ARAVAIPA-STANLEY REGION, GRAHAM COUNTY, ARIZ.

Scale 1/125,000
1 0 1 2 3 4 5
Contour interval 100 feet

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Figure 3
Portion of 1924 Map of the Arivaipa-Stanley Region Klondyke Tailings Residences
Graham County, Arizona 85643

TDD No.: TO-02-09-11-09-0001
Project No.: 002693.2156.01RF

Source: ESRI, i-cubed, GeoEye

LEGEND

HS-## = Homesite Designation

Klondyke WQARF Site

N

0 1,000 2,000 Feet

Figure 4

Homes Surveyed
Klondyke Tailings Residences

Graham County, Arizona 85643

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Project No.: 002693.2156.01RF

Source: Bing maps

LEGEND

Building

Assessment area perimeter

Figure 5
HS-02 Area Surveyed
Klondyke Tailings Removal
Graham County, Arizona 85643

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TDD No.: TO-02-09-11-09-0001
Project No.: 002693.2156.01RF

Source: Bing maps

LEGEND

- Building
- Assessment area perimeter

Figure 6
HS-05 Area Surveyed
Klondyke Tailings Removal
Graham County, Arizona 85643

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The next property visited was HS-04 (Figure 7). Ground visibility at this home was excellent, and the 5-meter transect approach was used to cover the area that had been sampled.

HS-03 (Figure 8) was the last property surveyed. There was considerable ground cover and an accumulation of items of various kinds on the property, but ground visibility was better than 50 percent overall, and in places was approaching 100 percent. The archaeologist examined all accessible ground surface within the proposed remediation area. The archaeologist recorded a can scatter on the hillside north of the survey area (see below), but it was not within the survey footprint with the exception of two loose cans that had come to rest just at the boundary of the remediation area.

After the fieldwork was finished for the first round of survey, questions were raised by the EPA about the hillside on which the archaeologist recorded the cans. The EPA wished to remove contamination with an old smelting site on that hill. Examining aerial photographs, the archaeologist noted what appeared to be foundations up hill and to the east of the can scatter. A second field survey was arranged to deal with this smelter site.

On June 12, 2012, the archaeologist returned to HS-03 accompanied by two E&E personnel (Kathryn Villars and Matthew Diener) and the EPA On-Scene Coordinator, Harry L. Allen. The group went first to the top of the hill and examined the tailings pile there. From there the archaeologist worked his way around the tailings pile and down to the foundations that had been noticed on the aerial photograph. From there he worked his way down to the can scatter and ultimately to the flat where the original survey area is located. Although not done in formal transects, the path from tailings to foundations to cans to flat was meandering and covered the area. Ground visibility was good (approximately 80 %).

4.2 Results

The survey for HS-04 was negative. No artifacts or features were noted. The house on that property is of recent construction, so privies and trash pits would not be expected. Inspection of the historic aerial photography on Google Earth indicates the house was constructed about 2007. A photograph dated 6/20/2007 shows the shed on the property, but the house is not visible. The house is absent on the photographs dated 9/28/2004 and 11/6/1992(Google Inc. 2012).

HS-05 was part of the area surveyed in 2004 for the remediation project (Morton, et al. 2006). As with the results of that survey, no artifacts or features were found on this parcel. The house on the property is a ranch-style house, and it is not shown on the 11/6/1992 aerial photograph (Google Inc. 2012).

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Project No.: 002693.2156.01RF

Source: Bing maps

LEGEND

- Building
- Assessment area perimeter

Figure 7
HS-04 Area Surveyed
Klondyke Tailings Removal
Graham County, Arizona 85643

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Project No.: 002693.2156.01RF

Source: Bing maps

LEGEND

- Building
- Assessment area perimeter

Figure 8
HS-03 Area Surveyed
Klondyke Tailings Removal
Graham County, Arizona 85643

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One small concentration of sun-purple glass and white glazed pottery was found at the edge of the garden plot on HS-02 (Figure 9). That is described in Section 4.2.1, below. The domicile on this property is a house trailer. It may be shown on the 9/28/2004 aerial photograph (the photo lacks sufficient resolution to be sure), but it is not on the 11/6/1992 photograph (Google Inc. 2012).

HS-03 had no artifacts on the area where remediation is to take place, with the exception of two cans that are associated with the can scatter noted on the original survey. This scatter, and the other remains noted are discussed in Section 4.2.2, below. The residence on this property is a mobile home. There is also a recent sun shade covering a concrete slab. Another shade with corrugated metal roofing covers another mobile home, and there is a building attached to the west side of the shade. This attached building is the only structure that appears on the 11/6/1992 photograph. The other building appears to be in place by 9/28/2004 (Google Inc. 2012), although the resolution on that photograph is not very good.

4.2.1 HS-02

At the southeast corner of the garden area of HS-02 there is a scatter of glass and ceramics. The scatter was made up of three pieces of sun-purple glass and six white, glazed earthen ware sherds, and covered an area measuring 1.5 meters by 1.5 meters. Only the northern half of the scatter was located in the garden area. Glass that turns lavender or amethyst on exposure to the sun's light contains manganese. Most glass of this type was made between 1890 and 1920 (Lindsey 2012). This artifact scatter is too sparse to meet the Arizona State Museum definition of a site (Arizona State Museum 2012).

4.2.2 The Smelter Site—AZ BB:3:66 (ASM)

The smelter site (AZ BB:3:66 (ASM); Figures 10 and 11) is made up; of three features: a tailings pile (Feature 1); a series of retaining walls and concrete foundations (Feature 2); and a can scatter (Feature 3). These are described and then the evidence of their age and function is presented.

4.2.2.1 AZ BB:3:66 Features

Feature 1 is a tailings pile located on the top of the hill that overlooks the residence at HS-03. This mound of fine crushed rock (sand to silt size particles) is irregularly shaped and is about 70 feet long and 30 feet wide, and is 5 to 8 feet high. Pieces of milled lumber sit on top of the pile (Figure 12).

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Project No.: 002693.2156.01RF

Source: Bing maps

LEGEND

Building

Assessment area perimeter

Figure 9
Location of Artifact Scatter at HS-02
Klondyke Tailings Removal
Graham County, Arizona 85643

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Project No.: 002693.2156.01RF

Source: Bing maps

LEGEND

- Can Concentration
- Can Scattered
- Foundations
- Tailings Pile

Figure 10
Site AZ BB:3:66 (ASM)
Klondyke Tailings Removal
Graham County, Arizona 85643

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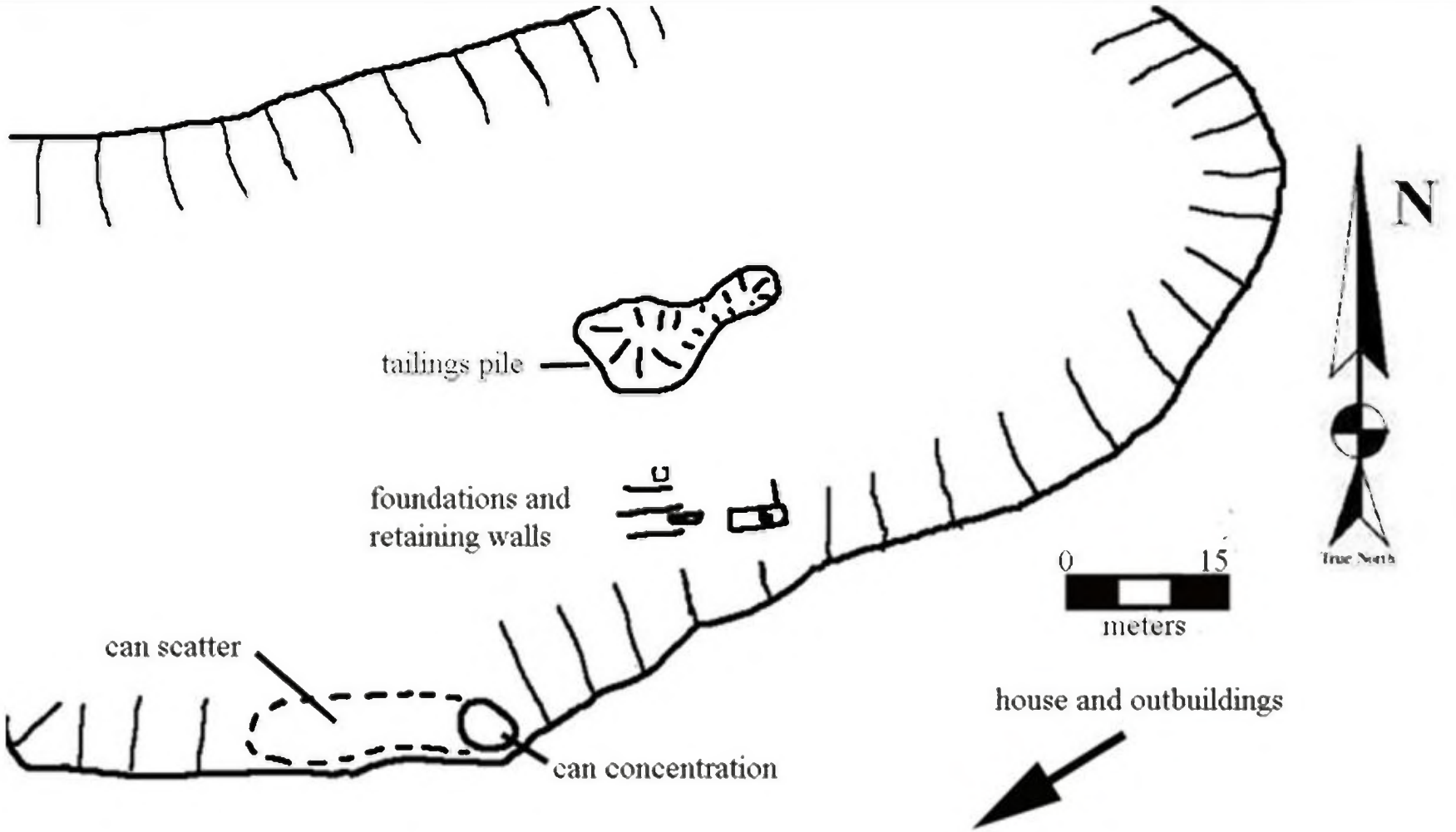

Figure 11
Map of site AZ BB:3:66 (ASM)
Klondyke Tailings Removal
Graham County, Arizona 85643

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Figure 12
Tailings pile, Feature 1,
AZ BB:3:66 (ASM)
Klondyke Tailings Removal
Graham County, Arizona 85643

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Located about 60 feet south of the tailings pile on the site of the hill (Figure 13), Feature 2 is a series of foundations and retaining walls (Figure 14). There are three levels of retaining walls constructed of cobbles set in concrete. These walls create level areas behind them. A rectangular foundation measuring 5 feet by 5 feet is located adjacent to the northern most retaining wall. This foundation is poured concrete and has a piece of milled lumber incorporated into the southwest corner (Figure 15).

To the south and east of the rectangular foundation is a trough made of bricks and concrete (Figure 16 and 17). It measures 12 feet by 3 feet, with the long axis parallel to the retaining walls which run not quite east-west. The outer wall of the trough is seven or eight courses of brick, many of which bear the inscription "Ancho No. 1" (Figure 18). The long walls were two bricks thick. The eastern end of the trough has two pipes that pass through the wall.

To the east of trough is a structure that has two arches over it (Figure 19). One has a large, broad metal cone set in it that may have served as a hopper for ore (Figure 20). The eastern end is a vaulted enclosure of brick. The structure is about 17 feet long, oriented the same direction as the trough and the retaining walls, and is about 3 feet wide. The funnel or hopper is located about midway between the western edge of the foundation and the eastern end. Old timbers are found lying near this structure and the trough.

Located 118 feet (36 meters) southwest of Feature 2, Feature 3 is a can scatter (Figure 21). Containing between 125 and 150 cans, this majority of the scatter is concentrated on the eastern side, with a few cans training off to the west. The cans are primarily hole-in-top, but one cone-top can, and at least one key-open can were noted. A brown bottle top and two pieces of green glass were also observed in the feature, as was a piece of rusted wire.

4.2.2.2. Evidence of Site Age and Function

Two lines of evidence point to a date for this feature in the early 20th century. First are the bricks. Bricks bearing the imprint "Ancho No.1" were made by the Ancho Brick Plant in Ancho, New Mexico, about 275 miles northeast of the Klondyke area. The Ancho Brick Plant was established sometime between 1902 (Sherman and Sherman 1975) and 1905 (Brickcollecting 2008). The plant ceased operation in 1921 (Sherman and Sherman 1975). The Ancho bricks in the trough provide a *terminus post quem* for the construction of the foundations, assuming that all the foundations are contemporaneous (and there is no evidence that they are not) of 1901 to 1905, depending on what the correct date is for the establishment of the brick plant. The use of at least one other type of brick suggests that the bricks for the construction may have been salvaged, so the structure could have been built considerably after the 1901-1905 dates, and could well have been built after the plant ceased operation in 1921.

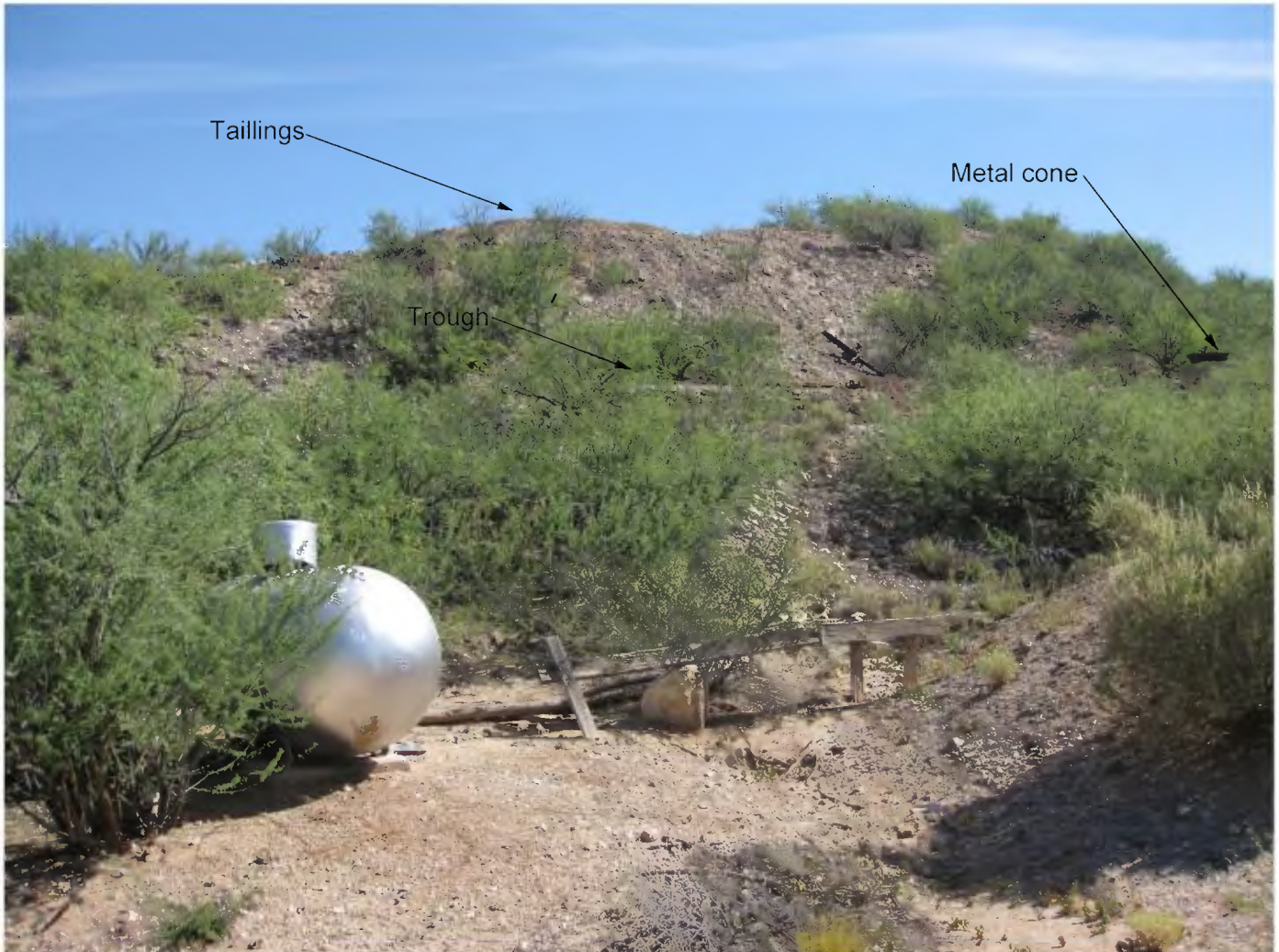

Figure 13
Features 1 and 2,
AZ BB:3:66 (ASM)
Klondyke Tailings Removal
Graham County, Arizona 85643

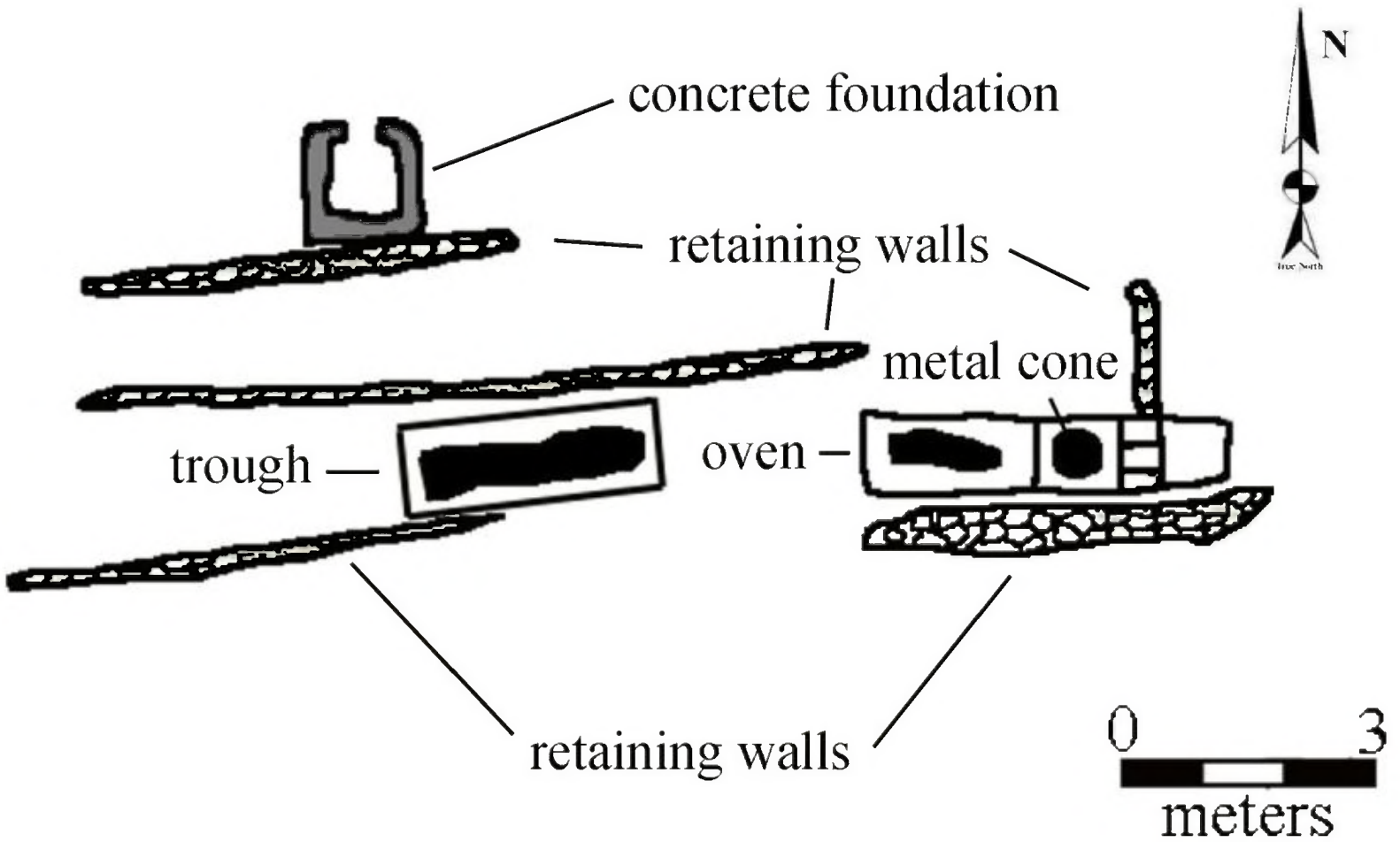

Figure 14
Map of Feature 2,
AZ BB:3:66 (ASM)
Klondyke Tailings Removal
Graham County, Arizona 85643

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Figure 15
Rectangular foundation with milled wood post,
AZ BB:3:66 (ASM)
Klondyke Tailings Removal
Graham County, Arizona 85643

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Figure 16
Trough feature looking west,
AZ BB:3:66 (ASM)
Klondyke Tailings Removal
Graham County, Arizona 85643

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Figure 17
Trough feature looking south, AZ BB:3:66 (ASM)
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Figure 18
Ancho brick in trough feature,
AZ BB:3:66 (ASM)
Klondyke Tailings Removal
Graham County, Arizona 85643

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Figure 19
Trough looking toward
the eastern structure,
AZ BB:3:66 (ASM)
Graham County, Arizona 85643

Figure 20
Metal cone on eastern structure, AZ BB:3:66 (ASM)
Klondyke Tailings Removal
Graham County, Arizona 85643

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Figure 21
Feature 3, AZ BB:3:66 (ASM)
Klondyke Tailings Removal
Graham County, Arizona 85643

The other line of evidence on dating the site is the can scatter (Feature 3). This is a bit removed from the Feature 2, but it still appears to be associated and it is assumed that it is contemporaneous. One of the major constituents of this scatter is hole-on-top cans which have a hole in the top that was filled with solder. Such cans were used between 1820 and World War I (1914-1918) (Waechter, et al. 2010). The cone-top can noted in the scatter is probably a beer can, and cone-top beer cans were not marketed until 1935 (Maxwell 1993).

The dating evidence is consistent both with the mining reported both between 1915 and 1921 when the Grand Reef Mine was leased to local residents and the activity reported in the late 1920s up to the Great Depression, if the cone top can is ignored. Indeed, it is possible that the site represents part or all of the mill that was built between 1915 and 1921to process ore from the Grand Reef Mine. There was also mining activity after 1937 but before the Athletic Mining Company Mill was built in 1943. As noted previously, the land on which the site is found was patented in 1916.

4.3 Arizona and National Register Recommendation

Both the artifact scatter on HS-02, though it didn't have enough material to be considered a site under the definitions used in Arizona, and the smelter site—AZ BB:3:66 (ASM)—were evaluated for eligibility to the National Register of Historic Places. The criteria for the Arizona Register of Historic Properties are essentially the same.

To be eligible for the National Register of Historic Places, a property must meet one or more of four criteria. Criterion A is association of the site with important events in history. Criterion B is association of the site with people who had an important role in history. Being particularly representative of a period, construction technique, or distinctive architectural type, or being a good example of the work of a master architect or craftsman is what Criterion C covers. Archaeological sites generally attain significance under Criterion D, which addresses the potential of the site to provide important information about the past, generally through the archaeological deposits it contains.

In addition to meeting one or more of these criteria, the site also has to retain integrity. Areas of integrity include materials, workmanship, setting, design, workmanship, location, feeling, and association.

The only criterion that the artifact scatter on HS-02 might qualify under is Criterion D, but the artifacts lack variety, and the overall number is low. In addition, it would be very difficult, if not impossible to determine who or what kind of operation created the site. The recommendation of the project archaeologist is that the artifacts are not eligible for inclusion on the National Register of Historic Places or the Arizona Register of Historic Properties.

AZ BB:3:66 (ASM) The Smelter Site is considered under the context of early 20th century mining activity in Arizona. Considering the site under Criterion A, the site is associated

with this aspect of Arizona history, but this period of mining was a rather minor aspect of mining in the area, and production was low (Ross 1925). There is no evidence for association with people who were important in history, so Criterion B is not met. Criterion C has to do with design and whether or not the site exemplifies certain aspects of design. When it was in operation, the site may well have exemplified the characteristics of a small smelting operation. The entire wooden superstructure for the smelter has been torn down, and the wooden elements are represented by a few only a few timber lying on the ground. The site lacks the integrity to be eligible under this criterion. Criterion D requires the site possess materials that can enlighten us about the past in some way, usually by containing archaeological deposits. The site lacked evidence of artifacts other than Feature 3, and the potential for that to shed much light on past activities is limited. There is little variety in the material and no indication of any depth to the scatter. Given this consideration, the project archaeologist recommends finding that the site is not eligible for the National Register of Historic Places or the Arizona Register of Historic Properties.

4.4 Effect Assessment and Treatment Recommendation

Neither the artifact scatter on HS-02 nor AZ BB:3:66 (ASM), The Smelter Site, are recommended to be eligible for the National Register of Historic Places or the Arizona Register of Historic Properties. Given these recommendation, there are no Register eligible sites to be effected by this project. This project should have no effect on cultural resources.

5.0 Conclusion and Recommendations

A cultural resources survey was conducted on the areas around four private residences on which soil removal and replacement has been planned to remediate high levels of lead and arsenic in the existing soils. An artifact scatter and a site that appears to be the remains of a small smelter were found. Both these resources were evaluated against the criteria for listing on the National Register of Historic Places or the Arizona Register of Historic Properties, and the recommendation was that neither site was eligible for listing. Further, in assessing the impact of the soil removal and replacement it was recommended that the project would have no impact on resources on or eligible for the National Register of Historic Places.

Since the resources do not meet the eligibility requirements for the Registers, no mitigation measures are necessary. The plans for the remediation will leave much of the smelter site (AZ BB:3:66 (ASM)) in place, however. Under the current plans, the tailings pile will be removed and soil behind the retain walls will be removed to a depth of one foot and replaced with clean soil. The retaining walls, trough, and other components of Feature 2 are expected to be left in place, as is the can scatter, Feature 3.

Based on the results of this and the previous survey (Morton, 2006) of the area, there is no indication of undocumented cultural resources or human remains on the properties surveyed,

but if such resources or remains should be encountered, the Environmental Protection Agency should stop work immediately at that location and take reasonable steps to secure the preservation of those resources. In accordance with the Arizona Antiquities Act and State Historic Preservation Act, and, in the case of unanticipated human remains, the federal Native American Graves Protection and Repatriation Act, the Environmental Protection Agency should notify the Arizona State Museum and State Historic Preservation Office and make arrangements for evaluation of the find, assessment of project effects, and treatment, if warranted.

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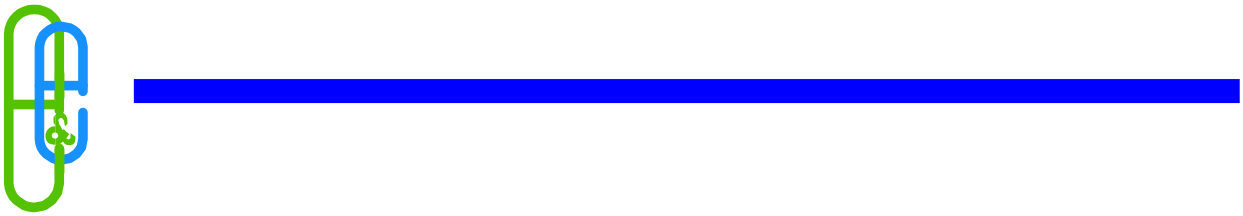
Appendix E: Sampling and Analysis Plan



Sampling and Analysis Plan

Klondyke Tailings Removal

Graham County, Arizona

TDD No.: TO-02-09-11-09-0001
Project No.: EE-002693-2156

May 2012

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 9

Prepared by:

ECOLOGY AND ENVIRONMENT, INC.
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Superfund Technical Assessment and Response Team

Sampling and Analysis Plan

Klondyke Tailings Removal
Graham County, Arizona

TDD No.: TO2-09-11-09-0001
Project No.: EE-002693-2156

May 2012

Approved by:_____
Robyn Kelly, START Project Manager
Ecology and Environment, Inc.

Approved by:_____
Howard Edwards, START Quality Assurance Coordinator
Ecology and Environment, Inc.

Approved by:_____
Harry Allen, Federal On-Scene Coordinator
U.S. Environmental Protection Agency, Region IX

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List of Abbreviations and Acronyms

AAC	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
AOC	area of concern
COPC	contaminant of potential concern
DQI	Data Quality Indicator
DQO	Data Quality Objective
E & E	Ecology and Environment, Inc.
FOSC	Federal On-Scene Coordinator
GPS	Global Positioning System
IDW	investigation-derived waste
LCS	laboratory control sample
MS/MSD	matrix spike/matrix spike duplicate
mg/kg	milligrams per kilogram
µg/L	micrograms per liter
NCBP	National Contaminant Biomonitoring Program
PM	Project Manager
PPE	personal protective equipment
QA	quality assurance
QC	quality control
RPD	relative percent difference
RSL	Regional Screening Level
r-SRL	residential Soil Remediation Level

List of Abbreviations and Acronyms (cont.)

SAP	Sampling and Analysis Plan
SOP	standard operating procedure
SRL	Soil Remediation Level
START	Superfund Technical Assessment and Response Team
TM	Task Monitor
U.S. EPA	United States Environmental Protection Agency
VSP	Visual Sampling Plan
WQARF	Water Quality Assurance Revolving Fund
XRF	X-ray fluorescence

1 Introduction

The United States Environmental Protection Agency (U.S. EPA) tasked Ecology and Environment, Inc.'s (E & E's) Superfund Technical Assessment and Response Team (START) to support a U.S. EPA funded removal action at the Klondyke Tailings Site (site) near Klondyke, Graham County, Arizona. In order to support the U.S. EPA's environmental data collection activities, the START has identified project data quality objectives and developed this Sampling and Analysis Plan (SAP).

In response to a request by the Arizona Department of Environmental Quality (ADEQ), the U.S. EPA Region 9 Emergency Response Section will remove lead- and arsenic-contaminated surface soils from residential properties near the site and from around the tailings piles located within the site, which is listed on the Arizona Water Quality Assurance Revolving Fund (WQARF) Registry. The START performed a removal assessment of surface soil at five residences in proximity to the site in March and April 2010; the results of this removal assessment indicated lead is present in residential soils at concentrations that exceed 400 milligrams per kilogram (mg/kg), which is the U.S. EPA's regional screening level (RSL) for a residential scenario and the ADEQ's Residential Soil Remediation Level (r-SRLs) for lead in soil. Previous investigations conducted by ADEQ and their contractor, the URS Corporation (URS), in 2006 and 2007 have determined that lead is present in surface and subsurface soils around the site tailings piles at concentrations that exceed 800 mg/kg, the U.S. EPA's RSL and the ADEQ's SRL for lead in industrial/non-residential soil. The previous assessments have also documented arsenic concentrations in the residential and tailings pile soils above the ADEQ r-SRL for arsenic of 10 mg/kg.

The START removal support activities will focus on determining the concentrations of lead and arsenic in soils after removal activities have been completed at the impacted residences and around the site tailings piles. Additionally, the START will document site activities associated with the placement of excavated soils on the tailings piles followed by stabilization and capping.

The scope of work and objectives outlined in this SAP are derived from direction from the U.S. EPA. This SAP describes the project and data use objectives, data collection rationale, data quality assurance goals, and requirements for sampling and analysis activities. It also defines the sampling and data collection methods that will be used for this project. This SAP is intended to accurately reflect the planned data-gathering activities for this support activity; however, site conditions, budget, and additional U.S. EPA direction may warrant modifications. All significant changes are to be documented in site records.

The specific field sampling and chemical analysis information in this SAP was prepared in accordance with the following U.S. EPA documents: EPA Requirements for Quality Assurance Project Plans (EPA QA/R 5, March 2001, EPA/240/B 01/003); Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G 4, February 2006, EPA/240/B-06/001); Guidance on Choosing a Sampling Design for Environmental Data Collection (EPA QA/G 5S, December 2002, EPA/240/R 02/005); Superfund Lead-Contaminated Residential Sites Handbook (OSWER 9285.7-90, August 2003); and Uniform Federal Policy for Implementing Environmental Quality System (EPA/505/F-03/001, March 2005).

1.1 Project Organization

U.S. EPA Federal On-Scene Coordinator (FOSC) – The U.S. EPA FOSC will be Mr. Harry Allen. Mr. Allen is the primary decision-maker and will direct the project, specify tasks, and ensure that the project is proceeding on schedule and is within budget. Additional duties include coordination of communication with the START Project Manager, U.S. EPA Quality Assurance (QA) Office, and community residents.

START Project Manager (PM) – Ms. Robyn Kelly is the START PM. The PM manages the project's data collection efforts and is responsible for developing and implementing the SAP, coordinating project tasks and field sampling, managing field data, and completing all preliminary and final reporting.

Principal Data Users – Data generated during the implementation of this SAP will be utilized by the FOSC to make decisions regarding potential removal activities.

START Quality Assurance Coordinator – Mr. Howard Edwards is responsible for overseeing the development of this SAP. Specifically, Mr. Edwards is responsible for overseeing the documentation of project objectives and for review of the draft and final SAP document. Mr. Edwards will coordinate with the U.S. EPA's Quality Assurance Office as needed.

Sample Analysis and Laboratory Support – The START subcontract laboratory GEL Laboratories in Charleston, South Carolina, will be responsible for sample analysis by definitive analytical methodologies. The START will be responsible for field sample analysis by non-definitive analytical methodologies.

1.2 Distribution List

Copies of the final SAP will be distributed to the following persons and organizations:

- Harry Allen, U.S. EPA Region 9
- E & E START Field Team
- E & E START project files

1.3 Statement of the Specific Problem

Lead- and arsenic-contaminated soil has been documented in areas surrounding the former Klondyke Mine tailings piles, including at residences located to the northwest, northeast, and east. Lead has been documented at concentrations as high as 17,000 mg/kg in soil in residential areas and 50,000 mg/kg in non-residential areas. Arsenic has been measured at concentrations as high as 290 mg/kg in residential areas and 170 mg/kg in non-residential areas. Based upon ADEQ WQARF site characterization data and data generated during the 2010 U.S. EPA Removal Assessment, the U.S. EPA has determined that the removal of surface soil from four residential properties adjacent to the tailings piles and removal of contaminated material from industrial areas surrounding the Klondyke tailing piles are necessary to mitigate the threats posed by the lead and arsenic contamination. Excavated areas will be backfilled with clean soil depending on residual concentrations and excavation depths. The excavated soils will be placed on the tailings piles, stabilized and armored to prevent erosion, and capped with clean soil.

2 Site Background

2.1 Site Location and Description

The site is located immediately east and southeast of the confluence of Aravaipa Creek and Laurel Canyon Creek near Klondyke, Graham County, Arizona (Figure 2-1). The site is located approximately 55 miles northeast of Tucson, Arizona. The geographic coordinates for the approximate center of the area of concern are Latitude 32°51'13.60" North and Longitude 110°20'38.45" West. The site contains two mine-waste tailings piles with a combined volume of approximately 70,000 cubic yards. Four residential home sites (designated as HS-02 through HS-05) that are also the subject of this removal action are located northwest, northeast, and east of the site tailings piles at distances ranging from approximately 500 to 2,000 feet away.

The U.S. EPA funded removal operation at the site will take place at the four residential home sites and at the open-soil industrial areas immediately surrounding the tailings piles. The residential removal area consists of four individual parcels: two located approximately 500 feet northwest of the tailings piles, one approximately 800 feet east of the tailings piles, and one approximately 2,000 feet northeast of the piles. The four residential properties included in the removal are shown in Figure 2-2. The residential removal areas are outside the boundary of Klondyke Tailings WQARF site. The non-residential removal areas are areas immediately north and east of the two mine waste piles and within the boundary of the Klondyke Tailings WQARF site (Figure 2-3).

2.2 Site Geology and Hydrogeology

The soil in the area of the site is characterized by unconsolidated alluvial fill material from erosion of the surrounding hills. Groundwater in the area exists at two sources: a perched aquifer, sometimes referred to as the Aravaipa Creek subflow, at approximately four to six feet below ground surface (bgs), and the Aravaipa Valley groundwater aquifer, which varies in depth from 20 feet to 45 feet bgs and from where local residents receive drinking water via private wells (ADHS 1999, ADEQ-URS 2009). The perched aquifer becomes artesian and flows perennially along the 18-mile Aravaipa Canyon (ADEQ-URS 2009). According to the ADHS, one well, located approximately 350 feet southwest of the upper tailings pile, was reportedly drilled by the former mill operator, the Athletic Mining Company. According to the current property owner the well draws groundwater from approximately 80 to 100 feet bgs, pumps at approximately 250 gallons per minute, and is primarily used for irrigation purposes.

2.3 Site History

According to the ADEQ, lead, zinc, copper, silver, and gold mining was conducted in the Klondyke area of the Aravaipa Mining District in Arizona from the 1870s through the 1950s (ADEQ, 2009). In 1948, the Athletic Mining Company constructed a flotation-processing mill next to Aravaipa Creek and operated until about 1958, generating tailings. During the time of operation, lead, zinc, and copper concentrates were produced, along with two mine waste piles. The piles are designated as the “upper” and “lower” tailings piles (UTP and LTP, respectively) based on their relative position along Aravaipa Creek. Concentrations of lead in the mine waste have been detected as high as 50,000 mg/kg. Concentrations of antimony, arsenic, beryllium, cadmium, copper, lead, manganese and zinc have also been detected above Arizona r-SRLs in the mine waste (ADEQ, 2008).

The site was listed on Arizona's WQARF in September 1998. Analytical results for soil samples collected by URS from surface to two feet below ground surface at the site and surrounding properties during 2006 and 2007 and analyzed by X-ray fluorescence (XRF) indicated soil contamination was present on nine privately owned properties adjacent to and near the tailings piles. The data indicated elevated lead and arsenic contamination at concentrations above the r-SRLs of 400 mg/kg and 10 mg/kg, respectively. Lead concentrations were as high as 18,000 mg/kg on properties adjacent to the tailings piles. Out of the nine privately owned properties contaminated by lead, three were reported to be occupied residences and two additional properties were reported to have a residence under construction or a residence infrequently occupied. Land and water use surveys conducted in the area indicate all property owners of impacted properties intend to use their properties for residential uses.

According to the ADEQ, remedial actions at the site are important to protect critical habitat of two endangered species in the perennial reach of Aravaipa Creek downstream of the site. Perennial flows in Aravaipa Creek begin approximately two miles downstream of the site. In addition, Aravaipa Creek is a unique waterway under Arizona Administrative Code (AAC) R18-11-112, and the site lies approximately four miles upstream of the Nature Conservancy's Aravaipa Canyon Preserve and approximately six miles upstream of the Bureau of Land Management's Aravaipa Canyon Wilderness.

2.4 Previous Investigations

Between 1986 and 1993, the U.S. Bureau of Land Management collected surface water samples for metals analysis from the perennial section of Aravaipa Creek as part of a regional surface water quality monitoring program. Laboratory analytical results indicated a maximum concentration of lead at 0.316 milligrams per liter, which exceeds the 15 micrograms per liter (µg/L) surface water quality standard (SWQS) for lead in a domestic water source in Arizona (AAC-Title 18, Chapter 11-Appendix A).

In 1993, the U.S. Fish and Wildlife Service reported to the ADEQ that erosion from the tailings piles could be affecting the water quality of Aravaipa Creek. As a result, the ADEQ collected sediment, groundwater, surface water, and soil samples from the area. Three sediment samples, one upgradient, one adjacent to, and one downgradient of the tailings piles, were also collected from Aravaipa Creek and analyzed for metals using U.S. EPA Method 6010. The three sediment samples contained concentrations of metals below the ADEQ r-SRLs. Three surface water samples were collected downstream of the tailings piles during a rain event and an additional three samples were collected from the perennial section of Aravaipa Creek and analyzed for metals using U.S. EPA Method 6010. All of the surface water samples contained concentrations of metals below the ADEQ SWQSs. Groundwater samples were collected at approximately 6 feet bgs from Aravaipa Creek downgradient of the tailings pile and analyzed for total metals using U.S. EPA Method 200 series. Results from the shallow groundwater indicated samples exceeded the SWQSs for full body contact for arsenic and lead (ADEQ-URS 2009). Concentrations of arsenic ranged from 0.012 to 0.055 µg/L, and lead concentrations ranged from 0.63 to 13.2 µg/L (ADEQ, 1993).

Ten soil samples were collected from the tailings piles and analyzed for metals using U. S. EPA Method 6010 and for mercury using U.S. EPA Method 7471. Soil sample results indicated

concentrations of lead and arsenic exceeded the ADEQ r-SRLs. Concentrations of arsenic ranged from less than 100 mg/kg to 170 mg/kg, and concentrations of lead ranged from 32 mg/kg to 10,000 mg/kg (ADEQ-URS 2009).

A study of possible impacts on the native fish in the perennial reaches of Aravaipa Creek was conducted in 1997 by Kirke King of the U.S. Fish and Wildlife Service on behalf of ADEQ. The 1997 data were compared to the 1990 National Contaminant Biomonitoring Program (NCBP) to determine how trace element concentrations in fish from Aravaipa Creek compared to national levels. Arsenic, cadmium and lead were detected above the NCBP 85th percentile in the fish in Aravaipa Creek.

URS conducted an extensive surface and subsurface soil sampling investigation between 2006 and 2007. The investigation conducted by URS identified elevated levels of lead and arsenic in residential soils at nine parcels adjacent to or near the two tailings piles associated with the site. As part of this work, a floodplain analysis of Aravaipa Creek was completed in 2007 and indicated the upstream pile (the UTP) is within, and subject to, erosion from 25, 50, and 100 year flood events on Aravaipa Creek as well as erosion by the lateral movement of Aravaipa Creek (ADEQ, 2008). The downstream pile (the LTP) is not within 10, 25, and 50 year flood events on Aravaipa Creek, but a portion of the downstream pile is within and subject to erosion from 100-year flood events on Aravaipa Creek as well as the lateral migration of Aravaipa Creek. The LTP is within, and subject to, erosion from 10, 25, 50, and 100 year flood events from Laurel Creek, a tributary to Aravaipa Creek (ADEQ, 2008).

In June 2008, ADEQ and their contractors completed the consolidation of a portion of the nearby surface soils onto the UTP, capping it with a two-foot clean soil cover and installing gabion mattresses for erosion protection on and around the UTP. According to ADEQ, the UTP was covered using clean fill to prevent infiltration and wind erosion. However, this action did not include consolidation or armoring of the LTP, and several areas of lead-contaminated surface soils located around the LTP and UTP were left in place.

In April 2010, the START conducted a removal assessment of five residential home sites (HS-01 through HS-05) near the tailings piles. The results of this assessment are reported in detail in the *Klondyke Tailings Residences Removal Assessment Report, Graham County, Arizona, December 14, 2010* (E & E, 2010). At each home site, the START collected soil from an approximately 200-foot-by-200-foot area around the primary residential living area (i.e., the house, garage, and other structures in the immediate area around the primary residence). Due to the large size of the properties surrounding the residences, each property was subdivided into eight approximately equal subdivisions, with a five-point composite sample collected from each subdivision. In addition, discrete sample locations (e.g., gardens, play areas, rain gutter discharge points) were determined and collected during the sampling event. A total of 53 composite samples, each consisting of five-point aliquots, and 13 discrete samples were collected. Laboratory and field XRF results indicated lead concentrations in surface soils exceeding the action level of 400 mg/kg. Lead in soil was detected as high as 17,000 mg/kg. Arsenic in soil was detected as high as 290 mg/kg. Based on the results of the removal assessment, the U.S. EPA determined that the home sites HS-02 through HS-05 would be part of the removal action. At HS-01, only one of the six composite soil samples contained lead above 400 mg/kg, and the concentration was 420 mg/kg; therefore, HS-01 was not included in the planned removal action.

Source: ESRI Streetmaps

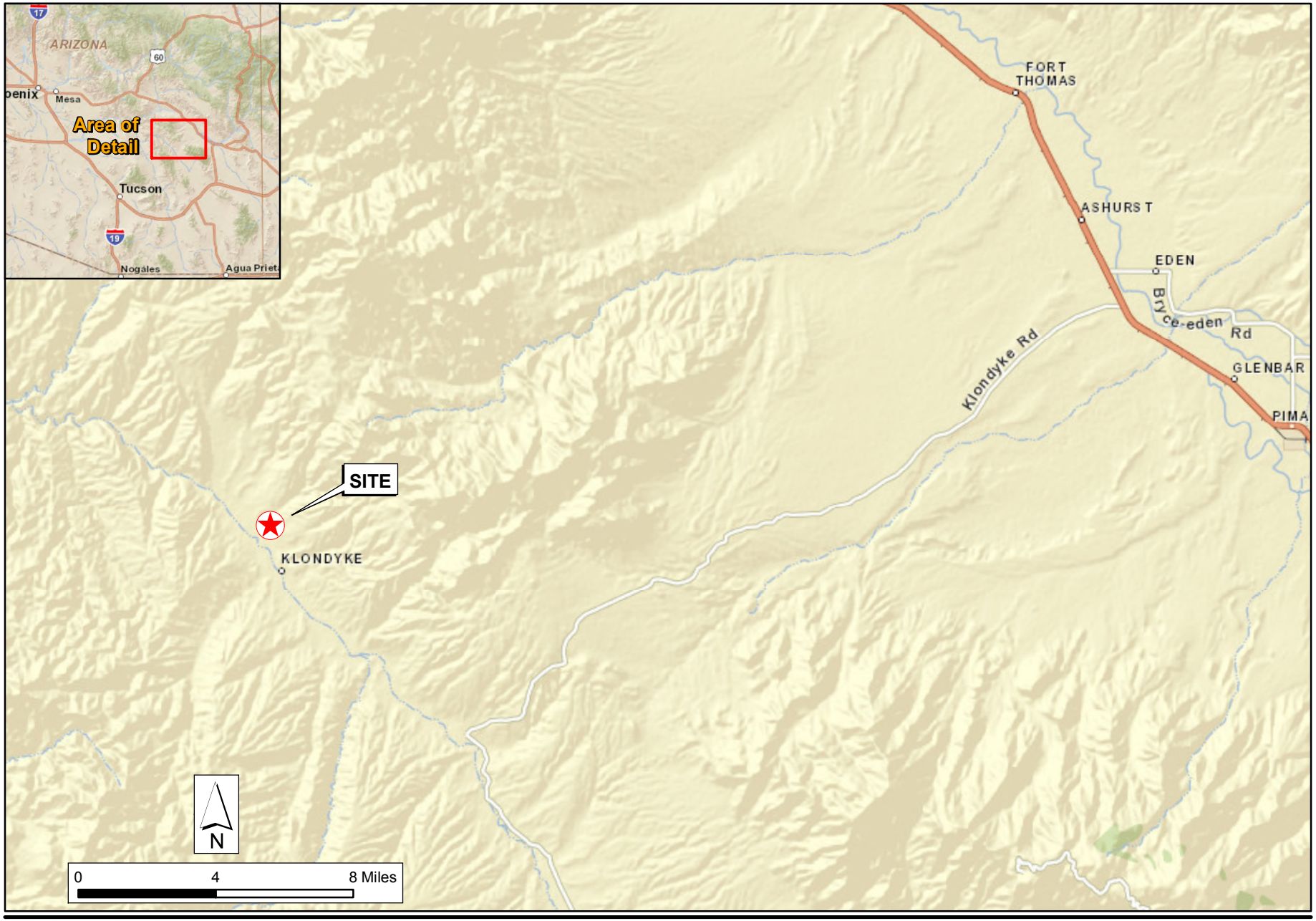

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Figure 2-1

Site Location Map
Klondyke Tailings Removal
Graham County, Arizona 85643

Source: Bing Maps

LEGEND

HS-## = Homesite designation

Klondyke Tailing WQARF Site

N

0 600 1,200 Feet

Figure 2-2

Site Features Map
Klondyke Tailings Removal

Graham County, Arizona 85643

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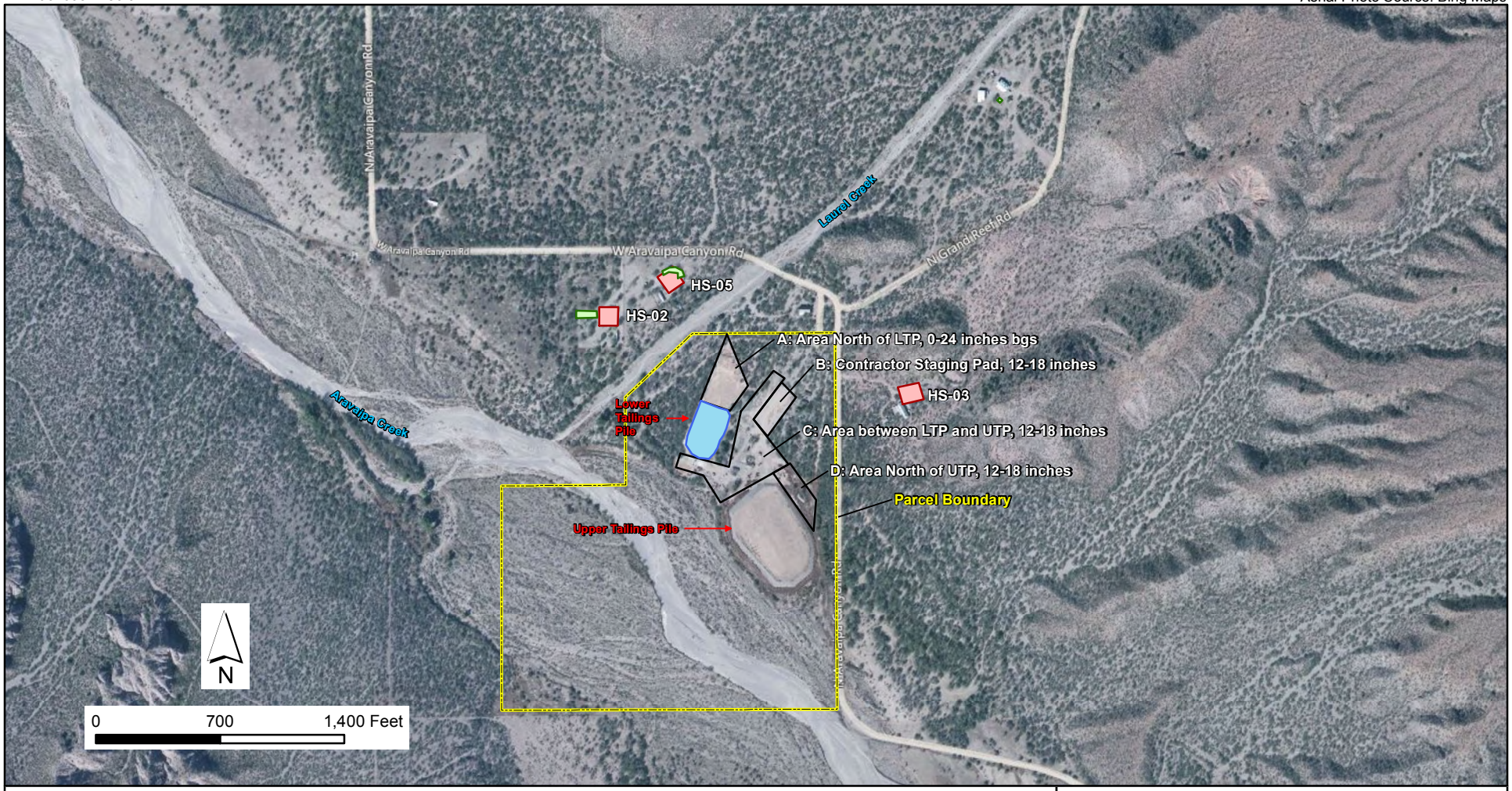
Aerial Photo Source: Bing Maps



LEGEND

- Approximate final footprint of LTP
- Gardens, proposed excavation depth of 24 inches bgs
- Yard, proposed excavation depth of 12 inches bgs

NOTE

Depths shown for Areas A-D are proposed excavation depths.

ABBREVIATIONS

LTP	Lower Tailings Pile
UTP	Upper Tailings Pile
HS-##	Homesite designation

Figure 2-3

Proposed Excavation Areas Klondyke Tailings Removal

Graham County, Arizona 85643

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3 Project Objectives

3.1 Data Use Objectives

Based on lead and arsenic contamination documented by the April 2010 removal assessment and the ADEQ WQARF investigation, the U.S. EPA is conducting a removal of soil and tailings from the site. The START will collect post-excavation soil samples to determine the lead and arsenic concentrations in the remaining exposed soil. The data generated will be used to document residual lead and arsenic concentrations at the residential properties and to determine whether additional excavation is warranted at the tailings pile excavation areas and/or whether areas excavated will be replaced with clean fill material. Analytical data collected as part of this removal will be used to answer the following site-specific study questions:

- What are the concentrations of lead and arsenic in exposed residential soils left in place after excavation?
- What are the lead and arsenic concentrations in soil areas exposed after excavation around the tailings piles?

3.2 Project Task/Sampling Objectives

The data generated by implementing this SAP will be used to evaluate whether contamination in soils remains after excavation and removal. The sampling results will be reviewed to identify areas above site specific action levels.

Soil removal followed by immediate field analysis will be performed to accomplish the project objectives. Definitive laboratory sample analysis will be conducted in order to document and validate the field analysis data. Sampling objectives include the following:

- Document the concentrations of lead and arsenic in exposed soils after excavation in the residential decision areas that were identified as contamination hot spots during the removal assessment phase.
- Document the concentrations of lead and arsenic in exposed soils after excavation in the industrial decision areas that were identified as contamination hot spots during the ADEQ characterization phase.
- Identify whether an excavated industrial decision area requires additional sampling, additional excavation, and/or backfilling with clean soil.

3.3 Action Levels

The following benchmarks were considered prior to establishment of the site-specific action levels:

- U.S. EPA RSLs for Residential Soil, November 2011
- U.S. EPA RSLs for Industrial Soil, November 2011
- AAC Title 18, Chapter 7-Appendix A, Residential and Non-Residential SRLs

The U.S. EPA RSLs are risk-based concentrations that combine current U.S. EPA human health toxicity values with standard exposure factors to estimate contaminant concentrations in environmental media (soil, air, and water) that are considered protective of humans, including sensitive groups, over a lifetime. Chemical concentrations above these levels do not automatically designate a site as contaminated or trigger a response action; however, exceeding the RSLs suggests that further evaluation of the potential risks that may be posed by site contaminants is appropriate.

The ADEQ SRLs are established regulatory limits for contaminant concentrations in soil in residential and non-residential scenarios within Arizona. SRLs are considered protective of human health, including sensitive groups, over a lifetime of exposure. Contaminant concentrations in soils that exceed SRLs may not necessarily represent a health risk. Rather, when contaminant concentrations in soil exceed these standards, further evaluation may be necessary to determine whether the site poses an unacceptable risk to human health.

The site action levels for lead selected by the U.S. EPA are based on human health threats and exposures resulting from lead migration from the mine tailings piles. Action levels for this removal were developed to identify maximum concentrations of lead at the site that would not adversely impact humans. These criteria will be used to calculate the acceptable concentration of lead in soils. The U.S. EPA also determined a site-specific action level for arsenic in soil.

During the removal assessment phase, the site-specific action level for lead at the four residences was 400 mg/kg, and the action level for arsenic was 10 mg/kg. During the removal action, the U.S. EPA plans to excavate 1 feet of soil in residential yard areas and 2 feet of soil in the residential garden areas. The START will then sample the exposed soils for lead and arsenic analysis to document residual lead and arsenic concentrations. The residual lead concentrations will be compared to the RSL of 400 mg/kg for documentation purposes only. The residual arsenic concentrations will be compared to the U.S. EPA-determined concentration for arsenic of 80 mg/kg for documentation purposes only. No additional excavation is intended to occur. After the initial 1 or 2 feet of excavation, the U.S. EPA intends to backfill the excavated areas to native grade with clean fill material.

In the industrial areas surrounding the tailings piles, the action levels of 800 mg/kg for lead (the U.S. EPA industrial RSL) and 80 mg/kg for arsenic (site-specific concentration set by U.S. EPA) will be used to decide whether additional sampling, additional excavation, and/or backfilling with clean fill with or without additional excavation will occur. The selected site-specific action levels for lead and arsenic, benchmarks, and data quality goals are presented in Table 3-1 and Table 3-2.

Table 3-1 Benchmarks and Data Quality Indicator Goals - Definitive Data for EPA Method 6010B
Klondyke Tailings Removal
Graham County, Arizona

E & E Project No. EE-002693-2156 TDD No. TO2-09-11-09-0001

Chemical of Potential Concern	Average Regional Background Concentration Determined during the Removal Assessment (mg/kg)	Site-Specific Action Level for Residences (mg/kg)	Site-Specific Action Level for Industrial Areas (mg/kg)	Laboratory Reporting Limits (mg/kg) SW-846 Method 6010B	Accuracy (% Recovery for MS/ MSD)	Precision (RPD from MS/MSD and Duplicates)	Percent Completeness
Lead	11	NA[1]	800[2]	1	75 - 135	<35%	> 90%[3]
Arsenic	3	NA[1]	80[4]	1	75 - 135	<35%	> 90%[3]

Notes:
mg/kg = milligrams per kilogram
RSL = U.S. EPA Regional Screening Level (November 2011)
MS/MSD = Matrix Spike/Matrix Spike Duplicate
RPD = Relative Percent Difference
NA = Not applicable

1 Post-excavation exposed soils in residences will be compared to a lead concentration of 400 mg/kg (U.S. EPA RSL, residential) and an arsenic concentration of 80 mg/kg (site-specific, determined by U.S.EPA) for documentation purposes only.
2 U.S. EPA RSL for Industrial Soils and AAC R18-7-Appendix A, Tier 1 Non-Residential Soil Remediation Level (SRL)
3 Should also be greater than ten percent of all samples analyzed by EPA Method 6200
4 Determined by U.S. EPA as site-specific action level for arsenic

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Table 3-2 Benchmarks and Data Quality Indicator Goals - Non-Definitive Data for EPA Method 6200
Klondyke Tailings Removal
Graham County, Arizona

E & E Project No. EE-002693-2156 TDD No. TO2-09-11-09-0001

Chemical of Potential Concern	Site-Specific Action Level for Residences (mg/kg)	Site-Specific Action Level for Industrial Areas (mg/kg)	Innov-X XRF MDL[1] SW-846 Method 6200 (mg/kg)	Accuracy (% Recovery of Check Standards) SW-846 Method 6200	Precision (RPD from Duplicates)	Percent Completeness
Lead	NA[a]	800[b]	10	65 – 135	<35%[2]	> 90%
Arsenic	NA[a]	80[c]	10	65 – 135	<35%[2]	> 90%

Notes:
mg/kg = milligrams per kilogram
RPD = Relative Percent Difference
MDL = Method Detection Limit
NA = Not applicable
[a] Post-excavation exposed soils in residences will be compared to a lead concentration of 400 mg/kg (U.S. EPA RSL, residential) and an arsenic concentration of 80 mg/kg (site-specific, determined by U.S.EPA) for documentation purposes only.
[b] U.S. EPA RSL for Industrial Soils and AAC R18-7-Appendix A, Tier 1 Non-Residential Soil Remediation Level (SRL)
[c] Determined by U.S. EPA as site-specific action level for arsenic
[1] May differ from a site-specific MDL that should be developed during field XRF operations. The site-specific MDL may be affected by conditions such as soil type or matrix interferences.
[2] Should not exceed 25% for analysis duplicates (an analysis duplicate is the same XRF cup, run twice).

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3.3 Data Quality Objectives

The data quality objective (DQO) process, as set forth in the U.S. EPA *Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA/240/B-06/001)* (U.S. EPA, 2006), was followed to establish the DQOs for this project. An outline of the process and the outputs for this project are included in Appendix A.

3.4 Data Quality Indicators (DQIs)

Data quality indicators (DQIs) are defined as: precision, accuracy, representativeness, completeness, comparability, and method detection limits. The DQIs for this project were developed following the guidelines in the U.S. EPA *Requirements for Quality Assurance Project Plans* (U.S. EPA, 2001). All sampling procedures are documented in Sections 6.2 and 6.3. Standard operating procedures will be followed to ensure representativeness of sample results by obtaining characteristic samples. Approved U.S. EPA methods and standard reporting limits will be used. All data not rejected will be considered complete. Table 3-1 and Table 3-2 document the site-specific DQI goals for lead.

3.5 Schedule of Sampling Activities

The field sampling and analysis activities are scheduled to commence on May 21, 2012. The field activities are anticipated to last approximately eight weeks.

3.6 Special Training Requirements/Certifications

The operation of the field analytical instruments requires specialized training that will be administered, prior to mobilization, to all START personnel scheduled to be onsite.

Data validation requires specialized training and experience. Project management must determine and verify a qualified data validation resource prior to data validation.

Field sampling personnel should be trained and have experience with soil sampling at hazardous waste sites while wearing appropriate protective equipment. One field sampler should be trained and familiar with Global Positioning System (GPS) data collection. All sampling personnel must have appropriate training that complies with 29 Code of Federal Regulations 1910.120. The site-specific health and safety plan for this project is to be appended to this plan by project management (Appendix B).

4 Sampling Rationale and Design

As discussed in previous sections of this SAP, the START reviewed available site information including recent sampling data and the U. S. EPA FOSC's objectives for the removal to determine the specific sampling design.

The principal focus of the removal support sampling and analysis is identification and documentation of lead and arsenic contamination in excavation-exposed soil in residential and industrial removal decision areas within the Klondyke Tailings site. A secondary task will be to document site activities associated with the soil excavation and backfill, placement of the excavated soils on the tailings piles, and stabilization and capping of the tailings piles. This task is described further in Section 6.4.

4.1 Residential Property Sampling

The sampling design and sampling locations used in the START removal assessment were derived following the guidance from the *Superfund Lead-Contaminated Residential Sites Handbook* (OSWER Directive 9285.7-50, August 2003). Excavation will occur in residential area decision units that were identified in the 2010 removal assessment as having soil lead contamination at concentrations above 400 mg/kg; these decision units also include those at which elevated arsenic concentrations were detected. After excavation, samples will be collected from the excavated residential area in the same locations and in the same manner as sampled in the 2010 removal assessment. During the previous removal assessment, each residential property was divided into sampling unit areas approximately 50 feet by 50 feet in size. Within each sampling unit, a five-point composite sample was created from sampling points distributed with a bias toward equal distribution. During the proposed removal action sampling, five-point composite samples will be generated after excavation within each sampling unit from the same five points as were sampled during the removal assessment. The total number of composite samples is expected to be approximately 26. Discrete samples around drip lines and in drainage areas were also collected during the removal assessment; however, these sample locations will not be re-sampled following excavation.

Sample collection and analysis in the residential areas will be conducted for documentation purposes only. The U.S. EPA's proposed excavation strategy is to excavate 1 foot of soil in residential yard areas and 2 feet of soil in residential garden areas. After sampling to document residual lead and arsenic concentrations, the excavated areas will be backfilled with clean fill soil to native grade.

The locations of the four residences in the vicinity of the piles in which the excavation and sampling will be conducted are shown in Figure 2-3. Figures 4-1A through 4-1D present the removal assessment sample locations at each of the four residences; for the decision unit areas at which lead was detected above 400 mg/kg, these same sample locations will be used during post-excavation removal sampling. It is not anticipated that excavation or sampling will occur in decision unit areas at which lead concentrations were below 400 mg/kg. Table 4-1 summarizes the sampling locations by residence and gives the total number of samples to be collected. Additional samples may be identified and investigated if directed by the U.S. EPA FOSC.

The GPS coordinates for the START removal assessment samples were documented and will be used to determined post-excavation composite sampling locations. After collection, samples will be handled and analyzed according to Sections 5.1, 6.2, and 6.3 of this SAP. Sample locations will be recorded in the field logbook as sampling is completed. All samples will be analyzed using the XRF in the field to determine the concentration of lead and arsenic. The field-screened samples will be submitted to an off-site laboratory for confirmation analysis at a rate of 20 percent in the initial days of project sampling, with a minimum of 10 percent over the duration of the entire project.

4.2 Industrial Area Sampling

The locations of the industrial decision areas surrounding the tailings piles are shown in Figure 2-3. The industrial areas surrounding the tailings piles have been divided into sections A through D. Due to the size of the sections and due to the lack of information as to the likely lead concentration variance within the areas, a systematic grid sampling design with a random start point, rather than composite sampling, is the most appropriate sampling design that will meet the specified DQOs. A square grid was selected over other grid shapes because it is easier to implement in the field. Visual Sample Plan, Version 6.0 (Battelle Memorial Institute 2011) (VSP) was used to determine that a grid with 75-foot spacing will identify a hot spot with an area of approximately 6,300 square feet with a 95 percent probability of detection. The VSP report is attached at the end of the DQOs (Appendix A). Based on the proposed grid spacing, the total number of initial samples in all four areas is estimated to be 50. Figure 4-2 presents the proposed post-excavation sample locations at each of the four industrial area sections.

The soils in Sections A through D are currently at elevations ranging from native grade (based on the surrounding vegetated areas in the floodplain) to several feet above native grade. After initial excavation, which is expected to occur to depths ranging from native grade to approximately 2 feet below native grade, each section will be sampled at the locations shown in Figure 4-2. The GPS coordinates of all sampling locations will be documented. Table 4-2 summarizes the number of sample locations in each of the four industrial areas surrounding the tailings piles. All samples will be handled and analyzed according to Sections 5.1, 6.2, and 6.3 of this SAP.

All samples will be analyzed using the XRF in the field to determine the concentration of lead and arsenic. The field-screened samples will be submitted to an off-site laboratory for confirmation analysis at a rate of 20 percent in the initial days of project sampling, with a minimum of 10 percent over the duration of the entire project. If the lead and arsenic concentrations in the exposed industrial area soils are less than the action level, then no additional excavation or sampling will occur. Excavated areas may be backfilled with clean fill soil to native grade depending on the depth of the excavation. If the lead or arsenic concentrations in the exposed industrial area soils are above the action levels and the FOSC determines additional excavation is required, the same grid sample locations based on GPS coordinates will be re-sampled and analyzed with the XRF after the additional excavation is completed. It is anticipated that additional excavation is likely to occur in 1-foot lifts. If the COPC concentrations exceed the action levels, but the FOSC determines that the excavated area will be backfilled with clean soil rather than excavated further, no further sampling will be conducted.

4.3 Analytes of Concern

The analytes of concern are lead and arsenic. All samples collected in the field will be field analyzed for lead and arsenic using the XRF (U.S. EPA Method 6200; U.S. EPA, 2007). The field-screened samples will be submitted to an off-site laboratory for confirmation analysis of lead and arsenic by U.S. EPA Method 6010B at a rate of 20 percent in the initial days of project sampling, with a minimum of both 10 percent and 12 samples over the duration of the entire project.

The selected analyses will generate lead and arsenic concentration data that may include lead derived from the Klondyke Tailings Piles, lead from lead-based paint, areal lead deposition from fuel combustion, and naturally occurring lead and arsenic.

Table 4-1 Sampling Summary – Residential Areas
Klondyke Tailings Removal
Graham County, Arizona

E & E Project No. EE-002693-2156 TDD No. TO2-09-11-09-0001

Residence	Removal Assessment Decision Unit Areas	Number of Decision Units Proposed for Excavation[1]	Total Number of Proposed Five-Point Composite Samples[2]
Home Site 02	Eight yard subsections, one garden section, dripline and run-off locations	8	8
Home Site 03	Seven yard subsections, dripline and run-off locations	6	6
Home Site 04	Eight yard subsections, one garden section, dripline locations	5	5
Home Site 05	Six yard subsections, one garden section, dripline locations	7	7
Total Composite Samples			26

Note:
[1] Based on sampling areas with lead detected above 400 milligrams per kilogram during 2010 removal assessment. Subject to change at U.S. EPA discretion.
[2] Composite sample locations were determined in the field during the 2010 assessment.

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Table 4-2 Sampling Summary – Industrial Areas
Klondyke Tailings Removal
Graham County, Arizona

E & E Project No. EE-002693-2156 TDD No. TO2-09-11-09-0001

Industrial Area	Location Description	Number of Grid Sample Locations[1]	Total Number of Discrete Samples
A	North of LTP	10	10
B	Contractor Staging Pad	6	6
C	Area between LTP and UTP	27	27
D	North of UTP	7	7
Total Discrete Samples			50

Note:
[1] Discrete sample locations were determined using VSP.

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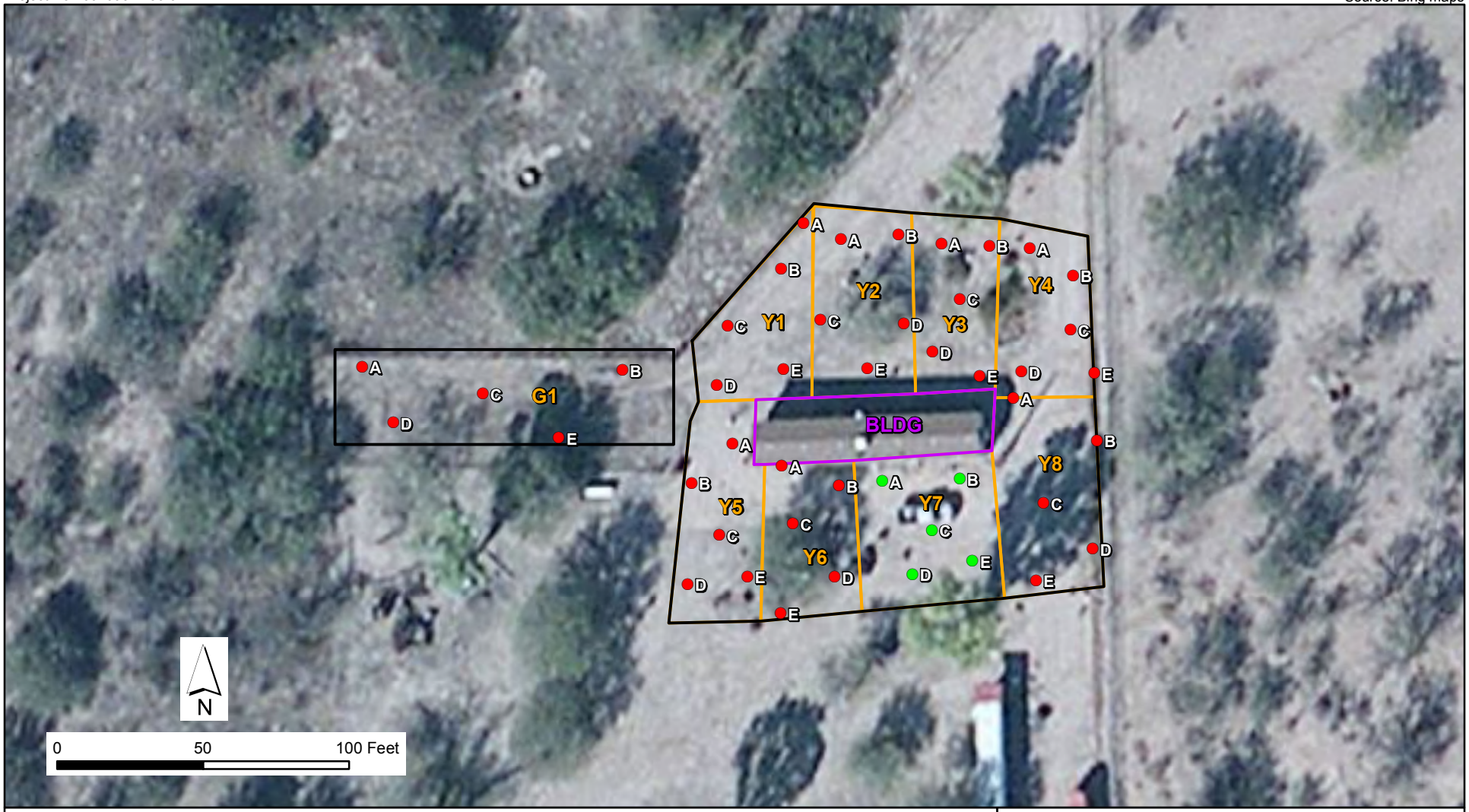
TDD No.: TO-02-09-11-09-0001
Project No.: 002693.2156.01RF

Source: Bing maps



LEGEND

- Composite soil sample location
- Decision unit area
- Building
- Assessment area perimeter

ABBREVIATIONS

Y1	Indicates yard section number 1
G1	Garden sample

NOTE Green sample location = lead below 400 mg/kg investigation level
Red sample location = lead above 400 mg/kg investigation level

Figure 4-1A
Homesite HS-02
Previous Sample Location Map
Klondyke Tailings Removal
Graham County, Arizona 85643

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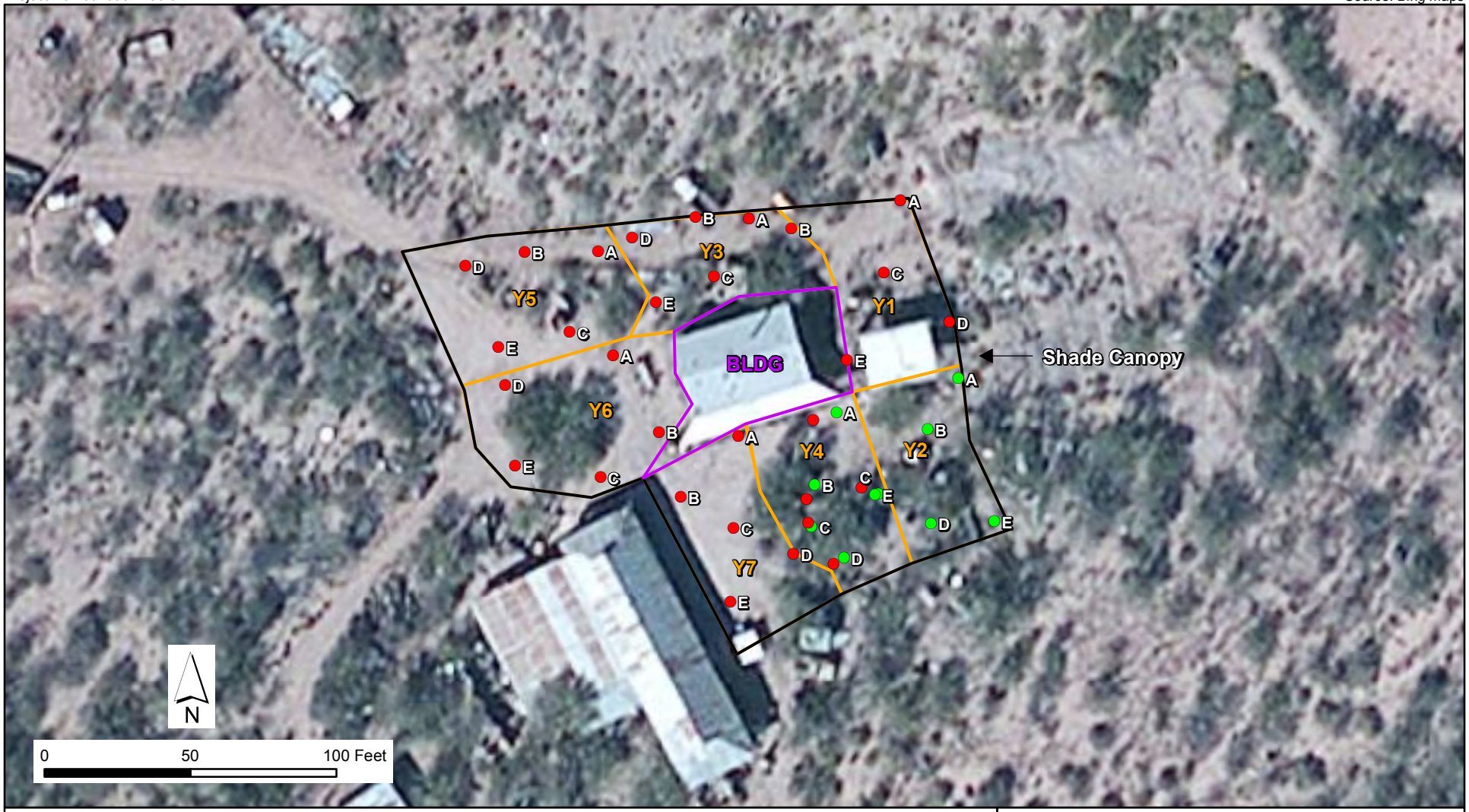
Project No.: 002693.2156.01RF

Source: Bing maps



LEGEND

- Composite soil sample location
- Decision unit area
- Building
- Assessment area perimeter

ABBREVIATIONS

Y1 Indicates yard section number 1

NOTE

Green sample location = lead below 400 mg/kg investigation level
Red sample location = lead above 400 mg/kg investigation level

Figure 4-1B
Homesite HS-03
Previous Sample Location Map
Klondyke Tailings Removal
Graham County, Arizona 85643

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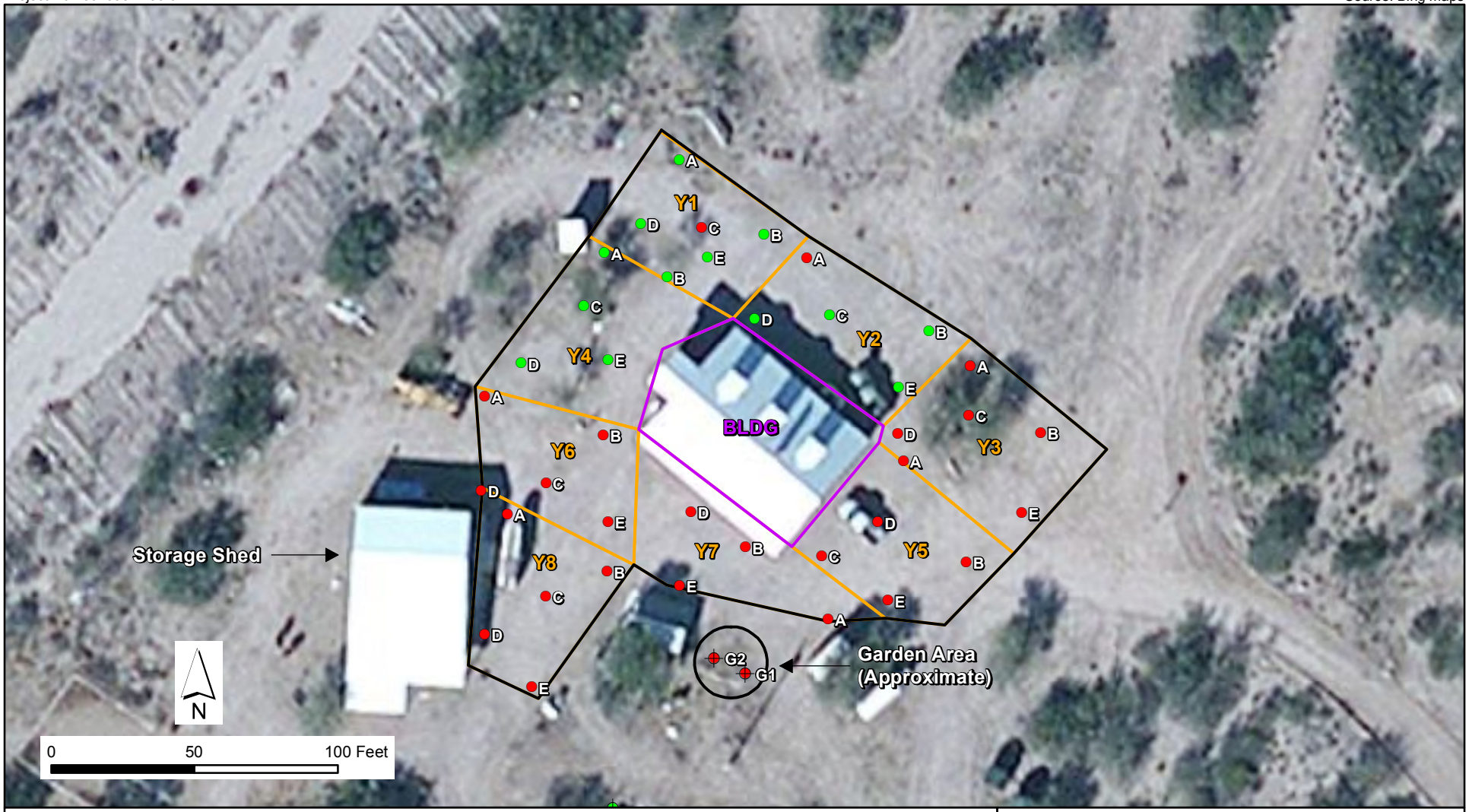
TDD No.: TO-02-09-11-09-0001
Project No.: 002693.2156.01RF

Source: Bing maps



LEGEND

- Composite soil sample location
- Discrete soil sample location
- Decision unit area
- Building
- Assessment area perimeter

ABBREVIATIONS

Y1 Indicates yard section number 1

NOTE Green sample location = lead below 400 mg/kg investigation level
Red sample location = lead above 400 mg/kg investigation level
Residence (BLDG) constructed after aerial photo was taken

Figure 4-1C

Homesite HS-04
Previous Sample Location Map
Klondyke Tailings Removal

Graham County, Arizona 85643

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TDD No.: TO-02-09-11-09-0001
Project No.: 002693.2156.01RF

Source: Bing maps

LEGEND

- Composite soil sample location
- Discrete soil sample location
- Decision unit area
- Building
- Assessment area perimeter

ABBREVIATIONS

Y1	Indicates yard section number 1
G1	Garden sample

NOTE Green sample location = lead below 400 mg/kg investigation level
Red sample location = lead above 400 mg/kg investigation level

Figure 4-1D
Homesite HS-05
Previous Sample Location Map
Klondyke Tailings Removal
Graham County, Arizona 85643

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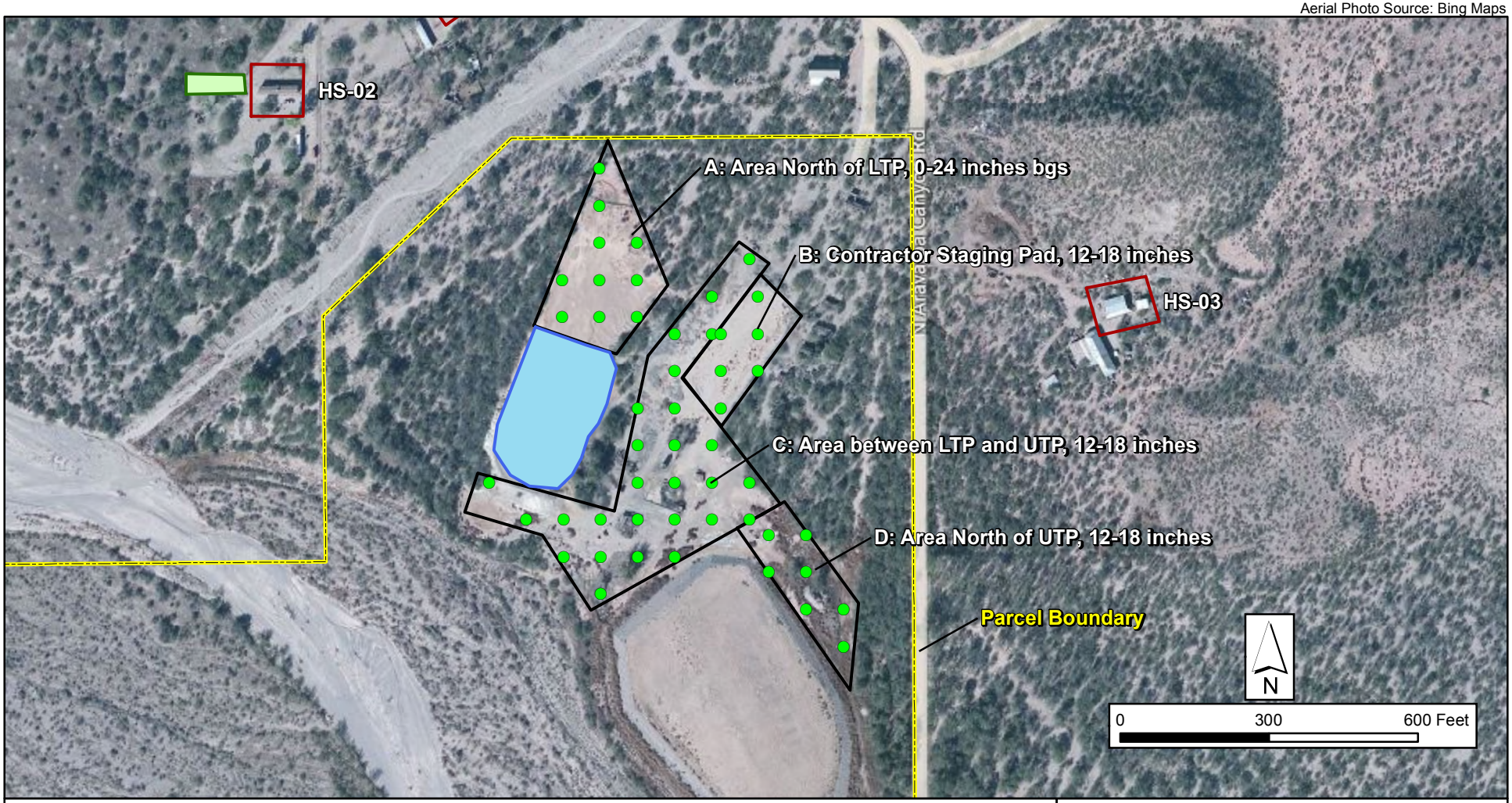
Aerial Photo Source: Bing Maps



LEGEND

- Proposed sample location
- Approximate final footprint of LTP
- Gardens, proposed excavation depth of 24 inches bgs
- Yard, proposed excavation depth of 12 inches bgs

NOTE

Depths shown for Areas A-D are proposed excavation depths

ABBREVIATIONS

LTP	Lower Tailings Pile
UTP	Upper Tailings Pile
HS-##	Homesite designation

Figure 4-2

Proposed Sample Locations Tailings Pile Areas A-D Klondyke Tailings Removal

Graham County, Arizona 85643

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5 Request for Analyses

Samples will be analyzed in the field for lead and arsenic by U.S. EPA Method 6200. Samples selected for confirmation analysis of the field results will be analyzed at the START subcontract laboratory GEL Laboratories in Charleston, South Carolina, by U.S. EPA SW-846 Method 6010B for lead and arsenic.

5.1 Field Analysis

All samples collected will be analyzed in the field by START using the XRF. The manufacturer's guidance and U.S. EPA SW-846 Method 6200 (Appendix C) will be used to conduct analysis.

To provide analytical quality control for the field analytical effort, the following measures will be utilized:

- Analytical precision and sensitivity of the XRF instrument in the determination of lead and arsenic concentrations in site specific samples will be determined during the initial days of field analysis.
- The correlation between field COPC data and data generated by standard U.S. EPA SW-846 Method 6010 methodology will be determined during the initial days of field analysis. A minimum of 20 percent of samples analyzed with the XRF in the initial days of the post-excavation sampling activities will be submitted to an off-site laboratory for lead and arsenic analysis on a 24-hour turnaround time using SW-846 EPA Method 6010B. Laboratory results will be compared to XRF results for correlation. After a correlation has been established between the field and laboratory analytical data, a minimum of 10 percent of samples analyzed with the XRF will continue to be submitted for lead and arsenic analysis for the remainder of the project; however, the rapid turnaround time on analysis will not be considered necessary provided the initial correlation that was established continues to be verified and meets objectives for decision-making.
- The START will submit at least 12 samples in total from the site, including duplicates, to the off-site laboratory for confirmation analysis of lead and arsenic to establish correlation. The samples submitted to the laboratory will represent the following ranges for data correlation purposes: less than the instrument detection limit, just below action level, just above the action level, and high concentrations, as determined by the field analysis.

5.2 Laboratory Analysis

Select field-screened samples collected from the site will be submitted to START subcontract laboratory GEL Laboratories in Charleston, South Carolina, for soil lead and arsenic analysis using U. S. EPA Method 6010B. The field-screened samples will be submitted at a rate of 20 percent in the initial days of sampling, with a minimum of 10 percent over the duration of the entire project. Sample containers, preservatives, and holding times, and estimated number of initial assessment samples, confirmation samples, and quality control (QC) samples are summarized in Table 5-1.

To provide analytical quality control for the analytical program, the following measures will be utilized:

- Additional sample volume will be collected for at least five percent of samples for the analytical method, to be utilized for matrix spike/matrix spike duplicate (MS/MSD) analysis.

- Laboratory blind split duplicate samples will be collected from 10 percent of the sampling locations and submitted for soil analysis. A duplicate split sample is a 50/50 split of a sample after collection.

Table 5-1 Removal Sampling and Analysis Summary
Klondyke Tailings Removal
Graham County, Arizona

E & E Project No. EE-002693-2156 TDD No. TO2-09-11-09-0001

Method	Lead and Arsenic by U.S. EPA 6010B	Lead and Arsenic by XRF Field Analysis
Sample Container	4 or 8 ounce glass jars/XRF sampling cup	Plastic sample bag/XRF sampling cup
Preservation	4°C	N/A
Analysis Holding Time	6 months	6 months (if transferred to glass jar)
Number of Unique Composite Samples	6 (Minimum of 10-20% of XRF Field Analysis Samples)	26
Number of Unique Discrete Samples	10 (Minimum of 10-20% of XRF Field Analysis Samples)	50
Number of Field Co-Located Duplicate Composite Samples	1	3 (10% of composite samples)
Number of Split Duplicate Samples	1	5 (10% of discrete samples)
Estimated Total Site Sample Analyses	18	84
Field Analysis Duplicates		
An analysis duplicate run in same batch (same XRF cup, run twice)	N/A	1 per 20 samples (5)
Preparation duplicate run in same batch (2 XRF cups prepared from same sample collection bag)	1	1 per 20 samples (5)
Blank run in same batch	N/A	1 per 10 samples (9)
Control Sample (field analysis only)	2	1 per 10 samples (9)
Estimated Total Initial Analyses	**18+3=21**	**84+28=112**
Matrix Spike/Matrix Spike Duplicates	1 per 20 samples (1) Submit one 8 ounce glass jar	N/A
Equipment Rinse Blanks (if non-dedicated equipment is used)		
Sample Container	500 milliliter plastic bottle	N/A
Preservation	HNO_3	N/A
Analysis Holding Time	14 days	N/A
Number of Samples	1 per day (5)	N/A

Note:
A field analysis duplicate or a preparation duplicate for XRF will be prepared once every 10 samples. The type of duplicate, field analysis or preparation, will be alternated every 10 samples.

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6 Field Methods and Procedures

6.1 Field Procedures

The following sections describe the field procedures and equipment that will be used during the site activities.

6.1.1 Standard Operating Procedures and Equipment

The equipment listed below may be utilized to obtain environmental samples from the respective media in accordance with the following sampling standard operating procedures (SOPs) or their equivalent:

- Environmental Response Team SOP #2012 Soil Sampling
- Ecology and Environment Inc. SOP # ENV 3.13: Soil Sampling
- Ecology and Environment Inc. SOP# ENV 3.15: Sampling Equipment Decontamination

The following is a partial list of equipment that is anticipated to come in contact with samples:

- Shovels, trowels, scoops, hand auger
- Stainless steel buckets or glass containers
- Dedicated plastic baggies and disposable trowels

6.1.2 Equipment Maintenance

Field instrumentation for the collection of soil samples will be operated, calibrated, and maintained by the sampling team in accordance with the SOPs listed in Section 6.1.1 or their equivalent. Field instrumentation utilized for health and safety purposes will be operated, calibrated, and maintained by the sampling team according to the manufacturer's instruction. Calibration and field use data will be recorded in the instrument log books.

6.1.3 Inspection/Acceptance Requirements for Supplies and Consumables

There are no project-specific inspection/acceptance criteria for supplies and consumables. It is standard operating procedure that personnel will not use broken or defective materials; items will not be used past their expiration date; supplies and consumables will be checked against order and packing slips to verify the correct items were received; and the supplier will be notified of any missing or damaged items.

6.1.4 Logbooks

Field logbooks will document where, when, how, and from whom any vital project information was obtained. Logbook entries will be complete and accurate enough to permit reconstruction of field activities. A separate logbook will be maintained for each project. Logbooks are bound with consecutively numbered pages. Each page will be dated and the time of entry noted in military time. All entries will be legible, written in ink, and signed by the individual making the entries. Language will be factual, objective, and free of personal opinions. The following information will be recorded, if applicable, during the collection of each sample:

- Sample location and description
- Site sketch showing sample location and measured distances
- Sampler's name(s)
- Date and time of sample collection
- Type of sample (matrix)
- Type of sampling equipment used
- On site measurement data (e.g., temperature, pH, conductivity)
- Field observations and details important to analysis or integrity of samples (rain, odors, etc.)
- Type(s) of preservation used
- Field instrument reading (such as Lumex readings for health and safety purposes, etc.)
- Shipping arrangements (air bill numbers)
- Receiving laboratory(ies)

Several START team members will be on site performing different duties related to sample collection, processing, and analysis. Individual logbooks will be maintained for specific activities at the site, including: sample collection, sample log-in to the field laboratory, and XRF analysis. Each logbook will document the information relevant to the site activity, and at a minimum will include:

- Team members and their responsibilities
- Time of activities
- Deviations from sampling plans, site safety plans, and SAP procedures
- Levels of safety protection
- Calibration information
- Analytical data

6.1.5 Photographs

Photographs will be taken at representative sampling locations and at other areas of interest on site. They will serve to verify information entered in the field logbook. When a photograph is taken, the following information will be written in the logbook or will be recorded in a separate field photography log:

- Time, date, location, and, if appropriate, weather conditions
- Description of the subject photographed
- Name of person taking the photograph

6.1.6 Electronic Sample Logging

The sampling team may utilize field management software to prepare sample labels and chain-of-custody forms.

The following information should be entered for each sample after collection:

- Sample name
- Sample date and time
- Number of sample bottles
- Type of preservation
- Analyses

In addition to these items, the software may also be used to keep track of other information such as sample depth, field measurements, and split samples.

The field team will generate chain-of-custody forms for each cooler of samples packaged and sent to a laboratory. Each chain-of-custody form will refer to the shipping method and tracking number. Printed chain-of-custody forms will be submitted to the laboratory with the samples.

The use of field management software will require that the field team have access to a computer, a printer, computer paper, and labels while in the field. Field team members will have received specific training in use of the software.

6.1.7 Mapping Equipment

Sample points and site features, including excavation boundaries and tailings pile perimeters, will be located and documented with a GPS unit. The GPS will be used to assign precise geographic coordinates to sample locations on the site. GPS mapping will be done by personnel trained in the use of the equipment and will be completed in accordance with the manufacturer's instructions. Expected output from the use of GPS mapping will be site maps with sample locations and major site features.

6.2 Soil Sampling Procedures

All sample locations will be recorded in the field logbook as sampling is completed. Each field sampling team will document each individual sampling location on a field sampling sheet, which includes: the site address, area sample was collected with a quick representative sketch of the area, GPS coordinates of the sample, photographs taken, date, time, and sampling team members.

6.2.1 Post-Excavation Surface Soil Collection Procedure

Post-excavation soil samples will be collected from an exposed soil surface that may be one to several feet below the original pre-excavation surface. Samples will be collected from soil approximately 0 to 2 inches below surface at individual sample locations using a disposable plastic scoop, stainless steel trowel, or hand auger and will be placed in a plastic zip-lock bag for holding and homogenization. Discrete samples will be prepared for field analysis individually. Composite samples will be prepared from up to five individual sample points within each

sampling unit area location. After homogenizing the individual samples designated to make up the composite, approximately 2 ounces of the homogenized soil will be collected into a single separate zip-lock sampling bag from each of the five collection point soil bags. The bag containing the five homogenized aliquots of the individual samples will then be homogenized prior to analysis. A portion of each sample selected to be composited will be kept separate for potential future analysis.

6.3 Field Analytical Procedures

Samples will be delivered to the field laboratory in heavy-duty plastic bags. Upon receipt the samples will be logged into the analytical logbook. Twigs, other organic matter, and rocks or pebbles will be removed from the samples. Samples will be homogenized while in the sample bag by kneading, crushing, and shaking the sample until mixing of the soil is complete. If the sample is wet, a 30-gram or more aliquot of the sample will be placed in a sample boat or on a coffee filter to air dry. Once the aliquot has dried, it will be placed in a clean bag and homogenized. After the sample is dried, it will be passed through a size #60-mesh sieve to remove large particles. The remaining aliquot will be transferred to a pre-labeled polyethylene cup and covered with Mylar film to be analyzed by XRF.

Soil samples will be field analyzed for total lead using U. S. EPA Method 6200. All total lead analyses using the XRF will be completed in accordance with manufacturer's guidance and the U. S. EPA Method 6200 (Appendix C). Additionally, field duplicate samples, second source control samples, and blanks will be analyzed and evaluated as quality control checks as described in Section 9.1 of this SAP.

At the beginning of the project and prior to analysis of samples, the START will perform quality control checks including energy calibration, resolution check, background check, and a precision sample analysis. Daily quality control checks to be performed include resolution check, background check, initial calibration verification, method blank, continuing calibration verification, and an instrument blank analysis. Initial and continuing calibration verifications will be completed using standards at and below the site action levels.

Once calibrated and at the end of each set of 10 samples, a second source control standard and sand blank will be analyzed to determine instrument performance. One out of every 10 samples will be selected for either a preparation duplicate or an analysis duplicate (alternating).

During field analysis, samples for laboratory confirmation analysis will be selected. The field-screened samples will be submitted to an off-site laboratory for confirmation analysis of lead and arsenic at a rate of 20 percent in the initial days of project sampling, with a minimum of 10 percent over the duration of the entire project. There must be a minimum of 12 samples collected from the site, including duplicates, submitted for the entire project. The samples submitted to the laboratory will represent the dynamic range of non-detect, just below action level, just above action level, and high lead concentrations, as determined by the field analysis, for data correlation purposes. The remainder of the confirmatory samples will be selected at the discretion of the START Project Manager but should be somewhat random.

For the selected samples, the cup that was analyzed using the XRF will be sent to the laboratory for lead confirmation analysis. The cup will be chilled pending shipment to the laboratory. All remaining sample volume will be returned to its point of origin.

6.4 Excavation and Tailings Pile Construction Documentation

During the removal action, the U.S. EPA's Emergency and Rapid Response Services contractor will excavate contaminated soil areas, and the excavated soil will be placed on the two tailings piles at the site. Depending on the residual COPC concentrations in the excavated areas and excavation depths, the excavations may be backfilled with clean fill soil. After placement of contaminated soil on the tailings piles, the piles will be consolidated and shaped according to engineering specifications. The LTP sidewalls will be armored with gabions to prevent erosion; the UTP, which has already been armored with gabions, and the LTP will then both be capped with clean fill. The START will photodocument all excavation and construction activities.

During excavation, the START will estimate the volumes of removed soil based on the truck load counts and truck load capacities. The final perimeters of the excavation areas will be recorded with a GPS, and excavated depths will be measured. The final construction dimensions of the tailings piles, including perimeters, slopes, and heights, will be recorded by a licensed land surveyor at project completion. The final survey information will be used to determine final tailings pile construction volumes.

6.5 Field Analytical Decontamination Procedures

Decontamination activities will be conducted by the START in accordance with E & E SOP #3.15. All non-dedicated sample handling devices will be decontaminated according to the following procedure:

- Non-phosphate detergent and tap water wash using a brush to scrub solids from the surface
- Tap water rinse
- Triple deionized/distilled water rinse

The soil sieves, used during preparation of a sample for analysis with the XRF, will be decontaminated by brushing out the excess soil with coarse-hair brushes and wiping out with a paper towel and a small amount of rubbing alcohol. Decontamination procedures for the soil sieves deviate from E & E SOP #3.15 due to the drying time that would be required for the fine mesh sieve.

7 Disposal of Investigation-Derived Waste

In the process of collecting environmental samples at this site, several different types of potentially contaminated investigation-derived wastes (IDW) will be generated, including the following:

- Used personal protective equipment (PPE)
- Disposable sampling equipment
- Decontamination fluids

The U.S. EPA's National Contingency Plan required that management of IDW generated during site investigations comply with all relevant or appropriate requirements to the extent practicable. This sampling plan will follow the Office of Emergency and Remedial Response Directive 9345.3-02 (May 1991), which provides the guidance for management of IDW during site investigations. Listed below are the procedures that will be followed for handling IDW. The procedures are flexible enough to allow the site investigation team to use its professional judgment on the proper method for the disposal of each type of IDW generated at each sampling location.

- Used PPE and disposable sampling equipment will be double bagged in plastic trash bags and disposed of in a municipal refuse dumpster. These wastes are not considered hazardous and can be sent to a municipal landfill. Any PPE or dedicated equipment that is to be disposed of that can still be reused will be rendered inoperable before disposal.
- Decontamination fluids will consist of water with residual contaminants and/or non-phosphate detergent. These fluids will be left on site to evaporate.

8 Sample Identification, Documentation and Shipment

8.1 Sample Nomenclature

8.1.1 Residential Soil

Residential soil samples will have a prefix indicating the house from which they were collected (e.g., home site 2 (H2)). The prefix will be followed by the letter representing the specific sampling unit area in which the samples were collected: yard subsection (Y) or garden (G). Each letter representing the sampling unit area will be followed by a sequential number starting with 1 in the event that there is more than one sample of the same type of decision area, such as with the subsections of the yard (i.e., Y1, Y2, etc). The subsection numbering scheme will follow the numbers assigned during the 2010 removal assessment. As all samples are proposed at the exposed surface following excavation, no number designating depth will be used. Composite samples will be indicated by the final suffix –COMP (e.g. H2-Y2-COMP). Individual aliquots used to make composite samples will be retained for future analysis, should it become necessary. Individual aliquots will be indicated by a final sequential letter suffix starting with A (i.e., -A, -B, etc.) following the individual aliquot designations assigned during the 2010 removal assessment (e.g., H2-Y2-A). Field duplicate samples for residential soil samples will have the same designations as their originals except the initial home site number will be followed by zero (0); thus, the field duplicate of H2-Y1-COMP would be H20-Y1-COMP. XRF preparation duplicate samples will have the same designations as their originals except the sample number will be followed with a "PD"; thus, the preparatory duplicate of H2-Y2-COMP would be H2-Y2-COMP PD.

8.1.2 Industrial Soil

Industrial soil samples will be identified by the area in which they are collected: Area A, B, C, and D (e.g., Area C (AC)). The prefix will be followed by a sequential sample number starting with 01 (e.g., AC-01). Although samples are proposed at the exposed surface following excavation, it is possible that subsurface soil samples may be collected to expedite determination of whether additional excavation will be required. Therefore, the sample number will be followed by a number indicating depth (00 for surface, 01 for 1 foot or 02 for 2 feet below surface) (e.g., AC-01-00). Field duplicate samples for industrial soil samples will have the same designations as their originals except the sample number will be preceded by 10; thus, the field duplicate of AC-01-00 would be AC-1001-00. XRF preparation duplicate samples will have the same designations as their originals except the sample number will be followed with a "PD"; thus, the preparatory duplicate of AC-01-00 would be AC-01-00 PD.

A summary of this sample naming system is shown in Table 8-1.

Table 8-1 Sample Numbering System
Klondyke Tailings Removal
Graham County, Arizona

E & & E Project No. EE-002693-2156 TDD No. TO2-09-11-09-0001

Type of Sample	Site Area	Sample ID
Residential Field Sample	Residential Properties	H<homesite number 2 – 5>-<sampling unit area letter><sequential number starting with 1>-<composite or aliquot letter if applicable>
Example Composite sample from first yard subsection at home site 2		H2-Y1-COMP
Field Duplicate		H<homesite number times ten>-<sampling unit area letter><sequential number starting with 1>-<composite or aliquot letter if applicable>
Preparation Duplicate for U. S. EPA Method 6200		H<homesite number>-<sampling unit area letter><sequential number starting with 1>-<composite or aliquot letter if applicable> PD
Industrial Field Sample	Tailings Pile Area Sections A, B, C, or D	A<industrial area letter A – D> - <sequential sample number starting with 01> - <depth in feet>
Example Discrete surface sample from sample location 5 in Industrial Area D		AD-05-00
Field Duplicate		A<industrial area letter A – D> - <number 10><sequential sample number starting with 01> - <depth in feet>
Preparation Duplicate for U. S. EPA Method 6200		A<industrial area letter A – D> - <sequential sample number starting with 01> - <depth in feet> - <letters PD>

[1] Residential sampling unit area letters are based on the following: yard subsection (Y),garden (G)

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8.2 Container, Preservation, and Holding Time Requirements

All sample containers will have been delivered to the START in a pre-cleaned condition. Container, preservation, and holding time requirements are summarized in Table 5-1.

8.3 Sample Labeling, Packaging, and Shipping

All samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. Sample labels will be affixed to the sample containers and will contain the following information:

- Sample number
- Date and time of collection
- Site name
- Analytical parameter and method of preservation

Samples will be stored in a secure location on site pending on site analysis and shipment to the laboratory. Sample coolers will be retained in the custody of site personnel at all times or secured so as to deny access to anyone else.

The procedures for shipping soil samples are:

- If ice is used then it will be packed in double zip-lock plastic bags.
- The drain plug of the cooler will be sealed with tape to prevent melting ice from leaking.
- The bottom of the cooler will be lined with bubble wrap to prevent breakage during shipment.
- Screw caps will be checked for tightness.
- Containers will have custody seals affixed so as to prevent opening of the container without breaking the seal.
- All glass sample containers will be wrapped in bubble wrap.
- All containers will be sealed in zip-lock plastic bags.

All samples will be placed in coolers with the appropriate chain-of-custody forms. All forms will be enclosed in plastic bags and affixed to the underside of the cooler lid. If samples require refrigeration during shipment then bags of ice will be placed on top of and around samples. Empty space in the cooler will be filled with bubble wrap or Styrofoam peanuts to prevent movement and breakage during shipment. Each ice chest will be securely taped shut with strapping tape, and custody seals will be affixed to the front, right, and back of each cooler.

Samples will be shipped for immediate delivery to the contracted laboratory. Upon shipping, the laboratory will be notified of:

- Sampling contractor's name.
- The name of the site.
- Shipment date and expected delivery date.
- Total number of samples, by matrix and the relative level of contamination for each sample (i.e., low, medium, or high).
- Carrier; air bill number(s), method of shipment (e.g., priority).
- Irregularities or anticipated problems associated with the samples.
- Whether additional samples will be sent; whether this is the last shipment.

8.4 Chain-of-Custody Forms and QA/QC Summary Forms

A chain-of-custody form will be maintained for all samples to be submitted for analysis, from the time the sample is collected until its final disposition. Every transfer of custody must be noted and a signature affixed. Corrections on sample paperwork will be made by drawing a single line through the mistake and initialing and dating the change. The correct information will be entered above, below, or after the mistake. When samples are not under the direct control of the

individual responsible for them, they must be stored in a container sealed with a custody seal. The chain-of-custody form must include the following:

- Sample identification numbers
- Identification of sample to be used for MS/MSD purposes
- Site name
- Sample date
- Number and volume of sample containers
- Required analyses
- Signature and name of samplers
- Signature(s) of any individual(s) with control over samples
- Note(s) indicating special holding times and/or detection limits

The chain-of-custody form will be completed and sent with the samples for each laboratory and each shipment. Each sample cooler should contain a chain-of-custody form for all samples within the sample cooler.

A QA/QC sample summary form will be completed for each method and each matrix of the sampling event. The sample number for all blanks, reference samples, laboratory QC samples (MS/MSDs), and duplicates will be documented on this form. This form is not sent to the laboratory. The original form will be sent to the reviewer who is validating and evaluating the data; a photocopy of the original will be made for the project manager master file.

9 Quality Assurance and Control (QA/QC)

9.1 Field Quality Control Samples

The QA/QC samples described in the following subsections, which are also listed in Table 5-1, will be collected during this investigation.

9.1.1 Assessment of Field Contamination (Blanks)

9.1.1.1 Equipment Blank Samples

If non-dedicated equipment, such as stainless steel trowels, is used to collect samples, equipment rinsate blanks will be collected at a rate of one per day to evaluate field sampling and decontamination procedures.

9.1.1.2 Field Blanks

Field blanks will not be collected to evaluate whether contaminants have been introduced into the samples during soil sampling procedures.

9.1.2 Assessment of Sample Variability (Field Duplicate or Co-located Samples)

Duplicate soil samples will be collected at selected sample locations. These locations will be chosen randomly in the field based on field observations and will be collected at a rate of 1 for every 10 field samples. A duplicate split sample is a 50/50 split of a sample after collection.

9.1.3 Laboratory Quality Control (QC) Samples

A laboratory QC sample, also referred to as an MS/MSD, is not an extra sample; rather, it is a sample that requires additional QC analyses and therefore may require a larger sample volume. The chain-of-custody records for these samples will identify them as laboratory QC samples. The location of laboratory QC samples will be selected at random. A minimum of one laboratory QC sample will be submitted per 20 samples (or one per delivery group), per matrix, to be analyzed for each analytical parameter. If the DQIs for analytical parameters are not achieved, further data review will be conducted to assess the impact on data quality. Laboratory QC samples, including laboratory MS/MSD and field duplicate samples, will be selected randomly.

Additional sample volume will be submitted for all lead samples designated as laboratory QC samples and will be designated as MS/MSD samples on the chain-of-custody to the fixed-base laboratory.

9.1.4 Confirmation Samples

The samples submitted to the laboratory for definitive analysis will be used to establish and/or document the comparability and correlation between the definitive and non-definitive data sets. The START will determine correlation of the data sets by linear regression analysis and will determine relative percent differences for each data pair and for the data sets as a whole. These results will be compared to the field screening data and will be used to determine the effectiveness of the field screening technique.

9.1.5 Field Analytical Quality Control (QC) Samples

Field analytical QC samples, also referred to as precision samples, calibration verification samples, and control standards, will be analyzed with field samples to verify and document the precision and accuracy of field analytical methods. Field QC samples for XRF analysis include blanks, preparation duplicates, analysis duplicates, and check standards from two different sources. A preparation duplicate is a duplicate prepared by filling two XRF cups from the same sample bag. An analysis duplicate is the same XRF cup analyzed twice.

9.2 Analytical and Data Package Requirements

It is required that all samples be analyzed in accordance with the U.S. EPA Methods listed in Table 5-1. The laboratory is required to supply documentation to demonstrate that their data meet the requirements specified in the method. For confirmation samples submitted during the initial days of the removal sampling to establish a correlation with the field analytical results, a preliminary data summary will be required 24 hours after the laboratory receives the samples. After the initial correlation is established, a preliminary data summary for the confirmation samples submitted during the remainder of the project will be required 10 working days after submission of samples for analysis. A full validation data package will be required five weeks after submission of samples. The laboratory will also provide all data electronically in a Microsoft Excel-compatible format or tab-delimited text file.

Deliverables for this project must meet the guidelines in *Laboratory Documentation Requirements for Data Evaluation* (EPA Region IX R9/QA/00.4.1, March 2001). The following deliverables are required. Note that the following data requirements are included to specify and emphasize general documentation requirements and are not intended to supersede or change requirements of each method.

- A copy of the chain-of-custody, sample log-in records, and a case narrative describing the analyses and methods used.
- Analytical data (results) for up to three significant figures for all samples, method blanks, MS/MSD, Laboratory Control Samples (LCS), duplicates, Performance Evaluation samples (if applicable), and field QC samples.
- QC summary sheets/forms that summarize the following:
  - MS/MSD/LCS recovery summary
  - Method/preparation blank summary
  - Initial and continuing calibration summary (including retention time windows)
  - Sample holding time and analytical sequence (i.e., extraction and analysis)
  - Calibration curves and correlation coefficients
  - Duplicate summary
  - Detection limit information
- Analyst bench records describing dilution, sample weight, percent moisture (solids), sample size, sample extraction and cleanup, final extract volumes, and amount injected.
- Standard preparation logs, including certificates of analysis for stock standards.

- Detailed explanation of the quantitation and identification procedure used for specific analyses, giving examples of calculations from the raw data.
- The final deliverable report consisting of sequentially numbered pages.

9.3 Data Management

Samples will be collected and described in a logbook, as discussed in Section 6.1.4. Samples will be kept secure in the custody of the sampler at all times; the sampler will ensure that all preservation parameters are being followed. All samples are being submitted to an on site field laboratory for field analysis. The field analysis laboratory will document sample receipt in an analytical logbook. All samples that are to be sent to the off-site analytical laboratory will be collected and logged on chain-of-custody forms as discussed in Section 8.4. A START member will only submit samples to the analytical laboratory with chain-of-custody documentation. All submitted samples will be in a properly custody-sealed container. Specifics are discussed in Section 8.3. The laboratories will note any evidence of tampering upon receipt.

All data summary reports and complete data packages will be archived by the project manager. The data validation reports and laboratory data summary reports will be included in the final report to be submitted to the U.S. EPA. All data, including field XRF data, will be managed in SCRIBE.

9.4 Data Validation

Data validation of all data will be performed by the START or their subcontractor in accordance with U.S. EPA Region IX Superfund Data Evaluation/Validation Guidance R9QA/006.1, December 2001.

The standard data quality review requirements of a Tier 2 validation of 100 percent of the data (as defined in *Requirements for Quality Assurance Project Plans*, March 2001) will satisfy the data quality requirements for this project. Upon completion of validation, data will be classified as one of the following: acceptable for use without qualifications, acceptable for use with qualifications, or unacceptable for use.

If during or after the evaluation of the project's analytical data it is found that the data contain excess QA/QC problems or if the data do not meet the DQI goals, then the independent reviewer may determine that additional data evaluation is necessary. Additional evaluation may include U.S. EPA Region IX Superfund Data Evaluation/Validation Guidance R9QA/006.1 for evaluation Tier 3.

To meet evaluation and project requirements, the following criteria will be evaluated during a Tier 2 evaluation:

- Data package completeness
- Laboratory QA/QC summaries
- Holding times
- Blank contamination

- Matrix related recoveries
- Field duplicates
- Random data checks
- Preservation and holding times
- Initial and continuing calibration
- Blank analyses
- Interference check samples
- Laboratory control samples
- Duplicate sample analysis
- Matrix spike sample analyses
- Sample serial dilution
- Field duplicate/replicate
- Overall assessment of data.

Upon completion of evaluation, an analytical data evaluation Tier 2 review report will be delivered to the project manager, and the data will be classified within the report as one of the following:

- acceptable for use without qualifications
- acceptable for use with qualifications
- unacceptable for use

The data with applicable qualifications will be attached to the report. Unacceptable data may be more thoroughly examined to determine whether corrective action could mitigate data usability.

9.5 Field Variances

As conditions in the field may vary, it may become necessary to implement minor modifications to this plan. When appropriate, the START QA Coordinator and U.S. EPA FOSC will be notified of the modifications and a verbal approval obtained before implementing the modifications. Modifications to the original plan will be recorded in site records and documented in the final report.

9.6 Assessment of Project Activities

9.6.1 Assessment Activities

The following assessment activities will be performed by the START:

- All project deliverables (SAP, Data Summaries, Data Validation Reports, Investigation Report) will be peer reviewed prior to submission to the U.S. EPA. In time critical situations, the peer review may be concurrent with the release of a draft document to the U.S. EPA. Errors discovered in the peer review process will be reported by the reviewer to the originator of the document, who will be responsible for corrective action.
- The QA Coordinator will review project documentation (logbooks, chain-of-custody forms, etc.) to ensure the SAP was followed and that sampling activities were adequately documented. The QA Coordinator will document deficiencies, and the PM will be responsible for corrective actions.

9.6.2 Project Status Reports to Management

It is standard procedure for the START PM to report to the U.S. EPA Task Monitor (TM) any issues, as they occur, that arise during the course of the project that could affect data quality, data use objectives, the project objectives, or project schedules.

As requested, the START will provide XRF results to the U.S. EPA TM daily and unvalidated data will be provided as the data are received from the laboratory.

9.6.3 Reconciliation of Data with DQOs

Assessment of data quality is an on-going activity throughout all phases of a project. The following outlines the methods to be used by the START for evaluating the results obtained from the project.

Review of the DQO outputs and the sampling design will be conducted by the START QA Coordinator prior to sampling activities. The reviewer will submit comments to the START PM for action, comment, or clarification. This process will be iterative.

A preliminary data review will be conducted by the START. The purpose of this review is to look for problems or anomalies in the implementation of the sample collection and analysis procedures and to examine QC data for information to verify assumptions underlying the DQOs and the SAP. When appropriate to sample design, basic statistical quantities will be calculated and the data will be graphically represented. When appropriate to the sample design and if specifically tasked to do so by the U.S. EPA TM, the START will select a statistical hypothesis test and identify assumptions underlying the test.

10 References

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A Data Quality Objective Process Document

Klondyke Tailings Residence
Removal Support Assessments

Data Quality Objectives (DQO) Process Document
Objective Outputs

Contract: EP-S5-08-01
TDD No.: TO2-09-11-09-0001
Job No.: EE-002693-2156

This DQO documentation version reflects the project objectives as of April 2012.

1. THE PROBLEM

Background

According to the Arizona Department of Environmental Quality (ADEQ), lead, zinc, copper, silver, and gold mining was conducted in the Klondyke area of the Aravaipa Mining District in Arizona from the 1870s through the 1950s (ADEQ, 2009). In 1948, the Athletic Mining Company constructed a flotation-processing mill next to Aravaipa Creek and operated until about 1958, generating tailings. Other mines in the area also began to use flotation processing. During the time of operation, lead, zinc, and copper concentrates were produced, along with two mine waste piles with a combined volume of approximately 70,000 cubic yards. The piles are designated as the "upper" and "lower" tailings piles (UTP and LTP, respectively) based on their relative position along Aravaipa Creek. ADEQ assessments of the mine waste in the waste piles have documented lead at concentrations as high as 50,000 milligrams per kilogram (mg/kg). Concentrations of antimony, arsenic, beryllium, cadmium, copper, lead, manganese and zinc have been detected above the Arizona Residential Soil Remediation Levels (r-SRLs) in the mine waste (ADEQ, 2008).

The Klondyke site was listed on Arizona's Water Quality Assurance Revolving Fund Registry (WQARF) in September 1998. As part of an ADEQ WQARF site characterization of the Klondyke site, samples from the Klondyke tailing pile and associated area were collected and analyzed for 13 priority pollutants including lead and arsenic. The analytical data indicated lead and arsenic contamination at concentrations above the r-SRLs of 400 mg/kg and 10 mg/kg, respectively. Based upon the WAQRF site characterization studies, lead concentrations in tailing piles were as high as 50,000 mg/kg and arsenic concentrations were as high as 1,000 mg/kg.

According to the ADEQ removal assessment, remedial actions at the site are important to protect critical habitat of two endangered species in the perennial reach of Aravaipa Creek downstream of where Laurel Canyon Creek meets Aravaipa Creek. Perennial flows in Aravaipa Creek begin approximately two miles downstream of the site. In addition, Aravaipa Creek is a unique waterway under Arizona Administrative Code R18-11-112, and the site lies approximately four miles upstream of the Nature Conservancy's Aravaipa Canyon Preserve and approximately six

miles upstream of the Bureau of Land Management's Aravaipa Canyon Wilderness.

A study of possible impacts on the native fish in the perennial reaches of Aravaipa Creek was conducted in 1997 by Kirke King of the U.S. Fish and Wildlife Service on behalf of ADEQ. The 1997 data were compared to the 1990 National Contaminant Biomonitoring Program (NCBP) to determine how trace element concentrations in fish from Aravaipa Creek compared to national levels. Arsenic, cadmium and lead were detected above the NCBP 85th percentile in the fish in Aravaipa Creek.

The URS Corporation conducted an extensive surface and subsurface soil sampling investigation between 2006 and 2007. The investigation conducted by URS identified elevated levels of lead and arsenic in residential soils at nine parcels adjacent to or near the two tailings piles associated with the site. As part of this work, a floodplain analysis of Aravaipa Creek was completed in 2007 and indicated the upstream pile (the UTP) is within, and subject to, erosion from 25, 50, and 100 year flood events on Aravaipa Creek as well as erosion by the lateral movement of Aravaipa Creek (ADEQ, 2008). The downstream pile (the LTP) is not within 10, 25, and 50 year flood events on Aravaipa Creek, but a portion of the downstream pile is within and subject to erosion from 100-year flood events on Aravaipa Creek as well as the lateral migration of Aravaipa Creek. The LTP is within, and subject to, erosion from 10, 25, 50, and 100 year flood events from Laurel Creek, a tributary to Aravaipa Creek (ADEQ, 2008).

In June 2008, ADEQ and their contractors completed the consolidation of a portion of the nearby surface soils onto the UTP, capping it with a two-foot clean soil cover and installing gabion mattresses for erosion protection on and around the UTP. According to ADEQ, the UTP was covered using clean fill to prevent infiltration and wind erosion. However, this action did not include consolidation or armoring of the LTP, and several areas of lead-contaminated surface soils located around the LTP and UTP were left in place.

In April 2010, the U.S. EPA funded a removal assessment for five residences located near the tailings piles. Soil samples were collected and analyzed for lead in the field by X-Ray Fluorescence (XRF) and in the laboratory by EPA Method 6010B. Due to the large size of the properties surrounding the residences, each property was subdivided into eight approximately equal subdivisions, with a five-point composite sample collected from each subdivision. In addition, discrete sample locations (e.g., gardens, play areas, rain gutter discharge points) were determined and collected during the sampling event. A total of 53 composite samples, each consisting of five-point aliquots, and 13 discrete samples were collected. Sampling results indicated that 46 samples contained lead above the U.S. EPA Regional Screening Level (RSL) for residential soils of 400 ppm. The average lead content of the samples that exceeded the RSL was 1,435 ppm.

Based on the results of the April 2010 removal assessment and the WQARF site characterization, the U.S. EPA has determined that a removal action is warranted in Klondyke. Proposed removal strategies involve the excavation and disposal of lead-contaminated residential and industrial (i.e., tailings pile area) soil onto the existing UTP and LTP. Arsenic, while previously identified as a contaminant of concern for the site, may be analyzed for documentation purposes but will

not be considered for decision-making during this removal action. Residential and industrial removal areas will be capped with clean fill material mined from the adjacent Aravaipa Creek, upstream from the UTP.

Conceptual Site Model

- The medium of concern is soil from surface to 2 feet below native grade.
- The principal contaminant of potential concern (COPC) is lead above the current U.S. EPA RSLs for lead in residential and industrial soils (400 mg/kg and 800 mg/kg, respectively), November 2011. A secondary COPC is arsenic in soils above the U.S. EPA-specified concentration of 80 mg/kg.
- The soil medium was contaminated due to migration from the mine waste tailings piles.

Exposure Scenario

- Concerns include (1) direct exposure of human and/or environmental receptors to contaminants in soil, (2) exposure to contaminated soil that has migrated as particulate matter (dust), and (3) exposure to contaminated runoff water. The residential area is susceptible to direct exposure to human receptors.
- Conditions at Klondyke may pose an additional threat to human health during and/or after potential future construction activities that require grading or excavation in the area. Direct and airborne exposure of human and/or environmental receptors to lead- or arsenic-contaminated soil and soil-derived particulates are of concern during potential future construction. Previous investigations conducted at the adjacent residential properties identified contaminated surface soils.
- The excess soil generated during potential future site construction may pose a threat to human health during transportation and disposal.
- Development of the properties without investigation and associated remedial action to address potential contamination could expose human and/or environmental receptors to lead in soil associated with or derived from this source area.

Available Resources

The current START budget for planning, field work, and reporting for the Klondyke removal activities is approximately $85,894. Other budget constraints on U.S. EPA resources for this project have not been specified. The primary decision-maker for the project is Federal On-Scene Coordinator (FOSC) Harry Allen.

Planning Team

Mr. Harry Allen, U.S. EPA Region 9 FOSC
Ms. Robyn Kelly, Ecology and Environment, Inc. (E & E) Superfund Technical Assessment and Response Team (START), Project Manager
Mr. Howard Edwards, E & E START, Quality Assurance Officer

Roles and Responsibilities

- The U.S. EPA FOSC will be the primary decision-maker and will direct the project, specify tasks, and ensure that the project is proceeding on schedule and within budget. Additional duties include coordination of all preliminary and final reporting and communication with the START Project Manager and U.S. EPA Quality Assurance (QA) Office. The U.S. EPA FOSC is also responsible for access to each property to be investigated.

- Robyn Kelly, the START Project Manager, will coordinate with the planning team to develop objectives and complete an approved SAP for the removal action.

- Howard Edwards, START QA Officer, will oversee development and preparation of the SAP and other START deliverables. Mr. Edwards will provide overall project quality assurance and, if necessary, audit functions.

- START will be responsible for implementation of the SAP, coordination of project tasks, coordination of field sampling project management, and completion of all preliminary and final reporting.

- The START will be responsible for field analysis of soil samples by XRF.

- The START will use subcontracted GEL Laboratories in Charleston, South Carolina, to perform definitive sample analysis of lead and arsenic.

- START will be responsible for data validation.

Other Considerations and Constraints Related to Problem and Resources

- Contamination not found during the previous soil investigations might be revealed during excavation activities.
- Access and access agreements to each property are necessary to implement the SAP.
- Lead and/or arsenic contamination on a property may derive from non-mining related sources that include, but are not limited to: historical use of leaded paint on exterior wall, lead deposition from the use of lead-containing petroleum products, and naturally occurring lead and arsenic in native soil.

2. THE DECISION

Principal Study Questions

Principal Study Questions: Previous investigations in the vicinity of the Klondyke Tailings site indicate that surface and shallow subsurface soils, both at the nearby former mining operation site and adjacent residential land parcels, are contaminated with elevated concentrations of lead and arsenic. Based on these observations, the principal study question is as follows:

1 What are the concentrations of lead and arsenic in exposed residential soils left in place after excavation?

2 What are the lead and arsenic concentrations in soil areas exposed after excavation around the tailings piles?

Actions that could result from resolution of the study questions

For Study Question # 1 (regarding the Klondyke residential areas):

Sampling will document the concentration of lead and arsenic left in place after excavation in the residential areas. Excavated residential areas will be backfilled with clean fill soil to native grade. The specific excavation depth has been determined by the U.S. EPA FOSC to be 1 foot in yard areas and 2 feet in garden areas and is independent of the lead and arsenic concentrations to be documented in post-excavation soil.

For Study Question # 2 (regarding the Klondyke industrial areas):

> If it is determined that exposed soils in the decision unit areas around the tailings piles have lead or arsenic concentrations greater than the determined action level, then additional sampling may be conducted, or additional excavation may take place, or clean fill may be placed as a cap without additional excavation.
>
> If it is determined that exposed soils in the decision areas around the tailings piles have lead and arsenic concentrations less than the determined action level, then no additional excavation will occur. Excavated areas may be backfilled with clean fill soil to native grade depending on the depth of the excavation.

Decision Statement(s)

For Study Question #1 (regarding the Klondyke residential areas):
Lead and arsenic concentrations in exposed residential soils left in place after excavation will be documented; excavation depths and the placement of clean soil backfill have been pre-determined by the U.S. EPA FOSC and will not be dependent on the documented lead concentrations in soil.

For Study Question #2 (regarding the Klondyke industrial areas):
Lead and arsenic concentrations in exposed soil in excavated areas around the tailings piles will be compared with site-specific action levels in order to determine which of the following will occur: no further action; additional sampling; additional excavation followed by placement of a clean-fill cap; or placement of a clean-fill cap without additional excavation.

3. DECISION INPUTS

Environmental data required to resolve the decision statements

- COPC data for surface soils after excavation within the residential and industrial study areas are required.
- Geospatial data for the excavation areas and associated sampling locations are needed.

Sources of information to resolve the decision statements

- Physical site data will be supplied by visual survey data, global positioning system surveys, and site photographs
- Field analysis data generated by XRF for proposed soil sampling
- Analytical data for confirmation analysis of proposed soil sampling
- Risk-based action levels for the COPCs

Information Needed To Establish Action Level

Potential action levels for the COPC may come from the following sources:

- Arizona SRLs
- November 2011 U.S. EPA RSLs
- U.S. EPA FOSC direction

Collection methods

Soil samples can be collected using a trowel, plastic scoop, hand auger, or shovel.

Measurement methods

Collected soil samples can be analyzed to determine the COPC concentrations using the following definitive SW-846 method:

- U.S. EPA Method 6010B for lead and arsenic.

Collected soil samples can be analyzed to determine COPC concentrations using the following non-definitive SW-846 method:

- U.S. EPA Method 6200 using Portable Field XRF Spectrometry for analysis of lead and arsenic.

Confirm that appropriate analytical methods exist to provide the necessary data:

The definitive U.S. EPA method for lead and arsenic determination (U.S. EPA Method 6010B) has sufficient sensitivity, accuracy, precision, and other quality parameters to generate necessary data. The non-definitive U.S. EPA method for lead determination (U.S. EPA Method 6200) has sufficient sensitivity, accuracy, precision, and other quality parameters to generate necessary data. The non-definitive U.S. EPA method for arsenic determination (U.S. EPA Method 6200) may have questionable sensitivity, accuracy, and precision at low concentrations (e.g., the Arizona r-SRL of 10 mg/kg).

4. STUDY BOUNDARIES

The target population being studied

- The COPC concentrations in soil within the specified spatial and temporal boundaries.

Spatial boundaries

For Klondyke Residences:

The boundary of the residential study areas will be the areas excavated within the four individual residential parcels identified as having lead concentrations in soil above 400 mg/kg during a previous 2010 investigation; these areas also include those at which elevated arsenic concentrations were detected. The expected excavation depth is 1 foot below grade in yard areas and 2 feet below grade in garden areas.

For Klondyke Industrial Areas:

The boundary of the industrial study areas will be the areas excavated from locations around the UTP and LTP at which lead concentrations in soil above 800 mg/kg were identified during previous ADEQ investigations. The expected excavation depth is a maximum of 2 feet below native grade.

Temporal boundaries

The decisions will apply to determinations of risk associated with acute and/ or chronic (long-term) exposure to contaminated surface soil from direct exposure.

Lead and arsenic are environmentally persistent and migrates slowly, so soil concentrations generally do not vary greatly over time. Given the location and human accessibility, threats that are not mitigated are expected to be immediate or imminent.

Thus, the following assessment time-frame has been proposed:

- The SAP will be submitted to U.S. EPA FOSC by May 21, 2012, and should be reviewed, revised, and approved by May 30, 2012, the first day of proposed work.
- Sample collection will take place following SAP approval by the U.S. EPA.
- Preliminary XRF data will be available immediately after field XRF analysis.
- Preliminary laboratory confirmation data should be available within 24 hours of sample delivery to the laboratory.
- Data packages and final data should be reported to project management approximately 5 weeks after sample delivery to the laboratory.
- Laboratory data for lead and arsenic should be evaluated following U.S. EPA Region 9 Tier 2 guidance. Evaluated data should be reported to project management approximately 4 to 6 weeks after sample delivery to the laboratory.
- Field data will be evaluated and reviewed for quality assurance/quality control prior to reporting.
- Decision statement resolutions are expected to occur within 48 hours after sampling and should take place prior to decisions that may result in exposure of residents or workers to lead- and arsenic-contaminated soil.

Scale of decision-making

The scale of decision making refers to the way the planning team delineates decision units and identifies the smallest unit of subpopulation, area, volume or time where data will be collected, aggregated, or interpreted to make a decision and control decision errors. This is critical to most environmental assessments because it can influence the ability of the decision makers to reduce site risks and can affect the cost of remediation.

Klondyke Residential Decision Units:

The residential decision units are the decision unit areas that were determined during the April 2010 removal assessment to have lead concentrations in soil above 400 mg/kg. The decision unit boundaries were defined during the removal assessment based on the strategy used in *EPA Lead-Contaminated Residential Sites Handbook, Final, OSWER 9285.7-50, August 2003* and are approximately 50 feet by 50 feet in size.

Klondyke Industrial Area Decision Units:

The industrial areas will be divided into 75-feet by 75-feet grids. The exposed soils after excavation within each 75-feet by 75-feet grid section will be the decision unit.

Practical constraints on data collection

Physical constraints

- The sampling areas are in a very remote location, which will require additional planning and logistical effort to get resources to the site.
- The remoteness of the location may require additional sanitation considerations.

Other constraints on data collection

- The turnaround times on data are always estimated and cannot be assured. Sample and system problems may indiscriminately increase data turnaround times.
- Definitive data will undergo a U.S. EPA Region 9 Tier 2 validation review prior to final reporting. Problems identified during this review may initiate additional data reviews, which will increase the time needed before data are finalized.
- Specific data may be qualified or rejected based on the results of the data review process.
- Civil constraints such as site access agreements and permit requirements may exist and, if so, will need to be addressed prior to sampling.

5. DECISION RULE

Statistical Parameter

The parameter of interest in the residential sampling areas is the average lead concentration of a decision unit, as determined by a composite of up to five individual aliquots of equal volume collected from approximately equally spaced locations within a designated sampling area. The parameter of interest in the tailings pile sampling areas is the lead concentration of an individual sample collected from approximately 0 to 2 inches below surface within a single 75-feet by 75-feet grid section after excavation. The lead concentration of an individual sample is not a statistical parameter. It will be necessary to consider the average lead concentration data point in the residential areas and the individual lead concentration data points in the industrial areas as representing the contaminant concentration within a specific area.

Action Level

The residential area sampling data for lead and arsenic in soils exposed after excavation will be compared to a concentration of 400 mg/kg for lead and 80 mg/kg for arsenic for documentation purposes only.

The action levels for lead and arsenic in soils exposed after excavation around the tailings piles are 800 mg/kg and 80 mg/kg, respectively.

Decision Rule for Klondyke Residential Areas

1. The data from post-excavation sampling in the residential areas will be used to document the concentrations of lead in soil exposed after excavation. No additional excavation will occur after the initial removal of 1 foot of soil in yard areas and 2 feet of soil in garden areas. Excavation areas will be backfilled to native grade with clean soil.

Decision Rule for Klondyke Industrial Areas

1. If the data from post-excavation sampling in the areas around the tailings piles indicate that a decision unit is not contaminated above the applicable action level, then no additional sampling or excavation will be conducted in that decision unit. The excavation area may be backfilled with clean soil to native grade depending on the depth of excavation.

2. If the data from post-excavation sampling in the areas around the tailings piles indicate that a decision unit is contaminated above the applicable action level, then further sampling may be conducted, additional excavation may occur, or a clean-fill cap may be placed in the area in lieu of further excavation.

6. LIMITS ON DECISION ERRORS

Range of the parameter(s) of interest
For all investigation areas and parameters, the range of interest for the COPC is from ½ the action level to anything above the action level. Quantitatively precise and accurate determinations of COPC concentrations that are significantly above (i.e., >10 times) the action level are not necessary.

Based on past investigations, the soil contaminant concentrations are expected to be above action levels.

Baseline Condition ***(the Null Hypothesis)***
The contaminant concentrations in soils are greater than or equal to action levels.

Alternative Condition ***(the Alternative Hypothesis)***
The contaminant concentrations in soils are less than action levels.

Decision Error
A discussion of decision error is presented in Table 1.

Decision Errors

Table 1 – Decision Error
Klondyke Tailings Residential Removal
Klondyke, Graham County, Arizona

E & E Project No.: EE-002693-2156 TDD No.: TO2-09-11-09-0001

Decision Error	Deciding that an area of exposed soil in an excavation area is contaminated and requires additional excavation and/or capping when the area is not contaminated.	Deciding that an area of exposed soil in an excavation area is not contaminated and requires no additional excavation or capping when the area is contaminated.
True Nature of Decision Error	The sample concentrations are either not representative or are biased high.	The sample concentrations are either not representative or are biased low.
The Consequence of Error	Site will undergo additional removal activities. These situations would cost additional resources of time, money, and human resources.	The residents in the area could be exposed to existing contaminants if contaminated soils are not removed or capped.
Which Decision Error Has More Severe Consequences Near the Action Level?	**Less Severe** to human health, but with appreciable economic consequences.	**More Severe** since the contaminated soil may pose risks to human health and/or the environment.
Error Type Based on Consequences	**False Rejection Decisions** A decision that the area is contaminated when it is not.	**False Acceptance Decisions** A decision that the area is not contaminated when it is.

Definitions
A false acceptance decision error occurs when the null hypothesis is not rejected when it is false.
A false rejection decision error occurs when the null hypothesis is rejected when it is true.

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Soil Decision Error Limit Goals

In order to address the study questions, decisions will be made on soil areas currently at depths below the ground surface where there is little to no previous sampling data. Therefore, there is no information on the expected soil concentration variance, which may affect how representative a single soil sample is of a larger decision unit area.

Table 2 – Decision Error Limit Goals (Soil)
Klondyke Tailings Removal
Klondyke, Graham County, Arizona

E & E Project No.: EE-002693-2156 TDD No.: TO2-09-11-09-0001

True Average Concentration of Property or Property Portion (% of Action Level)	Decision Error	Typical Decision Error Probability Goals (Based on Professional Judgment)	Type of Decision Error
< 75	A decision that the property or property portion is contaminated when it is not.	< 5%	False Acceptance
75 to < 100	A decision that the property or property portion is contaminated when it is not.	Gray Area[1]	False Acceptance
100 to 150	A decision that the property or property portion is not contaminated when it is.	10%[2]	False Rejection
> 150	A decision that the property or property portion is not contaminated when it is.	less than 1%	False Rejection

[1]Gray Area is where relatively large decision errors are acceptable.

[2]The large probability for the decision error is expected when the true contaminant concentrations are between 100% and 150% of the action level. Decreasing the probability is possible only by significantly increasing sampling number and quality assurance sampling, since sampling and analytical uncertainties and biases can not be eliminated.

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7. OPTIMIZED DESIGN FOR OBTAINING DATA

General

All activities and documentation related to the project should proceed under a Quality Management Plan. All sampling, analytical, and quality assurance activities will proceed under a U.S. EPA-approved SAP. A record of sampling activities and deviation from the SAP must be documented in a bound field log book. Prior to sample collection, all project sampling personnel will review relevant sampling procedures and relevant quality assurance and control requirements for selected analytical methods.

Decision Error Minimization

Average concentrations

To minimize a decision error related to data uncertainty, the decision-maker should consider average concentrations within the context of a statistical evaluation that accounts for concentration variance.

Data from composite sample locations

The decision-maker should consider data uncertainty when making decisions using an average value derived from composite sample locations. Using an average value to represent a single decision area can introduce data uncertainty when concentration variance is high, wherein the number of samples selected for the composite may not be great enough to achieve representative sampling. To minimize decision errors around the action level, for soil data in which composite samples have a reported concentration between 75% and 99% of the action level, the concentrations of the samples used to make up the composite should be evaluated individually to identify whether sample variance is within acceptable ranges. Otherwise, the area should be treated as potentially exceeding the action level.

Data from individual sample locations

The decision-maker should consider data uncertainty when making decisions using sampling data and associated estimated values from a single location. An individual data value reported below the action level may be biased low, while a data value reported above the action level may be biased high. The probability of decision error increases when COPC concentrations are around the action level due to both data uncertainty and data bias. Due to the nature of the contamination, it is unknown whether data from any individual sample location on a property can represent a larger area. There are insufficient data to determine confidence of any single sampling location. Thus the decision-maker should consider discrete data points as potentially not representative of any greater area.

Contamination hot-spot locations

Individual sample data that are above the action level and show contaminant concentrations more than three times greater than results from adjacent sampling locations should be considered separately to determine whether they represent a contamination hot-spot.

Estimated concentration data

For any reported COPC concentrations near the method detection limit, the uncertainty is relatively large, increasing the probability of decision error. The uncertainty for estimated data (data based on extrapolations and interpolations) is typically greater than for actual data. Therefore the probability of a decision error is greatly increased when extrapolated data are used.

Contamination distribution map

Data from sampling locations can be used to create a contaminant distribution map. The mapped COPC concentrations within an area should generally be based on the sample data from that area and the sample data from adjacent locations, particularly if discrete sample data are being used. The generated map model could be used to estimate the concentration of contamination throughout the property. The decision-maker should consider the data source and statistical sophistication of the distribution map prior to making decisions based on the map.

Design

Klondyke Residential Areas

Residential area sampling design is based on upon the strategy used in *EPA Lead-Contaminated Residential Sites Handbook, Final, OSWER 9285.7-50, August 2003.* Excavation will occur in residential area decision units that were identified in the 2010 removal assessment as having soil lead contamination at concentrations above 400 mg/kg; these decision units also include those at which elevated arsenic concentrations were detected. After excavation, sampling in the excavated residential area will be from the same locations as sampled in the 2010 removal assessment. During the previous removal assessment, each residential property was divided into sampling unit areas approximately 50 feet by 50 feet in size. Within each sampling unit, a five-point composite sample was created from sampling points distributed with a bias toward equal spacing. During the proposed removal action sampling, five-point composite samples will be collected after excavation within each sampling unit from the same five points as were sampled during the removal assessment. The total number of composite samples is expected to be approximately 26.

Sample collection and analysis in the residential areas will be conducted for documentation purposes only. The U.S. EPA's proposed excavation strategy is to excavate 1 foot of soil in residential yard areas and 2 feet of soil in residential garden areas. After sampling to document residual lead concentration, the excavated residential areas will be backfilled with clean fill soil to native grade.

Klondyke Industrial Areas

The industrial areas surrounding the tailings piles have been divided into sections designated as A through D for planning purposes. Due to the size of the sections and due to the lack of information as to the likely lead concentration variance within the areas, a systematic grid sampling design with a random start point, rather than composite sampling, is the most appropriate sampling design that will meet the specified DQOs. A square grid was selected over other grid shapes because it is easier to implement in the field. Visual Sample Plan, Version 6.0 (Battelle Memorial Institute 2011) (VSP) was used to determine that a grid with 75-foot spacing will identify a hot spot with an area of approximately 6,300 square feet with a 95 percent probability of detection. Based on the proposed grid spacing, the total number of initial samples

in all four areas is estimated to be 50. The VSP report is attached at the end of the DQOs.

The soils in these sections are currently at elevations ranging from native grade to several feet above native grade. After initial excavation, which is expected to occur to depths ranging from native grade to approximately 2 feet below native grade, each section will be sampled at the grid points generated by the VSP output.

The field sampling team will homogenize all soil samples by thoroughly mixing the collected soil. All samples will be analyzed using the XRF in the field to determine the concentration of the COPC. If the COPC concentration is above the action level and the FOSC determines additional excavation is required, the same grid point sample locations will be re-sampled after the additional excavation is completed. It is anticipated that additional excavation is likely to occur in 1-foot lifts. If the COPC concentrations exceed the action level, but the FOSC determines that the excavated area will be backfilled with clean soil rather than excavated further, no further sampling will be conducted.

Analytical Methods

The use of XRF methods in the field immediately following sample collection could rapidly provide data to assist the U.S. EPA in determining in a timely fashion if additional excavation is needed. Therefore, the relationship of field data to laboratory data will be evaluated prior to performing removal action activities in which the field data is being used to support real-time decision making. A minimum of 20% of samples analyzed with the XRF in the initial days of the post-excavation sampling activities will be placed in coolers for storage and shipped to the GEL Laboratories in Charleston, South Carolina, for lead and arsenic analysis on a 24-hour turnaround time using SW-846 EPA Method 6010B. Laboratory results will be compared to XRF results for correlation. After a correlation has been established between the field and laboratory analytical data, a minimum of 10% of samples analyzed with the XRF will continue to be submitted for lead and arsenic analysis at GEL Laboratories for the remainder of the project; however, the rapid turnaround time on analysis will not be considered necessary provided the initial correlation that was established continues to be verified and meets objectives for decision-making.

Replicates and equipment blanks for non-dedicated equipment will be collected. Matrix spike and spike duplicate samples will be collected as required by method. Data review independent of the laboratory shall be performed on all START-generated analytical data that may be used in decision making.

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B Site Specific Health and Safety Plan

C Standard Operating Procedures

Appendix F: Work Plan

Klondyke Tailings Removal Work Plan

October 2013

Prepared for:

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AOC	Administrative Order on Consent
ADEQ	Arizona Department of Environmental Quality
Bgs	below ground surface
CQC	Construction Quality Control
E&E	Ecology & Environment, Inc.
EPA	United States Environmental Protection Agency
EQ	Environmental Quality Management, Inc.
ERRS	Emergency and Rapid Response Services
GPR	Ground Penetrating Radar
LTP	Lower Tailings Pile
mg/Kg	milligram per kilogram
FOSC	Federal On-Scene Coordinator
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RM	Response Manager
SAP	Sampling and Analysis Plan
START	Superfund Technical Assessment & Response Team
UCL	Upper Confidence Limit
UTP	Upper Tailings Pile

1.0 INTRODUCTION

This work plan presents the proposed approach for construction activities at the Klondyke Tailings Removal site (the site) located in Klondyke, Graham County, Arizona (Figure 1). The construction activities will include cleanup activities at four residential yards and at one industrial property. The industrial property consists of two tailings piles which will be stabilized as a part of the construction activities. This plan has been prepared in accordance with EPA guidelines.

The site is located immediately east and southeast of the confluence of Aravaipa Creek and Laurel Canyon Creek near Klondyke, Graham County, Arizona (Figure 2-1). The site is located approximately 55 miles northeast of Tucson, Arizona. The geographic coordinates for the approximate center of the area of concern are Latitude 32°51'13.60" North and Longitude 110°20'38.45" West. The site contains two mine-waste piles with a combined volume of approximately 70,000 cubic yards. Four residential home sites (designated as HS-02 through HS-05) that are also the subject of this removal action are located northwest, northeast, and east of the site tailings piles at distances ranging from approximately 500 to 2,000 feet away.

According to the Arizona Department of Environmental Quality (ADEQ), lead, zinc, copper, silver, and gold mining was conducted in the Klondyke area of the Aravaipa Mining District in Arizona from the 1870s through the 1950s (ADEQ, 2009). In 1948, the Athletic Mining Company constructed a flotation-processing mill next to Aravaipa Creek and operated until about 1958, generating tailings. During the time of operation, lead, zinc, and copper concentrates were produced, along with two mine waste piles. The piles are designated as the “upper” and “lower” tailings piles (UTP and LTP, respectively) based on their relative position along Aravaipa Creek. Concentrations of lead in the mine waste have been detected as high as 50,000 mg/kg. The START performed a removal assessment of surface soil at five residences in proximity to the site in March and April 2010; the results of this removal assessment indicated lead is present in residential soils at four of the five residences at concentrations that exceed 400 milligrams per kilogram (mg/kg), which is the U.S. EPA’s regional screening level for a residential scenario (r-RSL) and the ADEQ’s Residential Soil Remediation Level (r-SRLs) for lead in soil.

In May and June of 2012 initial removal action was begun on the site. The soil cap on the UTP was windrowed and left on top of the pile in anticipation of the addition of more contaminated material. A removal was conducted at home site 5 (HS-05), one of the four residences identified for cleanup activities, and approximately 387 cubic yards (CY) of removed soil was placed and graded out onto the LTP. Removal was also completed for approximately 10 CY of suspected source material on a hilltop north of home site 3 (HS-03). A screen plant was operated to generate approximately 13,500 CY of 1.5 inch minus fines, 1,900 CY of 2 to 4 inch rock, and 1,100 CY of 4 to 8 inch rock. Additionally a deposit of clayey soil was found in the cleared area immediately northeast of the UTP and 10,000 CY were of this material were stockpiled as future capping material.

The purpose of this work plan is to provide design and implementation details for:

- removal of contaminated soil at certain residential properties;
- reinstallation of the soil cap on the UTP
- minor regrading and placement of residential soils onto the LTP

Cleanup will be performed in accessible areas at an additional three residential yards. Cleanup activities may be conducted on vegetated and bare areas; gardens and flowerbeds (unless the owner requests otherwise); and unpaved driveways and parking areas. Examples of inaccessible areas are those covered by brick or pavement surfaces (such as concrete pads,

patios, paths and driveways); where permanent structures are present (such as houses, garages and sheds); areas covered by large landscaping items (such as retaining walls, water features, etc.); and setbacks from structures, features, septic systems, and buried utilities. Determination of accessible and inaccessible areas in specific yards will be made in the field in consultation with the EPA FOSC. Cleanup procedures will generally entail excavation of the top twelve inches of soil from residential yards for transport to the top of the LTP where they will be compacted in lifts and serve as cover material with much higher concentrations of COCs. The excavated areas shall be backfilled with appropriately amended ½" minus screened material generated from the Aravaipa upstream of the site (0 to 1 foot bgs) and the finish grade shall be restored to pre-cleanup conditions, per the Pre-Removal Property Assessment Agreement.

2.0 ROLES AND RESPONSIBILITIES

The project team will consist of the EPA, START, and ERRS.

The EPA is the lead agency on the project. Marty Powell; the FOSC for the project, shall be responsible for site safety; communication with other agencies, e.g., Arizona Department of Environmental Quality (ADEQ), and the property owners and residents; obtaining access agreements; document review and acceptance; and oversight of all field activities.

Ecology and Environment, Inc. (E&E), the START contractor to the EPA, shall be responsible for sampling; air monitoring; and quality assurance. Kate Villars, the START Project Manager, shall be responsible for the day-to-day implementation of sampling activities; collecting and managing data; and ensuring that the project is implemented in accordance with the Sampling and Analysis Plan (SAP) (Appendix D).

Environmental Quality Management, Inc. (EQ), the ERRS contractor to the EPA, is responsible for implementing all construction-related field activities. Gary Wofford, the ERRS Senior Response Manager for the project, shall be responsible for day-to-day project implementation in accordance with the SAP, Construction Quality Control (CQC) Plan (Appendix E), and pre-determined quality assurance (QA) standards.

3.0 DESIGN for RESIDENTIAL YARD REMOVAL ACTIVITIES

Cleanup will be performed at the residential yards located at HS-02, HS-03, and HS-04 (specified in Appendix A) when access is granted by the owner. Removal was completed at HS-05 in June 2013, but some additional restoration tasks may be performed. From October 10-12, 2013, preliminary walkthroughs will be conducted with property owners at the three parcels slated for removal activities. Existing property conditions, including landscaping, fencing, drainage issues, etc. will be documented with the property owners, and the pre-removal access agreement forms will be filled out and reviewed.

Planned removal activities at the residential properties include the removal of selected trees and vegetation, followed by removal of the top 1 foot of soil in the residential yards and 2 feet in garden areas. The stated depths are maximum excavation depth and any contamination left in place will be capped with the recommended thickness of soil cover. Excavation areas will primarily include open yards, sodded areas, gardens and flowerbeds (unless otherwise directed by the owner); unpaved driveways and parking areas, but will not include improved areas covered with pavement or concrete. Excavated soil from the residential properties will be transported to the local landfill. Excavations will be backfilled with clean gravel and soil and the surface features will be restored to be similar to pre-cleanup conditions. The procedures described in this section are applicable to areas with slopes up to 1:1. Actions on areas with greater slopes will be developed on a case-by- case basis in consultation with the EPA FOSC.

All sampling and analysis will be performed by START in accordance with the E&E SAP (Appendix D).

Cleanup activities to be performed at the residential yards are described in Section 3.1, below, soil transportation to the LTP and associated activities are described in Section 3.2.

3.1 Residential Yard Cleanup Activities

This section presents a description of cleanup construction activities to be performed at individual residential yards (Figures 1, 2 & 3). Included in this section are the details for obtaining access, pre-excavation property preparation, excavation activities, noise control, dust control, maintaining access for the property residents, decontamination procedures, backfill and restoration procedures and follow up activities.

3.1.1 Property Access

Cleanup construction actions at a particular residential yard or the property containing the tailings piles cannot proceed until a property owner and tenant, if applicable, has signed an access agreement for cleanup (an example Access Agreement is provided in Appendix B).

Specific cleanup details will be developed on a property-by-property basis. Pre-Removal Property Assessment Agreements (see Appendix C for an example) will be prepared for each property to identify the soil removal areas and associated excavation or restoration requirements. Pre-Removal Property Assessment Forms will be reviewed with the property owner and tenant, if applicable, during a pre-excavation property inspection. The inspection will be attended by the property owner and tenant (if he/she requests to be present and is available), the FOSC, the ERRS RM, and the START PM. The Pre-Removal Property Assessment Forms will document all pertinent details of the cleanup construction activities, including items to be relocated for access during cleanup activities, excavation areas, landscaped areas that the owner requests not to be excavated, landscaping that will be removed and landscaping that the owner requests to be replaced, and plants that the owner requests to be re-planted. At the end of the inspection, the property owner and tenant will be asked to acknowledge the details of the cleanup by signing the Pre-Removal Property Assessment Form. The FOSC may elect to not proceed with any cleanup activities on a given property if either the owner or tenant refuses to sign the Pre-Removal Property Assessment Forms.

3.1.2 Pre-Excavation Area Preparation

The FOSC will generally notify the property owner and tenant of the intended start date one week prior to the start of construction at a particular property. Implementation may proceed at a given property with shorter notice if the property owner or tenant does not object.

Prior to beginning work on a particular property, the START will mark the limits of excavation based on assessment data and the ERRS RM and FOSC will approve. In addition, START will photograph each property to establish pre-cleanup conditions. The condition of buildings and other fixtures will also be documented, including the integrity of structures and foundations immediately adjacent to target excavation areas. Owners and tenants will also be asked about any existing drainage problems, and these will be noted on the Pre-Removal Property Assessment Form.

Prior to initiation of cleanup construction activities, the ERRS RM will have the local utility companies locate the underground electrical, water, sewer, gas, cable, and phone lines. The owner and tenant will also be asked to provide information on subsurface obstacles such as septic systems, abandoned water lines, sprinkler lines and heads, and wells. The utility companies will mark the boundary position of the utilities on the ground following their normal convention. The ERRS RM will also locate the layout of utilities within the yard areas using the

marked boundary position and entry points into the house. The ERRS RM will inspect each area to be excavated for visible obstacles. If necessary, the ERRS RM will confirm locations of subsurface obstacles by hand-digging to trace the orientation of the obstacle and will mark it adequately with spray paint. The ERRS RM will be particularly diligent in locating and hand excavating around all gas lines. Shields for subsurface pipelines and support members for retaining walls will be installed as necessary to prevent damage prior to the start of excavation activities. In addition, proper set-backs and safety sloping are examples of engineering controls that shall be implemented to prevent damage to existing improvements during excavation activities.

Surface obstacles to be removed by the property owner or tenant to allow access for cleanup construction activities will be identified by either the FOSC or ERRS RM and indicated on the Pre-Removal Property Assessment Form. The property owner or tenant will be required to relocate the surface obstacles and large possessions, such as RVs, boats, or other vehicles, to a location where they will not hinder the cleanup action. The property owner and tenant will be asked to discuss any concerns or special requests they may have in removing surface obstacles or in otherwise preparing their property for cleanup. The ERRS RM will request that the property owner or tenant remove and store all yard ornaments, personal possessions and keepsakes requiring special care either inside their building or on designated areas not being excavated, such as concrete driveways and patios. The ERRS contractor will temporarily relocate woodpiles, walkway stepping-stones, and other miscellaneous small landscape articles on the property, if possible. Large obstructions such as fences and gates will be removed, if necessary, to allow for ingress / egress of equipment and access for the work crews. Removed obstructions will be stored temporarily at the residential property and will be replaced following completion of property restoration.

3.1.3 Excavation Activities

At each property identified in Appendix A where access is granted, soil removal will be performed in all accessible areas of the noted removal area.

Due to the rural nature of the properties, the area subject to removal consists of the assessment area defined during the assessment phase of the project. This area typical does not include the entire parcel, but rather a ¼ to ½ acre area surrounding the residence as deemed appropriate by EPA guidance documents. For residential properties, in each decision unit with lead concentrations above the removal action level, the upper two foot of material will be removed from accessible areas (or the upper two feet in garden areas). Soil samples will be collected from the bottom of the excavation in accordance with the E & E SAP to document lead and arsenic concentrations left-in-place (see Section 3.1.3.1). A visual barrier such as geotextile fabric or snow fence will be placed in the excavation before backfill commences.

The ERRS contractor will remove soil using a variety of mechanized equipment and hand tools. Primary equipment will consist of skid a steer loader (e.g., bobcats) and a small excavator, or equivalent. Soil will be removed to the specified depth, taking care to hand-excavate next to buildings, sidewalks, and other structures. The goal will be to remove as much soil as possible from the residential yards. Obstacles (e.g. roots, rocks, buried tires) will be removed whenever possible to allow access to soil.

In order to reduce the potential for damage to structures and improvements and to stay within the property boundaries, the following nominal setbacks have been established:

- Two feet from permanent structures (house, garage, outbuildings, etc.)
- One foot from other improvements (sidewalks, paved areas, etc.)
- Within the drip line of shrubs

- Within a distance of one foot from the trunk for every inch of trunk diameter (ISA, 2001) unless a given tree is so large that in the of determination of the EPA FOSC, this setback would result in insufficient soil removal

- Two feet from underground utilities

- Two feet from other permanent appurtenances or improvements (e.g., power poles, etc

- Two feet around large stationary objects that cannot be moved with heavy equipment (e.g., sheds, animal shelters, inoperable automobiles)

- Appropriate distance from structures with basements so as not to impact basement walls (to be determined on a case-by-case basis)

- One foot from fences that are not removed for access.

Excavation of soil within these setbacks will be performed on a case-by-case basis, at the discretion of the FOSC. Excavation by hand will be performed, as necessary, to avoid damage to structures (e.g., houses, garages, sheds, paved driveways, sidewalks), and vegetation (e.g., trees, hedges, large shrubs). Soil around walls, buildings, pads, sidewalks, etc. will be removed to the bottom edge of the object and the soil will be removed at a 45 degree angle from that point on to the bottom depth of the excavation if applicable. A square bladed hand shovel will be used to remove all soil away from the side and on top of the permanent structures where possible and if applicable.

Utility lines (including water, electric, gas, cable and telephone) damaged by cleanup activities action will be re-installed to current building code requirements.

The ERRS RM will inspect structures during excavation operations and will take appropriate steps if damage occurs. Removal beyond the setback specified above for trees and shrubs will proceed in the normal manner. Excavation within the setback of trees and shrubs will occur as follows:

- Careful excavation will be implemented in the areas below tree canopies to minimize damage to feeder roots. A combination of hand and mechanical methods will be used within the area beneath the tree canopy for soil removal. Mini-excavators will be used to scratch the surface and locate the major roots of the tree. A laborer will work closely with the excavator operator to assist in locating the root system. The laborer will use flat-bladed hand shovels, sharp shooters, pick-axes, and brooms to help remove material from root edges. As roots are located, the excavator will be used in conjunction with the laborer to remove soil from the top surface of the roots. The excavator will then be used to move dirt manually removed from the tree out of the root zone and into a loading area. Care will be taken not to adversely affect the long-term health of the tree.

- If the EPA FOSC, determines that excavation within the setback of trees is required, removal of soil down to the top of the root structure will be performed.

If required for access, fences will be removed, salvaged (if possible), and replaced upon completion of backfill. Damaged fences or fences which cannot be re-installed following backfilling will be repaired or replaced with a new fence of similar type to the original.

The exteriors of structures and buildings will be inspected for evidence of deformation or changes in condition attributable to the cleanup activities based on review of the pre-excavation photographs/videotape documentation. The FOSC will contact the property owner when conditions are discovered that warrant such notifications.

The ERRS contractor will perform field measurements to confirm that the required excavation extent and depth have been achieved (see Appendix E: Construction Quality Assurance /Quality Control Plan). Once START has verified that an excavation meets project requirements by depth limits and the confirmation sampling as described in the E & E SAP has been completed, the area will be approved for backfilling.

3.1.3.1 Soil Removal Confirmation Sampling & Analysis

In accordance with the E & E SAP (Appendix D), the START will collect composite samples at the one or two-foot depth that marks the bottom of the excavation at the residential yards or gardens. Each property will have a barrier installed that is easily visible, which will be placed at the boundary of the native, potentially contaminated soil and clean fill above.

Table 3-1
Benchmarks and Data Quality Indicator Goals –
Definitive Data for EPA Method 6010B in Backfill Soil Samples and Post-Removal Excavation Samples

Klondyke Tailings Removal
Klondyke, Graham County, AZ

Constituent	Site-Specific Action Level for Post-Excavation Samples (mg/kg)	Site-Specific Action Level for Backfill Soil	Arizona Department of Environmental Quality r-SRL	U.S. EPA Residential RSL[1]	Laboratory Reporting Limits	Accuracy (% Recovery for MS/ MSD)	Precision (RPD from MS/MSD and Duplicates)	Percent Completeness
Arsenic	NA	34 mg/kg	10 mg/kg	34 mg/kg	NA	75 - 135	<35%	> 90%
Lead	NA	400 or 800 mg/kg	400 mg/kg	400 mg/kg	3 mg/kg	75 - 135	<35%	> 90%

Notes:
mg/kg = milligrams per kilogram
NA = not available/not applicable
MS/MSD = Matrix Spike/Matrix Spike Duplicate
RPD = Relative Percent Difference
[1] U.S. EPA Regional Screening Level (RSL) Resident Soil Table (TR=1E-6, HQ=1) May 2013, Noncancer Hazard Index (HI)=1

2013 ecology & environment, inc.

3.1.4 Noise Control

The normal operating hours will be between 7:30 a.m. to 4:30 p.m. Monday thru Saturday. No construction activity is planned for Sundays. Construction noise will not exceed objectionable levels. All equipment shall be maintained in proper condition with exhaust controls to minimize noise levels and proper driving habits will be enforced. Residents will be provided with the command post phone number to allow reporting of noise complaints. If noise complaints are received, the FOSC will assess the issue and require the ERRS contractor to modify equipment or operational procedures, as necessary. The ERRS RM and START PM will notify the FOSC of any noise complaints from local residents during cleanup activities.

3.1.5 Dust Control

Dust control requirements and air monitoring procedures during cleanup activities are described in the Fugitive Dust Control Plan (Appendix F).

Water application will be used, as necessary, to control fugitive dust emissions. Application rates will be regulated to control dust but preclude the generation of mud that could be transported from work areas on haul trucks or other mobile equipment. The ERRS contractor will utilize an onsite well, pump, J-stand, water truck and hose system. Dust suppression methods utilized during the removal actions will consist of water trucks spraying in excavation areas and on vehicle routes on site.

Air monitoring will be conducted during the earth-moving activities. Three air monitors will be placed about the work area in approximated upwind, downwind, and crosswind locations. Other monitors may be located at the site perimeter or near the truck loading area. The monitors will be placed, when possible, between the work area and adjacent homes. Locations of the air monitors will be documented in the site log book. Data generated will be compared to the dust action limit concentrations calculated in the E & E HASP. This data will be used either to notify ERRS that additional dust suppression is needed or confirm that no particulate matter is being generated by the removal activities and potentially migrating off site at concentrations of concern.

3.1.6 Access for Property Residents

Residents will have access to their homes at all times during cleanup construction activities. Appropriate measures will be taken to ensure that the residents will not have to walk through exposed soil prior to entering their home. A clean pathway will be provided to residents for accessing their homesite to prevent exposure and tracking of soils. All residents (especially children) will be asked to stay away from the construction area which will be delineated with construction tape or fencing.

3.1.7 Decontamination Procedures

Heavy equipment and tools used in the cleanup process will be decontaminated prior to leaving the work area. Decontamination will first involve the use of brushes and/or brooms to achieve “dry” decontamination of equipment in the work area to remove visible accumulations of materials from the equipment (including tires on light machinery, etc.). If necessary, limited quantities of water may then be used to remove residual visible contamination. However, water use will be minimized. If washing is necessary, equipment will be washed while on the premises to minimize the migration of mud and water. Streets, rights-of-way and access routes will be cleaned of visible accumulations of soil, dust, or debris attributable to construction activities.

3.1.8 Backfill and Restoration of Excavated Areas

After the removal depth of 1 foot (or 2 feet in garden areas) has been reached (see the Construction Quality Assurance /Quality Control Plan, Appendix E) and sampling has been completed, excavated areas will be approved for backfill fill material that has been sampled and shown to contain analytes below the action levels listed in Table 3-1. Backfill operations will occur as soon as practicable after removal is complete in order to minimize the amount of time excavated areas are left open. Backfill will not occur at a property until all distinct excavation areas have been approved for backfill to eliminate the possibility of cross-contaminating the imported backfill.

The excavated areas will be backfilled to pre-removal grades, except when modifications are necessary to promote drainage. Soil placed in excavated driveways, parking areas, and other areas subject to vehicular traffic shall be moisture-conditioned and compacted before surface materials; i.e. crushed rock, are placed to match pre-excavation conditions.

Backfill material will consist of 1.5 inch minus fine material screened from the Aravaipa river upstream of the site during May and June of 2012 removal operations combined with a mulch and fertilizer as recommended by an appropriate professional and approved by the FOSC. Following amendment approval, samples of both the screened fines and any amendments will by collected and analyzed by START to confirm that the replacement materials meet project requirements. Details of the project QA/QC certification of the replacement materials are described in the Construction Quality Assurance/Quality Control Plan (Appendix E). Replacement soil will be documented to contain analytes below the action levels listed in Table 3-1.

When access will allow and it is deemed feasible by the ERRS RM, trucks hauling replacement materials will be allowed to drive onto the excavation areas to dump their load to stockpile or spread the load while moving slowly forward while dumping the load. When access is limited, the trucks will dump their loads to stockpile in a pre-determined staging area in close proximity to the area to be backfilled. Operated heavy equipment; i.e. wheel loaders or skid steers, will be utilized to shuttle and place the material. Some handwork using wheelbarrows and shovels may be necessary to backfill areas with extremely limited access. The replacement materials will be placed and graded to the approximate original conditions and promote drainage. Compaction of replacement materials will be performed as deemed necessary by the FOSC.

Following backfill operations, surface features will be re-installed/restored to pre-cleanup conditions and/or as approved by the property owner. Residents will be provided with instructions for caring for replacement vegetation or hydroseeded areas. Plants that have been designated by the owner as requiring re-planting will be replanted. Landscaping that is removed or destroyed as part of the cleanup activities will be replaced with comparable landscaping, as requested by the owner. Landscaping includes but is not limited to, trees, seed, shrubs, plantings, etc. The EPA and the ERRS contractor will assume no responsibility for the survival of any re-plantings or replaced landscape. All materials such as fences, etc. that were moved by the ERRS contractor to facilitate construction activities will be restored to their original location, and any incidental damage to buried sprinkler systems, sidewalks, etc. will be repaired.

3.1.9 Runoff control

Best construction practices will be used to control runoff from site in the case of significant rainfall and overland flow.

3.1.10 Follow-Up Activities

Follow-up activities will be conducted after cleanup construction activities are complete at a given property to verify that the work has been performed appropriately. Details are provided in the following subsections.

3.1.10.1 Photo Documentation

Photographs and/or video will be used to document pre-removal and post-removal conditions of properties and roads. Photographs and videos will be taken by START as soon as practical following completion of backfill and restoration of the excavated areas for any given property.

3.1.10.2 Repair Work

Cleanup activities will be conducted to minimize damage to permanent features. Any damaged features, such as walkways or utilities, will be repaired or replaced upon discovery and determination that the damage was caused by cleanup construction activities. Structures (buildings, sidewalks, fences, etc.) damaged during property cleanup will be repaired. The FOSC shall notify the ERRS RM of any damage assumed to have been caused by the ERRS contractor and any repairs (or replacement) that the FOSC feels should be made because of the damage. If doubt exists whether damage was caused by the cleanup construction process, video and photographic documentation taken prior to construction will be reviewed on a case-by-case basis. The decision to repair disputed damages will be made by the FOSC.

3.1.10.3 Property Inspection

Once all construction activities are complete; all repairs have been completed, and any issues with the owner or tenant associated with property cleanup activities are resolved, the FOSC will inspect the property with the property owner, tenant and the ERRS RM. During this inspection, the Property Cleanup Form will be finalized and the property owner, tenant, and FOSC will sign-off that the work performed is satisfactory. If the property owner or tenant fails to show or declines to sign the Property Assessment Agreement, the FOSC will inspect the property. If the property has been cleaned up in a manner that is consistent with the pre-construction inspection, the FOSC will sign the Property Cleanup Form and it will be included in the Construction Completion Report.

3.1.11 Reporting

START shall document cleanup activities in the Removal Activities Report.

3.2 SOIL TRANSPORTATION AND PLACEMENT ON THE LTP

Excavated materials from the residential yards will be transported to the LTP where it will be graded out and compacted to act as a temporary cover over the surface tailings that make up the LTP. The LTP is scheduled to be stabilized by ADEQ in the next 1 to 3 years.

3.2.1 Soil Transport and Traffic Control

Soil will be transported along Klondyke Road from the various residences to the LTP using articulated haul trucks. Signage will be posted on Klondyke Road warning of “construction zone ahead” at the distances from the site recommended by the supplier, which is approximately 150 feet and 500 feet in either direction of the entrances where the trucks will be turning.

3.2.2 Dust Control

Dust control will be provided during truck loading and dumping to prevent generation of dust at concentrations of concern. As noted in section 3.1.5 dust monitoring will be conducted and water trucks will provide dust suppression.

3.2.3 Compaction and Grading

Contaminated soil removed from the residences will be used as a temporary cover on top of the LTP. Surface soils on the LTP were sampled by URS in 2008 and demonstrated to have lead concentrations up to 30,000 mg/kg. Residential soil assessment sampling showed a single maximum lead soil concentration of 17,000 mg/kg and a typical concentration of <2,000 mg/kg. Therefore the soil will be spread over the surface of the LTP in maximum 12 inch lifts and compacted with a vibratory padded foot compactor or equivalent compactive effort.

Approximately 1,567 CY of soil from HS-05, the hillside at HS-03 and an area northeast of the UTP designated as "Area D" were already placed on the LTP during the May and June of 2012 removal activities. It is anticipated that approximately 1,652 CY will be added from the removal as HS-02, HS-03 and HS-04 during this 2013 removal action.

The top of the pile will be graded to shed water with minimum slopes of 3%.

3.2.5 Erosion Control

After grading of removal soils on the LTP is complete erosion control measures will be put in place based on construction best practices as deemed appropriate by the FOSC. These measures may include, but not be limited to, installation of silt fence and/or straw waddle, hydroseeding, or application of soil tackifier. Efforts will be made to coordinate with ADEQ to leave the pile in a state that is favorable for their anticipated stabilization efforts.

4.0 DESIGN for THE REINSTALLATION OF THE UTP CAP

This section presents a description of construction activities associated with reinstallation of a two foot thick clean soil cap on the UTP. UTP cap construction activities are described in Sections 4.1 and 4.2 below.

4.1 UTP Cap Materials and Construction Specifications

See Appendix E Construction Quality Assurance/Quality Control Plan for a summary of acceptable cap material and testing requirements, maximum lift thickness, grading and minimum slope requirements, compaction requirements and testing frequencies, and seeding and erosion control specifications.

4.2 Documentation and Reporting

START will be responsible for documentation of UTP cap installation using a combination of logbook, photos and/or video. Photographs and videos will be taken by START during and after completion of cap reinstallation operations. START shall document UTP cap reinstallation activities in the Removal Activities Report.

5.0 SHARED PROJECT MANAGEMENT CONSIDERATIONS

This section describes overall project management considerations associated with implementing this Work Plan, including specific sequences and dependencies of activities, logistical requirements of various aspects of the work, and health and safety considerations.

5.1 Project Initiation

START and the ERRS contractor will mobilize to the site on October 9, 2013, as directed by the FOSC. To expedite implementation of cleanup at the three residencees identified by EPA (Appendix A), the FOSC began the process of soliciting access during past assessment and

removal actions. Signatures from property owners are required prior to the start of removal activities.

5.2 Construction Quality Assurance/Quality Control

Construction QA/QC testing and inspection procedures will be implemented by START to ensure compliance with the pre-determined project goals and specifications. Details of the construction QA/QC programs are provided in the Construction Quality Assurance/Quality Control Plan, which is included as Appendix E.

5.3 Health and Safety

The consolidated Site Specific Health and Safety Plan (E&E and EQ, 2013), in conjunction with other portions of the Work Plan (e.g., Sampling and Analysis Plan [Appendix D], Construction Quality Assurance/Quality Control Plan [Appendix E], Fugitive Dust Plan [Appendix F]) have been prepared to comply with the requirements of the EPA to ensure the protection of site workers and the public during the performance of the work.

During all construction activity, the ERRS contractor will have a designated Site Safety Officer. This individual will have authority over all ERRS personnel to enforce the consolidated SSHSP requirements.

6.0 DATA REPORTING

Within 90 days of completion of all construction and analytical work associated with the project, START will submit a Removal Activities report. The report will include the following:

• A summary of the project implementation;

• A discussion of issues that arose and how they were resolved;

• Property cleanup documentation (i.e., access agreements, sampling results, summaries of cleanup activities, notification letters, etc.).

Data and information will be shared between freely between the EPA, START, and the ERRS contractor in the field during project execution.

7.0 REFERENCES

U.S. Environmental Protection Agency (EPA), 2003 Lead-Contaminated Residential Sites Handbook.

FIGURES

APPENDIX A

LIST OF RESIDENTIAL and COMMERCIAL PROPERTIES TO BE CLEANED UP

Klondyke Removal Areas
Klondyke, Graham County, Arizona

Homesite	*Decision Unit*	*Area (s.f.)*	*Depth (ft)*	*Volume (c.f.)*	*Volume (c.y.)*
HS-02	**total**	**17,454**	**varies**	**21,226**	**786**
	Y1	1,755	1	1,755	65
	Y2	2,205	1	2,205	82
	Y3	1,727	1	1,727	64
	Y4	1,871	1	1,871	69
	Y5	2,064	1	2,064	76
	Y6	1,713	1	1,713	63
	Y8	2,347	1	2,347	87
	G1	3,772	2	7,544	279
HS-03	**total**	**10,524**	**1**	**10,524**	**390**
	Y1	2,318	1	2,318	86
	Y3	2,046	1	2,046	76
	Y5	3,089	1	3,089	114
	Y6	3,071	1	3,071	114
HS-04	**total**	**12,866**	**1**	**12,866**	**477**
	Y3	3,024	1	3,024	112
	Y5	2,661	1	2,661	99
	Y6	2,264	1	2,264	84
	Y7	2,455	1	2,455	91
	Y8	2,462	1	2,462	91
HS-05 (completed Oct 2012)	**total**	**10,448**	**1**	**10,448**	**387**
	Y2	2,389	1	2,389	88
	Y5	3,044	1	3,044	113
	Y6	2,434	1	2,434	90
	Y7	2,581	1	2,581	96
HS-03 Hillside (completed Oct 2012)	**NA**	**NA**	**NA**	**NA**	**80**
Area D Removal (completed Oct 2012)	**NA**	**NA**	**NA**	**NA**	**1100**

Total Completed Oct 2012 Excavation Volume	**1,567**
Anticipated Excavation Volume for Sep 2013	**1,652**
TOTAL ANTICIPATED EPA REMOVAL VOLUME	**3,219**

APPENDIX B

ACCESS AGREEMENT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105

Consent for Access to Property

Regarding: Klondyke Tailings Removal Site

Klondyke, Graham County, Arizona, Parcel Number or Address: _____

The property owner (and tenant) consents to and grants access to the United States Environmental Protection Agency (EPA), its officers, employees, representatives, agents, and contractors, to the above referenced property for the following purposes:

- to collect and analyze sediment, soil, and/or water samples,
- to take any other actions related to the evaluation, sampling, and analyses of releases of hazardous substances, pollutants, or contaminants to the environment (sampling results may be published in documents that are publically available), and
- the taking of other investigation and response actions as necessary and within the authority of EPA.

The property owner realizes that this action by EPA is undertaken pursuant to its response and enforcement responsibilities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as Superfund), 42 U.S.C. Section 9601, *et seq*.

Date: _____ _____

(Property owner signature)

_____

Name (print)

_____

Physical Address

_____

Mailing Address

_____

Telephone Number

_____

Email Address

APPENDIX C

PRE-REMOVAL PROPERTY ASSESSMENT AGREEMENT

Pre-removal and Post-Restoration Property Assessment Form

The Purpose of this form is to provide a mutual agreement between the property owner/residents and the United States Environmental Protection Agency as to the pre-removal and post-restoration condition of the subject property

Homeowner Name_____ Date_____

Site ID/Address_____ Phone_____

_____

See attached sketch/basemap for locations of existing utilities and site features

Utilities

Gas line location and meter condition_____

_____

Electric (Buried) or (Overhead)_____

_____

Electrical Meter condition_____

_____

Telephone (Buried) or (Overhead)_____

_____

Cable TV_____

_____

Well Head and/or Water Line

_____

_____

Is the homeowner aware of other buried utilities not identified by Blue Stake?_____

_____

Home Features and Condition

Flower/trees/shrubs ☐ Yes ☐ No ☐ N/A

Grass ☐ Yes ☐ No ☐ N/A

Septic System ☐ Yes ☐ No ☐ N/A

Drain Cleanouts ☐ Yes ☐ No ☐ N/A

Drainage issues, grade ☐ Yes ☐ No ☐ N/A

Sprinkler System (demonstrate functionality) ☐ Yes ☐ No ☐ N/A

Water Features ☐ Yes ☐ No ☐ N/A

Fence/Retaining Walls ☐ Yes ☐ No ☐ N/A

Decorative Stone ☐ Yes ☐ No ☐ N/A

Sidewalks ☐ Yes ☐ No ☐ N/A

Driveway (material and condition) ☐ Yes ☐ No ☐ N/A

Entryway/porch condition ☐ Yes ☐ No ☐ N/A

Can resident house animals away from yard during remediation ☐ Yes ☐ No ☐ N/A

Have property owner/resident concerns been discussed and resolved? ☐ Yes ☐ No ☐ N/A

Describe discussion_____

_____

_____

_____

Property Owner:

Print Name:_____ Date:_____

Signature:_____

Telephone/Email address:_____

Preferred time/method of contact:_____

Resident(s) *if different from Property Owner*:

Print Name:_____ Date:_____

Signature:_____

Telephone/Email address:_____

Preferred time/method of contact:_____

United States Environmental Protection Agency Representative:

Print Name:_____ Date:_____

Signature:_____

Telephone/Email address:_____

Pre-Removal and Post-Restoration Property Assessment Form

ADDRESS_____ DATE_____

THIS PAGE FOR DIAGRAMS OR SKETCHES OF THE PROPERTY, *as-needed*, TO ENHANCE THE MUTUAL UNDERTANDING BETWEEN THE PROPERTY OWNER / RESIDENT(S) AND THE UNITED STATES ENVIRONMENTAL PROTESTION AGENCY.

APPENDIX D

SAMPLING and ANALYSIS PLAN

APPENDIX E

CONSTRUCTION QUALITY ASSURANCE / QUALITY CONTROL PLAN

DRAFT Klondyke Tailings Removal Construction Quality Assurance / Quality Control Plan

October 2013

Prepared for:

U.S. Environmental Protection Agency
San Francisco, CA

Prepared by:

Environmental Quality Management, Inc.
6825 216th Street SW
Suite J
Lynnwood, WA 98036

Ecology & Environment, Inc.
1940 Webster Street
Suite 100
Oakland, CA 94612

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  - 2.1.2 Lower Tailing Pile Grading and Material Placement
  - 2.1.3 Upper Tailing Pile ReCapping
- 2.2 Material Backfill and Vegetation Placement

3.0 QUALITY ASSURANCE
- 3.1 Construction Activities
- 3.2 Material Backfill and Vegetation Placement

LIST OF TABLES

1 Summary of Construction Quality Assurance/Quality Control Monitoring and Testing

LIST OF ACRONYMS

ERRS	Emergency and Rapid Response Services
FOSC	Federal On-Scene Coordinator
MSDS	Material Safety Data Sheet
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
START	Superfund Technical Assessment & Response Team

1.0 INTRODUCTION

This Construction Quality Assurance/Quality Control Plan ("Plan") describes the procedures and testing frequencies to be used to achieve project quality assurance/quality control (QA/QC) goals during residential yard and drainage swale property cleanup operations at the Kilauea Pesticides Site.

2.0 QUALITY CONTROL (QC)

This section describes the requirements for QC during residential yard cleanup operations and the tailings pile capping, regarding and stabilization operations. In general, the ERRS contractor will be responsible for all QC requirements specified in this section, including functions delegated to subcontractors. The FOSC will have the discretion to assign QC responsibilities to START and/or other parties associated with the construction activities.

2.1 Construction Activities CQ

2.1.1 Residential Removal QC

The procedure specific to the residential yard cleanup operations requires that soil be removed to a minimum depth of 1 foot in the yard and 2 feet in garden areas. Periodic visual inspections, tape measurements and elevation controls will be performed to achieve compliance with the plans and specifications. The methods described in this plan are applicable to areas up to a slope of 1:1. Decisions on actions for steeper slopes will be made on a case-by-case basis in consultation with the FOSC. Elevation control points will be established within and adjacent to the perimeter of the area to be excavated.

All active excavation and material handling activities will be monitored for fugitive dust emissions. Monitoring will be performed using Personal Data RAM type monitors that collect real-time measurements for airborne particulates. Additional dust control measures may be implemented if dust is observed; action levels are exceeded, or as otherwise required by the FOSC or START (See the Fugitive Dust Control Plan, Klondyke Tailings Pile Site ["Work Plan"] Appendix F).

2.1.2 Lower Tailing Pile Grading and Material Placement

Residential removal material will be placed on the LTP in maximum 12 inch lifts. Periodic visual inspections, tape measurements and elevation controls will be performed to achieve compliance with this specification. Each lift will receive compaction with a vibratory padded foot roller or equivalent compactive effort. Note taking and visual observation will be used to ensure compliance. The pile will be graded to ensure a minimum 3 percent slope down from a lengthwise crest, and this crest will have a minimum 1.5 percent slope along its length to facilitate drainage off of the cap in all directions. Inspection with a site level and survey tape will ensure compliance with this specification.

2.1.3 Upper Tailing Pile ReCapping QC

In June 2012, EPA scraped the top 12-18 inches of UTP cap and stockpiled in windrows on top of the UTP. No cap material was transferred down off of the pile. Additional contaminated material for disposal will not be added to the UTP. Therefore, the cap surface will be constructed to approximate the URS As-Built drawings. It will be assumed that formerly installed cap material still in windrows on top of the UTP, still pass pre-qualification standards. If additional material is required to meet minimum slope specifications, the additional material would need to meet pre-qualification testing for structural fill prior to placement as specified in the URS Technical Memorandum *Re: CQA Testing for the soil cap and use of excavated material at the Klondyke WQARF Site* dated 5/13/18. Geophysical testing would be completed by a third party subcontracted by ERRS and submitted to the FOSC for approval prior to use of the tested material.

Prior to reinstallation of the cap, the windrowed material and the pile surface will be moisture conditioned and worked to break up clods. Soil cap material shall be placed in maximum 12 inch lifts and shall be compacted using a self-propelled, padded foot vibratory compactor. Soil will be compacted to 85 percent of maximum dry density within +2 percent/-3 percent of optimum moisture content as determined by ASTM D 698 (Standard Proctor). Field tests for in-place density and moisture content will be required as stated in the URS Technical Memorandum *Re: CQA Testing for the soil cap and use of excavated material at the Klondyke WQARF Site* dated 5/13/18 and specified below:

- ASTM D 2922 – Field Test for In-Place Density (nuclear method)
  - 2 per lift (max 12" lifts) or 1/1000 cy
  - If fails, additional compactive effort is required
- ASTM D 3017 – Field Test for In-Place Moisture (nuclear method)
  - 1 for each nuclear density test
- ASTM D 1556/ ASTM D 4718 – Field Test for In-Place Density (sand cone method)
  - 1/10 nuclear tests
  - If field density tests determined by the nuclear method vary by more than 1.5 lbs per cubic feet from comparison sand-cone test, and are consistently high or low, adjustment of the calibration curve is necessary.
- Failing results shall result in rework, fill replacement, and retesting.

These tests will be conducted by a third party qualified geotechnical testing representative contracted by ERRS. Results will be submitted to EPA for review and failing results may result in rework and retesting.

A licensed surveyor will be used to set grade stakes on site. The contractor will ensure that final slopes facilitate drainage and approximate those of the 2008 URS As-Built drawings where specified on URS As-Built Drawing 3 (minimum slope of 3% down from the ridgeline and a minimum 1.5% slope along the ridgeline). Inspection with a site level and survey tape will ensure compliance with these minimum slope specifications.

After compaction, the top six inches of cap will be scarified and loosely compacted prior to seeding in accordance with the URS revegetation construction specifications. The depth of scarification will be verified through visual observation and checking equipment blade depth with measuring tapes.

2.2 Backfill Material and Vegetation at Residences QC

Areas excavated during residential yard property cleanup operations will be backfilled with soil suitable to support vegetation and having appropriate drainage characteristics, as determined by the FOSC. Chemical testing of the replacement materials, required for construction QC, shall be performed by START. Representative samples of the proposed replacement material will be tested prior to source approval. Chemical tests for the replacement soil will include XRF analysis for lead and arsenic by EPA-approved methods to demonstrate that the soil meets the replacement material chemical criteria. The replacement material chemical criteria are given in Table 1.

Each source of replacement soil must be approved by the FOSC prior to use. Following initial material and source approval, START shall perform on-going quality control testing of the replacement soil. The anticipated source of replacement soil is ½" minus screened fines from the Araviapa River upstream of the Site amended with mulch, soil sulfur iron/manganese, azomite trace minerals, urea, and lawn fertilizer according to the recommendations of Curtis Landscape and Irrigation, Inc or other similar ERRS subcontractor. Samples of each source of replacement soil will be resampled periodically, at a frequency of approximately one sample for each front and back yard (approximately every 200 cubic yards of material used.) In addition, the FOSC will request supplemental quality control samples for physical and chemical testing if changes are observed in the material appearance or consistency.

Quality control measures for replacement vegetation at the residences will include review and submittal of supplier certificates, material safety data sheets (MSDSs), and manufacturer-provided information

regarding material use, if such information is available. These information sources will be reviewed for initial approval of the materials and ongoing construction QC.

3.0 QUALITY ASSURANCE (QA)

The primary QA requirements are different for the residential yards and the tailing pile recapping and grading operations. For the residential yard cleanup operations, the primary QC goal will be to confirm that the full extent and depth of excavation has been achieved, that confirmation samples at the invert of the excavation areas, where applicable, were collected, and that a visual barrier was placed. For the upper tailings pile, the primary goal is to confirm that cap is replaced to the specifications called out in the engineering design in its final thickness, compaction (confirmed by testing), grading and revegetation. For the LTP the primary goal is to confirm that material added from residential removals is placed in appropriate lift thicknesses and appropriately compacted. Other QA procedures include inspection of construction operations by a designated representative of the FOSC.

All procedures, materials, and equipment used during construction operations will be observed and monitored by the FOSC or his designee. All QC data supplied by START will be reviewed for testing adequacy and compliance with the plans and specifications. QC data or installed elements that are not in compliance with the plans and specifications will be reworked or replaced by the ERRS contractor so that the element is in compliance. All QC data and information supplied by the ERRS contractor will be documented by START to allow complete project tracking of all components of the construction and reporting to the FOSC. Site project meetings will be held as necessary with the FOSC to discuss work progress, QA/QC issues, and upcoming work to maintain overall project quality.

3.1 Construction Activities QA

As discussed in Section 2.1, during residential yard cleanup operations, measurement of the depth of the required excavation areas will be evaluated based on visual inspections, tape measurements and elevation controls, and material testing will be performed to achieve compliance with the plans and specifications and as part of the QC testing. The FOSC or his designee will review the raw data and calculations generated by the surveys and geotechnical testing and will visually observe the excavations for compliance with the extent and depth requirements and the compaction process for compliance with moisture conditioning, lift thickness, and frequency of testing. The general observations may be supplemented by random spot checks of the excavation sidewall depths by yardstick or tape measure.

The FOSC or his designee will also inspect the active work areas for visible dust. Additional dust control measures may be implemented if dust is observed. Details of the dust monitoring and control program are specified in the Fugitive Dust Control Plan (Work Plan Appendix F).

3.2 Backfill Material and Vegetation Placement QA

The physical and/or chemical properties of all replacement materials; i.e. soil and base rock, for both the residential yard cleanup operations will be identified through quality control testing as described in Section 2.2. The FOSC or his designee will review the testing reports to confirm that the materials meet the replacement materials chemical criteria (Table 1) prior to approving the material sources. Professional judgment will be applied to select replacement soil that is suitable to support vegetation and has appropriate drainage characteristics.

Once acceptable material sources have been identified, the FOSC or his designee will routinely monitor the replacement materials as they are brought to work area for changes in appearance or consistency. If changes in the material are observed, additional samples will be collected to confirm the material's chemical and/or physical characteristics. As indicated in Section 2.2, the replacement soil materials will

be sampled and analyzed for lead at a minimum frequency of one sample for each front and back yard, approximately every 200 cubic yards of soil backfill material used. The FOSC or his designee will review these results to confirm on-going acceptability. Further details of the sampling and analysis procedures are discussed in the SAP. As discussed in Section 2.2, achievement of minimum thickness for backfilled material placed during residential yard cleanup operations will be confirmed by visual inspection. Once backfill activities are completed, but before vegetation is placed, the FOSC or his designee will inspect the backfill surface to verify that it is appropriate and that pre-excavation drainage is maintained.

Quality assurance for the replacement vegetation will include review of the labels, certificates, MSDSs, and manufacturer's recommendations to verify that the materials meet the specifications. The FOSC or his designee will also visually observe and confirm that the vegetation materials and procedures meet the project requirements and are conducted in accordance with the manufacturer's recommendations, where applicable. In addition, restored properties will be inspected by the FOSC or his designee shortly after sod/replacement vegetation has been installed.

Table 1
Benchmarks and Data Quality Indicator Goals –
Definitive Data for EPA Method 6010B/8290 in Backfill Soil Samples and Post-Removal Excavation Samples

Klondyke Tailings Removal
Klondyke, Graham County, Arizona

Constituent	Site-Specific Action Level for Post-Excavation Samples (mg/kg)	Site-Specific Action Level for Backfill Soil	Arizona Department of Environmental Quality Residential SRL[a]	U.S. EPA Residential RSL[b]	Laboratory Reporting Limits	Accuracy (% Recovery for MS/ MSD)	Precision (RPD from MS/MSD and Duplicates)	Percent Completeness
Arsenic	NA	24 mg/kg	10 mg/kg	32 mg/kg	NA	75 - 135	<35%	> 90%
Lead	NA	400 mg/kg	400 mg/kg	400 mg/kg	3 mg/kg	75 - 135	<35%	> 90%

Notes:
mg/kg = milligrams per kilogram
ng/kg = nanograms per kilogram
NA = not available/not applicable
MS/MSD = Matrix Spike/Matrix Spike Duplicate
RPD = Relative Percent Difference

[a] Arizona Residential Soil Remediation Levels per Title 18 Chapter 7, Appendix A. Revised May 5, 2007.

[b] U.S. EPA Regional Screening Level (RSL) Resident Soil Table (TR=1E-6, HQ=1) May 2013, Noncancer Hazard Index (HI)=1

2013 ecology & environment, inc.

APPENDIX F

FUGITIVE DUST CONTROL PLAN

DRAFT Klondyke Tailings Removal
Fugitive Dust Control Plan

October 2013

Prepared for:

U.S. Environmental Protection Agency
San Francisco, CA

Prepared by:

Environmental Quality Management, Inc.
6825 216th Street SW
Suite J
Lynnwood, WA 98036

Ecology & Environment, Inc.
1940 Webster Street
Suite 100
Oakland, CA 94612

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2.1 Discussion of Supporting Technical Issues
2.2 Action Levels

3.0 MONITORING APPROACH
3.1 Monitoring Equipment and Parameters Measured
3.1.1 Quality Assurance and Quality Control
3.2 Air Monitoring and Sampling
3.2.1 Location
3.2.2 Procedure

4.0 DUST CONTROL MEASURES

5.0 MONITORING AND SAMPLING PROGRAM REVIEW AND MODIFICATION

6.0 REPORTING

LIST OF ACRONYMS

ISO	International Standardization Organization
NAAQS	National Ambient Air Quality Standard
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SAE	Society of Automotive Engineers
SAP	Sampling and Analysis Plan
TWA	Time-Weighted Average

1.0 INTRODUCTION

This document presents the Fugitive Dust Control Plan for residential yard and tailing pile operations at the Klondyke Tailings Site. This plan establishes the procedures to be implemented and documentation to be maintained in order to ensure worker and public safety and compliance with substantive requirements of applicable or relevant and appropriate laws, rules, and regulations. This plan is supported by and is an appendix to the Klondyke Tailings Site Work Plan.

During the course of removal activities at the Klondyke Tailings site, the operation of equipment and vehicles in work areas may liberate dust, particularly during dry and windy weather conditions. The primary goal of dust control during removal operations is to protect residents and workers from unacceptable levels of dust and arsenic by achievement of an air quality action level consistent with short-term exposure per National Institute for Occupational Safety and Health (NIOSH) and U.S. Occupational Safety and Health Administration (OSHA) standards and with pertinent reference exposure levels, as shown in Table 1. Further goals are to document any off-property dust migration and protection of the general public from unacceptable exposures. Fugitive dust emitted during backfill and restoration activities may be more of a nuisance than actual hazard, but even nuisance dust emissions shall be strictly controlled.

The effectiveness of dust control measures will be evaluated using real-time monitoring equipment that measures and archives airborne particulates concentrations. Visible dust in the air, or an alarm sounding on a particulates instrument, will trigger the implementation of additional dust control measures or temporary suspension of activities.

2.0 AIR QUALITY ACTION LEVELS

This section provides a description of action levels for implementation of additional dust control measures during project activities.

2.1 Discussion of Supporting Technical Issues

Measurement of airborne particulates has the advantage that levels can be measured in real time, so that dust issues can be immediately identified and corrected.

Estimates of the relationship between airborne particulates and lead concentrations in airborne dust can be made by assuming that metals concentrations in the dust are the same as in the soil being excavated. The worst case (highest) lead air concentrations for a given dust level can be estimated using the highest concentrations measured in the subject soil.

The highest concentration of lead found at the residences and the tailings piles were 17,000 milligrams per kilogram (mg/kg) and 30,000 mg/kg, respectively.

Using the following equation with the lead PELs, and inserting a protection factor of 2:

$$\text{Action Level } (mg/m^3) = \frac{\text{PEL } (mg/m^3)\ (10^6\ mg/kg)}{\text{Maximum Concentration in Soil } (mg/kg)\ (\text{Protection Factor [2]})}$$

At the residences, the calculated action level for lead is 1.47 mg/m^3. At the tailings piles, the calculated action level for lead is 0.83 mg/m^3.

If the real-time particulate monitor shows a TWA above the above stated action level for a given work zone, work will cease until engineering controls rectify the issue.

2.2 Action Levels

Action levels for more aggressive dust control measures and possible cessation of activities will be based on both visual observations and data from the monitoring/sampling program. During the course of project activities, the ERRS RM will alert the FOSC and START when visible fugitive dust is observed leaving the work area. Visual observations of fugitive dust plumes will trigger more aggressive controls. Should generation of visible dust plumes continue after the additional dust mitigation measures have been implemented, work will stop until conditions abate or additional measures will be taken to reduce dust generation and airborne transport. Specific action levels have been detailed in Section 2.1.

3.0 MONITORING APPROACH

Air monitoring activities will be implemented to measure respirable particulates concentrations during removal operations. The placement of monitors and elements of the monitoring activities are described below.

3.1 Monitoring Equipment and Parameters Measured

Real-time monitoring of ambient respirable particulates concentrations will be conducted with DataRAM 4^{TM} manufactured by Thermo Scientific, or equivalent. The DataRAM 4^{TM} is a portable, continuous monitor/data logger that measures and records real-time concentrations of airborne particulate matter over a range of 0.0001 to 400 mg/m^3. The DataRAM is equipped with an audible alarm that sounds whenever a user-specified level is exceeded. The LCD continuously displays real-time and time-weighted average (TWA) concentration values.

The DataRAM monitor will be checked at least three times a day during construction activities for the following: instrument status and maximum reading. In addition to the visual observations, these records will allow on-site personnel to employ proactive dust control measures to protect against action level exceedences.

The DataRAM monitor will be used to measure any generation of dust during construction activities that disturb soils (i.e., soil excavation and loading) and to determine the immediate effectiveness of dust control measures. The unit will be calibrated, zeroed, operated, and maintained in accordance with the manufacturer's specifications. The procedure used for the placement and operation of the DataRAM monitor is described below.

3.1.1 Quality Assurance and Quality Control

Each DataRAM is gravimetrically calibrated, National Institute of Standards and Technology (NIST) traceable in mg/m^3 using standard Society of Automotive Engineers (SAE) fine/International Standardization Organization (ISO Fine) test dust. The internal software has an automatic calibration check referenced to the optical background that is set at the factory. This optical background is near the wavelength of natural soil. Therefore, it should be representative of site work.

At the beginning of each day, the units will be initialized according to the procedure described in the DataRAM instruction manual. This process will allow for the identification of possible source failures or other QC issues.

3.2 Air Monitoring

Air monitoring will be performed continuously and daily during all work operations involving soil movement.

3.2.1 Location

Up to four Data RAMs will be strategically placed around the work areas when soil excavation and/or loading activities occur. The monitors will be placed upwind, downwind, and crosswind of the dust generating activities each day. The monitors may be periodically relocated so as to remain generally in the aforementioned locations in relation to ongoing construction activities. The time and location of placement will be documented. The monitors will be removed at the conclusion of each workday.

3.2.2 Procedure

Real-time monitoring will be performed during work hours on the workdays when construction activities disturb soils (excavation and/or loading, and backfill activities); real-time monitoring will not be performed on days when there is no soil disturbance.

At the beginning of each workday, the DataRAM units will be programmed to datalog at one-minute intervals for ambient dust concentrations.

The DataRAM units will be programmed to sound an alarm if the peak level exceeds the relevant action level for the work zone (specified in Section 2.1). If the alarm sounds, the ERRS contractor will implement additional dust control measures (Section 4) and work will not be resumed until the ambient dust concentration has fallen below the site specific action level.

4.0 DUST CONTROL MEASURES

This section outlines the dust control practices that will be followed during construction activities. Controls will be implemented to minimize fugitive dust generation from excavation and/or loading activities. Visual observations and real-time monitoring and sampling will be used to evaluate the effectiveness of the controls. Decisions to implement more aggressive controls or to temporarily cease activities will be based on action levels (described in Section 2).

Dust control measures will be a high priority for project personnel. Dust control will be achieved primarily by watering down work areas and vehicle traffic routes. Watering during construction activities will be on an as-needed basis, as follows:

- During soil excavation activities (by heavy equipment and by hand crews);
- During stockpiling and/or loading of soils for transport;
- During soil backfill activities;
- To wet down truck loads to control visible emissions during transport;
- During unloading of trucks at the LTP; and
- During grading activities on the LTP.

Additional dust control measures will be implemented if airborne particulates exceed the action level (Section 2). Additional dust control measures will be aggressively implemented during arid or windy conditions, whenever dust plumes are observed leaving the work areas, or as-needed based on real-time measurements.

Dust control actions will primarily include use of a water truck to apply water to restrict dust generation in vehicle traffic routes and work areas. Other dust control measures that may be used are: increased frequency of water spray applications, regulation of vehicle speed, placement of additional clean gravel as a ground cover in high dust generation areas, application of surfactant, or other appropriate measures. Care will be taken to avoid application of excessive amounts of water that may cause unacceptable working conditions or increase the possibility of surface run-off. If additional dust control measures do not eliminate visible dust or result in action levels being met, construction activities will be temporarily suspended until additional dust control measures have been implemented, or until adverse weather conditions abate. Dust control alternatives may be re-evaluated, on an as-needed basis.

Watering at the site will be accomplished using water trucks with their associated built in sprayers and manual hoses and nozzles. ERRS will provide one or more dedicated water personnel who will be present and actively watering during all cleanup operations. There is an onsite well that will be equipped with a pump and J-stand for loading water trucks for dust control measures.

5.0 MONITORING PROGRAM REVIEW AND MODIFICATION

Upon collection of monitoring data during the first several days of construction activities, data will be reviewed to evaluate the need for continuing the program or making modifications to it.

6.0 REPORTING

Data will be downloaded at the end of each work day from each DataRAM in use. The data will be provided to the FOSC on a daily basis. If action levels are exceeded, a summary statement will be provided with the data describing the actions implemented to decrease dust levels and the results of these mitigation measures. A description of other disturbances that could have caused the exceedence (e.g., trash trucks, dust devils, etc.) will be included in the description along with the time of the disturbance, if applicable.

Appendix G: Geotechnical Sampling Results

(available in electronic copy only)

Laboratory Report for

Ecology and Environment, Inc.

4500000690/EE-002693-2156-06TTO

Klondyke Cap Design

October 15, 2012

Daniel B. Stephens & Associates, Inc.

5840 Osuna Road NE • Albuquerque, New Mexico 87109

October 15, 2012

Brian Milton and Kate Villars
Ecology and Environment, Inc.
1940 Webster Street, Suite 100
Oakland, CA 94610
(510) 332-4439

Re: DBS&A Laboratory Report for Ecology and Environment, Inc. Task 4500000690/EE-002693-2156-06TTO

Dear Mr. Milton and Ms. Villars:

Enclosed is the report for the Ecology and Environment, Inc. Task 4500000690/EE-002693-2156-06TTO sample. Please review this report and provide any comments as samples will be held for a maximum of 30 days. After 30 days samples will be returned or disposed of in an appropriate manner.

All testing results were evaluated subjectively for consistency and reasonableness, and the results appear to be reasonably representative of the material tested. However, DBS&A does not assume any responsibility for interpretations or analyses based on the data enclosed, nor can we guarantee that these data are fully representative of the undisturbed materials at the field site. We recommend that careful evaluation of these laboratory results be made for your particular application.

The testing utilized to generate the enclosed final report employs methods that are standard for the industry. The results do not constitute a professional opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. You have acknowledged that all the testing undertaken by us, and the final report provided, constitutes mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion, having waived any claim of conflict of interest by DBS&A.

We are pleased to provide this service to Ecology and Environment, Inc. and look forward to future laboratory testing on other projects. If you have any questions about the enclosed data, please do not hesitate to call.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.
SOIL TESTING & RESEARCH LABORATORY

Celina Sessa
Assistant Laboratory Manager
Enclosure

Daniel B. Stephens & Associates, Inc.
Soil Testing & Research Laboratory
5840 Osuna Rd. NE
Albuquerque, NM 87109
505-889-7752
FAX 505-889-0258

Summaries

Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties[1]			Saturated Hydraulic Conductivity[2]			Moisture Characteristics[3]								Particle Size[4]			Specific Gravity[5]		Air Perm-eability	Atterberg Limits	Proctor Compaction
	G	VM	VD	CH	FH	FW	HC	PP	FP	DPP	RH	EP	WHC	K_{unsat}	DS	WS	H	F	C			
100% Area D																X	X					

[1] G = Gravimetric Moisture Content, VM = Volume Measurement Method, VD = Volume Displacement Method

[2] CH = Constant Head Rigid Wall, FH = Falling Head Rigid Wall, FW = Falling Head Rising Tail Flexible Wall

[3] HC = Hanging Column, PP = Pressure Plate, FP = Filter Paper, DPP = Dew Point Potentiometer, RH = Relative Humidity Box, EP = Effective Porosity, WHC = Water Holding Capacity, Kunsat = Calculated Unsaturated Hydraulic Conductivity

[4] DS = Dry Sieve, WS = Wet Sieve, H = Hydrometer

[5] F = Fine (<4.75mm), C = Coarse (>4.75mm)

Notes

Sample Receipt:
One sample arrived in a full 1-gallon Ziploc bag, double bagged on October 10th, 2012.

Testing Notes:
The sample was subjected to particle size analysis testing.

Particle diameter calculations in the hydrometer portion of the particle size analysis are based on the use of an assumed specific gravity value of 2.65.

Summary of Particle Size Characteristics

Sample Number	d_{10} (mm)	d_{50} (mm)	d_{60} (mm)	C_u	C_c	Method	ASTM Classification	USDA Classification	
100% Area D	0.00046	0.0054	0.0089	19	0.55	WS/H	Classification by ASTM 2487 requires Atterberg test	Silty Clay Loam	(Est)

d_{50} = Median particle diameter

Est = Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

† Greater than 10% of sample is coarse material

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
100% Area D	3.8	17.2	44.4	34.6

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Particle Size Analysis

Summary of Particle Size Characteristics

Sample Number	d_{10} (mm)	d_{50} (mm)	d_{60} (mm)	C_u	C_c	Method	ASTM Classification	USDA Classification	
100% Area D	0.00046	0.0054	0.0089	19	0.55	WS/H	Classification by ASTM 2487 requires Atterberg test	Silty Clay Loam	(Est)

d_{50} = Median particle diameter

Est = Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

† Greater than 10% of sample is coarse material

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
100% Area D	3.8	17.2	44.4	34.6

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: 100% Area D
Ring Number: NA
Depth: NA
Test Date: 15-Oct-12

Initial Dry Weight of Sample (g): 983.69
Weight Passing #10 (g): 919.05
Weight Retained #10 (g): 64.64
Weight of Hydrometer Sample (g): 51.67
Calculated Weight of Sieve Sample (g): 55.30

Shape: Angular
Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	983.69	100.00
	2"	50	0.00	0.00	983.69	100.00
	1.5"	38.1	0.00	0.00	983.69	100.00
	1"	25	0.00	0.00	983.69	100.00
	3/4"	19.0	0.00	0.00	983.69	100.00
	3/8"	9.5	24.97	24.97	958.72	97.46
	4	4.75	12.42	37.39	946.30	96.20
	10	2.00	27.25	64.64	919.05	93.43
-10			(Based on calculated sieve wt.)			
	20	0.85	2.48	6.11	49.19	88.94
	40	0.425	1.95	8.06	47.24	85.42
	60	0.250	1.10	9.16	46.14	83.43
	140	0.106	1.74	10.90	44.40	80.28
	200	0.075	0.71	11.61	43.69	79.00
	dry pan		0.12	11.73	43.57	
	wet pan			43.57	0.00	

d_{10} (mm): 0.00046
d_{16} (mm): 0.00065
d_{30} (mm): 0.0015
d_{50} (mm): 0.0054
d_{60} (mm): 0.0089
d_{84} (mm): 0.29

Median Particle Diameter --d_{50} (mm): 0.0054
Uniformity Coefficient, Cu --$[d_{60}/d_{10}]$ (mm): 19
Coefficient of Curvature, Cc --$[(d_{30})^2/(d_{10}*d_{60})]$ (mm): 0.55
Mean Particle Diameter --$[(d_{16}+d_{50}+d_{84})/3]$ (mm): 0.099

Note: Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

ASTM Soil Classification: Classification by ASTM 2487 requires Atterberg test
USDA Soil Classification: Silty Clay Loam

Laboratory analysis by: K. Wright
Data entered by: C. Krous
Checked by: J. Hines

Particle Size Analysis
Hydrometer Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: 100% Area D
Ring Number: NA
Depth: NA

Test Date: 12-Oct-12
Start Time: 9:18

Type of Water Used: DISTILLED
Reaction with H_2O_2*:* NA
Dispersant:* $(NaPO_3)_6$
Assumed particle density: 2.65

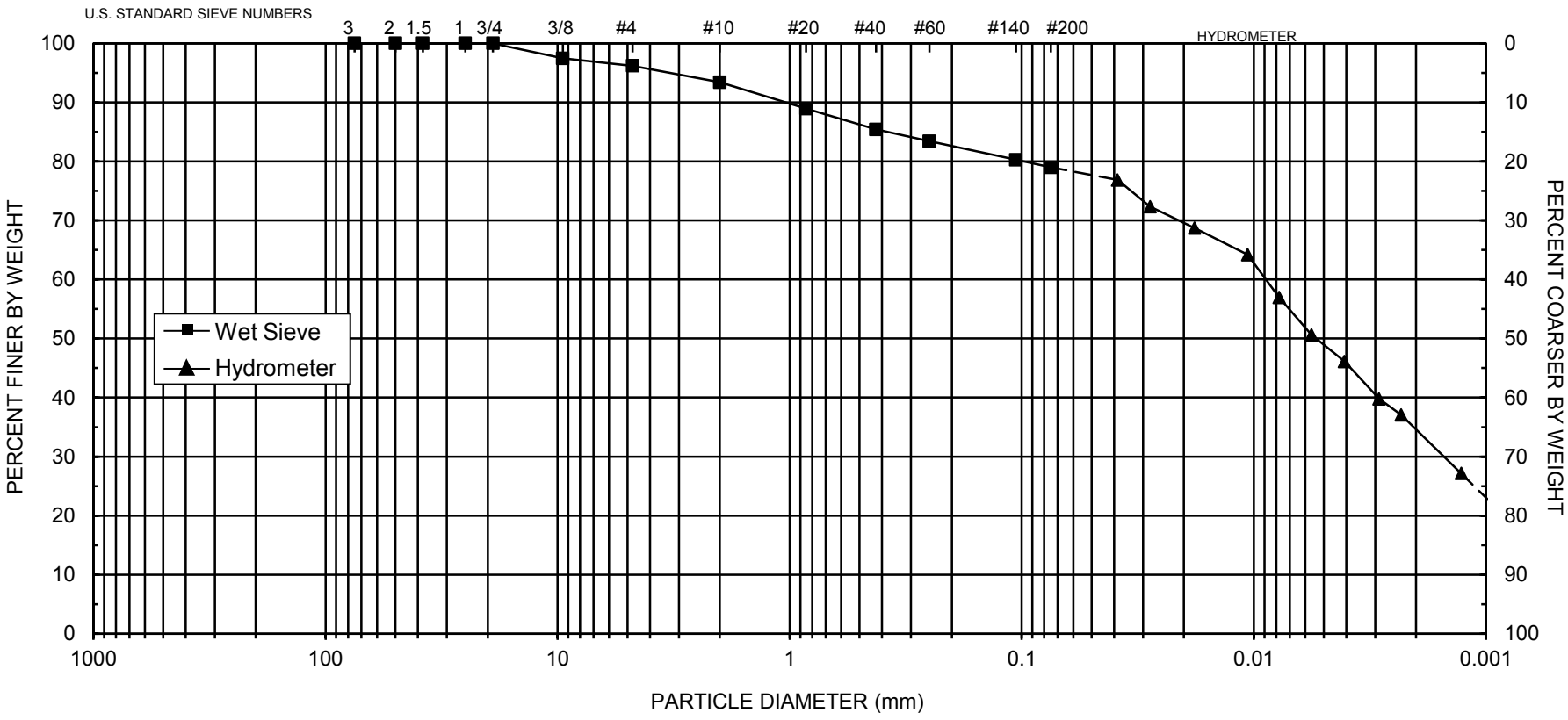
Initial Wt. (g)*:* 51.67
Total Sample Wt. (g)*:* 983.69
Wt. Passing #10 (g): 919.05

Date	Time (min)	Temp (°C)	R (g/L)	R_L (g/L)	R_{corr} (g/L)	L (cm)	D (mm)	P (%)	% Finer
12-Oct-12	1	21.6	48.5	6.0	42.5	8.3	0.03861	82.3	76.8
	2	21.6	46.0	6.0	40.0	8.8	0.02796	77.4	72.3
	5	21.6	44.0	6.0	38.0	9.1	0.01801	73.5	68.7
	15	21.6	41.5	6.0	35.5	9.5	0.01063	68.7	64.2
	30	21.6	37.5	6.0	31.5	10.2	0.00777	61.0	57.0
	60	21.7	34.0	6.0	28.0	10.7	0.00564	54.2	50.6
	120	21.7	31.5	6.0	25.5	11.1	0.00407	49.4	46.1
	250	21.8	28.0	6.0	22.0	11.7	0.00288	42.6	39.8
	395	21.8	26.5	6.0	20.5	12.0	0.00232	39.7	37.1
13-Oct-12	1422	21.0	21.5	6.5	15.0	12.8	0.00128	29.0	27.1

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: K. Wright
Data entered by: C. Krous
Checked by: J. Hines



UNIFIED	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		Coarse	Fine	Coarse	Medium	Fine				
USDA	COBBLES	GRAVEL		SAND				SILT	CLAY	
				Very coarse	Coarse	Medium	Fine	Very fine		

d_{10} = **0.00046**	d_{30} = **0.0015**	d_{50} = **0.0054**	d_{60} = **0.0089**	C_u = **19**	C_c = **0.55**

SAMPLE NUMBER	DEPTH	ASTM CLASSIFICATION	USDA CLASSIFICATION
100% Area D	**NA**	**Classification by ASTM 2487 requires Atterberg test**	**Silty Clay Loam**

Note: Reported values for d_{10}, C_u, C_c, and ASTM classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Laboratory Tests and Methods

Tests and Methods

Particle Size Analysis:	ASTM D422
USDA Classification:	ASTM D422, USDA Soil Textural Triangle

Laboratory Report for

Ecology and Environment, Inc.

4500000690/EE-002693-2156-06TTO

Klondyke Cap Design

December 26, 2012

Daniel B. Stephens & Associates, Inc.

5840 Osuna Road NE • Albuquerque, New Mexico 87109

December 26, 2012

Brian Milton and Kate Villars
Ecology and Environment, Inc.
1940 Webster Street, Suite 100
Oakland, CA 94610
(510) 332-4439

Re: DBS&A Laboratory Report for Ecology and Environment, Inc. Task 4500000690/EE-002693-2156-06TTO

Dear Mr. Milton and Ms. Villars:

Enclosed is the final report for the Ecology and Environment, Inc. Task 4500000690/EE-002693-2156-06TTO samples. Please review this report and provide any comments as samples will be held for a maximum of 30 days. After 30 days samples will be returned or disposed of in an appropriate manner.

All testing results were evaluated subjectively for consistency and reasonableness, and the results appear to be reasonably representative of the material tested. However, DBS&A does not assume any responsibility for interpretations or analyses based on the data enclosed, nor can we guarantee that these data are fully representative of the undisturbed materials at the field site. We recommend that careful evaluation of these laboratory results be made for your particular application.

The testing utilized to generate the enclosed final report employs methods that are standard for the industry. The results do not constitute a professional opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. You have acknowledged that all the testing undertaken by us, and the final report provided, constitutes mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion, having waived any claim of conflict of interest by DBS&A.

We are pleased to provide this service to Ecology and Environment, Inc. and look forward to future laboratory testing on other projects. If you have any questions about the enclosed data, please do not hesitate to call.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.
SOIL TESTING & RESEARCH LABORATORY

Celina Sessa
Assistant Laboratory Manager
Enclosure

Daniel B. Stephens & Associates, Inc.
Soil Testing & Research Laboratory
5840 Osuna Rd. NE
Albuquerque, NM 87109
505-889-7752
FAX 505-889-0258

Summaries

Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties[1]			Saturated Hydraulic Conductivity[2]			Moisture Characteristics[3]								Particle Size[4]			Specific Gravity[5]		% Organic Matter	Atterberg Limits	Proctor Compaction
	G	VM	VD	CH	FH	FW	HC	PP	FP	DPP	RH	EP	WHC	K_{unsat}	DS	WS	H	F	C			
K-cap-1:2																X	X			X	X	X
K-cap-1:2 (85%)	X	X		X			X			X	X			X								
K-cap-1:3																X	X			X	X	X
K-cap-1:3 (85%)	X	X		X			X			X	X			X								
K-cap-1:4																X	X			X	X	X
K-cap-1:4 (85%)	X	X		X			X			X	X			X								
K-cap-2:3																X	X			X	X	X
K-cap-2:3 (85%)	X	X		X			X			X	X			X								

[1] G = Gravimetric Moisture Content, VM = Volume Measurement Method, VD = Volume Displacement Method

[2] CH = Constant Head Rigid Wall, FH = Falling Head Rigid Wall, FW = Falling Head Rising Tail Flexible Wall

[3] HC = Hanging Column, PP = Pressure Plate, FP = Filter Paper, DPP = Dew Point Potentiometer, RH = Relative Humidity Box, EP = Effective Porosity, WHC = Water Holding Capacity, Kunsat = Calculated Unsaturated Hydraulic Conductivity

[4] DS = Dry Sieve, WS = Wet Sieve, H = Hydrometer

[5] F = Fine (<4.75mm), C = Coarse (>4.75mm)

Notes

Sample Receipt and Preparation:
Four samples arrived, each in a nearly full 5-gallon bucket with a lid, between November 2nd and November 5th. The samples were subjected to particle size analysis, percent organic matter, Atterberg limits and modified proctor compaction testing.

The samples were then remolded to target 85% of the respective maximum dry bulk densities at 2% below the respective optimum moisture contents. A sub-sample was prepared for the initial properties, saturated hydraulic conductivity, hanging column, and pressure chamber testing. Based on the modified proctor compaction method, material larger than 3/8" was removed from the samples prior to remolding. Oversize correction calculations are presented since the removed oversize fraction was greater than 5% of the bulk sample mass.

Remaining bulk sample material was used for the dewpoint potentiometer and relative humidity chamber portions of the moisture retention testing, as well as for the percent organic matter testing.

Each remolded sub-sample name includes the client specified remold proctor percentage to be used for testing.

General Notes:
Total porosity calculations in this report are based on the use of an assumed specific gravity value of 2.65. And, particle diameter calculations in the hydrometer portion of the particle size analysis are based on the use of an assumed specific gravity value of 2.65.

Summary of Sample Preparation/Volume Changes

	Proctor Data		Target Remold Parameters[1]			Actual Remold Data			Volume Change Post Saturation[2]			Volume Change Post Drying Curve[3]		
Sample Number	Opt. Moist. Cont. (%, g/g)	Max. Dry Density (g/cm^3)	Moist. Cont. (%, g/g)	Dry Bulk Density (g/cm^3)	% of Max. Density (%)	Moist. Cont. (%, g/g)	Dry Bulk Density (g/cm^3)	% of Max. Density (%)	Dry Bulk Density (g/cm^3)	% Volume Change (%)	% of Max. Density (%)	Dry Bulk Density (g/cm^3)	% Volume Change (%)	% of Max. Density (%)
K-cap-1:2 (85%)	10.5	1.99	8.5	1.69	85%	9.1	1.68	84.6%	1.68	---	84.6%	1.68	---	84.6%
K-cap-1:3 (85%)	9.5	2.03	7.5	1.73	85%	7.8	1.72	84.7%	1.72	---	84.7%	1.72	---	84.7%
K-cap-1:4 (85%)	9.3	2.02	7.3	1.72	85%	7.5	1.72	84.8%	1.72	---	84.8%	1.72	---	84.8%
K-cap-2:3 (85%)	10.6	1.98	8.6	1.69	85%	9.3	1.67	84.4%	1.67	---	84.4%	1.67	---	84.4%

[1]Target Remold Parameters: 85% of maximum dry density at 2% below optimum moisture content.

[2]Volume Change Post Saturation: Volume change measurements were obtained after saturated hydraulic conductivity testing.

[3]Volume Change Post Drying Curve: Volume change measurements were obtained throughout hanging column and pressure plate testing. The 'Volume Change Post Drying Curve' values represent the final sample dimensions after the last pressure plate point.

Notes:

"+" indicates sample swelling, "-" indicates sample settling, and "---" indicates no volume change occurred.

Summary of Initial Moisture Content, Dry Bulk Density Wet Bulk Density and Calculated Porosity

Sample Number	Moisture Content				Dry Bulk Density (g/cm^3)	Wet Bulk Density (g/cm^3)	Calculated Porosity (%)
	As Received		Remolded				
	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)			
K-cap-1:2 (85%)	NA	NA	9.1	15.3	1.68	1.84	36.5
K-cap-1:3 (85%)	NA	NA	7.8	13.5	1.72	1.86	34.9
K-cap-1:4 (85%)	NA	NA	7.5	12.9	1.72	1.85	35.3
K-cap-2:3 (85%)	NA	NA	9.3	15.6	1.67	1.83	36.8

NA = Not analyzed

--- = This sample was not remolded

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	Oversize Corrected K_{sat} (cm/sec)	Method of Analysis	
			Constant Head	Falling Head
K-cap-1:2 (85%)	1.4E-03	1.2E-03	X	
K-cap-1:3 (85%)	4.7E-03	3.8E-03	X	
K-cap-1:4 (85%)	1.8E-02	1.5E-02	X	
K-cap-2:3 (85%)	2.0E-04	1.6E-04	X	

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Summary of Moisture Characteristics of the Initial Drainage Curve

Sample Number	Pressure Head (-cm water)	Moisture Content (%, cm^3/cm^3)
K-cap-1:2 (85%)	0	37.5
	5	35.1
	20	32.6
	74	27.9
	337	23.8
	8464	9.8
	65675	6.4
	192844	4.8
	851293	3.1
K-cap-1:3 (85%)	0	34.5
	6	32.6
	20	29.7
	73	23.7
	337	19.7
	7445	9.5
	15501	7.4
	86275	5.1
	851293	2.9
K-cap-1:4 (85%)	0	35.6
	5	32.8
	10	31.2
	50	20.1
	199	16.7
	3773	7.1
	19274	5.0
	110036	3.5
	851293	2.0

‡‡ Volume adjustments are applicable at this matric potential (see data sheet for this sample).

Summary of Moisture Characteristics of the Initial Drainage Curve (Continued)

Sample Number	Pressure Head (-cm water)	Moisture Content (%, cm^3/cm^3)
K-cap-2:3 (85%)	0	36.7
	12	35.7
	32	32.3
	99	27.9
	337	25.0
	8056	10.4
	44463	6.9
	291765	4.7
	851293	3.4

‡‡ Volume adjustments are applicable at this matric potential (see data sheet for this sample).

Summary of Calculated Unsaturated Hydraulic Properties

Sample Number	α (cm^{-1})	N (dimensionless)	θ_r (% vol)	θ_s (% vol)	Oversize Corrected θ_r (% vol)	Oversize Corrected θ_s (% vol)
K-cap-1:2 (85%)	0.0260	1.2309	0.00	36.12	0.00	31.15
K-cap-1:3 (85%)	0.0550	1.2164	0.00	34.20	0.00	29.58
K-cap-1:4 (85%)	0.1219	1.2709	0.64	35.91	0.57	31.64
K-cap-2:3 (85%)	0.0185	1.2397	0.00	36.25	0.00	31.41

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NR = Not requested

NA = Not applicable

Summary of Particle Size Characteristics

Sample Number	d_{10} (mm)	d_{50} (mm)	d_{60} (mm)	C_u	C_c	Method	ASTM Classification	USDA Classification
K-cap-1:2	0.0031	1.6	2.8	903	23	WS/H	Clayey sand with gravel (SC)g	Sandy Loam †
K-cap-1:3	0.0054	2.0	3.5	648	17	WS/H	Clayey sand with gravel (SC)g	Sandy Loam †
K-cap-1:4	0.047	2.2	3.5	74	3.0	WS/H	Well-graded sand with clay and gravel (SW-SC)g	Sandy Loam †
K-cap-2:3	0.0025	1.4	2.6	1040	20	WS/H	Clayey sand with gravel (SC)g	Sandy Loam †

d_{50} = Median particle diameter

Est = Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

† Greater than 10% of sample is coarse material

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
K-cap-1:2	31.7	46.9	12.9	8.5
K-cap-1:3	34.1	49.1	10.4	6.5
K-cap-1:4	33.5	55.2	6.6	4.7
K-cap-2:3	30.1	47.2	13.4	9.4

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Summary of Atterberg Tests

Sample Number	Liquid Limit	Plastic Limit	Plasticity Index	Classification
K-cap-1:2	30	16	14	CL
K-cap-1:3	29	17	12	CL
K-cap-1:4	24	17	7	CL-ML
K-cap-2:3	30	17	13	CL

--- = Soil requires visual-manual classification due to non-plasticity

Summary of Proctor Compaction Tests

	Measured		Oversize Corrected	
Sample Number	Optimum Moisture Content (% g/g)	Maximum Dry Bulk Density (g/cm^3)	Optimum Moisture Content (% g/g)	Maximum Dry Bulk Density (g/cm^3)
K-cap-1:2	10.5	1.99	8.4	2.09
K-cap-1:3	9.5	2.03	7.7	2.13
K-cap-1:4	9.3	2.02	7.7	2.11
K-cap-2:3	10.6	1.98	8.5	2.08

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NR = Not requested

NA = Not applicable

Summary of Percent Organic Matter

Sample Number	Organic Matter* (%, g/g)
K-cap-1:2	1.1
K-cap-1:3	1.1
K-cap-1:4	0.9
K-cap-2:3	1.3

*Correction for oversize material applied, if necessary

Initial Properties

Summary of Initial Moisture Content, Dry Bulk Density Wet Bulk Density and Calculated Porosity

Sample Number	Moisture Content				Dry Bulk Density (g/cm^3)	Wet Bulk Density (g/cm^3)	Calculated Porosity (%)
	As Received		Remolded				
	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)			
K-cap-1:2 (85%)	NA	NA	9.1	15.3	1.68	1.84	36.5
K-cap-1:3 (85%)	NA	NA	7.8	13.5	1.72	1.86	34.9
K-cap-1:4 (85%)	NA	NA	7.5	12.9	1.72	1.85	35.3
K-cap-2:3 (85%)	NA	NA	9.3	15.6	1.67	1.83	36.8

NA = Not analyzed

--- = This sample was not remolded

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:2 (85%)
Project Name: Klondyke Cap Design
Depth: NA

	As Received	Remolded
Test Date:	NA	15-Nov-12
Field weight of sample* (g)*:*		542.52
Tare weight, ring (g)*:*		130.68
Tare weight, pan/plate (g)*:*		0.00
Tare weight, other (g)*:*		0.00
Dry weight of sample (g)*:*		377.50
Sample volume (cm^3)*:*		224.40
Assumed particle density (g/cm^3)*:*		2.65

Gravimetric Moisture Content (% g/g)*:*	9.1
Volumetric Moisture Content (% vol)*:*	15.3
Dry bulk density (g/cm^3)*:*	1.68
Wet bulk density (g/cm^3)*:*	1.84
Calculated Porosity (% vol)*:*	36.5
Percent Saturation:	41.9

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:3 (85%)
Project Name: Klondyke Cap Design
Depth: NA

	As Received	Remolded
Test Date:	NA	15-Nov-12
Field weight of sample* (g)*:*		546.20
Tare weight, ring (g)*:*		126.89
Tare weight, pan/plate (g)*:*		0.00
Tare weight, other (g)*:*		0.00
Dry weight of sample (g)*:*		388.86
Sample volume (cm^3)*:*		225.55
Assumed particle density (g/cm^3)*:*		2.65

Gravimetric Moisture Content (% g/g)*:*	7.8
Volumetric Moisture Content (% vol)*:*	13.5
Dry bulk density (g/cm^3)*:*	1.72
Wet bulk density (g/cm^3)*:*	1.86
Calculated Porosity (% vol)*:*	34.9
Percent Saturation:	38.6

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:4 (85%)
Project Name: Klondyke Cap Design
Depth: NA

	As Received	Remolded
Test Date:	NA	15-Nov-12
Field weight of sample* (g)*:*		542.08
Tare weight, ring (g)*:*		127.43
Tare weight, pan/plate (g)*:*		0.00
Tare weight, other (g)*:*		0.00
Dry weight of sample (g)*:*		385.57
Sample volume (cm^3)*:*		224.73
Assumed particle density (g/cm^3)*:*		2.65

Gravimetric Moisture Content (% g/g)*:*	7.5
Volumetric Moisture Content (% vol)*:*	12.9
Dry bulk density (g/cm^3)*:*	1.72
Wet bulk density (g/cm^3)*:*	1.85
Calculated Porosity (% vol)*:*	35.3
Percent Saturation:	36.7

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3 (85%)
Project Name: Klondyke Cap Design
Depth: NA

	As Received	Remolded
Test Date:	NA	15-Nov-12
Field weight of sample* (g)*:*		543.82
Tare weight, ring (g)*:*		133.76
Tare weight, pan/plate (g)*:*		0.00
Tare weight, other (g)*:*		0.00
Dry weight of sample (g)*:*		375.08
Sample volume (cm^3)*:*		224.06
Assumed particle density (g/cm^3)*:*		2.65
Gravimetric Moisture Content (% g/g)*:*		9.3
Volumetric Moisture Content (% vol)*:*		15.6
Dry bulk density (g/cm^3)*:*		1.67
Wet bulk density (g/cm^3)*:*		1.83
Calculated Porosity (% vol)*:*		36.8
Percent Saturation:		42.4

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Saturated Hydraulic Conductivity

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	Oversize Corrected K_{sat} (cm/sec)	Method of Analysis	
			Constant Head	Falling Head
K-cap-1:2 (85%)	1.4E-03	1.2E-03	X	
K-cap-1:3 (85%)	4.7E-03	3.8E-03	X	
K-cap-1:4 (85%)	1.8E-02	1.5E-02	X	
K-cap-2:3 (85%)	2.0E-04	1.6E-04	X	

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Saturated Hydraulic Conductivity
Constant Head Method

Job name: Ecology & Environment, Inc.
Job number: LB12.0208.00
Sample number: K-cap-1:2 (85%)
Project Name: Klondyke Cap Design
Depth: NA

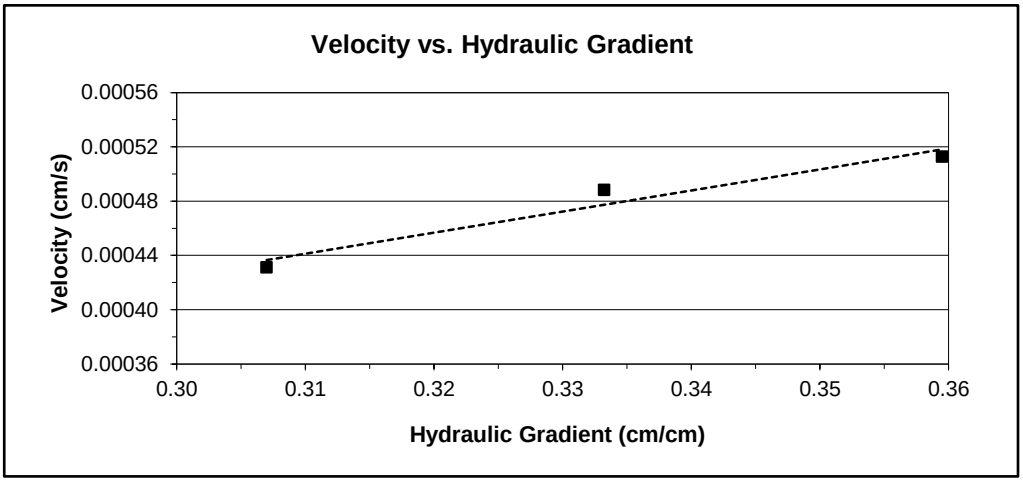
Type of water used: TAP
Collection vessel tare (g)*:* 10.95
Sample length (cm)*:* 7.62
Sample diameter (cm)*:* 6.13
Sample x-sectional area (cm^2)*:* 29.46

Date	Time	Temp (°C)	Head (cm)	Q + Tare (g)	Q (cm^3)	Elapsed time (sec)	Ksat (cm/sec)	Ksat @ 20°C (cm/sec)
Test # 1:								
19-Nov-12	10:28:19	20.5	2.7	14.50	3.6	235	1.4E-03	1.4E-03
19-Nov-12	10:32:14							
Test # 2:								
19-Nov-12	10:57:11	20.5	2.5	15.71	4.8	331	1.5E-03	1.5E-03
19-Nov-12	11:02:42							
Test # 3:								
19-Nov-12	12:27:36	20.5	2.3	15.04	4.1	322	1.4E-03	1.4E-03
19-Nov-12	12:32:58							

Average Ksat* (cm/sec)*: **1.4E-03**
Oversize Corrected Ksat* (cm/sec)*: **1.2E-03**

Comments:

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass



Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Oversize Correction Data Sheet

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:2 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Split (3/4", 3/8", #4): 3/8
Calculated Porosity of Fines (% vol)*:* 36.5

	Coarse Fraction*	Fines Fraction	Composite
Subsample Mass (g)*:*	467.23	1858.77	2326.00
Bulk Density (g/cm^3)*:*	2.65	1.68	1.82
Volume of Solids (cm^3)*:*	176.31	701.42	877.74
Volume of Voids (cm^3)*:*	0.00	403.51	403.51
Total Volume (cm^3)*:*	176.31	1104.94	1281.25
Volumetric Fraction (%)*:*	13.76	86.24	100.00
Mass Fraction (%)*:*	20.09	79.91	100.00
Ksat (cm/sec)*:*	NM	1.4E-03	1.2E-03

* = Porosity and moisture content of coarse fraction assumed to be zero.
--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NM = Not measured

Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Saturated Hydraulic Conductivity
Constant Head Method

Job name: Ecology & Environment, Inc.
Job number: LB12.0208.00
Sample number: K-cap-1:3 (85%)
Project Name: Klondyke Cap Design
Depth: NA

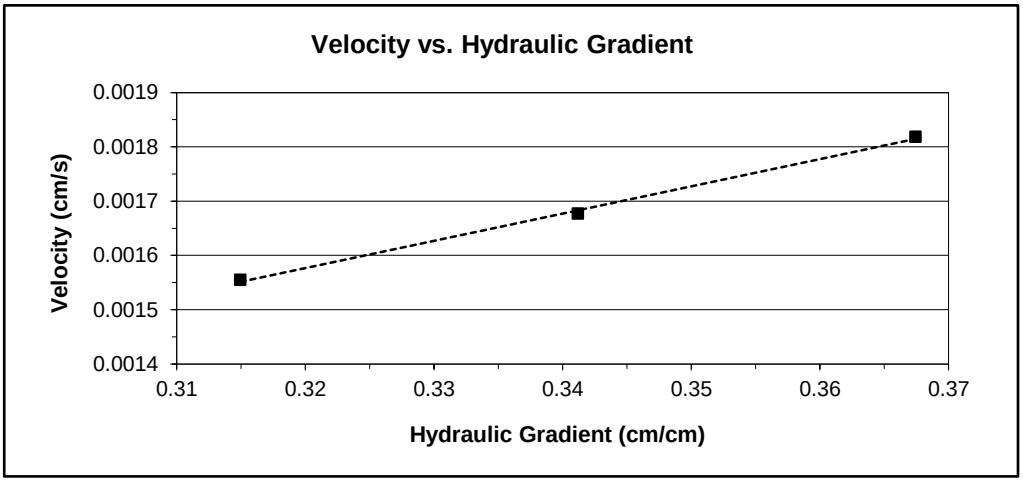
Type of water used: TAP
Collection vessel tare (g)*:* 10.92
Sample length (cm)*:* 7.62
Sample diameter (cm)*:* 6.14
Sample x-sectional area (cm^2)*:* 29.60

Date	Time	Temp (°C)	Head (cm)	Q + Tare (g)	Q (cm^3)	Elapsed time (sec)	Ksat (cm/sec)	Ksat @ 20°C (cm/sec)
Test # 1:								
19-Nov-12	10:28:26	20.5	2.8	18.98	8.1	154	4.8E-03	4.8E-03
19-Nov-12	10:31:00							
Test # 2:								
19-Nov-12	10:57:17	20.5	2.6	21.85	10.9	227	4.8E-03	4.7E-03
19-Nov-12	11:01:04							
Test # 3:								
19-Nov-12	12:27:46	20.5	2.4	21.03	10.1	227	4.8E-03	4.7E-03
19-Nov-12	12:31:33							

Average Ksat* (cm/sec)*: **4.7E-03**
Oversize Corrected Ksat* (cm/sec)*: **3.8E-03**

Comments:

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass



Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Oversize Correction Data Sheet

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:3 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Split (3/4", 3/8", #4): 3/8
Calculated Porosity of Fines (% vol)*:* 34.9

	Coarse Fraction*	Fines Fraction	Composite
Subsample Mass (g)*:*	488.91	2036.41	2525.32
Bulk Density (g/cm^3)*:*	2.65	1.72	1.85
Volume of Solids (cm^3)*:*	184.49	768.46	952.95
Volume of Voids (cm^3)*:*	0.00	412.71	412.71
Total Volume (cm^3)*:*	184.49	1181.17	1365.66
Volumetric Fraction (%)*:*	13.51	86.49	100.00
Mass Fraction (%)*:*	19.36	80.64	100.00
Ksat (cm/sec)*:*	NM	4.7E-03	3.8E-03

* = Porosity and moisture content of coarse fraction assumed to be zero.
--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NM = Not measured

Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Saturated Hydraulic Conductivity
Constant Head Method

Job name: Ecology & Environment, Inc.
Job number: LB12.0208.00
Sample number: K-cap-1:4 (85%)
Project Name: Klondyke Cap Design
Depth: NA

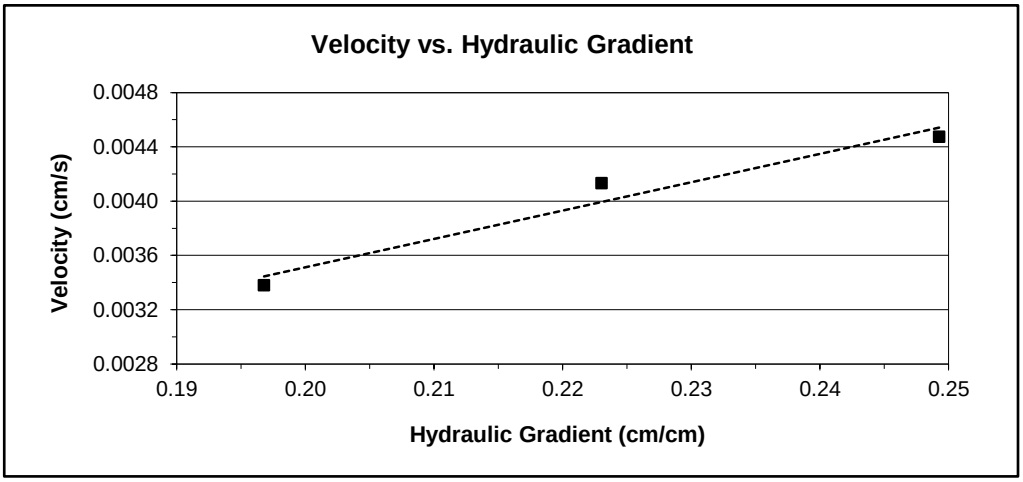
Type of water used: TAP
Collection vessel tare (g)*:* 10.92
Sample length (cm)*:* 7.62
Sample diameter (cm)*:* 6.13
Sample x-sectional area (cm^2)*:* 29.48

Date	Time	Temp (°C)	Head (cm)	Q + Tare (g)	Q (cm^3)	Elapsed time (sec)	Ksat (cm/sec)	Ksat @ 20°C (cm/sec)
Test # 1:								
19-Nov-12	10:28:36	20.5	1.9	24.24	13.3	101	1.8E-02	1.8E-02
19-Nov-12	10:30:17							
Test # 2:								
19-Nov-12	10:57:25	20.5	1.7	22.61	11.7	96	1.9E-02	1.8E-02
19-Nov-12	10:59:01							
Test # 3:								
19-Nov-12	12:27:54	20.5	1.5	23.67	12.8	128	1.7E-02	1.7E-02
19-Nov-12	12:30:02							

Average Ksat* (cm/sec)*: **1.8E-02**
Oversize Corrected Ksat* (cm/sec)*: **1.5E-02**

Comments:

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass



Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Oversize Correction Data Sheet

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:4 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Split (3/4", 3/8", #4): 3/8
Calculated Porosity of Fines (% vol)*:* 35.3

	Coarse Fraction*	Fines Fraction	Composite
Subsample Mass (g)*:*	411.23	1973.51	2384.74
Bulk Density (g/cm^3)*:*	2.65	1.72	1.83
Volume of Solids (cm^3)*:*	155.18	744.72	899.90
Volume of Voids (cm^3)*:*	0.00	405.53	405.53
Total Volume (cm^3)*:*	155.18	1150.25	1305.43
Volumetric Fraction (%)*:*	11.89	88.11	100.00
Mass Fraction (%)*:*	17.24	82.76	100.00
Ksat (cm/sec)*:*	NM	1.8E-02	1.5E-02

* = Porosity and moisture content of coarse fraction assumed to be zero.
--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NM = Not measured

Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Saturated Hydraulic Conductivity
Constant Head Method

Job name: Ecology & Environment, Inc.
Job number: LB12.0208.00
Sample number: K-cap-2:3 (85%)
Project Name: Klondyke Cap Design
Depth: NA

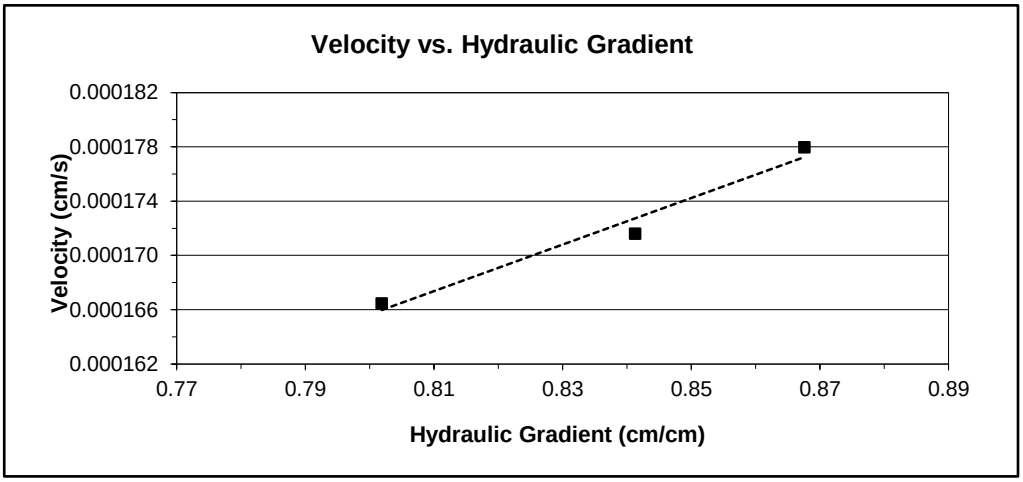
Type of water used: TAP
Collection vessel tare (g)*:* 10.97
Sample length (cm)*:* 7.61
Sample diameter (cm)*:* 6.12
Sample x-sectional area (cm^2)*:* 29.46

Date	Time	Temp (°C)	Head (cm)	Q + Tare (g)	Q (cm^3)	Elapsed time (sec)	Ksat (cm/sec)	Ksat @ 20°C (cm/sec)
Test # 1:								
19-Nov-12	10:28:00	20.5	6.6	12.49	1.5	290	2.1E-04	2.0E-04
19-Nov-12	10:32:50							
Test # 2:								
19-Nov-12	10:56:52	20.5	6.4	13.31	2.3	463	2.0E-04	2.0E-04
19-Nov-12	11:04:35							
Test # 3:								
19-Nov-12	12:27:19	20.5	6.1	12.98	2.0	410	2.1E-04	2.1E-04
19-Nov-12	12:34:09							

Average Ksat* (cm/sec)*: **2.0E-04**
Oversize Corrected Ksat* (cm/sec)*: **1.6E-04**

Comments:

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass



Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Oversize Correction Data Sheet

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Split (3/4", 3/8", #4): 3/8
Calculated Porosity of Fines (% vol)*:* 36.8

	Coarse Fraction*	Fines Fraction	Composite
Subsample Mass (g)*:*	450.36	1849.38	2299.74
Bulk Density (g/cm^3)*:*	2.65	1.67	1.80
Volume of Solids (cm^3)*:*	169.95	697.88	867.83
Volume of Voids (cm^3)*:*	0.00	406.90	406.90
Total Volume (cm^3)*:*	169.95	1104.78	1274.73
Volumetric Fraction (%)*:*	13.33	86.67	100.00
Mass Fraction (%)*:*	19.58	80.42	100.00
Ksat (cm/sec)*:*	NM	2.0E-04	1.6E-04

* = Porosity and moisture content of coarse fraction assumed to be zero.
--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NM = Not measured

Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Moisture Retention Characteristics

Summary of Moisture Characteristics of the Initial Drainage Curve

Sample Number	Pressure Head (-cm water)	Moisture Content (%, cm^3/cm^3)
K-cap-1:2 (85%)	0	37.5
	5	35.1
	20	32.6
	74	27.9
	337	23.8
	8464	9.8
	65675	6.4
	192844	4.8
	851293	3.1
K-cap-1:3 (85%)	0	34.5
	6	32.6
	20	29.7
	73	23.7
	337	19.7
	7445	9.5
	15501	7.4
	86275	5.1
	851293	2.9
K-cap-1:4 (85%)	0	35.6
	5	32.8
	10	31.2
	50	20.1
	199	16.7
	3773	7.1
	19274	5.0
	110036	3.5
	851293	2.0

‡‡ Volume adjustments are applicable at this matric potential (see data sheet for this sample).

Summary of Moisture Characteristics of the Initial Drainage Curve (Continued)

Sample Number	Pressure Head (-cm water)	Moisture Content (%, cm^3/cm^3)
K-cap-2:3 (85%)	0	36.7
	12	35.7
	32	32.3
	99	27.9
	337	25.0
	8056	10.4
	44463	6.9
	291765	4.7
	851293	3.4

‡‡ Volume adjustments are applicable at this matric potential (see data sheet for this sample).

Summary of Calculated Unsaturated Hydraulic Properties

Sample Number	α (cm^{-1})	N (dimensionless)	θ_r (% vol)	θ_s (% vol)	Oversize Corrected θ_r (% vol)	Oversize Corrected θ_s (% vol)
K-cap-1:2 (85%)	0.0260	1.2309	0.00	36.12	0.00	31.15
K-cap-1:3 (85%)	0.0550	1.2164	0.00	34.20	0.00	29.58
K-cap-1:4 (85%)	0.1219	1.2709	0.64	35.91	0.57	31.64
K-cap-2:3 (85%)	0.0185	1.2397	0.00	36.25	0.00	31.41

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NR = Not requested

NA = Not applicable

Moisture Retention Data

Hanging Column / Pressure Plate

(Soil-Water Characteristic Curve)

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:2 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Dry wt. of sample (g)*:* 377.50
Tare wt., ring (g)*:* 130.68
Tare wt., screen & clamp (g)*:* 27.41
Initial sample volume (cm^3)*:* 224.40
Initial dry bulk density (g/cm^3)*:* 1.68
Assumed particle density (g/cm^3)*:* 2.65
Initial calculated total porosity (%)*:* 36.52

	Date	Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content † (% vol)
Hanging column:	19-Nov-12	14:40	619.65	0	37.46
	26-Nov-12	13:35	614.37	5.0	35.11
	3-Dec-12	14:00	608.75	20.0	32.60
	10-Dec-12	7:50	598.22	74.0	27.91
Pressure plate:	20-Dec-12	7:40	589.08	337	23.84

Volume Adjusted Data [1]

	Matric Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calculated Porosity (%)
Hanging column:	0.0	---	---	---	---
	5.0	---	---	---	---
	20.0	---	---	---	---
	74.0	---	---	---	---
Pressure plate:	337	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent each of the volume change measurements obtained after saturated hydraulic conductivity testing and throughout hanging column/pressure plate testing. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

† Assumed density of water is 1.0 g/cm^3

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Technician Notes:

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Moisture Retention Data

Dew Point Potentiometer / Relative Humidity Box

(Soil-Water Characteristic Curve)

Sample Number: K-cap-1:2 (85%)

Initial sample bulk density (g/cm^3)*:* 1.68
Fraction of test sample used (<2.00mm fraction) (%): 67.93

Dry weight of dew point potentiometer sample* (g)*:* 155.71
Tare weight, jar (g)*:* 112.71

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Dew point potentiometer:	30-Nov-12	13:40	159.38	8464	9.75
	30-Nov-12	9:27	158.12	65675	6.40
	29-Nov-12	16:10	157.50	192844	4.76

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Dew point potentiometer:	8464	---	---	---	---
	65675	---	---	---	---
	192844	---	---	---	---

Dry weight of relative humidity box sample* (g)*:* 114.09
Tare weight (g)*:* 44.10

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Relative humidity box:	15-Nov-12	11:40	115.98	851293	3.10

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Relative humidity box:	851293	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent the volume change measurements obtained after the last hanging column or pressure plate point. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

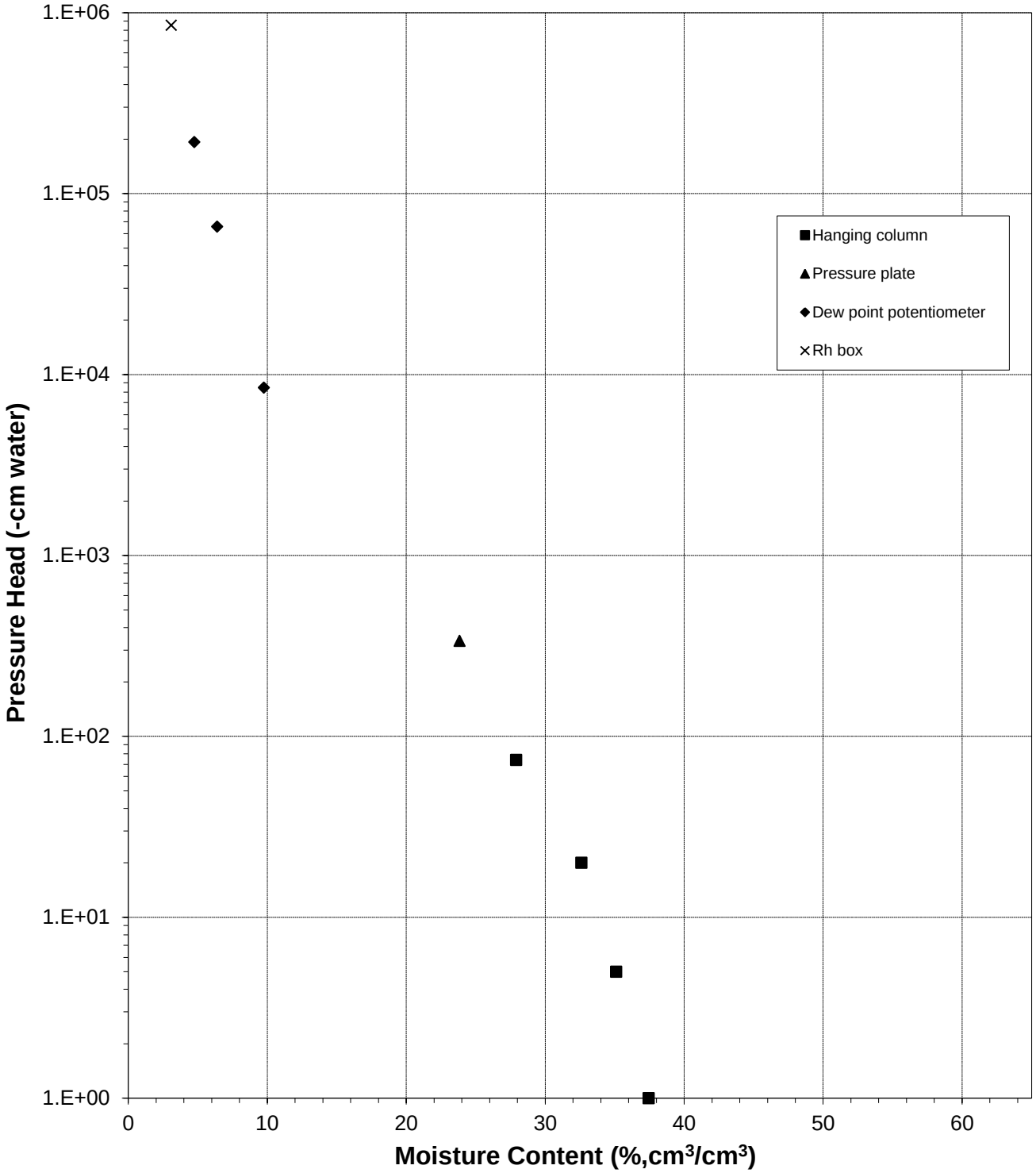
† Adjusted for >2.00mm (#10 sieve) material not used in DPP/RH testing. Assumed moisture content of material >2.00mm is zero, and assumed density of water is 1.0 g/cm^3.

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Laboratory analysis by: D. O'Dowd
Data entered by: C. Sessa
Checked by: J. Hines

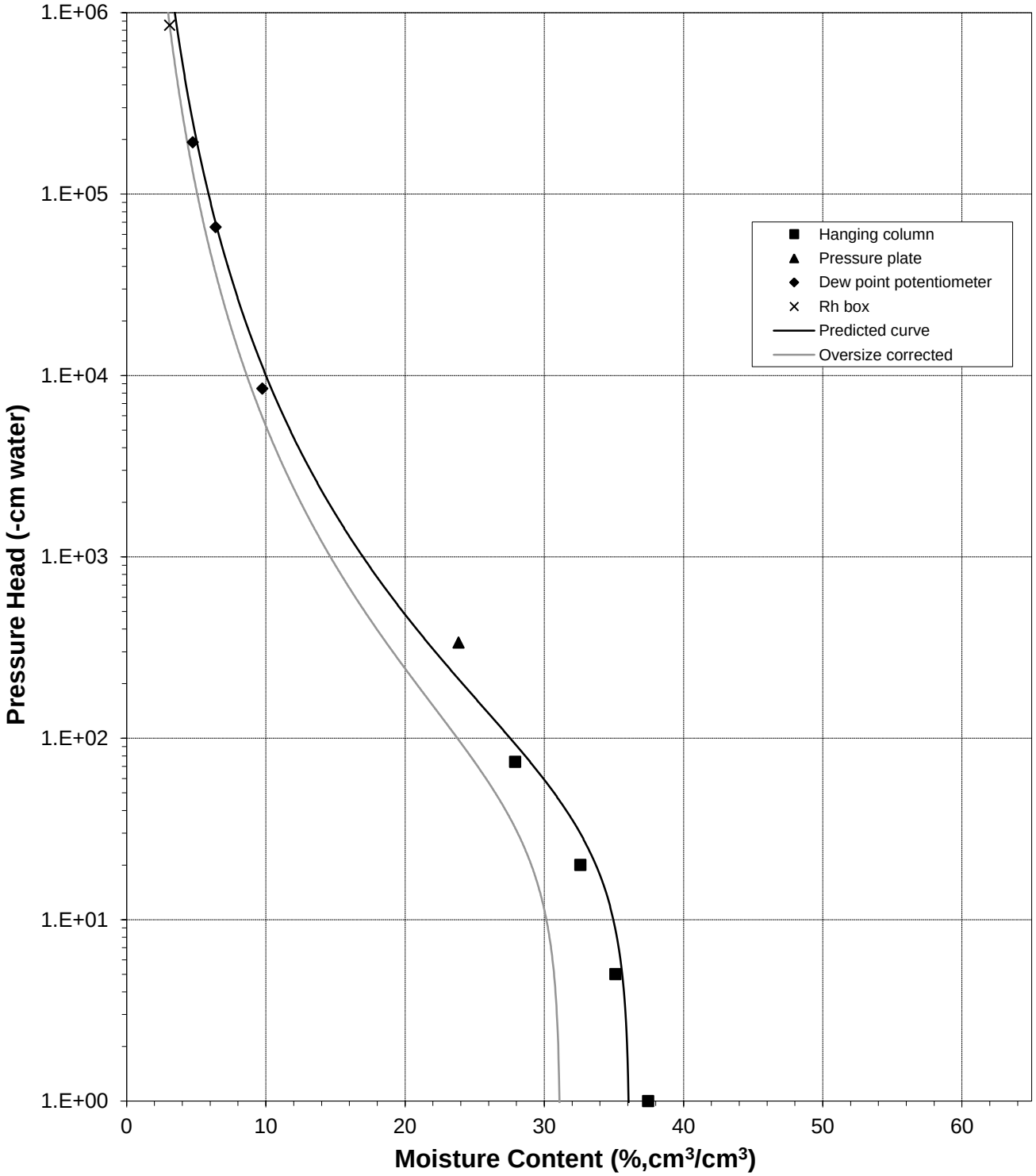
Water Retention Data Points

Sample Number: K-cap-1:2 (85%)



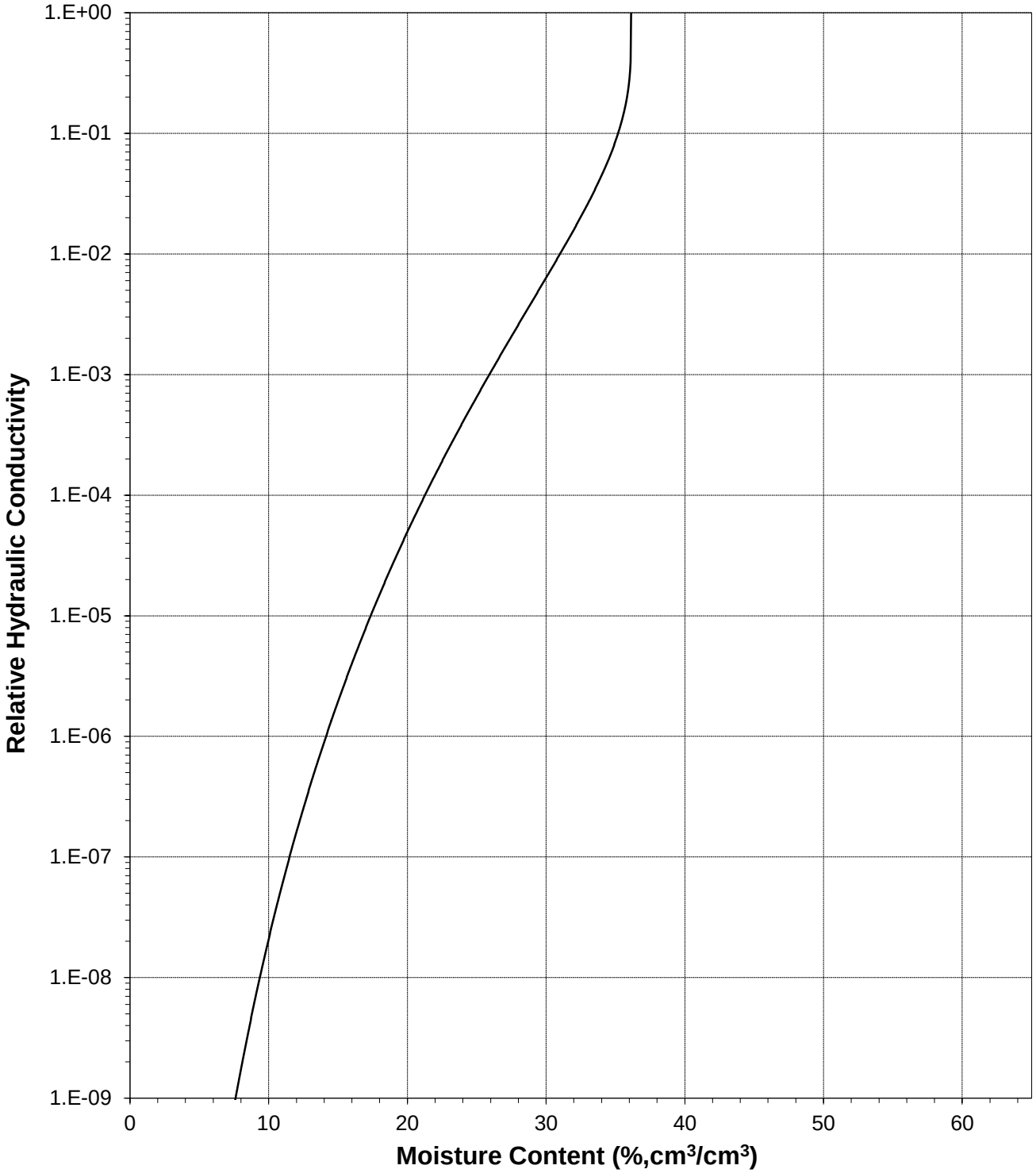
Predicted Water Retention Curve and Data Points

Sample Number: K-cap-1:2 (85%)



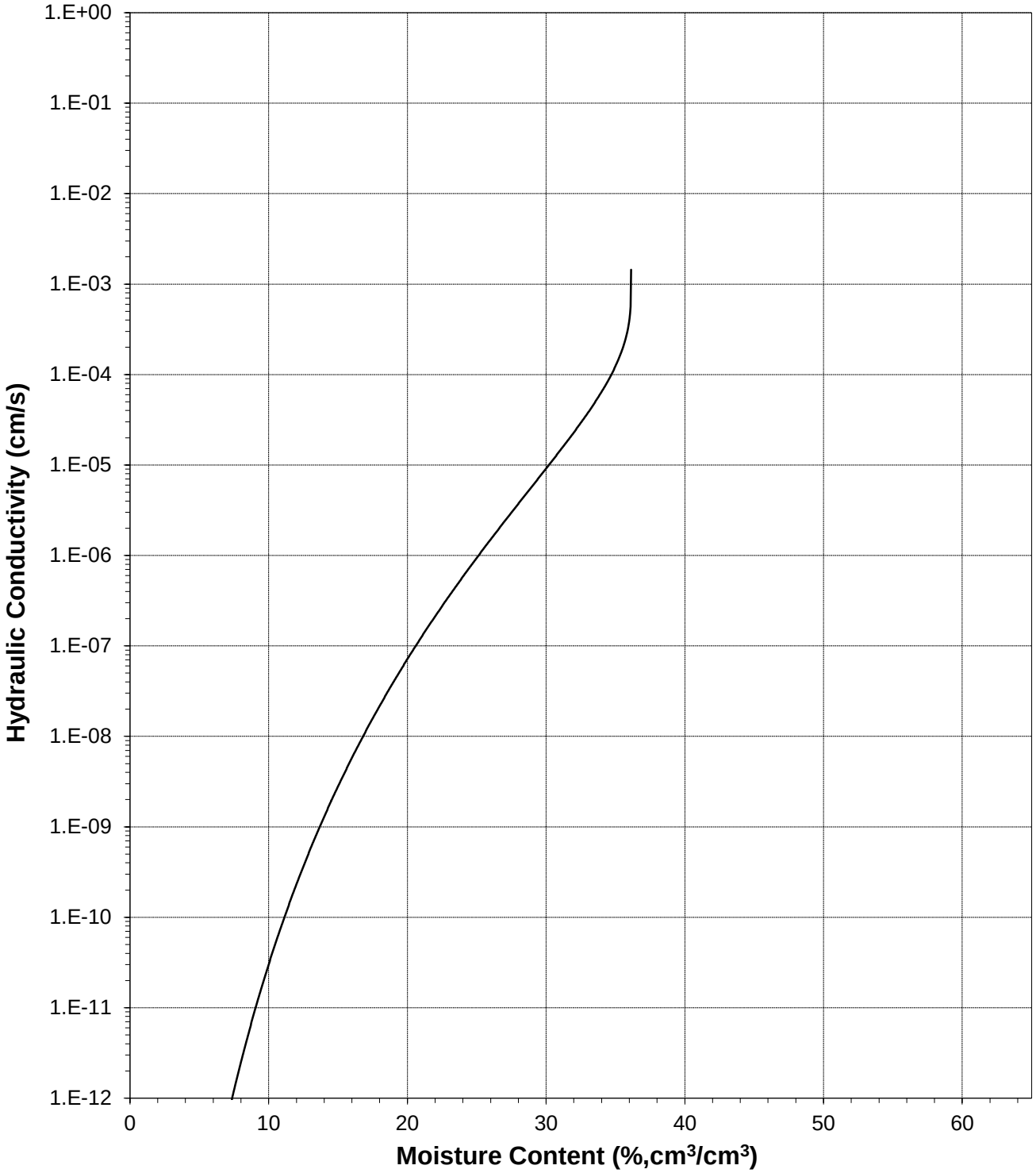
Plot of Relative Hydraulic Conductivity vs Moisture Content

Sample Number: K-cap-1:2 (85%)



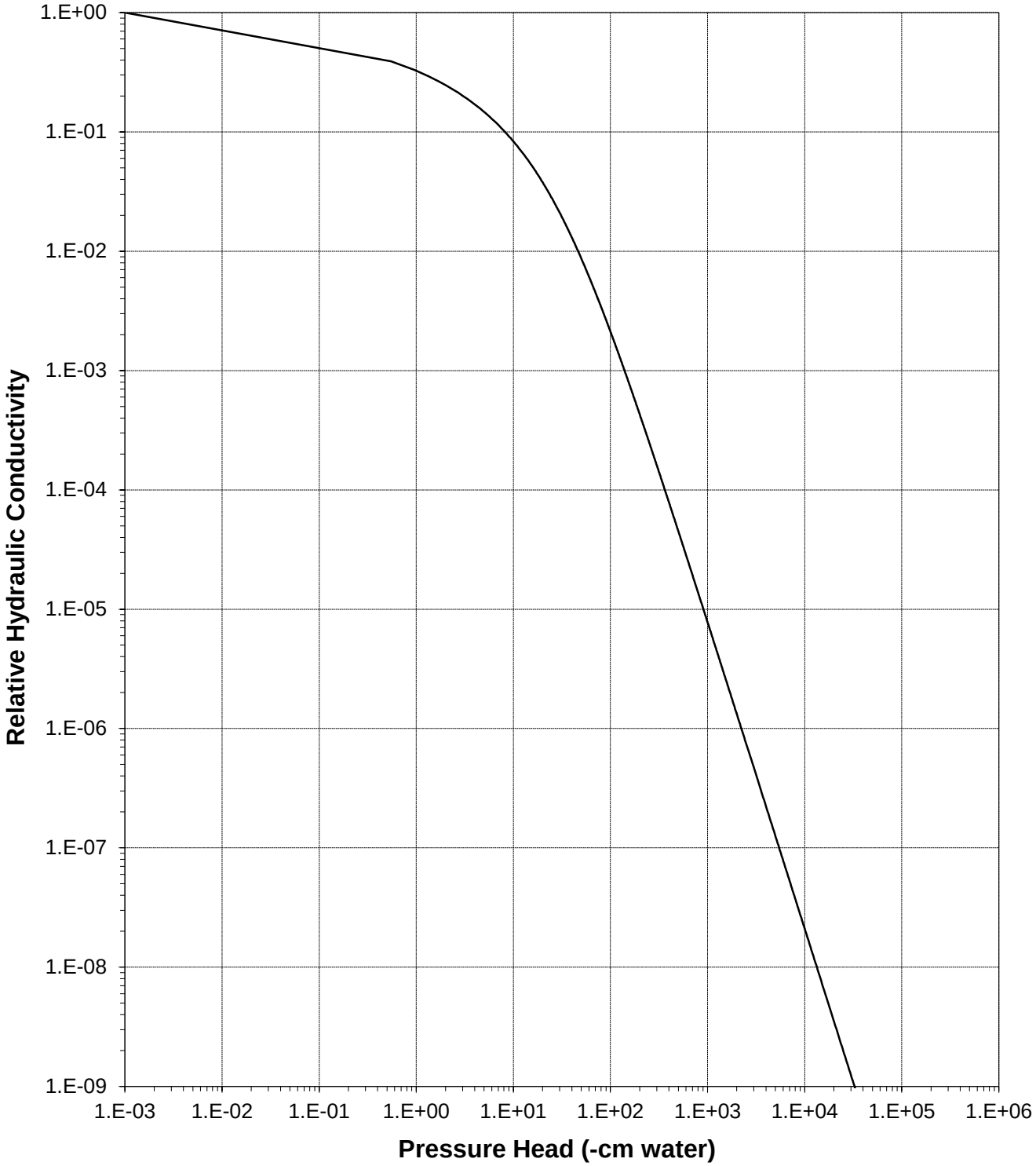
Plot of Hydraulic Conductivity vs Moisture Content

Sample Number: K-cap-1:2 (85%)



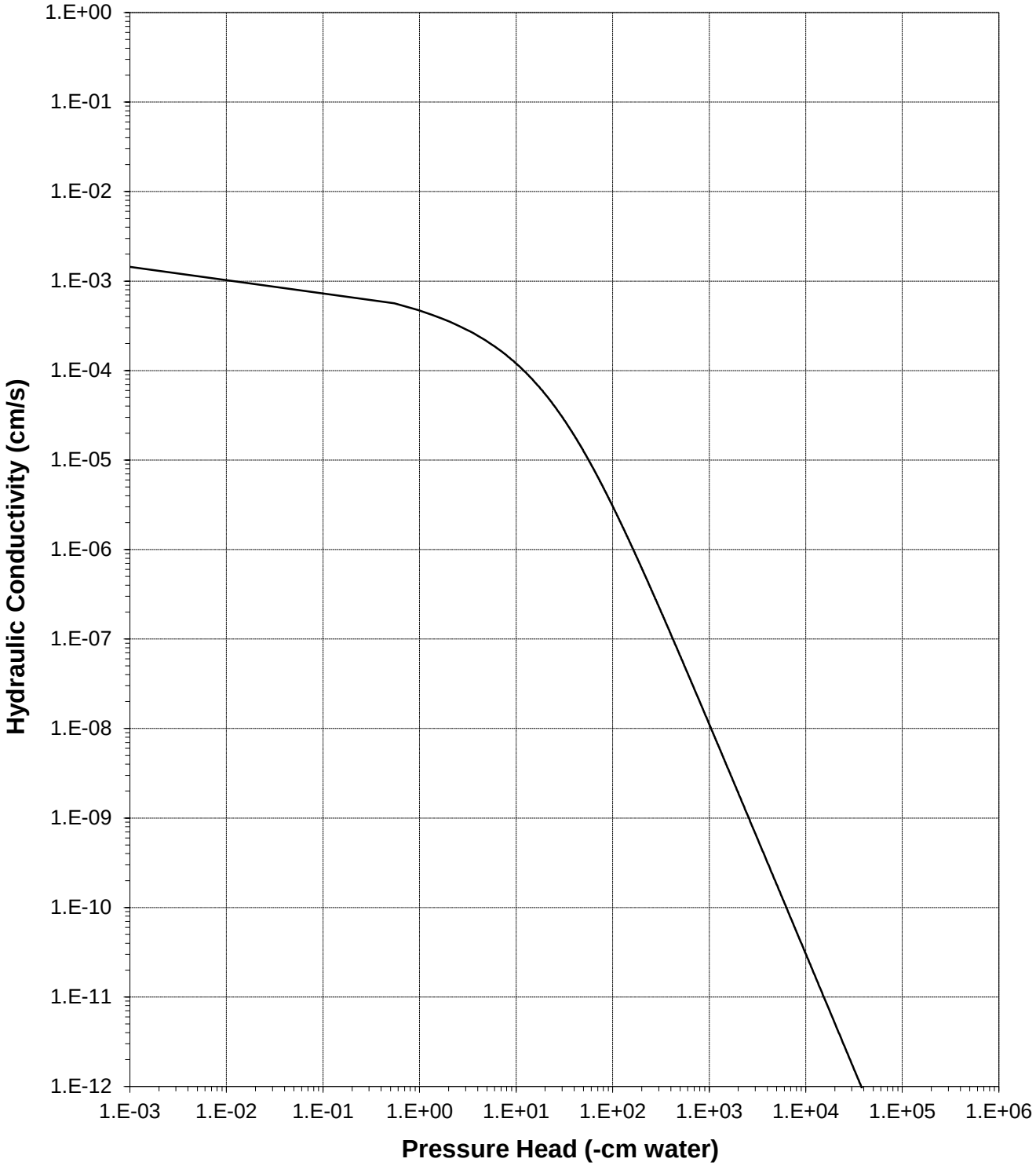
Plot of Relative Hydraulic Conductivity vs Pressure Head

Sample Number: K-cap-1:2 (85%)



Plot of Hydraulic Conductivity vs Pressure Head

Sample Number: K-cap-1:2 (85%)



Oversize Correction Data Sheet

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:2 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Split (3/4", 3/8", #4): 3/8

	Coarse Fraction*	Fines Fraction**	Composite
Subsample Mass (g):	467.23	1858.77	2326.00
Mass Fraction (%):	20.09	79.91	100.00
Initial Sample θ_i			
Bulk Density (g/cm^3):	2.65	1.68	1.82
Calculated Porosity (% vol):	0.00	36.52	31.49
Volume of Solids (cm^3):	176.31	701.42	877.74
Volume of Voids (cm^3):	0.00	403.51	403.51
Total Volume (cm^3):	176.31	1104.94	1281.25
Volumetric Fraction (%):	13.76	86.24	100.00
Initial Moisture Content (% vol):	0.00	15.30	13.20
Saturated Sample θ_s			
Bulk Density (g/cm^3):	2.65	1.68	1.82
Calculated Porosity (% vol):	0.00	36.52	31.49
Volume of Solids (cm^3):	176.31	701.42	877.74
Volume of Voids (cm^3):	0.00	403.51	403.51
Total Volume (cm^3):	176.31	1104.94	1281.25
Volumetric Fraction (%):	13.76	86.24	100.00
Saturated Moisture Content (% vol):	0.00	36.12	31.15
Residual Sample θ_r			
Bulk Density (g/cm^3):	2.65	1.68	1.82
Calculated Porosity (% vol):	0.00	36.52	31.49
Volume of Solids (cm^3):	176.31	701.42	877.74
Volume of Voids (cm^3):	0.00	403.51	403.51
Total Volume (cm^3):	176.31	1104.94	1281.25
Volumetric Fraction (%):	13.76	86.24	100.00
Residual Moisture Content (% vol):	0.00	0.00	0.00
Ksat (cm/sec):	NM	1.4E-03	1.2E-03

* = Porosity and moisture content of coarse fraction assumed to be zero.
** = Volume adjusted, if applicable. See notes on Moisture Retention Data pages.
NM = Not measured

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Moisture Retention Data

Hanging Column / Pressure Plate

(Soil-Water Characteristic Curve)

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:3 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Dry wt. of sample (g)*:* 388.86
Tare wt., ring (g)*:* 126.89
Tare wt., screen & clamp (g)*:* 28.15
Initial sample volume (cm^3)*:* 225.55
Initial dry bulk density (g/cm^3)*:* 1.72
Assumed particle density (g/cm^3)*:* 2.65
Initial calculated total porosity (%)*:* 34.94

	Date	Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content † (% vol)
Hanging column:	19-Nov-12	14:45	621.75	0	34.52
	26-Nov-12	13:40	617.47	6.0	32.62
	3-Dec-12	13:40	610.88	20.0	29.70
	10-Dec-12	7:55	597.38	73.0	23.71
Pressure plate:	20-Dec-12	8:00	588.38	337	19.72

Volume Adjusted Data [1]

	Matric Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calculated Porosity (%)
Hanging column:	0.0	---	---	---	---
	6.0	---	---	---	---
	20.0	---	---	---	---
	73.0	---	---	---	---
Pressure plate:	337	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent each of the volume change measurements obtained after saturated hydraulic conductivity testing and throughout hanging column/pressure plate testing. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

† Assumed density of water is 1.0 g/cm^3

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Technician Notes:

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Moisture Retention Data

Dew Point Potentiometer / Relative Humidity Box

(Soil-Water Characteristic Curve)

Sample Number: K-cap-1:3 (85%)

Initial sample bulk density (g/cm^3)*:* 1.72
Fraction of test sample used (<2.00mm fraction) (%): 61.51

Dry weight of dew point potentiometer sample* (g)*:* 164.12
Tare weight, jar (g)*:* 117.75

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Dew point potentiometer:	3-Dec-12	13:05	168.27	7445	9.49
	30-Nov-12	15:00	167.36	15501	7.41
	30-Nov-12	10:55	166.35	86275	5.10

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Dew point potentiometer:	7445	---	---	---	---
	15501	---	---	---	---
	86275	---	---	---	---

Dry weight of relative humidity box sample* (g)*:* 105.35
Tare weight (g)*:* 40.97

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Relative humidity box:	15-Nov-12	11:40	107.11	851293	2.89

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Relative humidity box:	851293	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent the volume change measurements obtained after the last hanging column or pressure plate point. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

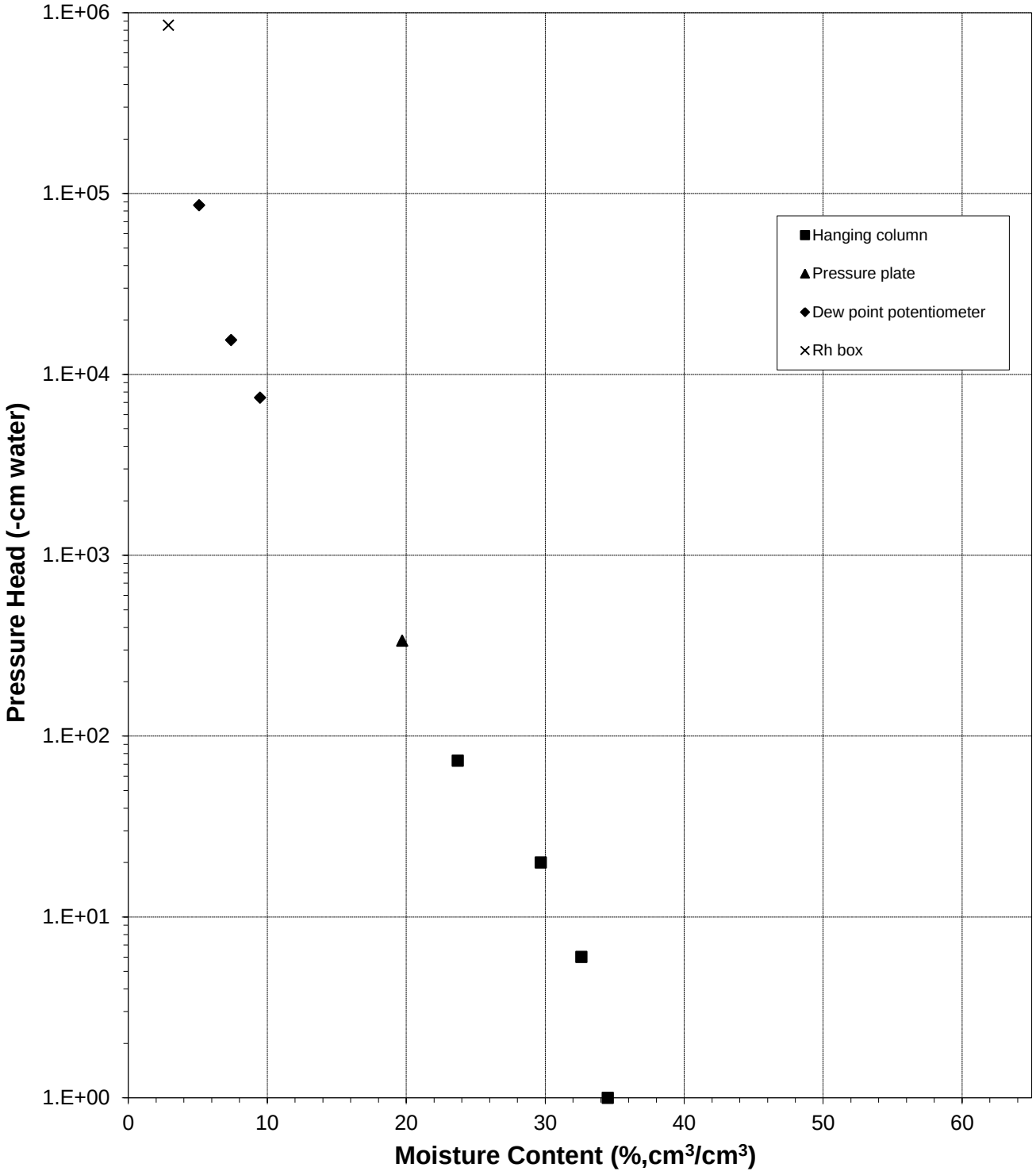
† Adjusted for >2.00mm (#10 sieve) material not used in DPP/RH testing. Assumed moisture content of material >2.00mm is zero, and assumed density of water is 1.0 g/cm^3.

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Laboratory analysis by: D. O'Dowd
Data entered by: C. Sessa
Checked by: J. Hines

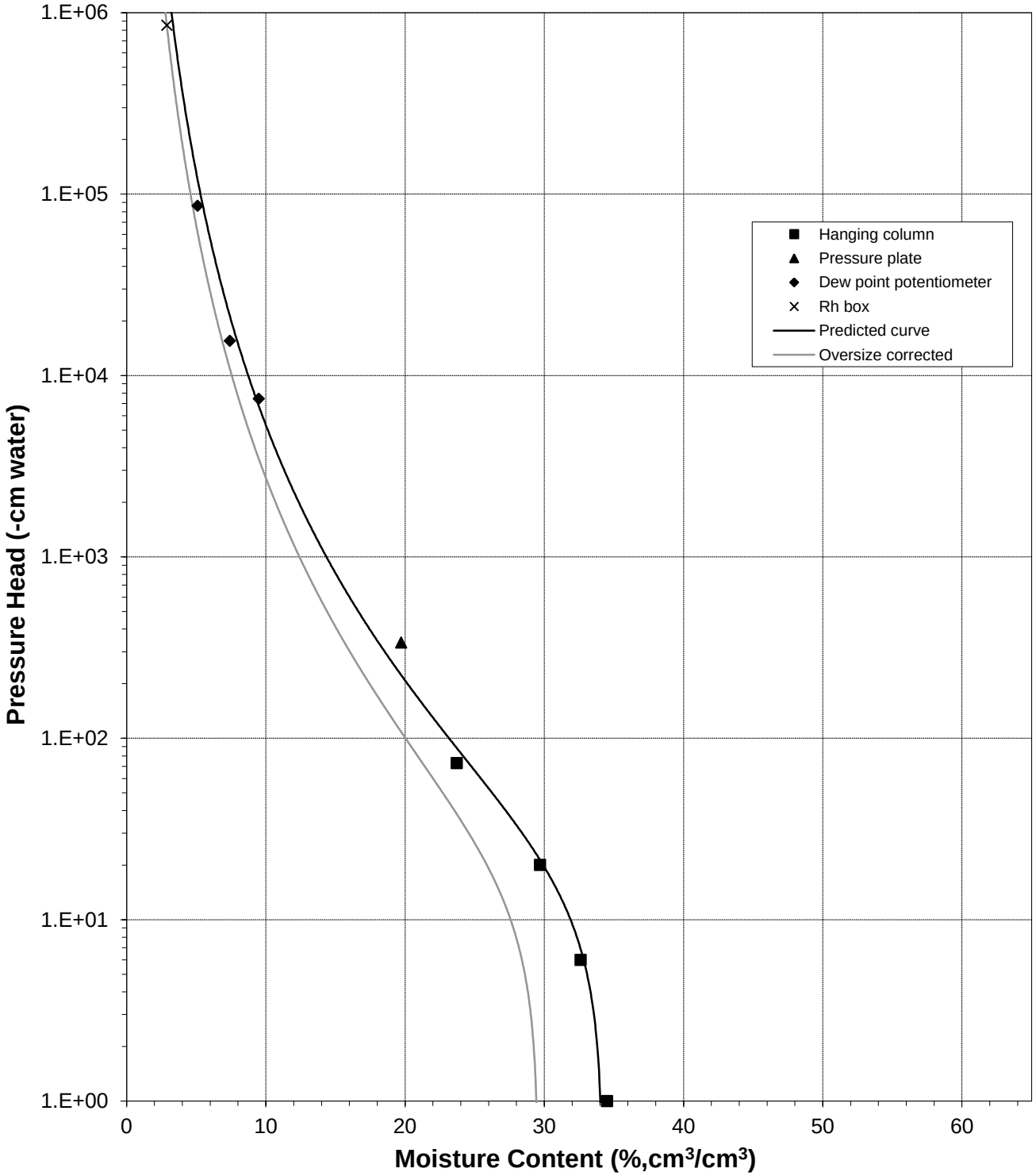
Water Retention Data Points

Sample Number: K-cap-1:3 (85%)



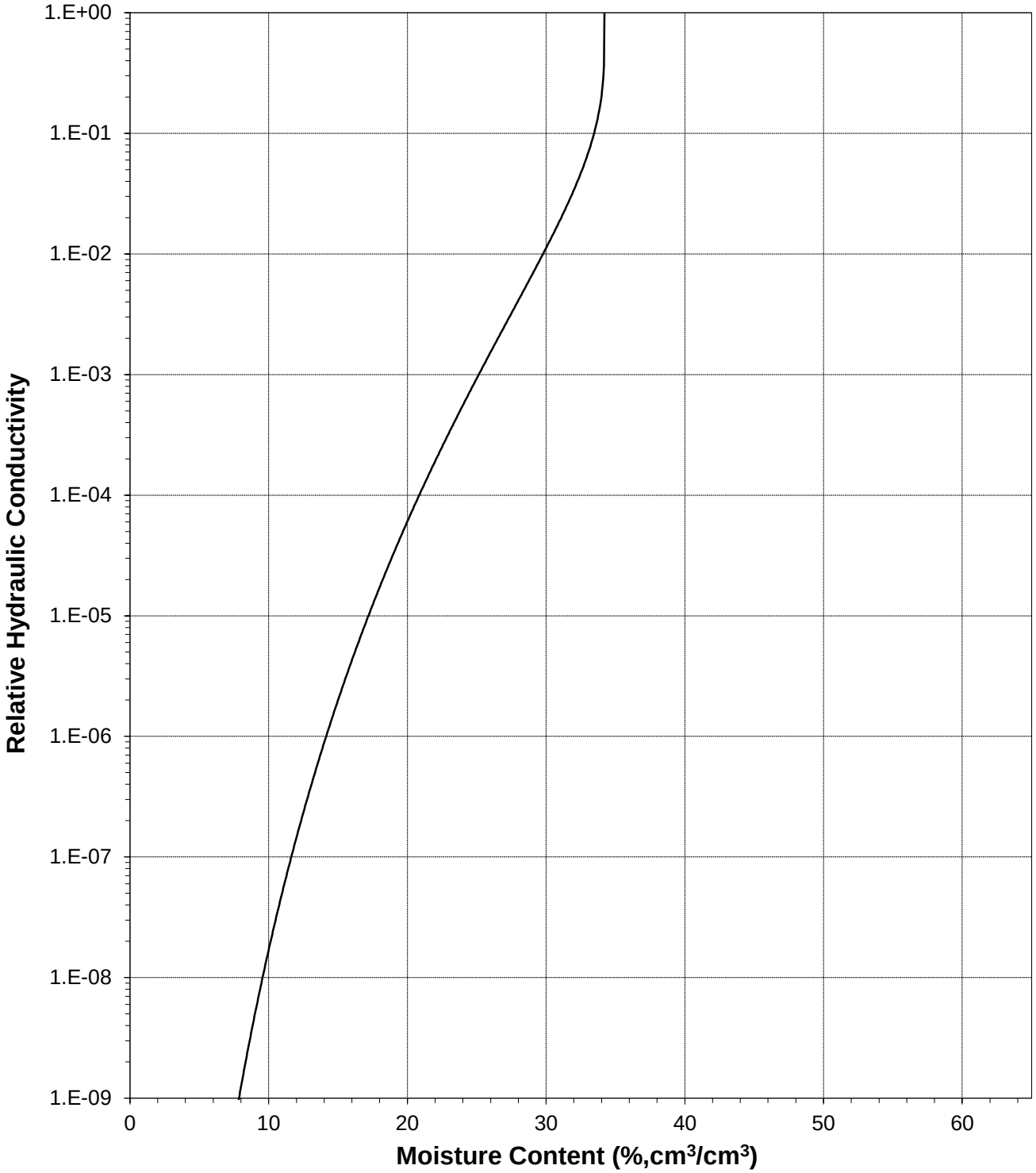
Predicted Water Retention Curve and Data Points

Sample Number: K-cap-1:3 (85%)



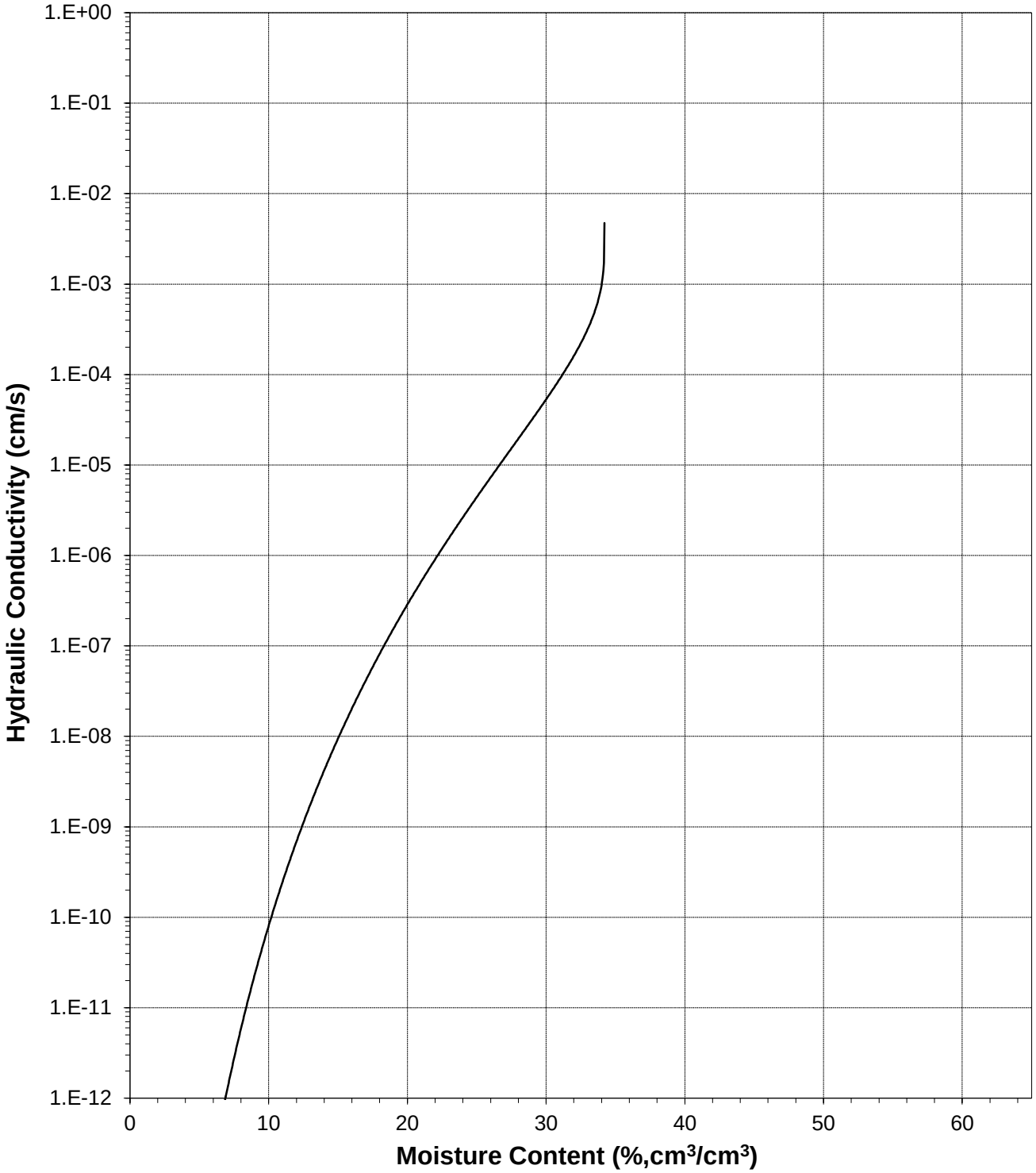
Plot of Relative Hydraulic Conductivity vs Moisture Content

Sample Number: K-cap-1:3 (85%)



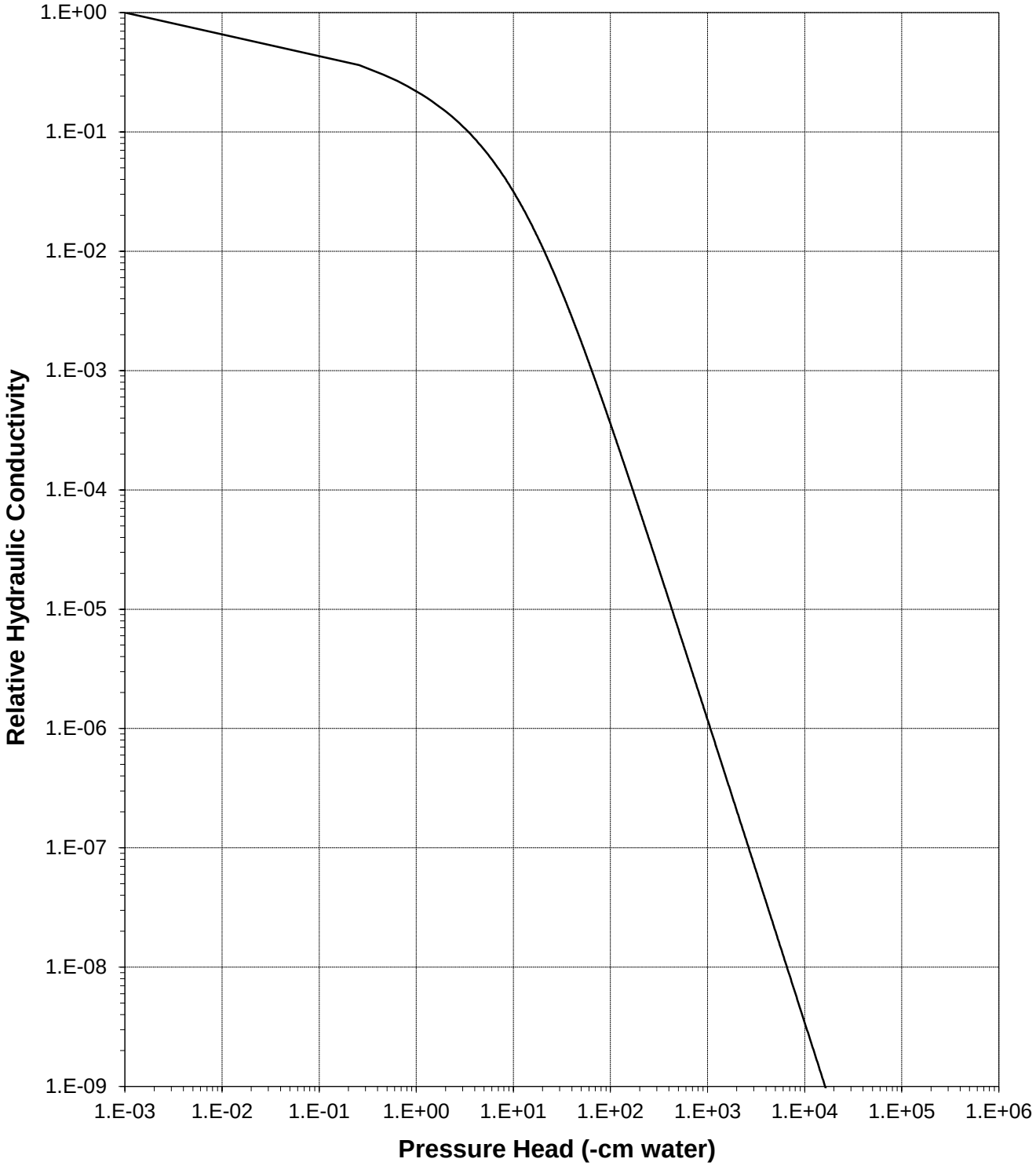
Plot of Hydraulic Conductivity vs Moisture Content

Sample Number: K-cap-1:3 (85%)



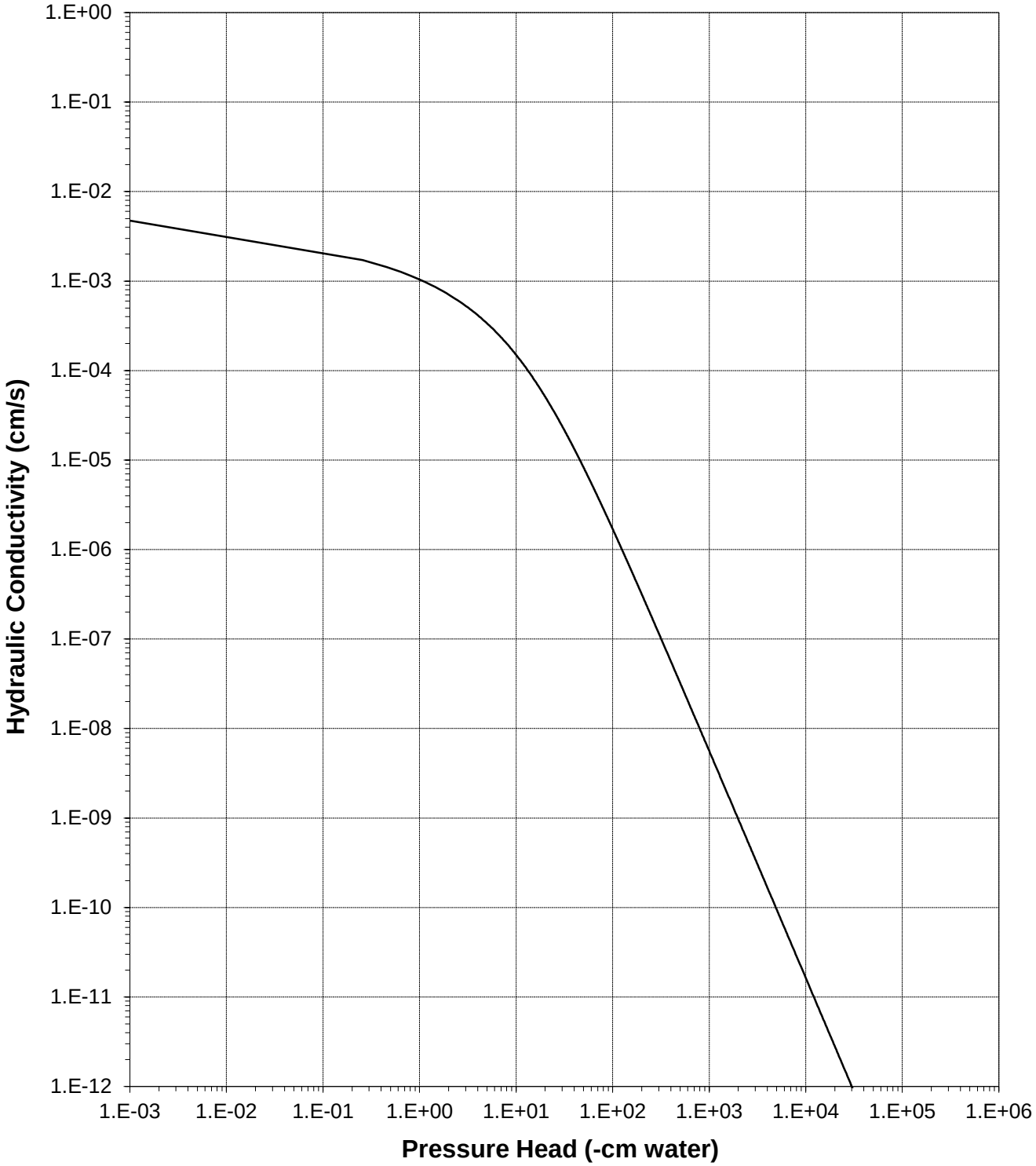
Plot of Relative Hydraulic Conductivity vs Pressure Head

Sample Number: K-cap-1:3 (85%)



Plot of Hydraulic Conductivity vs Pressure Head

Sample Number: K-cap-1:3 (85%)



Oversize Correction Data Sheet

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:3 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Split (3/4", 3/8", #4): 3/8

	Coarse Fraction*	Fines Fraction**	Composite
Subsample Mass (g):	488.91	2036.41	2525.32
Mass Fraction (%):	19.36	80.64	100.00
Initial Sample θ_i			
Bulk Density (g/cm^3):	2.65	1.72	1.85
Calculated Porosity (% vol):	0.00	34.94	30.22
Volume of Solids (cm^3):	184.49	768.46	952.95
Volume of Voids (cm^3):	0.00	412.71	412.71
Total Volume (cm^3):	184.49	1181.17	1365.66
Volumetric Fraction (%):	13.51	86.49	100.00
Initial Moisture Content (% vol):	0.00	13.50	11.68
Saturated Sample θ_s			
Bulk Density (g/cm^3):	2.65	1.72	1.85
Calculated Porosity (% vol):	0.00	34.94	30.22
Volume of Solids (cm^3):	184.49	768.46	952.95
Volume of Voids (cm^3):	0.00	412.71	412.71
Total Volume (cm^3):	184.49	1181.17	1365.66
Volumetric Fraction (%):	13.51	86.49	100.00
Saturated Moisture Content (% vol):	0.00	34.20	29.58
Residual Sample θ_r			
Bulk Density (g/cm^3):	2.65	1.72	1.85
Calculated Porosity (% vol):	0.00	34.94	30.22
Volume of Solids (cm^3):	184.49	768.46	952.95
Volume of Voids (cm^3):	0.00	412.71	412.71
Total Volume (cm^3):	184.49	1181.17	1365.66
Volumetric Fraction (%):	13.51	86.49	100.00
Residual Moisture Content (% vol):	0.00	0.00	0.00
Ksat (cm/sec):	NM	4.7E-03	3.8E-03

* = Porosity and moisture content of coarse fraction assumed to be zero.
** = Volume adjusted, if applicable. See notes on Moisture Retention Data pages.
NM = Not measured

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Moisture Retention Data

Hanging Column / Pressure Plate

(Soil-Water Characteristic Curve)

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:4 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Dry wt. of sample (g)*:* 385.57
Tare wt., ring (g)*:* 127.43
Tare wt., screen & clamp (g)*:* 26.38
Initial sample volume (cm^3)*:* 224.73
Initial dry bulk density (g/cm^3)*:* 1.72
Assumed particle density (g/cm^3)*:* 2.65
Initial calculated total porosity (%)*:* 35.26

	Date	Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content † (% vol)
Hanging column:	19-Nov-12	14:50	619.49	0	35.65
	26-Nov-12	13:45	613.19	5.0	32.84
	3-Dec-12	13:45	609.43	10.0	31.17
	10-Dec-12	9:40	584.56	50.0	20.10
	17-Dec-12	8:40	576.99	199.0	16.74

Volume Adjusted Data [1]

	Matric Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calculated Porosity (%)
Hanging column:	0.0	---	---	---	---
	5.0	---	---	---	---
	10.0	---	---	---	---
	50.0	---	---	---	---
	199.0	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent each of the volume change measurements obtained after saturated hydraulic conductivity testing and throughout hanging column/pressure plate testing. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

† Assumed density of water is 1.0 g/cm^3

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Technician Notes:

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Moisture Retention Data

Dew Point Potentiometer / Relative Humidity Box

(Soil-Water Characteristic Curve)

Sample Number: K-cap-1:4 (85%)

Initial sample bulk density (g/cm^3)*:* 1.72
Fraction of test sample used (<2.00mm fraction) (%): 57.79

Dry weight of dew point potentiometer sample* (g)*:* 159.74
Tare weight, jar (g)*:* 113.10

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Dew point potentiometer:	3-Dec-12	12:00	163.06	3773	7.06
	30-Nov-12	14:15	162.09	19274	5.00
	30-Nov-12	11:30	161.38	110036	3.49

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Dew point potentiometer:	3773	---	---	---	---
	19274	---	---	---	---
	110036	---	---	---	---

Dry weight of relative humidity box sample* (g)*:* 115.38
Tare weight (g)*:* 41.39

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Relative humidity box:	15-Nov-12	11:40	116.87	851293	2.00

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Relative humidity box:	851293	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent the volume change measurements obtained after the last hanging column or pressure plate point. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

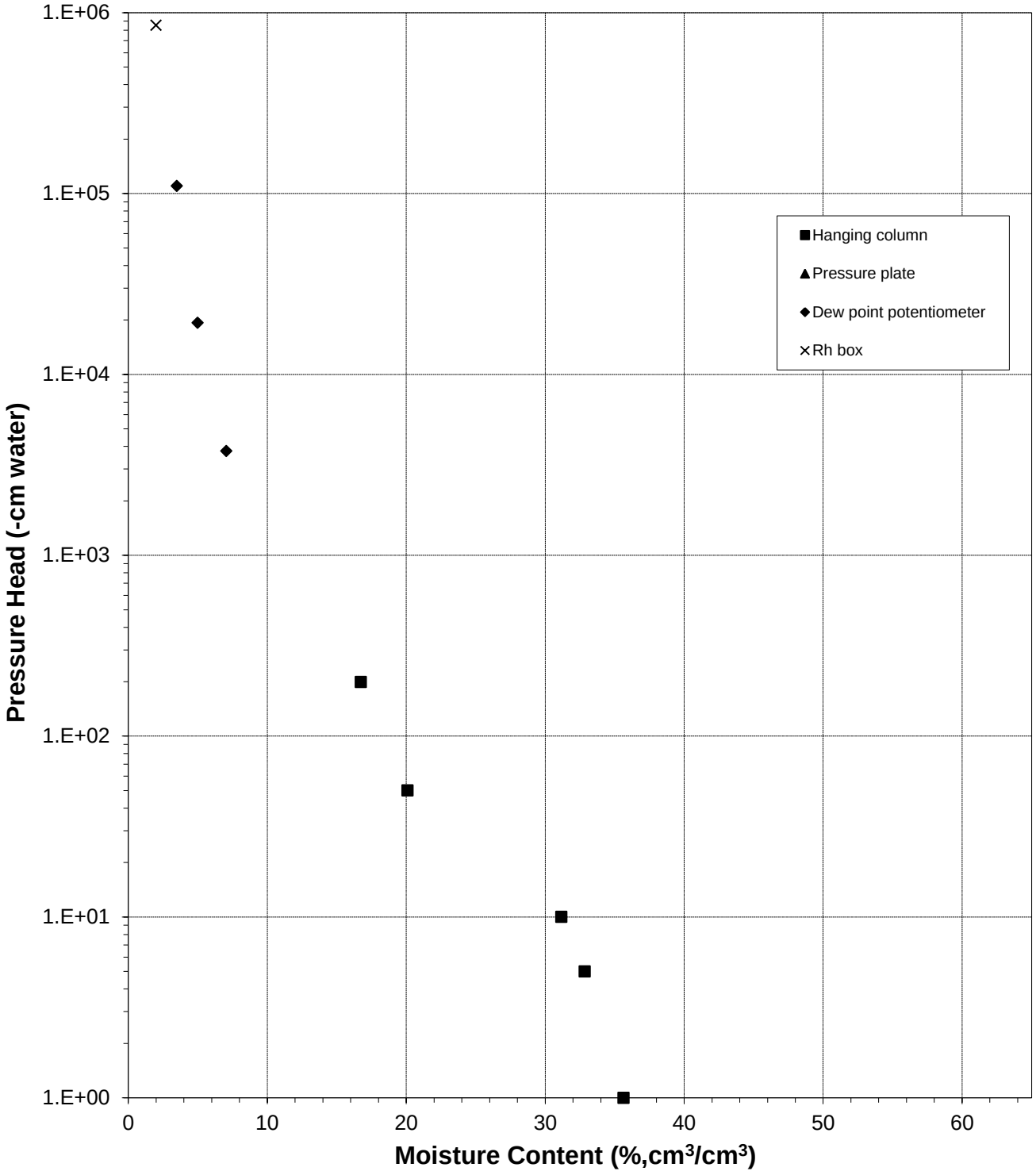
† Adjusted for >2.00mm (#10 sieve) material not used in DPP/RH testing. Assumed moisture content of material >2.00mm is zero, and assumed density of water is 1.0 g/cm^3.

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Laboratory analysis by: D. O'Dowd
Data entered by: C. Sessa
Checked by: J. Hines

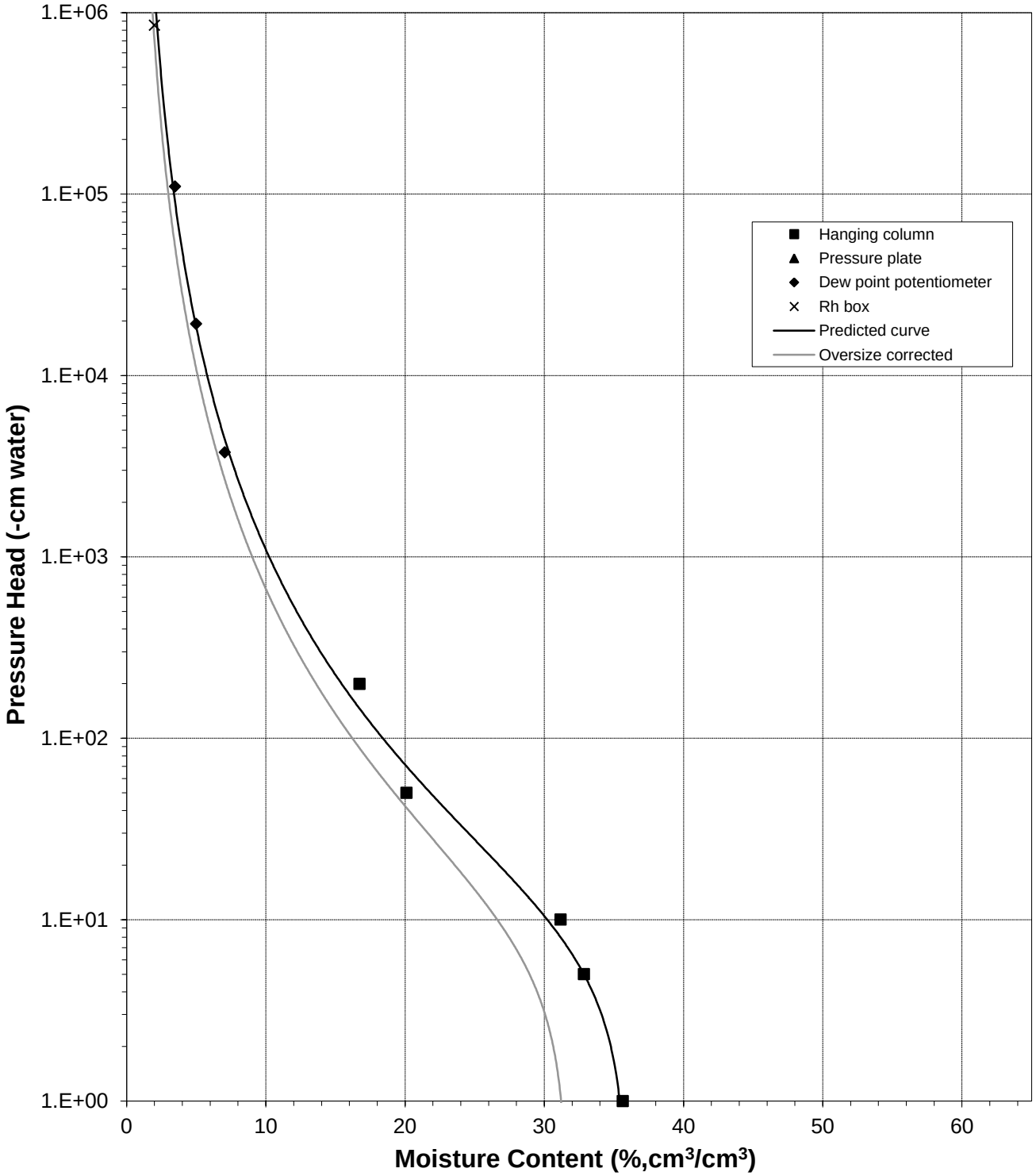
Water Retention Data Points

Sample Number: K-cap-1:4 (85%)



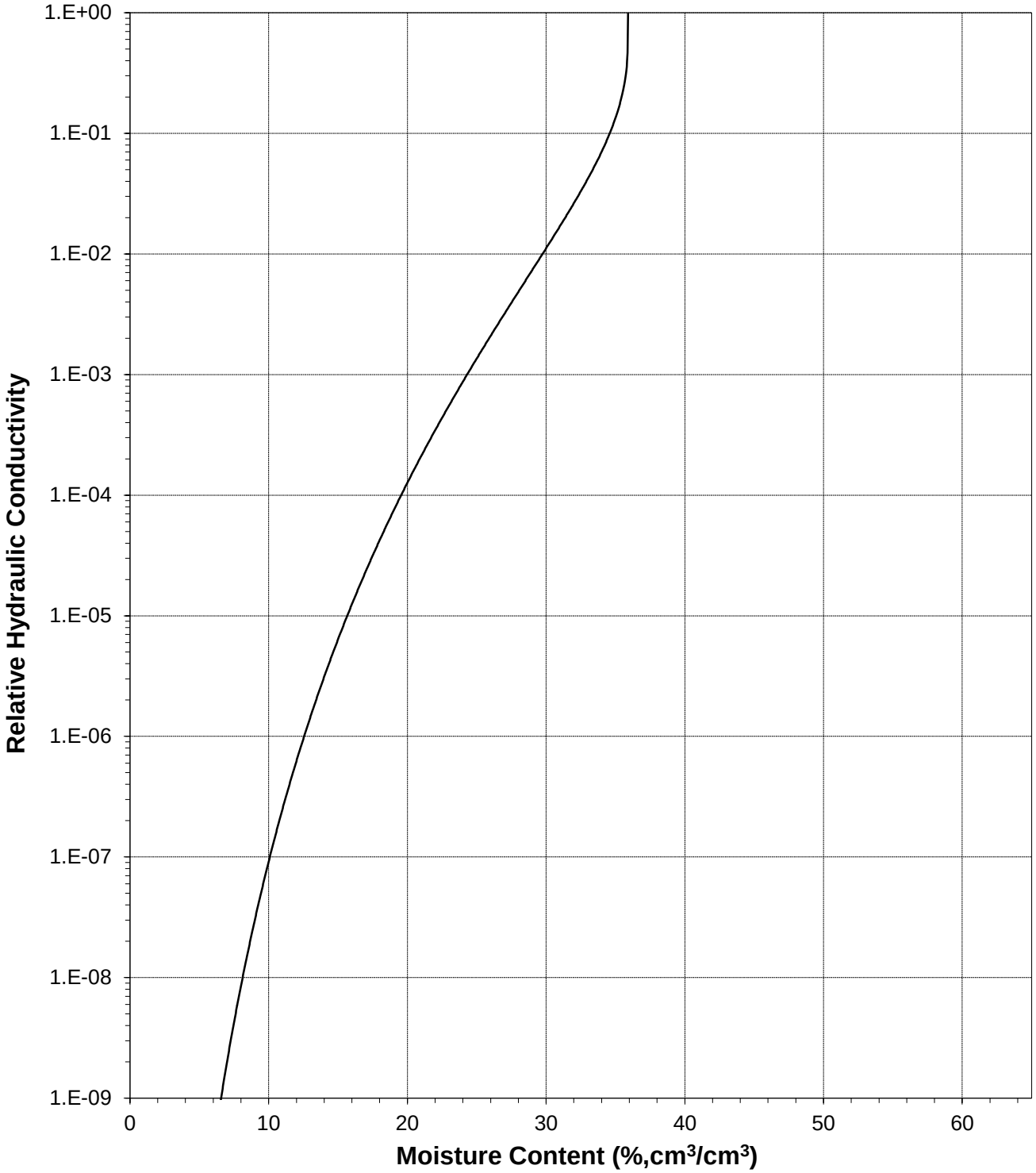
Predicted Water Retention Curve and Data Points

Sample Number: K-cap-1:4 (85%)



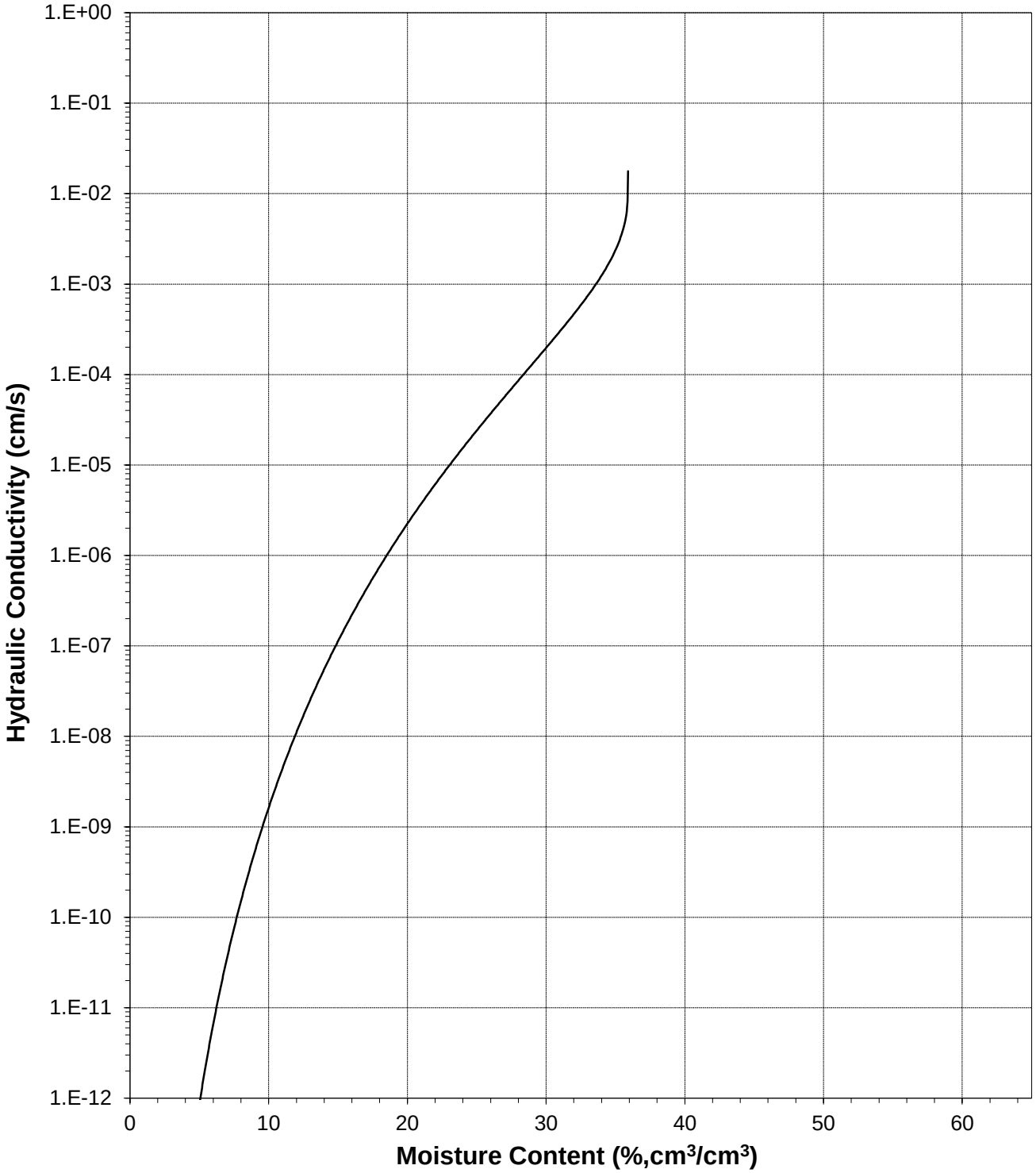
Plot of Relative Hydraulic Conductivity vs Moisture Content

Sample Number: K-cap-1:4 (85%)



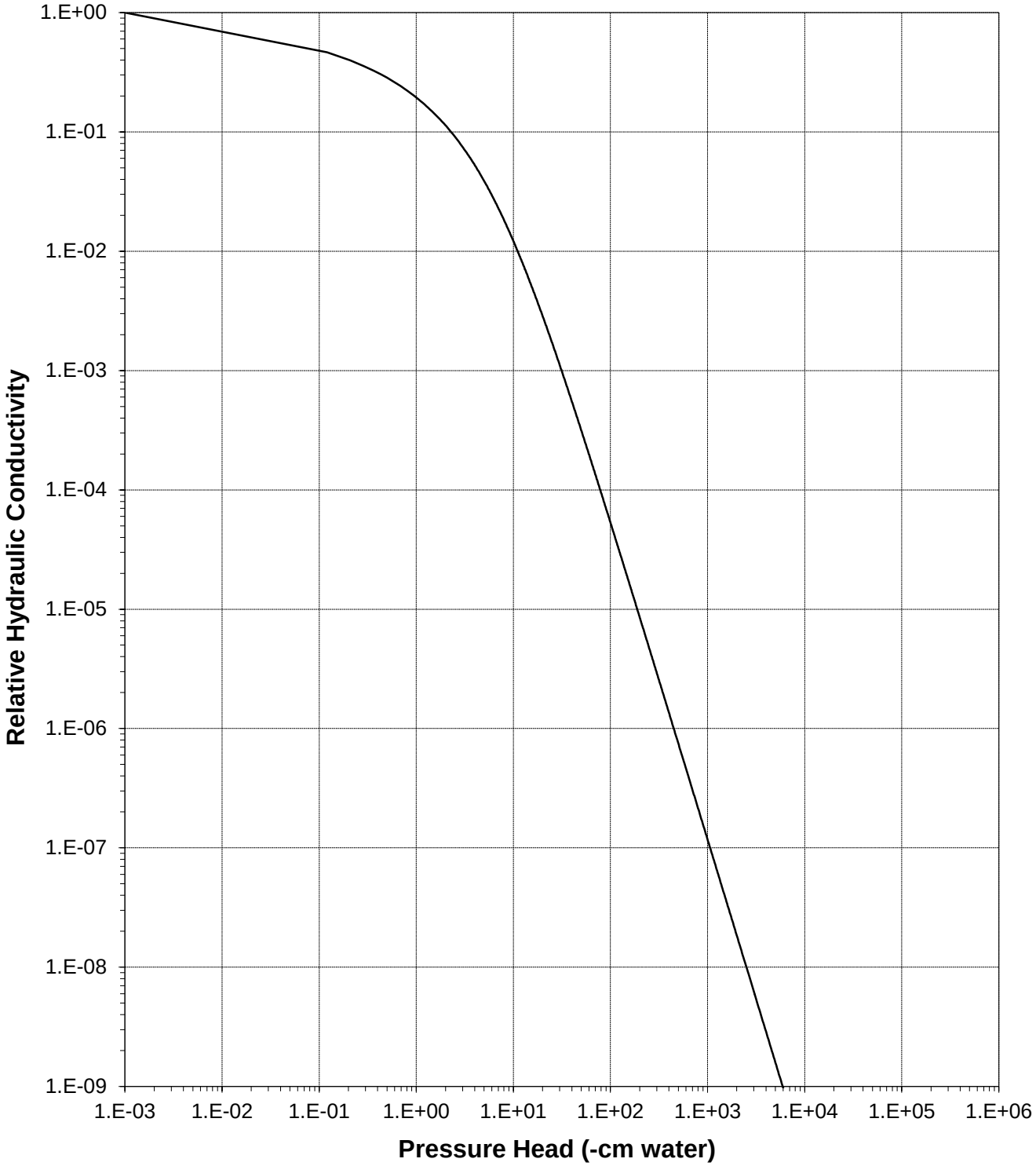
Plot of Hydraulic Conductivity vs Moisture Content

Sample Number: K-cap-1:4 (85%)



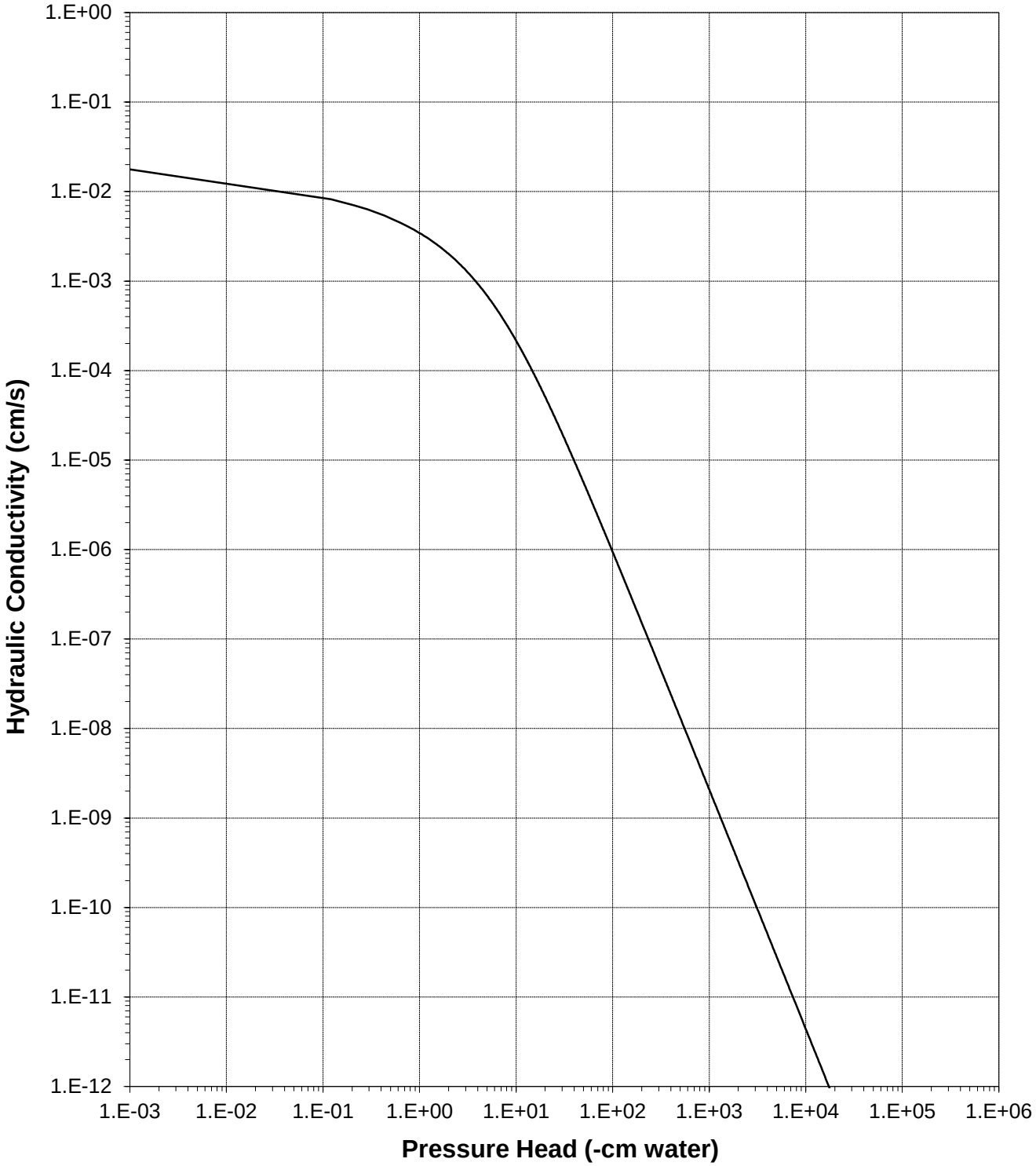
Plot of Relative Hydraulic Conductivity vs Pressure Head

Sample Number: K-cap-1:4 (85%)



Plot of Hydraulic Conductivity vs Pressure Head

Sample Number: K-cap-1:4 (85%)



Oversize Correction Data Sheet

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:4 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Split (3/4", 3/8", #4): 3/8

	Coarse Fraction*	Fines Fraction**	Composite
Subsample Mass (g):	411.23	1973.51	2384.74
Mass Fraction (%):	17.24	82.76	100.00
Initial Sample θ_i			
Bulk Density (g/cm^3):	2.65	1.72	1.83
Calculated Porosity (% vol):	0.00	35.26	31.06
Volume of Solids (cm^3):	155.18	744.72	899.90
Volume of Voids (cm^3):	0.00	405.53	405.53
Total Volume (cm^3):	155.18	1150.25	1305.43
Volumetric Fraction (%):	11.89	88.11	100.00
Initial Moisture Content (% vol):	0.00	12.94	11.40
Saturated Sample θ_s			
Bulk Density (g/cm^3):	2.65	1.72	1.83
Calculated Porosity (% vol):	0.00	35.26	31.06
Volume of Solids (cm^3):	155.18	744.72	899.90
Volume of Voids (cm^3):	0.00	405.53	405.53
Total Volume (cm^3):	155.18	1150.25	1305.43
Volumetric Fraction (%):	11.89	88.11	100.00
Saturated Moisture Content (% vol):	0.00	35.91	31.64
Residual Sample θ_r			
Bulk Density (g/cm^3):	2.65	1.72	1.83
Calculated Porosity (% vol):	0.00	35.26	31.06
Volume of Solids (cm^3):	155.18	744.72	899.90
Volume of Voids (cm^3):	0.00	405.53	405.53
Total Volume (cm^3):	155.18	1150.25	1305.43
Volumetric Fraction (%):	11.89	88.11	100.00
Residual Moisture Content (% vol):	0.00	0.64	0.57
Ksat (cm/sec):	NM	1.8E-02	1.5E-02

* = Porosity and moisture content of coarse fraction assumed to be zero.
** = Volume adjusted, if applicable. See notes on Moisture Retention Data pages.
NM = Not measured

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Moisture Retention Data

Hanging Column / Pressure Plate

(Soil-Water Characteristic Curve)

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Dry wt. of sample (g)*:* 375.08
Tare wt., ring (g)*:* 133.76
Tare wt., screen & clamp (g)*:* 27.76
Initial sample volume (cm^3)*:* 224.06
Initial dry bulk density (g/cm^3)*:* 1.67
Assumed particle density (g/cm^3)*:* 2.65
Initial calculated total porosity (%)*:* 36.83

	Date	Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content † (% vol)
Hanging column:	19-Nov-12	15:00	618.94	0	36.75
	26-Nov-12	13:50	616.55	12.0	35.68
	3-Dec-12	13:55	608.92	32.0	32.28
	10-Dec-12	8:00	599.20	99.0	27.94
Pressure plate:	20-Dec-12	7:50	592.65	337	25.02

Volume Adjusted Data [1]

	Matric Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calculated Porosity (%)
Hanging column:	0.0	---	---	---	---
	12.0	---	---	---	---
	32.0	---	---	---	---
	99.0	---	---	---	---
Pressure plate:	337	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent each of the volume change measurements obtained after saturated hydraulic conductivity testing and throughout hanging column/pressure plate testing. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

† Assumed density of water is 1.0 g/cm^3

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Technician Notes:

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Moisture Retention Data

Dew Point Potentiometer / Relative Humidity Box

(Soil-Water Characteristic Curve)

Sample Number: K-cap-2:3 (85%)

Initial sample bulk density (g/cm^3)*:* 1.67
Fraction of test sample used (<2.00mm fraction) (%): 69.58

Dry weight of dew point potentiometer sample* (g)*:* 169.90
Tare weight, jar (g)*:* 116.24

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Dew point potentiometer:	3-Dec-12	15:40	174.67	8056	10.35
	30-Nov-12	14:17	173.06	44463	6.86
	30-Nov-12	10:17	172.06	291765	4.69

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Dew point potentiometer:	8056	---	---	---	---
	44463	---	---	---	---
	291765	---	---	---	---

Dry weight of relative humidity box sample* (g)*:* 112.53
Tare weight (g)*:* 39.51

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Relative humidity box:	15-Nov-12	11:40	114.67	851293	3.41

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Relative humidity box:	851293	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent the volume change measurements obtained after the last hanging column or pressure plate point. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

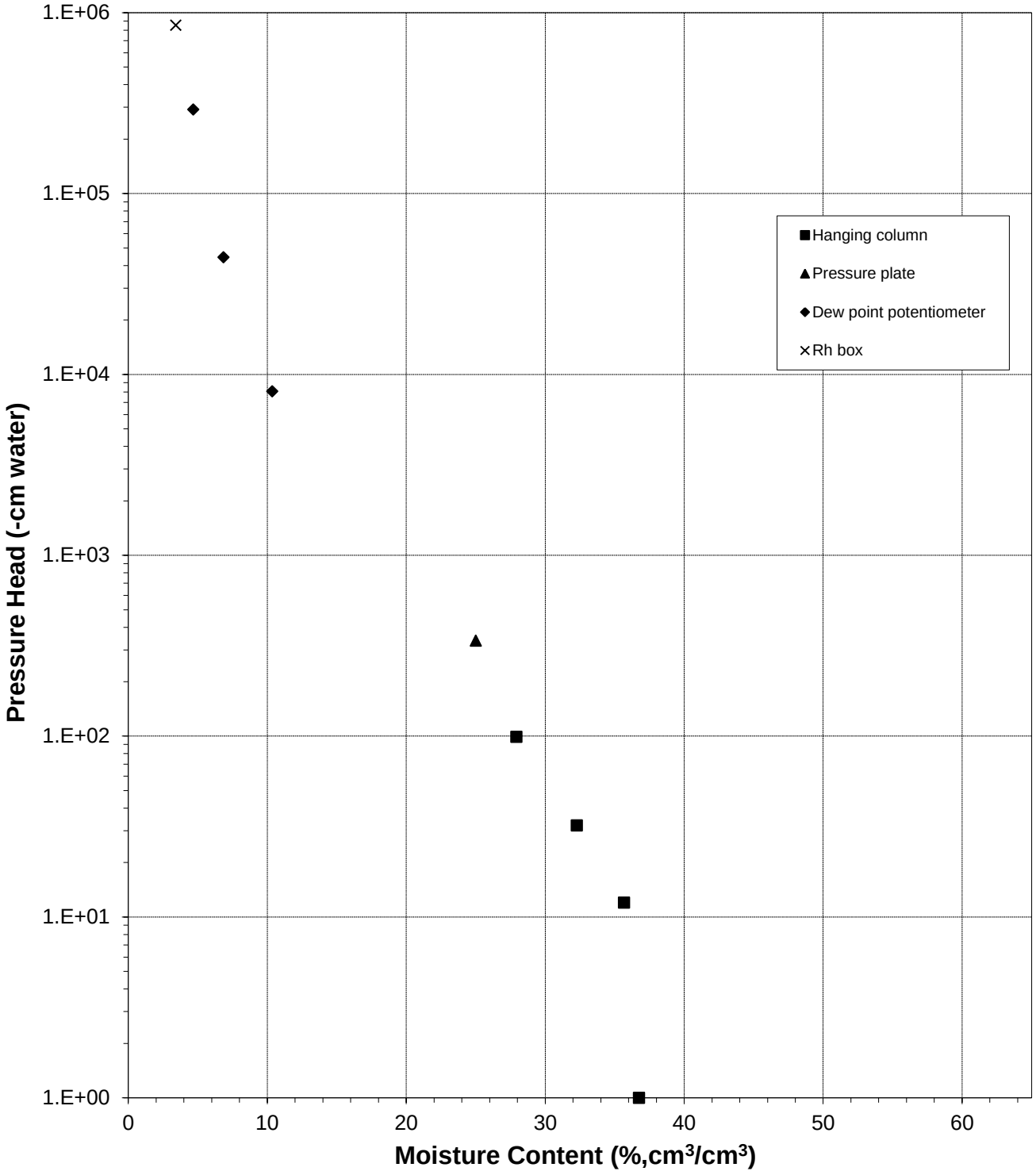
† Adjusted for >2.00mm (#10 sieve) material not used in DPP/RH testing. Assumed moisture content of material >2.00mm is zero, and assumed density of water is 1.0 g/cm^3.

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Laboratory analysis by: D. O'Dowd
Data entered by: C. Sessa
Checked by: J. Hines

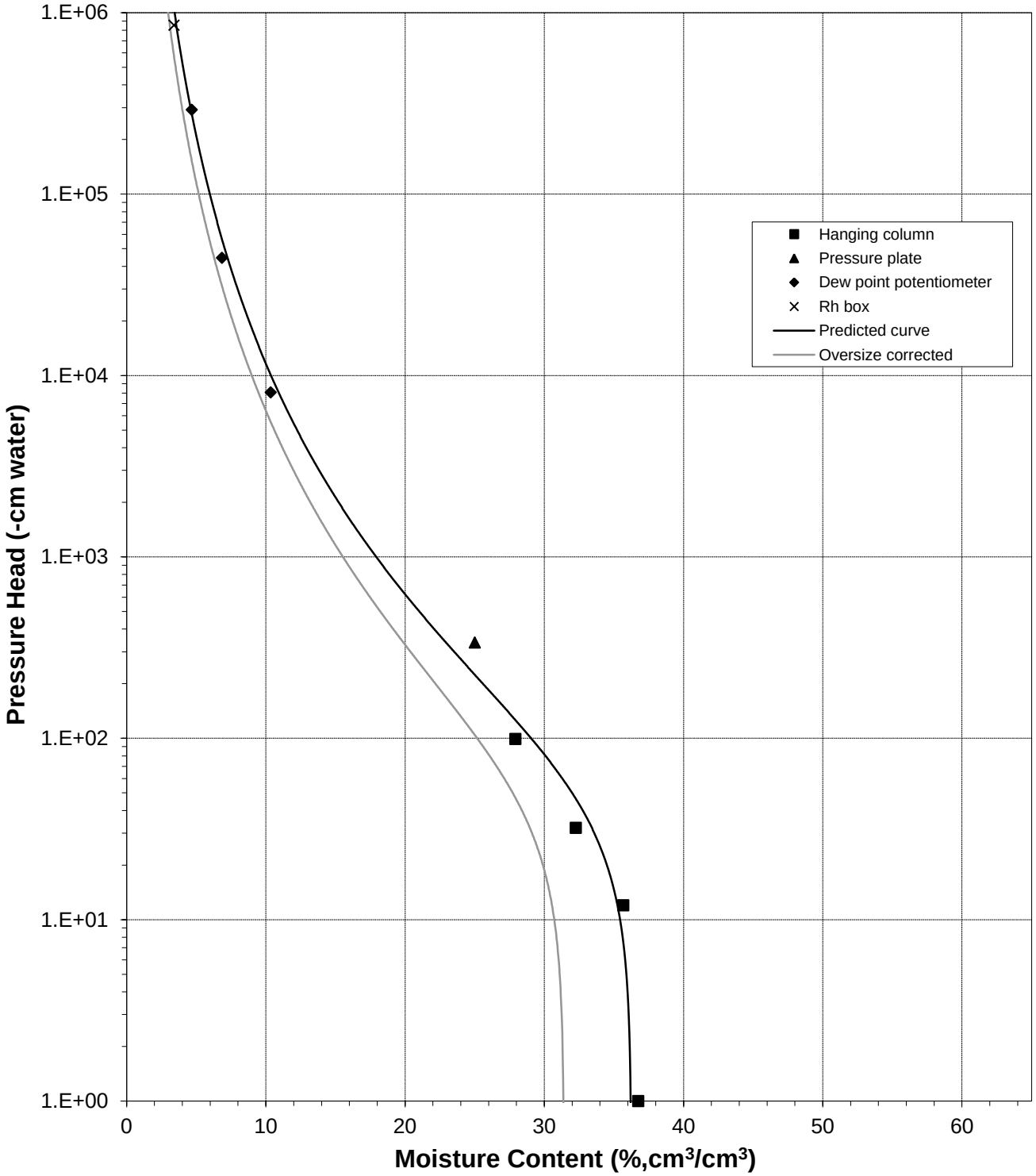
Water Retention Data Points

Sample Number: K-cap-2:3 (85%)



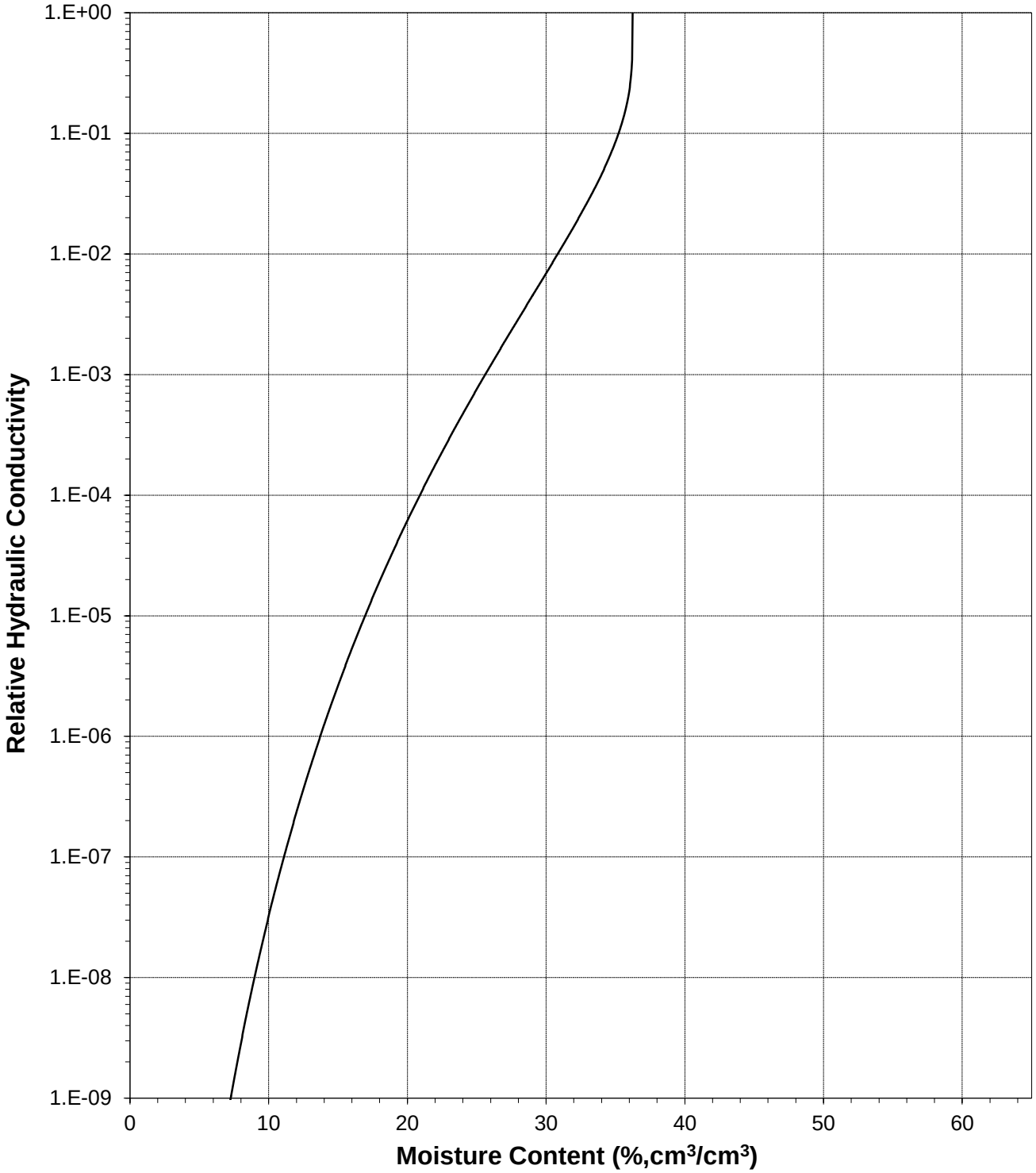
Predicted Water Retention Curve and Data Points

Sample Number: K-cap-2:3 (85%)



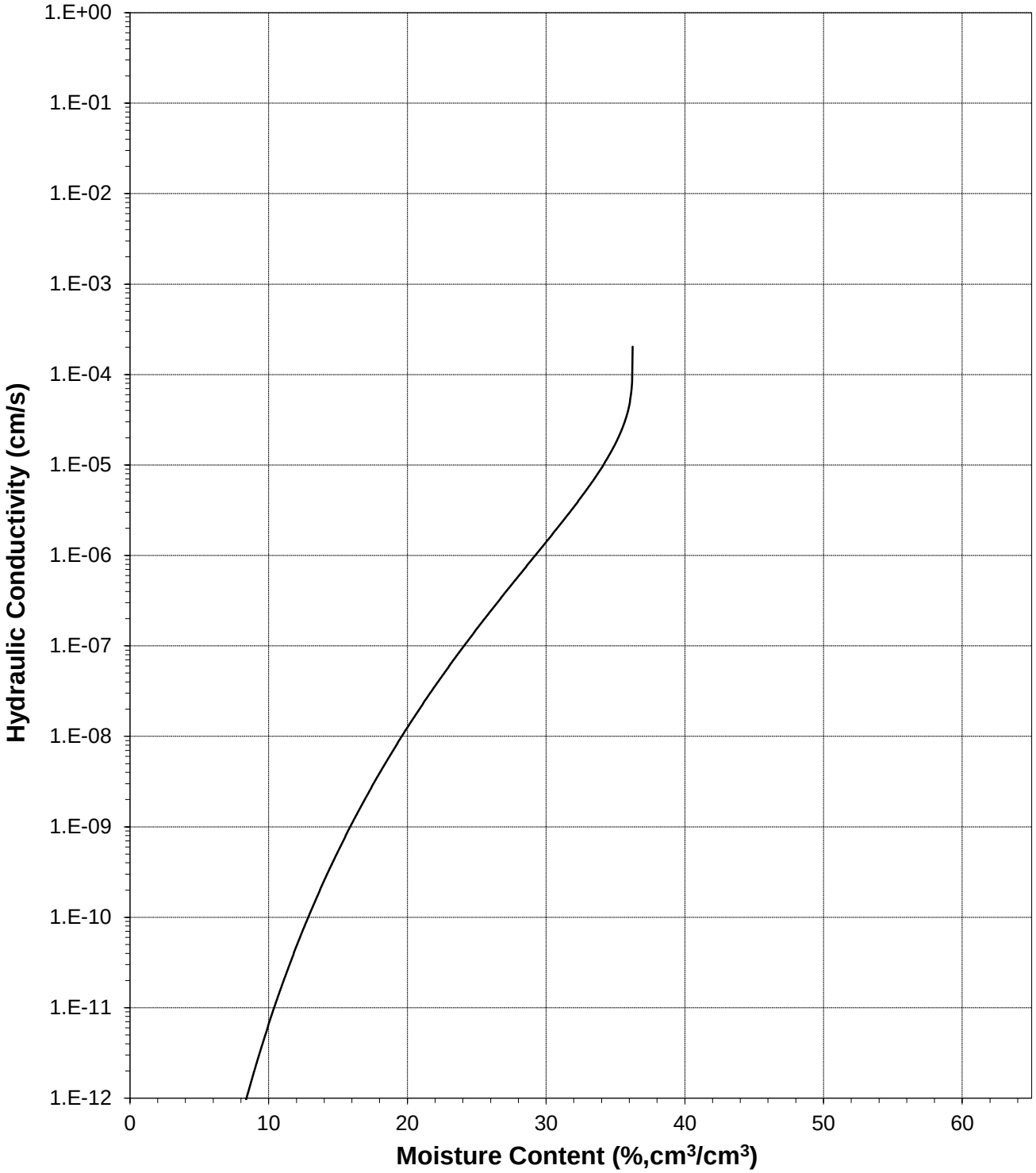
Plot of Relative Hydraulic Conductivity vs Moisture Content

Sample Number: K-cap-2:3 (85%)



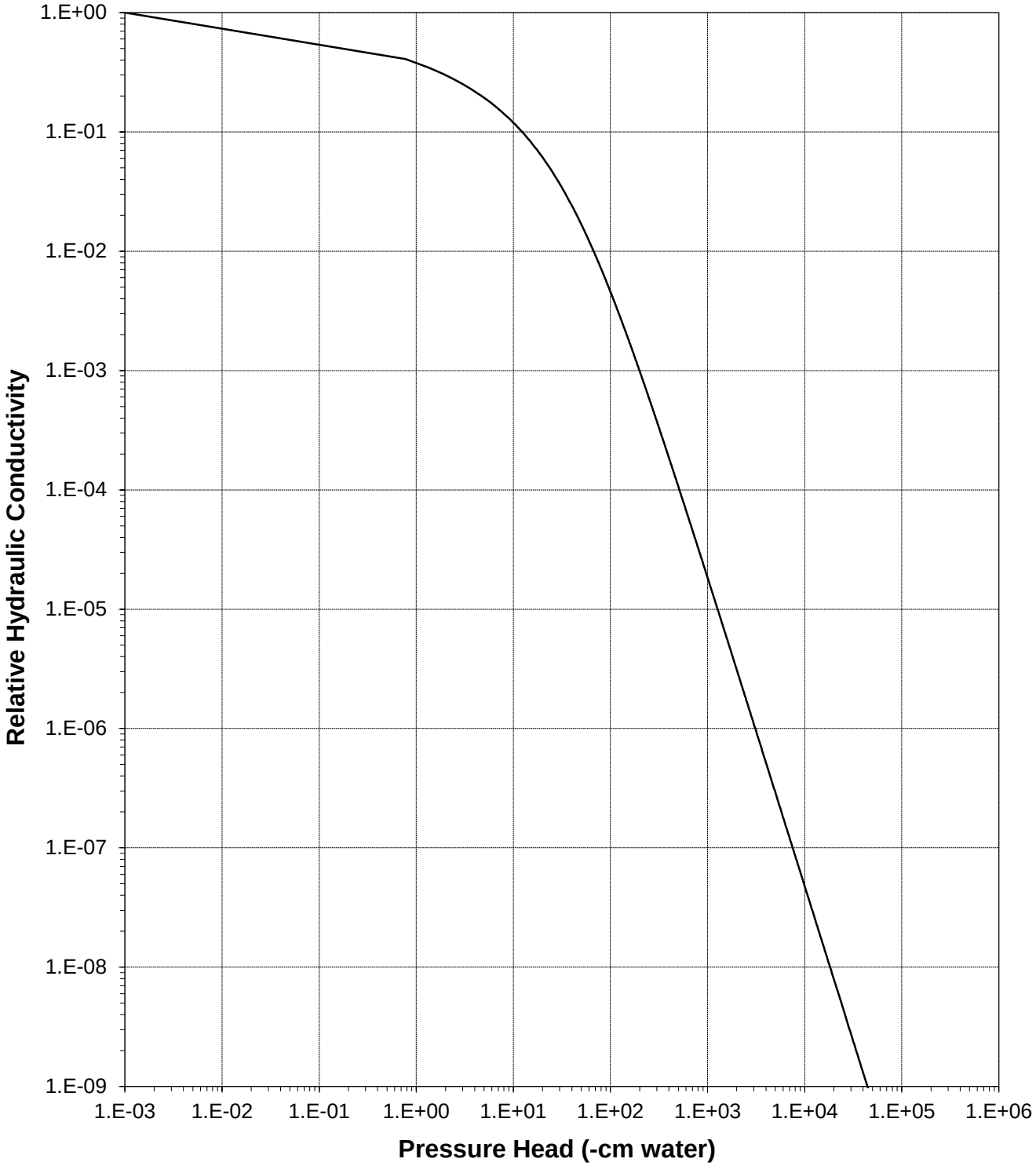
Plot of Hydraulic Conductivity vs Moisture Content

Sample Number: K-cap-2:3 (85%)



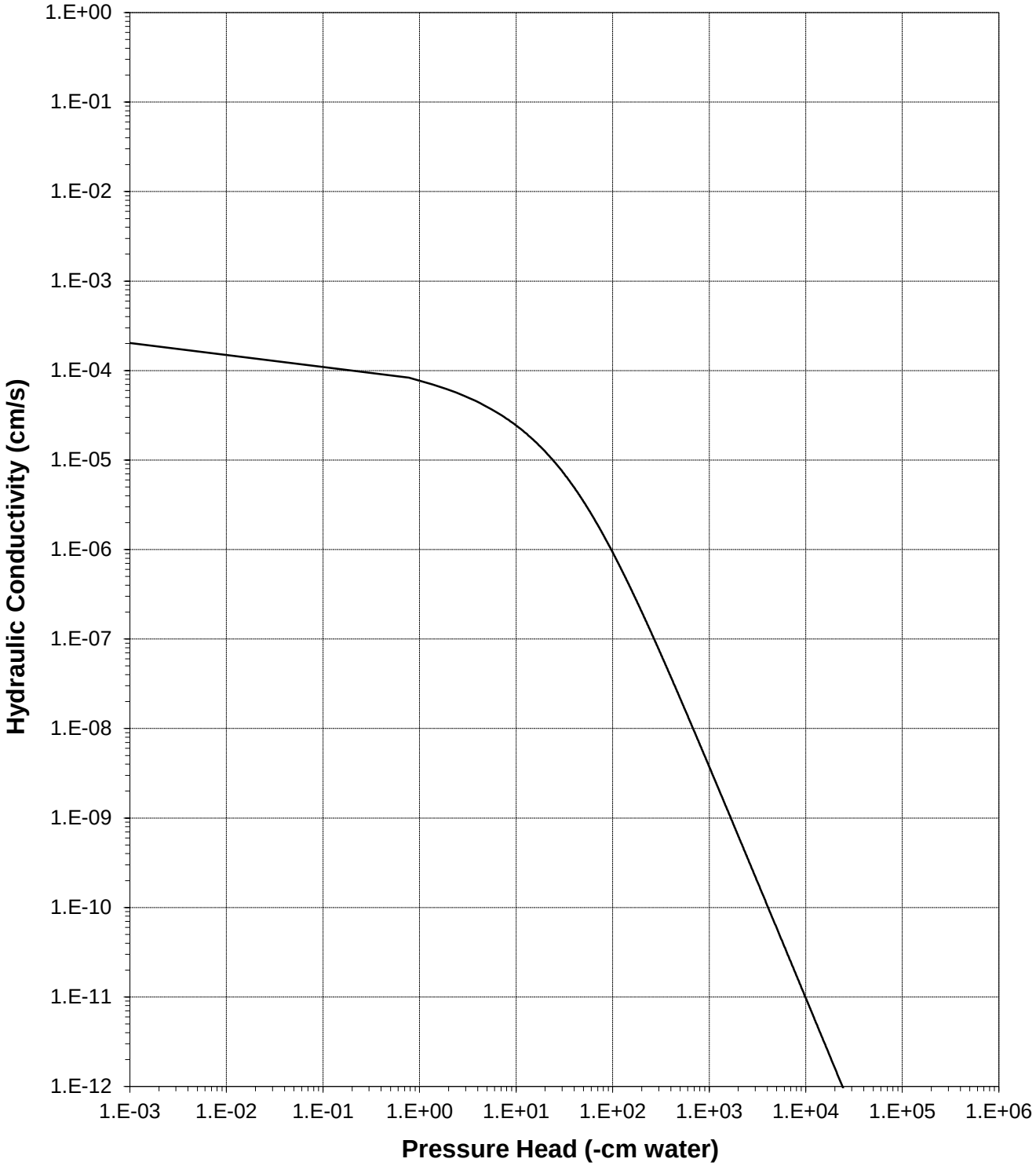
Plot of Relative Hydraulic Conductivity vs Pressure Head

Sample Number: K-cap-2:3 (85%)



Plot of Hydraulic Conductivity vs Pressure Head

Sample Number: K-cap-2:3 (85%)



Oversize Correction Data Sheet

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3 (85%)
Project Name: Klondyke Cap Design
Depth: NA

Split (3/4", 3/8", #4): 3/8

	Coarse Fraction*	Fines Fraction**	Composite
Subsample Mass (g):	450.36	1849.38	2299.74
Mass Fraction (%):	19.58	80.42	100.00
Initial Sample θ_i			
Bulk Density (g/cm^3):	2.65	1.67	1.80
Calculated Porosity (% vol):	0.00	36.83	31.92
Volume of Solids (cm^3):	169.95	697.88	867.83
Volume of Voids (cm^3):	0.00	406.90	406.90
Total Volume (cm^3):	169.95	1104.78	1274.73
Volumetric Fraction (%):	13.33	86.67	100.00
Initial Moisture Content (% vol):	0.00	15.61	13.53
Saturated Sample θ_s			
Bulk Density (g/cm^3):	2.65	1.67	1.80
Calculated Porosity (% vol):	0.00	36.83	31.92
Volume of Solids (cm^3):	169.95	697.88	867.83
Volume of Voids (cm^3):	0.00	406.90	406.90
Total Volume (cm^3):	169.95	1104.78	1274.73
Volumetric Fraction (%):	13.33	86.67	100.00
Saturated Moisture Content (% vol):	0.00	36.25	31.41
Residual Sample θ_r			
Bulk Density (g/cm^3):	2.65	1.67	1.80
Calculated Porosity (% vol):	0.00	36.83	31.92
Volume of Solids (cm^3):	169.95	697.88	867.83
Volume of Voids (cm^3):	0.00	406.90	406.90
Total Volume (cm^3):	169.95	1104.78	1274.73
Volumetric Fraction (%):	13.33	86.67	100.00
Residual Moisture Content (% vol):	0.00	0.00	0.00
Ksat (cm/sec):	NM	2.0E-04	1.6E-04

* = Porosity and moisture content of coarse fraction assumed to be zero.
** = Volume adjusted, if applicable. See notes on Moisture Retention Data pages.
NM = Not measured

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Particle Size Analysis

Summary of Particle Size Characteristics

Sample Number	d_{10} (mm)	d_{50} (mm)	d_{60} (mm)	C_u	C_c	Method	ASTM Classification	USDA Classification
K-cap-1:2	0.0031	1.6	2.8	903	23	WS/H	Clayey sand with gravel (SC)g	Sandy Loam †
K-cap-1:3	0.0054	2.0	3.5	648	17	WS/H	Clayey sand with gravel (SC)g	Sandy Loam †
K-cap-1:4	0.047	2.2	3.5	74	3.0	WS/H	Well-graded sand with clay and gravel (SW-SC)g	Sandy Loam †
K-cap-2:3	0.0025	1.4	2.6	1040	20	WS/H	Clayey sand with gravel (SC)g	Sandy Loam †

d_{50} = Median particle diameter

Est = Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

† Greater than 10% of sample is coarse material

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
K-cap-1:2	31.7	46.9	12.9	8.5
K-cap-1:3	34.1	49.1	10.4	6.5
K-cap-1:4	33.5	55.2	6.6	4.7
K-cap-2:3	30.1	47.2	13.4	9.4

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:2
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 13-Nov-12

Initial Dry Weight of Sample (g): 2326.00
Weight Passing #10 (g): 1262.66
Weight Retained #10 (g): 1063.34
Weight of Hydrometer Sample (g): 57.05
Calculated Weight of Sieve Sample (g): 105.09

Shape: Angular
Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	2326.00	100.00
	2"	50	0.00	0.00	2326.00	100.00
	1.5"	38.1	0.00	0.00	2326.00	100.00
	1"	25	117.83	117.83	2208.17	94.93
	3/4"	19.0	121.76	239.59	2086.41	89.70
	3/8"	9.5	227.64	467.23	1858.77	79.91
	4	4.75	270.00	737.23	1588.77	68.30
	10	2.00	326.11	1063.34	1262.66	54.28
-10			(Based on calculated sieve wt.)			
	20	0.85	15.23	63.27	41.82	39.79
	40	0.425	11.30	74.57	30.52	29.04
	60	0.250	4.59	79.16	25.93	24.67
	140	0.106	2.85	82.01	23.08	21.96
	200	0.075	0.59	82.60	22.49	21.40
	dry pan		0.06	82.66	22.43	
	wet pan			22.43	0.00	

d_{10} (mm): 0.0031
d_{16} (mm): 0.010
d_{30} (mm): 0.45
d_{50} (mm): 1.6
d_{60} (mm): 2.8
d_{84} (mm): 13

Median Particle Diameter --d_{50} (mm): 1.6
Uniformity Coefficient, Cu --[d_{60}/d_{10}] (mm): 903
Coefficient of Curvature, Cc --[$(d_{30})^2/(d_{10}*d_{60})$] (mm): 23
Mean Particle Diameter --[$(d_{16}+d_{50}+d_{84})/3$] (mm): 4.9

Classification of fines: CL

ASTM Soil Classification: Clayey sand with gravel (SC)g
USDA Soil Classification: Sandy Loam †

† Greater than 10% of sample is coarse material

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Particle Size Analysis
Hydrometer Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:2
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 8-Nov-12
Start Time: 9:12

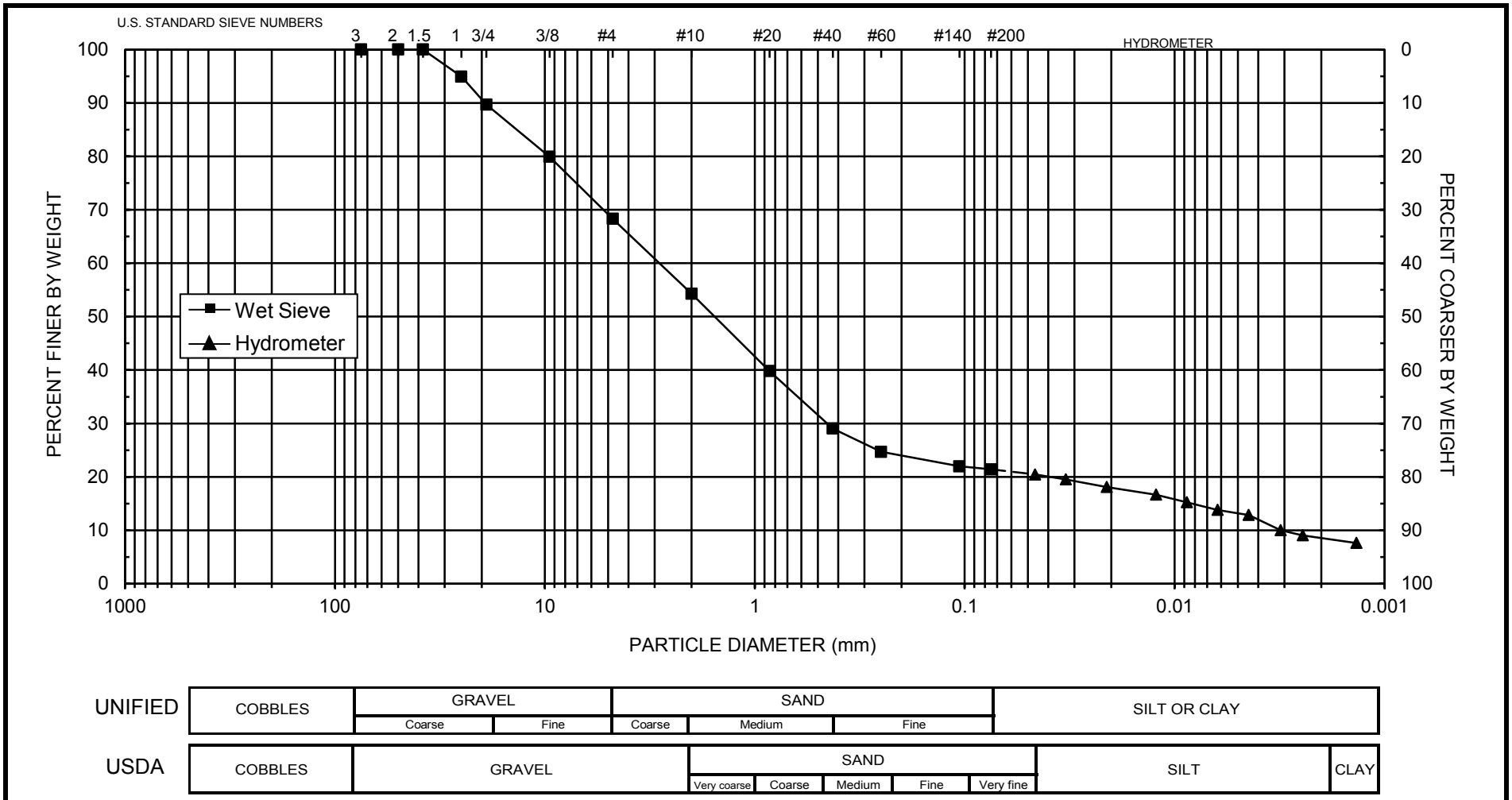
Type of Water Used: DISTILLED
Reaction with H_2O_2*:* NA
Dispersant:* $(NaPO_3)_6$
Assumed particle density: 2.65
Initial Wt. (g)*:* 57.05
Total Sample Wt. (g)*:* 2326.00
Wt. Passing #10 (g): 1262.66

Date	Time (min)	Temp (°C)	R (g/L)	R_L (g/L)	R_{corr} (g/L)	L (cm)	D (mm)	P (%)	% Finer
8-Nov-12	1	20.7	28.0	6.5	21.5	11.7	0.04622	37.7	20.5
	2	20.7	27.0	6.5	20.5	11.9	0.03291	35.9	19.5
	5	20.7	25.5	6.5	19.0	12.1	0.02103	33.3	18.1
	15	20.8	24.0	6.5	17.5	12.4	0.01225	30.7	16.7
	30	20.9	22.5	6.5	16.0	12.6	0.00874	28.0	15.2
	60	20.9	21.0	6.5	14.5	12.9	0.00624	25.4	13.8
	120	21.0	20.0	6.5	13.5	13.0	0.00443	23.7	12.8
	250	21.2	17.0	6.5	10.5	13.5	0.00312	18.4	10.0
	410	21.3	16.0	6.5	9.5	13.7	0.00245	16.7	9.0
9-Nov-12	1370	20.8	14.5	6.5	8.0	13.9	0.00136	14.0	7.6

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines



UNIFIED	COBBLES	GRAVEL		SAND			SILT OR CLAY
		Coarse	Fine	Coarse	Medium	Fine	
USDA	COBBLES	GRAVEL	SAND				SILT	CLAY
			Very coarse	Coarse	Medium	Fine	Very fine		

d_{10} = **0.0031**	d_{30} = **0.45**	d_{50} = **1.6**	d_{60} = **2.8**	C_u = **903**	C_c = **23**

SAMPLE NUMBER	DEPTH	ASTM CLASSIFICATION	USDA CLASSIFICATION
K-cap-1:2	**NA**	**Clayey sand with gravel (SC)g**	**Sandy Loam †**

† Greater than 10% of sample is coarse material

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:3
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 12-Nov-12

Initial Dry Weight of Sample (g): 2525.32
Weight Passing #10 (g): 1252.67
Weight Retained #10 (g): 1272.65
Weight of Hydrometer Sample (g): 53.29
Calculated Weight of Sieve Sample (g): 107.43

Shape: Angular
Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	2525.32	100.00
	2"	50	0.00	0.00	2525.32	100.00
	1.5"	38.1	0.00	0.00	2525.32	100.00
	1"	25	52.62	52.62	2472.70	97.92
	3/4"	19.0	148.76	201.38	2323.94	92.03
	3/8"	9.5	287.53	488.91	2036.41	80.64
	4	4.75	371.37	860.28	1665.04	65.93
	10	2.00	412.37	1272.65	1252.67	49.60
-10			(Based on calculated sieve wt.)			
	20	0.85	14.05	68.19	39.24	36.53
	40	0.425	11.96	80.15	27.28	25.39
	60	0.250	5.21	85.36	22.07	20.54
	140	0.106	3.37	88.73	18.70	17.41
	200	0.075	0.60	89.33	18.10	16.85
	dry pan		0.17	89.50	17.93	
	wet pan			17.93	0.00	

d_{10} (mm): 0.0054
d_{16} (mm): 0.058
d_{30} (mm): 0.57
d_{50} (mm): 2.0
d_{60} (mm): 3.5
d_{84} (mm): 12

Median Particle Diameter --d_{50} (mm): 2.0
Uniformity Coefficient, Cu --$[d_{60}/d_{10}]$ (mm): 648
Coefficient of Curvature, Cc --$[(d_{30})^2/(d_{10}*d_{60})]$ (mm): 17
Mean Particle Diameter --$[(d_{16}+d_{50}+d_{84})/3]$ (mm): 4.7

Classification of fines: CL

ASTM Soil Classification: Clayey sand with gravel (SC)g
USDA Soil Classification: Sandy Loam †

† Greater than 10% of sample is coarse material

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Particle Size Analysis
Hydrometer Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:3
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 8-Nov-12
Start Time: 9:00

Type of Water Used: DISTILLED
Reaction with H_2O_2*:* NA
Dispersant:* $(NaPO_3)_6$
Assumed particle density: 2.65

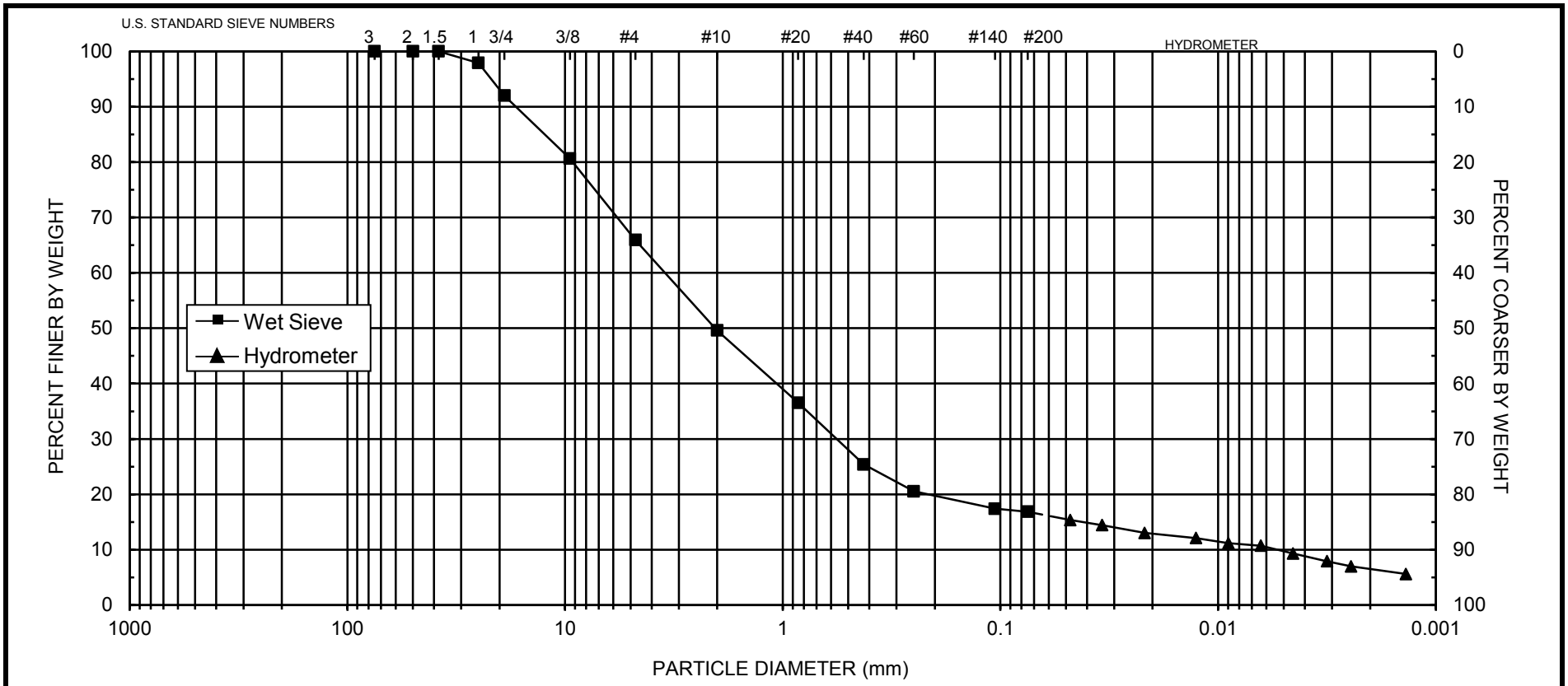
Initial Wt. (g)*:* 53.29
Total Sample Wt. (g)*:* 2525.32
Wt. Passing #10 (g): 1252.67

Date	Time (min)	Temp (°C)	R (g/L)	R_L (g/L)	R_{corr} (g/L)	L (cm)	D (mm)	P (%)	% Finer
8-Nov-12	1	20.7	23.0	6.5	16.5	12.5	0.04781	31.0	15.4
	2	20.7	22.0	6.5	15.5	12.7	0.03402	29.1	14.4
	5	20.7	20.5	6.5	14.0	12.9	0.02173	26.3	13.0
	15	20.7	19.5	6.5	13.0	13.1	0.01262	24.4	12.1
	30	20.9	18.5	6.5	12.0	13.3	0.00896	22.5	11.2
	60	20.9	18.0	6.5	11.5	13.3	0.00636	21.6	10.7
	120	21.0	16.5	6.5	10.0	13.6	0.00453	18.8	9.3
	250	21.2	15.0	6.5	8.5	13.8	0.00316	16.0	7.9
	420	21.3	14.0	6.5	7.5	14.0	0.00245	14.1	7.0
9-Nov-12	1380	20.8	12.5	6.5	6.0	14.3	0.00137	11.3	5.6

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines



UNIFIED	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		Coarse	Fine	Coarse	Medium	Fine				
USDA	COBBLES	GRAVEL		SAND				SILT	CLAY	
				Very coarse	Coarse	Medium	Fine	Very fine		

d_{10} = **0.0054**	d_{30} = **0.57**	d_{50} = **2.0**	d_{60} = **3.5**	C_u = **648**	C_c = **17**

SAMPLE NUMBER	DEPTH	ASTM CLASSIFICATION	USDA CLASSIFICATION
K-cap-1:3	**NA**	**Clayey sand with gravel (SC)g**	**Sandy Loam †**

† Greater than 10% of sample is coarse material

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:4
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 13-Nov-12

Initial Dry Weight of Sample (g): 2384.74
Weight Passing #10 (g): 1140.48
Weight Retained #10 (g): 1244.26
Weight of Hydrometer Sample (g): 61.87
Calculated Weight of Sieve Sample (g): 129.37

Shape: Angular
Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	2384.74	100.00
	2"	50	0.00	0.00	2384.74	100.00
	1.5"	38.1	0.00	0.00	2384.74	100.00
	1"	25	55.32	55.32	2329.42	97.68
	3/4"	19.0	55.94	111.26	2273.48	95.33
	3/8"	9.5	299.97	411.23	1973.51	82.76
	4	4.75	387.35	798.58	1586.16	66.51
	10	2.00	445.68	1244.26	1140.48	47.82
-10			(Based on calculated sieve wt.)			
	20	0.85	18.32	85.82	43.55	33.66
	40	0.425	16.60	102.42	26.95	20.83
	60	0.250	7.80	110.22	19.15	14.80
	140	0.106	3.95	114.17	15.20	11.75
	200	0.075	0.50	114.67	14.70	11.36
	dry pan		0.06	114.73	14.64	
	wet pan			14.64	0.00	

d_{10} (mm): 0.047
d_{16} (mm): 0.28
d_{30} (mm): 0.70
d_{50} (mm): 2.2
d_{60} (mm): 3.5
d_{84} (mm): 10

Median Particle Diameter --d_{50} (mm): 2.2
Uniformity Coefficient, Cu --$[d_{60}/d_{10}]$ (mm): 74
Coefficient of Curvature, Cc --$[(d_{30})^2/(d_{10}*d_{60})]$ (mm): 3.0
Mean Particle Diameter --$[(d_{16}+d_{50}+d_{84})/3]$ (mm): 4.2

Classification of fines: CL-ML

ASTM Soil Classification: Well-graded sand with clay and gravel (SW-SC)g
USDA Soil Classification: Sandy Loam †

† Greater than 10% of sample is coarse material

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Particle Size Analysis
Hydrometer Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:4
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 8-Nov-12
Start Time: 9:18

Type of Water Used: DISTILLED
Reaction with H_2O_2*:* NA
Dispersant:* $(NaPO_3)_6$
Assumed particle density: 2.65

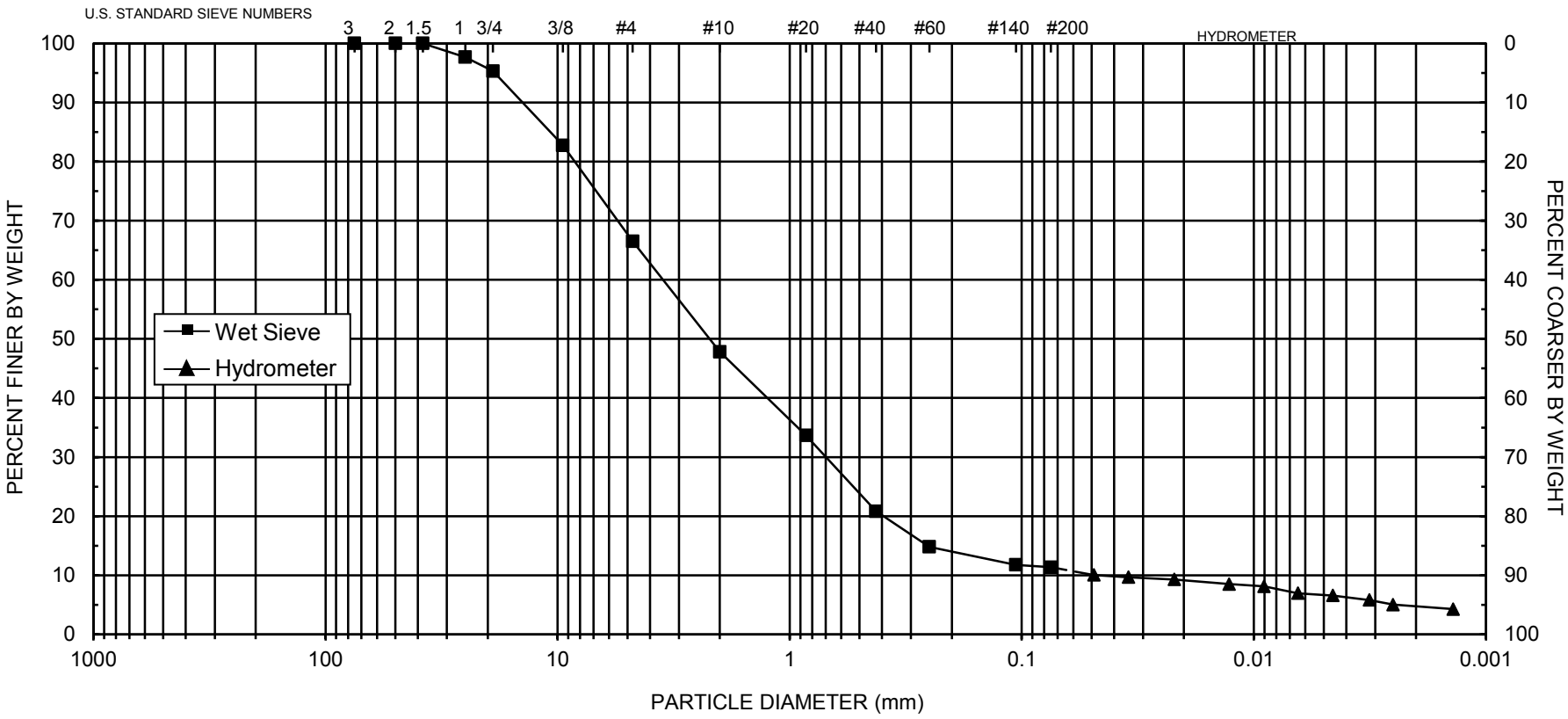
Initial Wt. (g)*:* 61.87
Total Sample Wt. (g)*:* 2384.74
Wt. Passing #10 (g): 1140.48

Date	Time (min)	Temp (°C)	R (g/L)	R_L (g/L)	R_{corr} (g/L)	L (cm)	D (mm)	P (%)	% Finer
8-Nov-12	1	20.8	19.5	6.5	13.0	13.1	0.04883	21.0	10.0
	2	20.8	19.0	6.5	12.5	13.2	0.03464	20.2	9.7
	5	20.8	18.5	6.5	12.0	13.3	0.02197	19.4	9.3
	15	20.9	17.5	6.5	11.0	13.4	0.01275	17.8	8.5
	30	20.9	17.0	6.5	10.5	13.5	0.00904	17.0	8.1
	60	20.9	15.5	6.5	9.0	13.8	0.00645	14.5	7.0
	120	21.1	15.0	6.5	8.5	13.8	0.00456	13.7	6.6
	250	21.2	14.0	6.5	7.5	14.0	0.00318	12.1	5.8
	405	21.3	13.0	6.5	6.5	14.2	0.00251	10.5	5.0
9-Nov-12	1365	20.8	12.0	6.5	5.5	14.3	0.00138	8.9	4.3

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines



UNIFIED	COBBLES	GRAVEL: Coarse, Fine		SAND: Coarse, Medium, Fine		SILT OR CLAY
USDA	COBBLES	GRAVEL	SAND: Very coarse, Coarse, Medium, Fine, Very fine			SILT / CLAY

d_{10} = **0.047**	d_{30} = **0.70**	d_{50} = **2.2**	d_{60} = **3.5**	C_u = **74**	C_c = **3.0**

SAMPLE NUMBER	DEPTH	ASTM CLASSIFICATION	USDA CLASSIFICATION
K-cap-1:4	**NA**	**Well-graded sand with clay and gravel (SW-SC)g**	**Sandy Loam †**

† Greater than 10% of sample is coarse material

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 13-Nov-12

Initial Dry Weight of Sample (g): 2299.74
Weight Passing #10 (g): 1286.76
Weight Retained #10 (g): 1012.98
Weight of Hydrometer Sample (g): 56.86
Calculated Weight of Sieve Sample (g): 101.62

Shape: Angular
Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	2299.74	100.00
	2"	50	0.00	0.00	2299.74	100.00
	1.5"	38.1	0.00	0.00	2299.74	100.00
	1"	25	162.42	162.42	2137.32	92.94
	3/4"	19.0	81.69	244.11	2055.63	89.39
	3/8"	9.5	206.25	450.36	1849.38	80.42
	4	4.75	241.94	692.30	1607.44	69.90
	10	2.00	320.68	1012.98	1286.76	55.95
-10			(Based on calculated sieve wt.)			
	20	0.85	13.51	58.27	43.35	42.66
	40	0.425	11.29	69.56	32.06	31.55
	60	0.250	5.07	74.63	26.99	26.56
	140	0.106	3.24	77.87	23.75	23.37
	200	0.075	0.67	78.54	23.08	22.71
	dry pan		0.04	78.58	23.04	
	wet pan			23.04	0.00	

d_{10} (mm): 0.0025
d_{16} (mm): 0.0077
d_{30} (mm): 0.36
d_{50} (mm): 1.4
d_{60} (mm): 2.6
d_{84} (mm): 13

Median Particle Diameter --d_{50} (mm): 1.4
Uniformity Coefficient, Cu --[d_{60}/d_{10}] (mm): 1040
Coefficient of Curvature, Cc --[$(d_{30})^2/(d_{10}*d_{60})$] (mm): 20
Mean Particle Diameter --[$(d_{16}+d_{50}+d_{84})/3$] (mm): 4.8

Classification of fines: CL

ASTM Soil Classification: Clayey sand with gravel (SC)g
USDA Soil Classification: Sandy Loam †

† Greater than 10% of sample is coarse material

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Particle Size Analysis
Hydrometer Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 8-Nov-12
Start Time: 9:06

Type of Water Used: DISTILLED
Reaction with H_2O_2*:* NA
Dispersant:* $(NaPO_3)_6$
Assumed particle density: 2.65

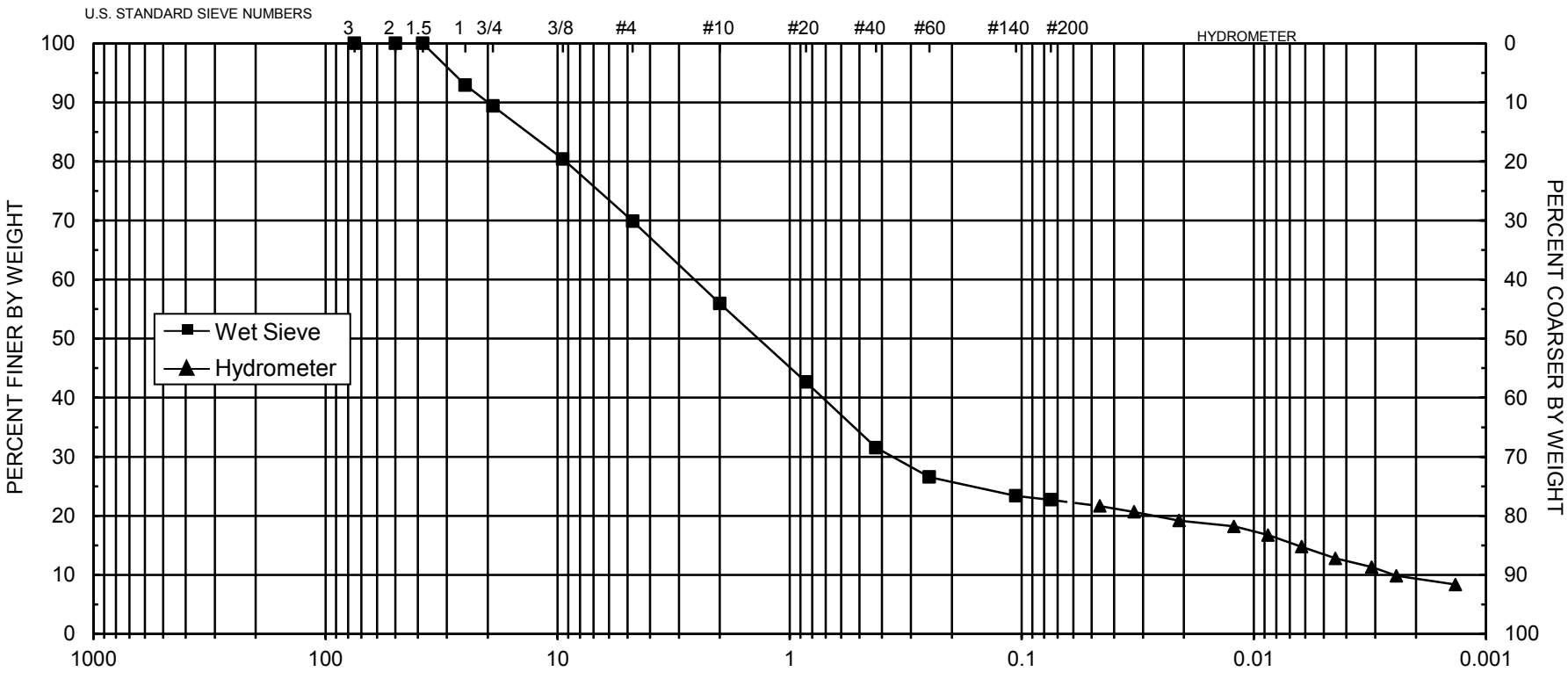
Initial Wt. (g)*:* 56.86
Total Sample Wt. (g)*:* 2299.74
Wt. Passing #10 (g): 1286.76

Date	Time (min)	Temp (°C)	R (g/L)	R_L (g/L)	R_{corr} (g/L)	L (cm)	D (mm)	P (%)	% Finer
8-Nov-12	1	20.7	28.5	6.5	22.0	11.6	0.04605	38.7	21.6
	2	20.7	27.5	6.5	21.0	11.8	0.03279	36.9	20.7
	5	20.7	26.0	6.5	19.5	12.0	0.02096	34.3	19.2
	15	20.8	25.0	6.5	18.5	12.2	0.01217	32.5	18.2
	30	20.9	23.5	6.5	17.0	12.4	0.00868	29.9	16.7
	60	20.9	21.5	6.5	15.0	12.8	0.00622	26.4	14.8
	120	21.0	19.5	6.5	13.0	13.1	0.00445	22.9	12.8
	250	21.2	18.0	6.5	11.5	13.3	0.00310	20.2	11.3
	415	21.3	16.5	6.5	10.0	13.6	0.00243	17.6	9.8
9-Nov-12	1375	20.8	15.0	6.5	8.5	13.8	0.00135	14.9	8.4

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines



UNIFIED	COBBLES	GRAVEL: Coarse, Fine	SAND: Coarse, Medium, Fine	SILT OR CLAY		
USDA	COBBLES	GRAVEL	SAND: Very coarse, Coarse, Medium, Fine, Very fine	SILT	CLAY	

d_{10} = **0.0025**	d_{30} = **0.36**	d_{50} = **1.4**	d_{60} = **2.6**	C_u = **1040**	C_c = **20**

SAMPLE NUMBER	DEPTH	ASTM CLASSIFICATION	USDA CLASSIFICATION
K-cap-2:3	**NA**	**Clayey sand with gravel (SC)g**	**Sandy Loam †**

† Greater than 10% of sample is coarse material

Atterberg Limits/ Identification of Fines

Summary of Atterberg Tests

Sample Number	Liquid Limit	Plastic Limit	Plasticity Index	Classification
K-cap-1:2	30	16	14	CL
K-cap-1:3	29	17	12	CL
K-cap-1:4	24	17	7	CL-ML
K-cap-2:3	30	17	13	CL

--- = Soil requires visual-manual classification due to non-plasticity

Atterberg Limits

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:2
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 30-Nov-12

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:	36	25	20
Pan number:	LL1	LL2	LL3
Weight of pan plus moist soil (g):	122.72	124.10	128.99
Weight of pan plus dry soil (g)	120.40	122.04	126.05
Weight of pan (g):	112.30	115.16	116.53
Gravimetric moisture content (% g/g):	28.64	29.94	30.88

Liquid Limit: 30

Plastic Limit

	Trial 1	Trial 2
Pan number:	PL1	PL2
Weight of pan plus moist soil (g):	128.51	122.23
Weight of pan plus dry soil (g)	127.07	120.84
Weight of pan (g):	117.95	112.34
Gravimetric moisture content (% g/g):	15.79	16.35

Plastic Limit: 16

Results

Percent of Sample Retained on #40 Sieve: See Sieve

Liquid Limit: 30
Plastic Limit: 16
Plasticity Index: 14

Classification: CL

Comments:

--- = Soil requires visual-manual classification due to non-plasticity
* = 1-point method requested by client

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

Atterberg Limits

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:3
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 30-Nov-12

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:	34	24	19
Pan number:	LL1	LL2	LL3
Weight of pan plus moist soil (g):	129.94	128.82	126.20
Weight of pan plus dry soil (g)	127.24	126.04	123.29
Weight of pan (g):	117.47	116.41	113.44
Gravimetric moisture content (% g/g):	27.64	28.87	29.54

Liquid Limit: 29

Plastic Limit

	Trial 1	Trial 2
Pan number:	PL1	PL2
Weight of pan plus moist soil (g):	119.92	121.94
Weight of pan plus dry soil (g)	119.05	120.98
Weight of pan (g):	114.03	115.32
Gravimetric moisture content (% g/g):	17.33	16.96

Plastic Limit: 17

Results

Percent of Sample Retained on #40 Sieve: See Sieve

Liquid Limit: 29
Plastic Limit: 17
Plasticity Index: 12

Classification: CL

Comments:

--- = Soil requires visual-manual classification due to non-plasticity
* = 1-point method requested by client

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

Atterberg Limits

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:4
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 12-Nov-12

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:	33	23	17
Pan number:	LL1	LL2	LL3
Weight of pan plus moist soil (g):	125.68	124.56	130.16
Weight of pan plus dry soil (g)	123.89	122.37	127.34
Weight of pan (g):	116.44	113.38	116.26
Gravimetric moisture content (% g/g):	24.03	24.36	25.45

Liquid Limit: 24

Plastic Limit

	Trial 1	Trial 2
Pan number:	PL1	PL2
Weight of pan plus moist soil (g):	126.61	128.72
Weight of pan plus dry soil (g)	125.12	126.97
Weight of pan (g):	116.35	116.56
Gravimetric moisture content (% g/g):	16.99	16.81

Plastic Limit: 17

Results

Percent of Sample Retained on #40 Sieve: See Sieve

Liquid Limit: 24
Plastic Limit: 17
Plasticity Index: 7

Classification: CL-ML

Comments:

--- = Soil requires visual-manual classification due to non-plasticity
* = 1-point method requested by client

Laboratory analysis by: D. O'Dowd
Data entered by: C. Sessa
Checked by: J. Hines

Atterberg Limits

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 30-Nov-12

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:	33	21	15
Pan number:	LL1	LL2	LL3
Weight of pan plus moist soil (g):	136.37	127.42	123.29
Weight of pan plus dry soil (g)	133.58	124.85	121.16
Weight of pan (g):	124.11	116.51	114.39
Gravimetric moisture content (% g/g):	29.46	30.82	31.46

Liquid Limit: 30

Plastic Limit

	Trial 1	Trial 2
Pan number:	PL1	PL2
Weight of pan plus moist soil (g):	122.62	121.25
Weight of pan plus dry soil (g)	121.18	120.08
Weight of pan (g):	112.92	113.20
Gravimetric moisture content (% g/g):	17.43	17.01

Plastic Limit: 17

Results

Percent of Sample Retained on #40 Sieve: See Sieve

Liquid Limit: 30
Plastic Limit: 17
Plasticity Index: 13

Classification: CL

Comments:

--- = Soil requires visual-manual classification due to non-plasticity
* = 1-point method requested by client

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

Proctor Compaction

Summary of Proctor Compaction Tests

Sample Number	Measured		Oversize Corrected	
	Optimum Moisture Content (% g/g)	Maximum Dry Bulk Density (g/cm^3)	Optimum Moisture Content (% g/g)	Maximum Dry Bulk Density (g/cm^3)
K-cap-1:2	10.5	1.99	8.4	2.09
K-cap-1:3	9.5	2.03	7.7	2.13
K-cap-1:4	9.3	2.02	7.7	2.11
K-cap-2:3	10.6	1.98	8.5	2.08

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NR = Not requested

NA = Not applicable

Proctor Compaction Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:2
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 8-Nov-12

As Received Moisture Content (% g/g): NA

Split (3/4", 3/8", #4): 3/8
Mass of coarse material (g)*:* 467.23
Mass of fines material (g)*:* 1858.77
Mold weight (g): 4237
Mold volume (cm^3)*:* 939
Compaction Method: Modified B
Preparation Method: Dry
Type of Rammer: Mechanical

Trial	Weight of Mold and Compacted Soil (g)	Weight of Container and Wet Soil (g)	Weight of Container and Dry Soil (g)	Weight of Container (g)	Dry Bulk Density (g/cm^3)	Moisture Content (% g/g)
1	6083	796.73	769.93	213.58	1.88	4.82
2	6173	891.50	849.50	260.79	1.92	7.13
3	6267	781.53	732.88	209.73	1.98	9.30
4	6309	743.52	689.59	210.28	1.98	11.25
5	6249	746.87	684.50	212.90	1.89	13.23

Soil Fractions
Coarse Fraction (% g/g): 20.1
Fines Fraction (% g/g): 79.9

Properties of Coarse Material
Assumed particle density (g/cm^3)*:* 2.65
Assumed Initial Moisture Content (% g/g): 0.0

Oversize Corrected Values for Dry Bulk Density and Moisture Content

Trial	Dry Bulk Density of Composite (g/cm^3)	Moisture Content of Composite (% g/g)
1	1.99	3.85
2	2.04	5.70
3	2.08	7.43
4	2.09	8.99
5	2.01	10.57

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

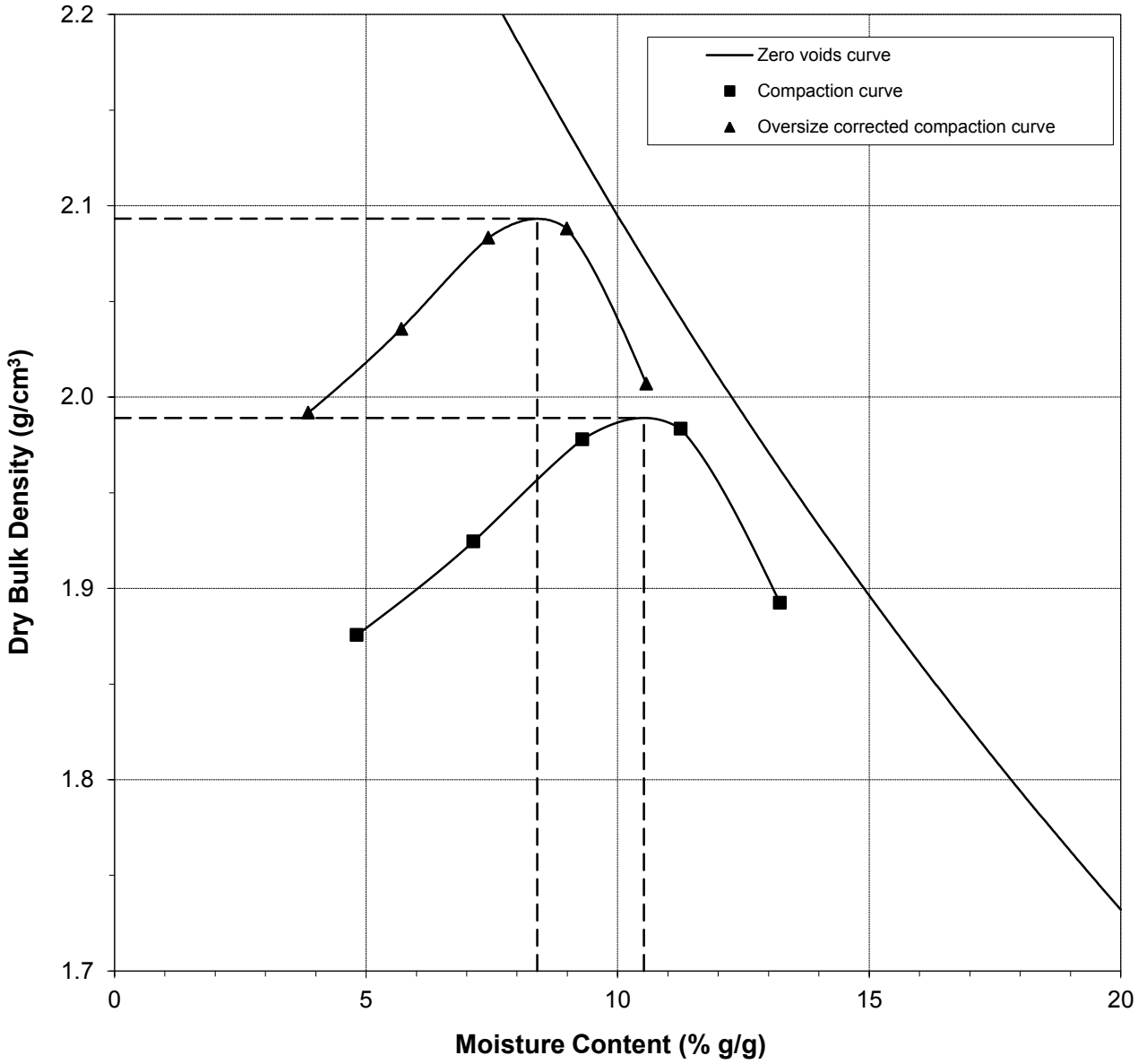
Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Proctor Compaction Data Points with Fitted Curve

Sample Number: K-cap-1:2

	Measured	Corrected
Optimum Moisture Content (% g/g):	10.5	8.4
Maximum Dry Bulk Density (g/cm^3):	1.99	2.09

Test Date: 8-Nov-12



--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Proctor Compaction Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:3
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 8-Nov-12

As Received Moisture Content (% g/g): NA

Split (3/4", 3/8", #4): 3/8
Mass of coarse material (g)*:* 488.91
Mass of fines material (g)*:* 2036.41
Mold weight (g): 4237
Mold volume (cm^3)*:* 939
Compaction Method: Modified B
Preparation Method: Dry
Type of Rammer: Mechanical

Trial	Weight of Mold and Compacted Soil (g)	Weight of Container and Wet Soil (g)	Weight of Container and Dry Soil (g)	Weight of Container (g)	Dry Bulk Density (g/cm^3)	Moisture Content (% g/g)
1	6192	782.76	746.53	208.61	1.95	6.74
2	6308	868.30	819.70	263.23	2.03	8.73
3	6333	894.90	832.70	266.55	2.01	10.99
4	6255	785.89	720.05	210.80	1.90	12.93
5	6206	843.90	764.27	212.68	1.83	14.44

Soil Fractions
Coarse Fraction (% g/g): 19.4
Fines Fraction (% g/g): 80.6

Properties of Coarse Material
Assumed particle density (g/cm^3)*:* 2.65
Assumed Initial Moisture Content (% g/g): 0.0

Oversize Corrected Values for Dry Bulk Density and Moisture Content

Trial	Dry Bulk Density of Composite (g/cm^3)	Moisture Content of Composite (% g/g)
1	2.05	5.43
2	2.12	7.04
3	2.11	8.86
4	2.01	10.43
5	1.95	11.64

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

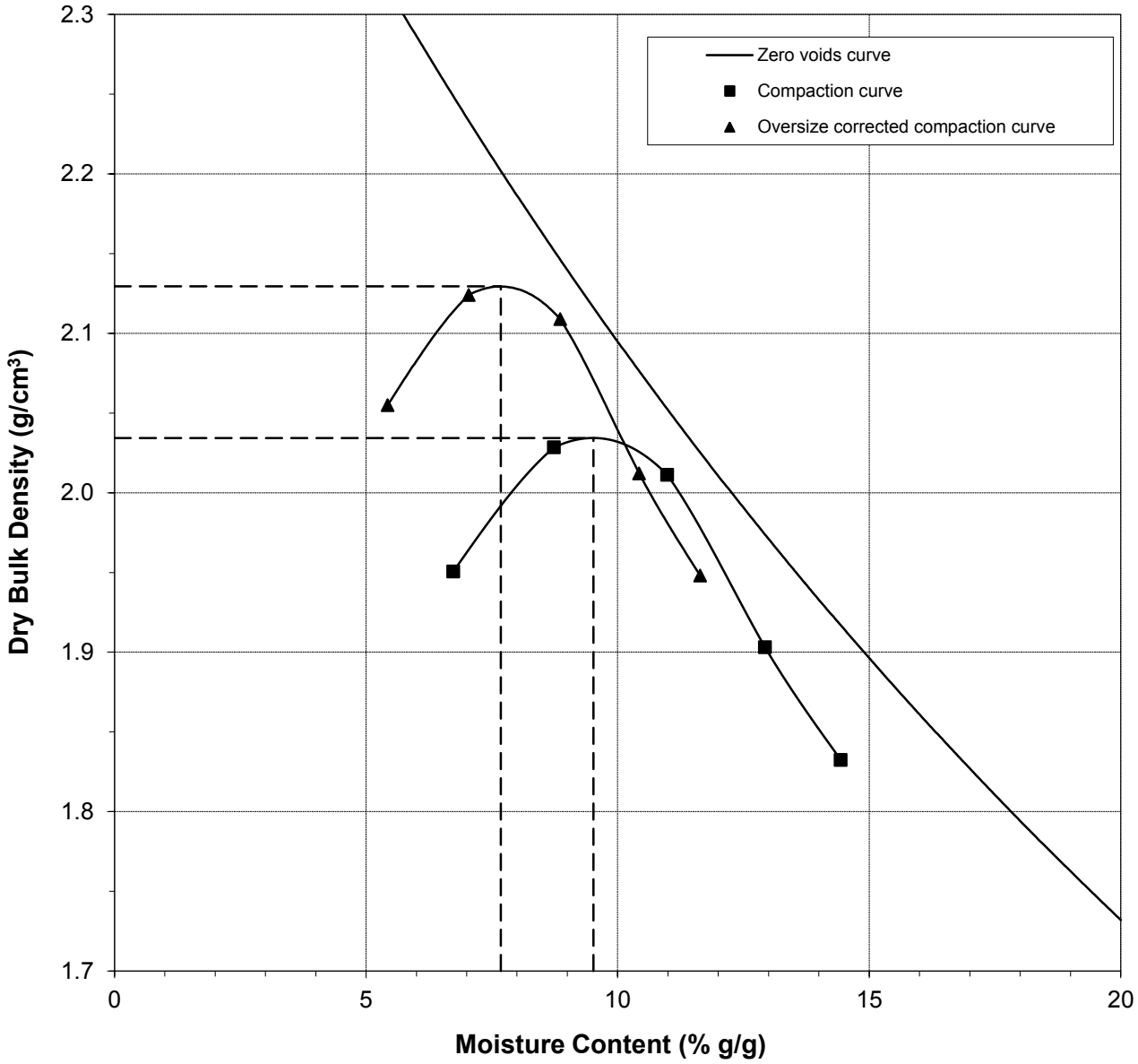
Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Proctor Compaction Data Points with Fitted Curve

Sample Number: K-cap-1:3

	Measured	Corrected
Optimum Moisture Content (% g/g):	9.5	7.7
Maximum Dry Bulk Density (g/cm^3):	2.03	2.13

Test Date: 8-Nov-12



--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Proctor Compaction Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:4
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 8-Nov-12

As Received Moisture Content (% g/g): NA

Split (3/4", 3/8", #4): 3/8
Mass of coarse material (g)*:* 411.23
Mass of fines material (g)*:* 1973.51
Mold weight (g): 4237
Mold volume (cm^3)*:* 939
Compaction Method: Modified B
Preparation Method: Dry
Type of Rammer: Mechanical

Trial	Weight of Mold and Compacted Soil (g)	Weight of Container and Wet Soil (g)	Weight of Container and Dry Soil (g)	Weight of Container (g)	Dry Bulk Density (g/cm^3)	Moisture Content (% g/g)
1	6150	757.26	725.53	207.41	1.92	6.12
2	6276	892.10	840.80	208.49	2.01	8.11
3	6321	903.60	844.20	264.35	2.01	10.24
4	6274	820.10	754.70	210.97	1.94	12.03
5	6235	829.40	754.15	213.55	1.87	13.92

Soil Fractions
Coarse Fraction (% g/g): 17.2
Fines Fraction (% g/g): 82.8

Properties of Coarse Material
Assumed particle density (g/cm^3)*:* 2.65
Assumed Initial Moisture Content (% g/g): 0.0

Oversize Corrected Values for Dry Bulk Density and Moisture Content

Trial	Dry Bulk Density of Composite (g/cm^3)	Moisture Content of Composite (% g/g)
1	2.01	5.07
2	2.10	6.71
3	2.10	8.48
4	2.03	9.95
5	1.97	11.52

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

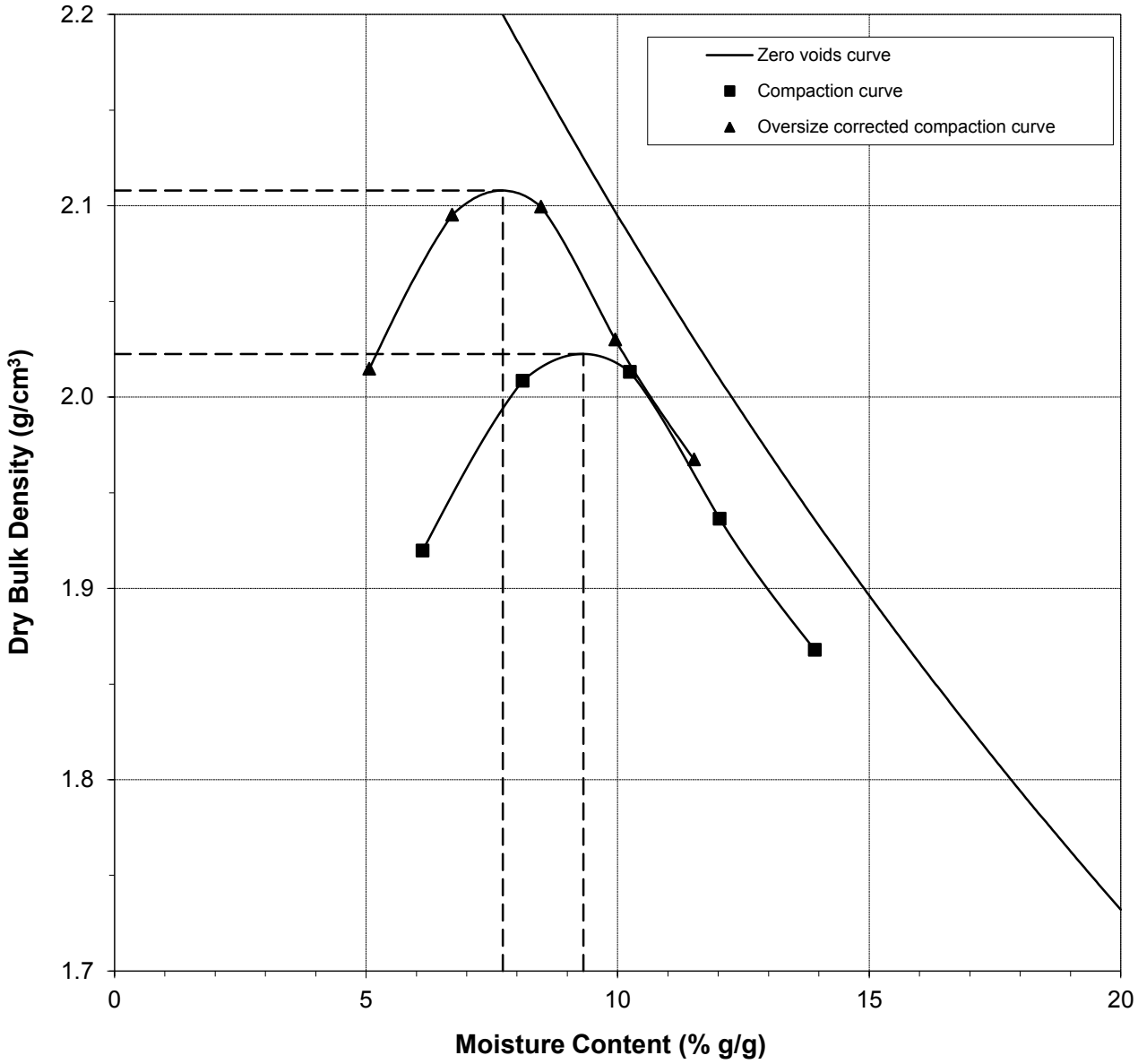
Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Proctor Compaction Data Points with Fitted Curve

Sample Number: K-cap-1:4

	Measured	Corrected
Optimum Moisture Content (% g/g):	9.3	7.7
Maximum Dry Bulk Density (g/cm^3):	2.02	2.11

Test Date: 8-Nov-12



--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Proctor Compaction Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 8-Nov-12

As Received Moisture Content (% g/g): NA

Split (3/4", 3/8", #4): 3/8
Mass of coarse material (g)*:* 450.36
Mass of fines material (g)*:* 1849.38
Mold weight (g): 4237
Mold volume (cm^3)*:* 939
Compaction Method: Modified B
Preparation Method: Dry
Type of Rammer: Mechanical

Trial	Weight of Mold and Compacted Soil (g)	Weight of Container and Wet Soil (g)	Weight of Container and Dry Soil (g)	Weight of Container (g)	Dry Bulk Density (g/cm^3)	Moisture Content (% g/g)
1	6163	798.06	763.83	266.48	1.92	6.88
2	6254	962.20	904.80	269.21	1.97	9.03
3	6304	869.80	803.80	212.70	1.98	11.17
4	6268	811.80	741.34	208.60	1.91	13.23
5	6182	879.50	792.34	211.98	1.80	15.02

Soil Fractions
Coarse Fraction (% g/g): 19.6
Fines Fraction (% g/g): 80.4

Properties of Coarse Material
Assumed particle density (g/cm^3)*:* 2.65
Assumed Initial Moisture Content (% g/g): 0.0

Oversize Corrected Values for Dry Bulk Density and Moisture Content

Trial	Dry Bulk Density of Composite (g/cm^3)	Moisture Content of Composite (% g/g)
1	2.03	5.53
2	2.07	7.26
3	2.08	8.98
4	2.02	10.64
5	1.92	12.08

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

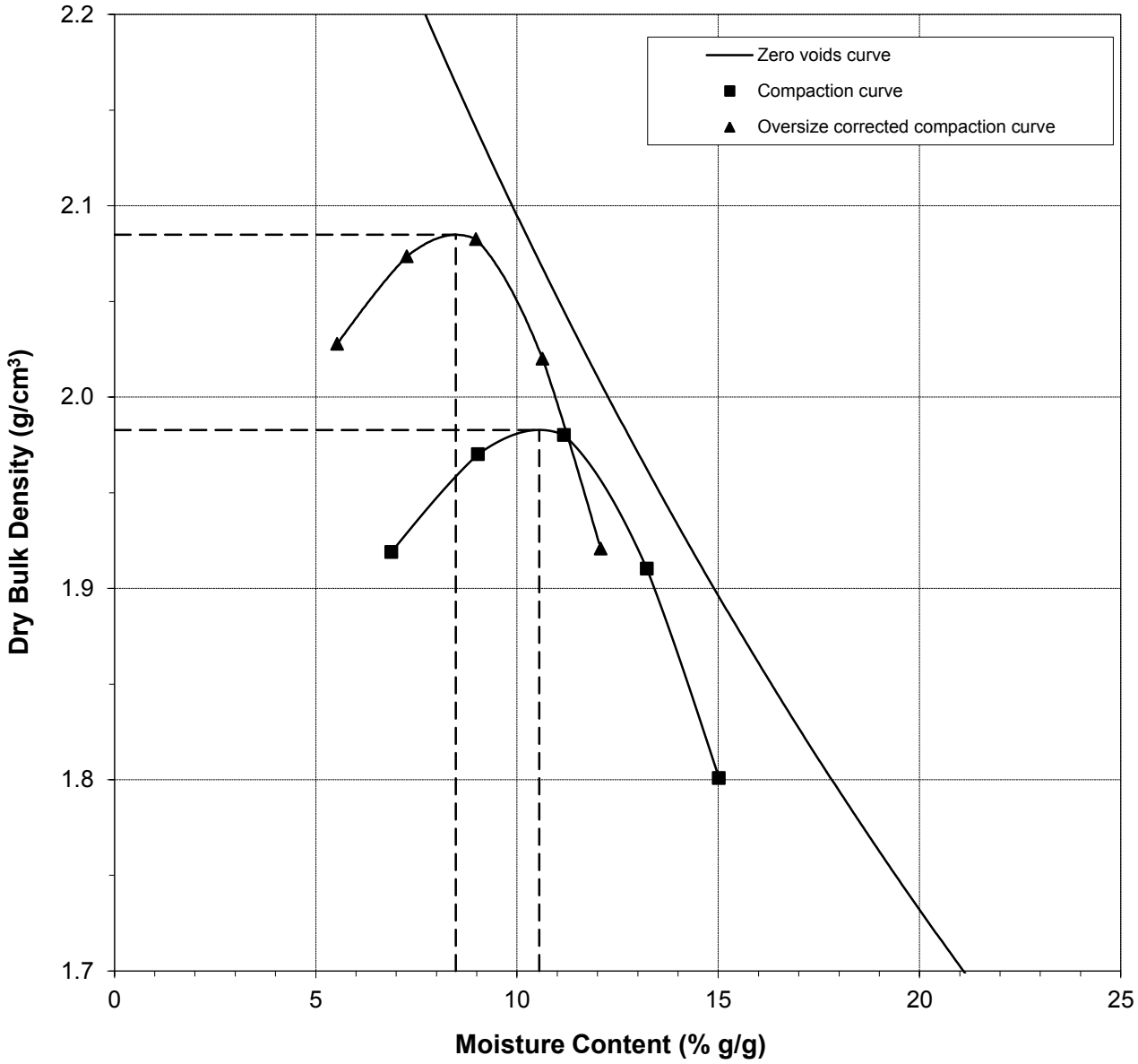
Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Proctor Compaction Data Points with Fitted Curve

Sample Number: K-cap-2:3

	Measured	Corrected
Optimum Moisture Content (% g/g)*:*	10.6	8.5
Maximum Dry Bulk Density (g/cm^3)*:*	1.98	2.08

Test Date: 8-Nov-12



--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Percent Organic Matter

Summary of Percent Organic Matter

Sample Number	Organic Matter* (%, g/g)
K-cap-1:2	1.1
K-cap-1:3	1.1
K-cap-1:4	0.9
K-cap-2:3	1.3

*Correction for oversize material applied, if necessary

Data for Percent Organic Matter

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:2
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 13-Nov-12

Fraction of bulk sample used (<9.5mm fraction) (%)*:* 79.91

Tare weight, pan (g)*:* 312.47
Oven Dry (105°C) weight of sample* (g)*:* 631.68

Muffle Furnace Dry (440°C) weight of sample* (g)*:* 627.22

Organic Matter of <9.5mm fraction (%, g/g)*:* 1.40
***Organic Matter of Bulk Sample* (%, g/g)*:* 1.12**

Comments:

* Weight including tares

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Data for Percent Organic Matter

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:3
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 13-Nov-12

Fraction of bulk sample used (<9.5mm fraction) (%)*:* 80.64

Tare weight, pan (g)*:* 310.99
Oven Dry (105°C) weight of sample* (g)*:* 674.15

Muffle Furnace Dry (440°C) weight of sample* (g)*:* 669.41

Organic Matter of <9.5mm fraction (%, g/g)*:* 1.31
***Organic Matter of Bulk Sample* (%, g/g)*:* 1.05**

Comments:

* Weight including tares

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Data for Percent Organic Matter

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-1:4
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 13-Nov-12

Fraction of bulk sample used (<9.5mm fraction) (%)*:* 82.76

Tare weight, pan (g)*:* 345.34
Oven Dry (105°C) weight of sample* (g)*:* 744.53

Muffle Furnace Dry (440°C) weight of sample* (g)*:* 739.98

Organic Matter of <9.5mm fraction (%, g/g)*:* 1.14
***Organic Matter of Bulk Sample* (%, g/g)*:* 0.94**

Comments:

* Weight including tares

Laboratory analysis by: K.Wright
Data entered by: C. Sessa
Checked by: J. Hines

Data for Percent Organic Matter

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 13-Nov-12

Fraction of bulk sample used (<9.5mm fraction) (%)*:* 80.42

Tare weight, pan (g)*:* 308.84
Oven Dry (105°C) weight of sample* (g)*:* 715.61

Muffle Furnace Dry (440°C) weight of sample* (g)*:* 709.26

Organic Matter of <9.5mm fraction (%, g/g)*:* 1.56
***Organic Matter of Bulk Sample* (%, g/g)*:* 1.26**

Comments:

* Weight including tares

Laboratory analysis by: K.Wright
Data entered by: C. Sessa
Checked by: J. Hines

Laboratory Tests and Methods

Tests and Methods

Dry Bulk Density:	ASTM D7263
Moisture Content:	ASTM D7263
Calculated Porosity:	ASTM D7263
Saturated Hydraulic Conductivity:	
Constant Head: (Rigid Wall)	ASTM D 2434 (modified apparatus)
Hanging Column Method:	ASTM D6836 (modified apparatus)
Pressure Plate Method:	ASTM D6836 (modified apparatus)
Water Potential (Dewpoint Potentiometer) Method:	ASTM D6836
Relative Humidity (Box) Method:	Campbell, G. and G. Gee. 1986. Water Potential: Miscellaneous Methods. Chp. 25, pp. 631-632, in A. Klute (ed.), Methods of Soil Analysis. Part 1. American Society of Agronomy, Madison, WI; Karathanasis & Hajek. 1982. Quantitative Evaluation of Water Adsorption on Soil Clays. SSA Journal 46:1321-1325
Moisture Retention Characteristics & Calculated Unsaturated Hydraulic Conductivity:	ASTM D6836; van Genuchten, M.T. 1980. A closed-form equation for predicting the hydraulic conductivity of unsaturated soils. SSSAJ 44:892-898; van Genuchten, M.T., F.J. Leij, and S.R. Yates. 1991. The RETC code for quantifying the hydraulic functions of unsaturated soils. Robert S. Kerr Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Ada, Oklahoma. EPA/600/2091/065. December 1991
Particle Size Analysis:	ASTM D422
USCS (ASTM) Classification:	ASTM D422, ASTM D2487
USDA Classification:	ASTM D422, USDA Soil Textural Triangle
Atterberg Limits:	ASTM D4318
Modified Proctor Compaction:	ASTM D1557
Coarse Fraction (Gravel) Correction (calc):	ASTM D4718; Bouwer, H. and Rice, R.C. 1984. Hydraulic Properties of Stony Vadose Zones. Groundwater Vol. 22, No. 6
Percent Organic Matter:	ASTM D2974

Laboratory Report for

Ecology and Environment, Inc.

PO# 4500000162

Klondyke Soil Physical Properties Testing

May 24, 2012

Daniel B. Stephens & Associates, Inc.

5840 Osuna Road NE • Albuquerque, New Mexico 87109

May 24, 2012

Brian Milton and Kate Villars
Ecology and Environment, Inc.
1940 Webster Street, Suite 100
Oakland, CA 94610
(510) 332-4439

Re: DBS&A Laboratory Report for Ecology and Environment, Inc. PO# 4500000162, Klondyke Soil Physical Properties Testing

Dear Mr. Milton and Ms. Villars:

Enclosed is the final report for Ecology and Environment, Inc. PO# 4500000162, Klondyke Soil Physical Properties Testing. Please review this report and provide any comments as samples will be held for a maximum of 30 days. After 30 days samples will be returned or disposed of in an appropriate manner.

All testing results were evaluated subjectively for consistency and reasonableness, and the results appear to be reasonably representative of the material tested. However, DBS&A does not assume any responsibility for interpretations or analyses based on the data enclosed, nor can we guarantee that these data are fully representative of the undisturbed materials at the field site. We recommend that careful evaluation of these laboratory results be made for your particular application.

The testing utilized to generate the enclosed final report employs methods that are standard for the industry. The results do not constitute a professional opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. You have acknowledged that all the testing undertaken by us, and the final report provided, constitutes mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion, having waived any claim of conflict of interest by DBS&A.

We are pleased to provide this service to Ecology and Environment, Inc. and look forward to future laboratory testing on other projects. If you have any questions about the enclosed data, please do not hesitate to call.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.
SOIL TESTING & RESEARCH LABORATORY

Joleen Hines
Laboratory Supervising Manager

Enclosure

Daniel B. Stephens & Associates, Inc.
Soil Testing & Research Laboratory
5840 Osuna Rd. NE
Albuquerque, NM 87109
505-889-7752
FAX 505-889-0258

Summaries

Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties[1]			Saturated Hydraulic Conductivity[2]			Moisture Characteristics[3]								Particle Size[4]			Specific Gravity[5]		Air Perm-eability	Atterberg Limits	% Organic Matter
	G	VM	VD	CH	FH	FW	HC	PP	FP	DPP	RH	EP	WHC	K_{unsat}	DS	WS	H	F	C			
KRB-1																X	X				X	X
KRB-1 (1.58) (Moderate)	X	X		X																		
KRB-1 (1.68) (Extra Firm)	X	X		X																		
KRB-1 (1.63)	X	X		X			X			X	X			X								

[1] G = Gravimetric Moisture Content, VM = Volume Measurement Method, VD = Volume Displacement Method

[2] CH = Constant Head Rigid Wall, FH = Falling Head Rigid Wall, FW = Falling Head Rising Tail Flexible Wall

[3] HC = Hanging Column, PP = Pressure Plate, FP = Filter Paper, DPP = Dew Point Potentiometer, RH = Relative Humidity Box, EP = Effective Porosity, WHC = Water Holding Capacity, Kunsat = Calculated Unsaturated Hydraulic Conductivity

[4] DS = Dry Sieve, WS = Wet Sieve, H = Hydrometer

[5] F = Fine (<4.75mm), C = Coarse (>4.75mm)

Notes

Sample Receipt and Preparation:
One sample arrived loose in two small coolers, each lined with a plastic bag, on March 27, 2012.

The sample was subjected to particle size analysis, Atterberg limits, percent organic matter, saturated hydraulic conductivity and moisture retention testing.

Due to the sandy nature of the material, it was not appropriate for proctor compaction testing - which was originally intended to be used to determine target remold parameters. Therefore, two sub-samples, each created using different compactive efforts ('moderate' and 'extra firm,' based on the technician's and the laboratory's judgment and experience with compaction testing, each at 6% moisture content), were prepared to determine the potential range of densities and saturated hydraulic conductivities. The densities, after saturated hydraulic conductivity testing, were 1.61g/cm^3 for the moderately compacted sub-sample and 1.68 g/cm^3 for the sub-sample compacted to 'extra firm'. And, the saturated hydraulic conductivity results were very similar for the two sub-samples.

Based on these findings, the sub-sample to be used for saturated hydraulic conductivity and moisture retention testing was remolded to target a mid-range conservative density of 1.63g/cm^3 at 6% moisture content.

In an effort to meet particle size to diameter ratio specifications, material larger than 3/8” (0.95 cm) was removed prior to remolding the sub-samples. Oversize correction calculations are not required for the saturated hydraulic conductivity and moisture retention testing, since the oversize fraction is less than 5% of the composite mass.

General Notes:
Volume changes occurred for sample 'KRB-1 (1.58) (Moderate)' after saturated hydraulic conductivity testing, and the reported volumetric moisture content is adjusted for volume changes. Due to the irregularities formed on the sample surface during settling, volume measurements obtained after the initial reading should be considered estimates.

Summary of Sample Preparation/Volume Changes

	Target Remold Parameters[1]		Actual Remold Data			Volume Change Post Saturation[2]			Volume Change Post Drying Curve[3]		
Sample Number	Moisture Content (%, g/g)	Dry Bulk Density (g/cm^3)	Moisture Content (%, g/g)	Dry Bulk Density (g/cm^3)	% of Max Density (%)	Dry Bulk Density (g/cm^3)	% Volume Change (%)	% of Max Density (%)	Dry Bulk Density (g/cm^3)	% Volume Change (%)	% of Max Density (%)
KRB-1 (1.58) (Moderate)	6.0	'Moderate'	6.8	1.58	NA	1.61	-1.7%	NA	NA	NA	NA
KRB-1 (1.68) (Extra Firm)	6.0	'Extra Firm'	6.7	1.68	NA	1.68	---	NA	NA	NA	NA
KRB-1 (1.63)	6.0	1.63	6.1	1.63	100%	1.63	---	100%	1.63	---	100%

[1]Target Remold Parameters: Provided by the client: Target 'Moderate' and 'Extra Firm' compactive effort, based on the preparation technician's and the laboratory's experience, at 6% moisture content. For sample KRB-1, target a mid-range conservative density of 1.63 g/cm^3 at 6% moisture content.

[2]Volume Change Post Saturation: Volume change measurements were obtained after saturated hydraulic conductivity testing.

[3]Volume Change Post Drying Curve: Volume change measurements were obtained throughout hanging column and pressure plate testing. The 'Volume Change Post Drying Curve' values represent the final sample dimensions after the last pressure plate point.

Notes:

"+" indicates sample swelling, "-" indicates sample settling, and "---" indicates no volume change occurred.

NA = Not applicable

Summary of Initial Moisture Content, Dry Bulk Density Wet Bulk Density and Calculated Porosity

Sample Number	Moisture Content				Dry Bulk Density (g/cm^3)	Wet Bulk Density (g/cm^3)	Calculated Porosity (%)
	As Received		Remolded				
	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)			
KRB-1 (1.58) (Moderate)	NA	NA	6.8	10.7	1.58	1.69	40.3
KRB-1 (1.68) (Extra Firm)	NA	NA	6.7	11.2	1.68	1.79	36.7
KRB-1 (1.63)	NA	NA	6.1	10.0	1.63	1.73	38.5

NA = Not analyzed

--- = This sample was not remolded

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	Oversize Corrected K_{sat} (cm/sec)	Method of Analysis	
			Constant Head	Falling Head
KRB-1 (1.58) (Moderate)	2.6E-02	---	X	
KRB-1 (1.68) (Extra Firm)	1.6E-02	---	X	
KRB-1 (1.63)	3.4E-02	---	X	

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Summary of Moisture Characteristics of the Initial Drainage Curve

Sample Number	Pressure Head (-cm water)	Moisture Content (%, cm^3/cm^3)
KRB-1 (1.63)	0	38.5
	4	37.0
	10	36.3
	48	9.9
	198	8.0
	4487	4.6
	12748	3.9
	112178	2.3
	855592	1.6

‡‡ Volume adjustments are applicable at this matric potential (see data sheet for this sample).

Summary of Calculated Unsaturated Hydraulic Properties

Sample Number	α (cm^{-1})	N (dimensionless)	θ_r (% vol)	θ_s (% vol)	Oversize Corrected θ_r (% vol)	Oversize Corrected θ_s (% vol)
KRB-1 (1.63)	0.0486	2.8725	3.87	38.13	---	---

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NR = Not requested

NA = Not applicable

Summary of Particle Size Characteristics

Sample Number	d_{10} (mm)	d_{50} (mm)	d_{60} (mm)	C_u	C_c	Method	ASTM Classification	USDA Classification
KRB-1	0.26	0.94	1.2	4.6	0.93	WS/H	Poorly-graded sand (SP)	Sand †

d_{50} = Median particle diameter

Est = Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

† Greater than 10% of sample is coarse material

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
KRB-1	7.2	89.4	2.4	1.0

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Summary of Atterberg Tests

Sample Number	Liquid Limit	Plastic Limit	Plasticity Index	Classification
KRB-1	---	---	---	ML

--- = Soil requires visual-manual classification due to non-plasticity

Summary of Percent Organic Matter

Sample Number	Organic Matter* (%, g/g)
KRB-1	0.54

*Correction for oversize material applied, if necessary

Initial Properties

Summary of Initial Moisture Content, Dry Bulk Density Wet Bulk Density and Calculated Porosity

Sample Number	Moisture Content				Dry Bulk Density (g/cm^3)	Wet Bulk Density (g/cm^3)	Calculated Porosity (%)
	As Received		Remolded				
	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)			
KRB-1 (1.58) (Moderate)	NA	NA	6.8	10.7	1.58	1.69	40.3
KRB-1 (1.68) (Extra Firm)	NA	NA	6.7	11.2	1.68	1.79	36.7
KRB-1 (1.63)	NA	NA	6.1	10.0	1.63	1.73	38.5

NA = Not analyzed

--- = This sample was not remolded

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1 (1.58) (Moderate)
Ring Number: NA
Depth: NA

	As Received	Remolded
Test Date:	NA	2-Apr-12
Field weight of sample* (g)*:*		989.70
Tare weight, ring (g)*:*		254.22
Tare weight, pan/plate (g)*:*		0.00
Tare weight, other (g)*:*		0.00
Dry weight of sample (g)*:*		688.76
Sample volume (cm^3)*:*		435.71
Assumed particle density (g/cm^3)*:*		2.65
Gravimetric Moisture Content (% g/g)*:*		6.8
Volumetric Moisture Content (% vol)*:*		10.7
Dry bulk density (g/cm^3)*:*		1.58
Wet bulk density (g/cm^3)*:*		1.69
Calculated Porosity (% vol)*:*		40.3
Percent Saturation:		26.6

Laboratory analysis by: D. O'Dowd
Data entered by: C. Krous
Checked by: J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1 (1.68) (Extra Firm)
Ring Number: NA
Depth: NA

	As Received	Remolded
Test Date:	NA	2-Apr-12
Field weight of sample* (g)*:*		1031.00
Tare weight, ring (g)*:*		254.77
Tare weight, pan/plate (g)*:*		0.00
Tare weight, other (g)*:*		0.00
Dry weight of sample (g)*:*		727.75
Sample volume (cm^3)*:*		434.15
Assumed particle density (g/cm^3)*:*		2.65
Gravimetric Moisture Content (% g/g)*:*		6.7
Volumetric Moisture Content (% vol)*:*		11.2
Dry bulk density (g/cm^3)*:*		1.68
Wet bulk density (g/cm^3)*:*		1.79
Calculated Porosity (% vol)*:*		36.7
Percent Saturation:		30.4

Laboratory analysis by: D. O'Dowd
Data entered by: C. Krous
Checked by: J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1 (1.63)
Ring Number: NA
Depth: NA

	As Received	Remolded
Test Date:	NA	12-Apr-12
Field weight of sample* (g)*:*		749.84
Tare weight, ring (g)*:*		257.41
Tare weight, pan/plate (g)*:*		0.00
Tare weight, other (g)*:*		0.00
Dry weight of sample (g)*:*		463.97
Sample volume (cm^3)*:*		284.77
Assumed particle density (g/cm^3)*:*		2.65

Gravimetric Moisture Content (% g/g)*:*	6.1
Volumetric Moisture Content (% vol)*:*	10.0
Dry bulk density (g/cm^3)*:*	1.63
Wet bulk density (g/cm^3)*:*	1.73
Calculated Porosity (% vol)*:*	38.5
Percent Saturation:	25.9

Laboratory analysis by: D. O'Dowd
Data entered by: C. Sessa
Checked by: J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Saturated Hydraulic Conductivity

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	Oversize Corrected K_{sat} (cm/sec)	Method of Analysis	
			Constant Head	Falling Head
KRB-1 (1.58) (Moderate)	2.6E-02	---	X	
KRB-1 (1.68) (Extra Firm)	1.6E-02	---	X	
KRB-1 (1.63)	3.4E-02	---	X	

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Saturated Hydraulic Conductivity
Constant Head Method

Job name: Ecology and Environment, Inc.
Job number: LB12.0068.00
Sample number: KRB-1 (1.58) (Moderate)
Ring Number: NA
Depth: NA

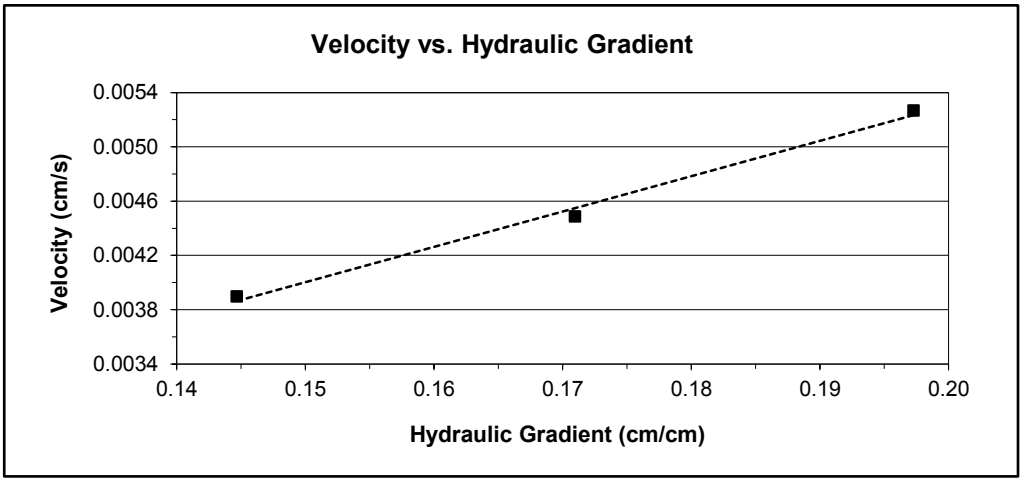
Type of water used: TAP
Collection vessel tare (g)*:* 10.98
Sample length (cm)*:* 7.60
Sample diameter (cm)*:* 8.54
Sample x-sectional area (cm^2)*:* 57.31

Date	Time	Temp (°C)	Head (cm)	Q + Tare (g)	Q (cm^3)	Elapsed time (sec)	Ksat (cm/sec)	Ksat @ 20°C (cm/sec)
Test # 1:								
3-Apr-12	10:17:10	21.0	1.5	23.05	12.1	40	2.7E-02	2.6E-02
3-Apr-12	10:17:50							
Test # 2:								
3-Apr-12	10:31:00	21.0	1.3	21.26	10.3	40	2.6E-02	2.6E-02
3-Apr-12	10:31:40							
Test # 3:								
3-Apr-12	10:53:20	21.0	1.1	19.91	8.9	40	2.7E-02	2.6E-02
3-Apr-12	10:54:00							

Average Ksat* (cm/sec)*: **2.6E-02**
Oversize Corrected Ksat* (cm/sec)*: **---**

Comments:

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass



Laboratory analysis by: K.Wright
Data entered by: K.Wright
Checked by: J. Hines

Saturated Hydraulic Conductivity
Constant Head Method

Job name: Ecology and Environment, Inc.
Job number: LB12.0068.00
Sample number: KRB-1 (1.68) (Extra Firm)
Ring Number: NA
Depth: NA

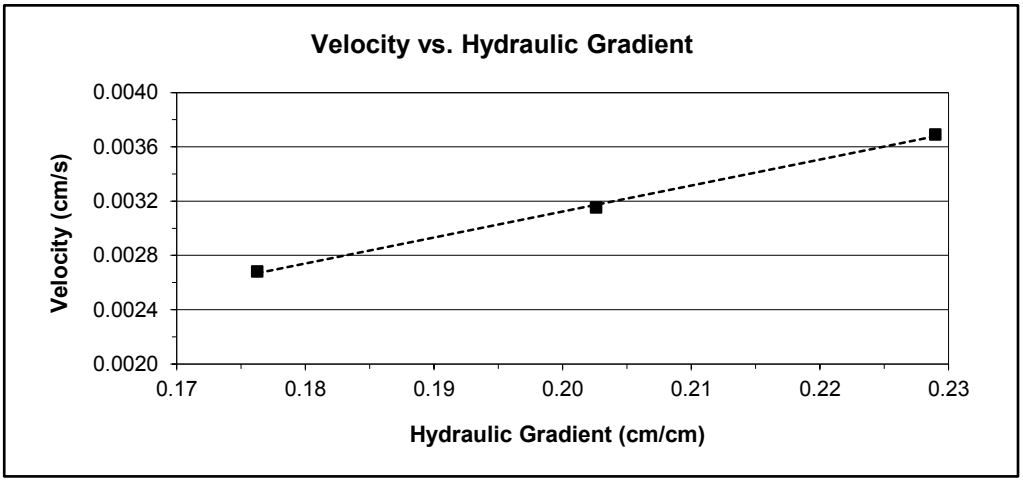
Type of water used: TAP
Collection vessel tare (g)*:* 10.93
Sample length (cm)*:* 7.59
Sample diameter (cm)*:* 8.53
Sample x-sectional area (cm^2)*:* 57.20

Date	Time	Temp (°C)	Head (cm)	Q + Tare (g)	Q (cm^3)	Elapsed time (sec)	Ksat (cm/sec)	Ksat @ 20°C (cm/sec)
Test # 1:								
3-Apr-12	10:18:40	21.0	1.7	19.37	8.4	40	1.6E-02	1.6E-02
3-Apr-12	10:19:20							
Test # 2:								
3-Apr-12	10:32:20	21.0	1.5	18.14	7.2	40	1.6E-02	1.6E-02
3-Apr-12	10:33:00							
Test # 3:								
3-Apr-12	10:55:00	21.0	1.3	17.06	6.1	40	1.6E-02	1.5E-02
3-Apr-12	10:55:40							

Average Ksat* (cm/sec)*: **1.6E-02**
Oversize Corrected Ksat* (cm/sec)*: **---**

Comments:

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass



Laboratory analysis by: K.Wright
Data entered by: K.Wright
Checked by: J. Hines

Saturated Hydraulic Conductivity
Constant Head Method

Job name: Ecology and Environment, Inc.
Job number: LB12.0068.00
Sample number: KRB-1 (1.63)
Ring Number: NA
Depth: NA

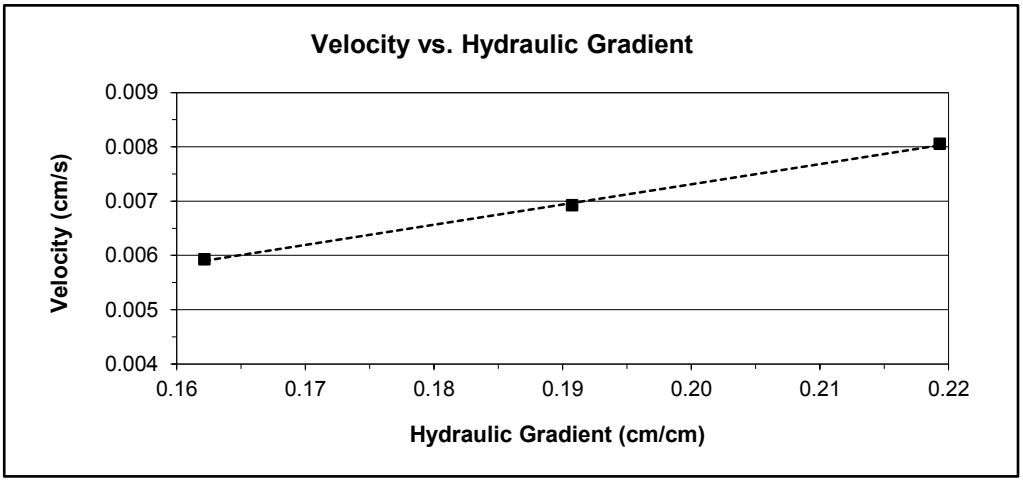
Type of water used: TAP
Collection vessel tare (g)*:* 4.87
Sample length (cm)*:* 7.00
Sample diameter (cm)*:* 7.20
Sample x-sectional area (cm^2)*:* 40.69

Date	Time	Temp (°C)	Head (cm)	Q + Tare (g)	Q (cm^3)	Elapsed time (sec)	Ksat (cm/sec)	Ksat @ 20°C (cm/sec)
Test # 1:								
16-Apr-12	10:12:30	21.0	1.5	23.31	18.4	60	3.5E-02	3.4E-02
16-Apr-12	10:13:30							
Test # 2:								
16-Apr-12	12:22:30	21.0	1.3	20.54	15.7	60	3.5E-02	3.4E-02
16-Apr-12	12:23:30							
Test # 3:								
16-Apr-12	13:23:30	21.0	1.1	18.11	13.2	60	3.4E-02	3.4E-02
16-Apr-12	13:24:30							

Average Ksat* (cm/sec)*: **3.4E-02**
Oversize Corrected Ksat* (cm/sec)*: **---**

Comments:

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass



Laboratory analysis by: K.Wright
Data entered by: K.Wright
Checked by: J. Hines

Moisture Retention Characteristics

Summary of Moisture Characteristics of the Initial Drainage Curve

Sample Number	Pressure Head (-cm water)	Moisture Content (%, cm^3/cm^3)
KRB-1 (1.63)	0	38.5
	4	37.0
	10	36.3
	48	9.9
	198	8.0
	4487	4.6
	12748	3.9
	112178	2.3
	855592	1.6

‡‡ Volume adjustments are applicable at this matric potential (see data sheet for this sample).

Summary of Calculated Unsaturated Hydraulic Properties

Sample Number	α (cm^{-1})	N (dimensionless)	θ_r (% vol)	θ_s (% vol)	Oversize Corrected θ_r (% vol)	Oversize Corrected θ_s (% vol)
KRB-1 (1.63)	0.0486	2.8725	3.87	38.13	---	---

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NR = Not requested

NA = Not applicable

Moisture Retention Data

Hanging Column / Pressure Plate

(Soil-Water Characteristic Curve)

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1 (1.63)
Ring Number: NA
Depth: NA

Dry wt. of sample (g)*:* 463.97
Tare wt., ring (g)*:* 257.41
Tare wt., screen & clamp (g)*:* 29.33
Initial sample volume (cm^3)*:* 284.77
Initial dry bulk density (g/cm^3)*:* 1.63
Assumed particle density (g/cm^3)*:* 2.65
Initial calculated total porosity (%)*:* 38.52

	Date	Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content † (% vol)
Hanging column:	17-Apr-12	9:00	860.32	0	38.49
	24-Apr-12	8:40	856.09	4.0	37.01
	1-May-12	8:10	853.96	10.0	36.26
	8-May-12	8:50	778.83	48.0	9.87
	15-May-12	8:30	773.40	198.0	7.97

Volume Adjusted Data [1]

	Matric Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calculated Porosity (%)
Hanging column:	0.0	---	---	---	---
	4.0	---	---	---	---
	10.0	---	---	---	---
	48.0	---	---	---	---
	198.0	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent each of the volume change measurements obtained after saturated hydraulic conductivity testing and throughout hanging column/pressure plate testing. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

† Assumed density of water is 1.0 g/cm^3

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Technician Notes:

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Moisture Retention Data

Dew Point Potentiometer / Relative Humidity Box

(Soil-Water Characteristic Curve)

Sample Number: KRB-1 (1.63)

Initial sample bulk density (g/cm^3)*:* 1.63
Fraction of test sample used (<2.00mm fraction) (%): 80.05

Dry weight of dew point potentiometer sample* (g)*:* 236.21
Tare weight, jar (g)*:* 117.18

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Dew point potentiometer:	25-Apr-12	13:40	240.37	4487	4.56
	25-Apr-12	9:40	239.79	12748	3.92
	24-Apr-12	14:50	238.35	112178	2.34

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Dew point potentiometer:	4487	---	---	---	---
	12748	---	---	---	---
	112178	---	---	---	---

Dry weight of relative humidity box sample* (g)*:* 90.11
Tare weight (g)*:* 38.03

	Date	Time	Weight* (g)	Water Potential (-cm water)	Moisture Content † (% vol)
Relative humidity box:	24-Apr-12	8:30	90.75	855592	1.59

Volume Adjusted Data [1]

	Water Potential (-cm water)	Adjusted Volume (cm^3)	% Volume Change [2] (%)	Adjusted Density (g/cm^3)	Adjusted Calc. Porosity (%)
Relative humidity box:	855592	---	---	---	---

Comments:

[1] Applicable if the sample experienced volume changes during testing. 'Volume Adjusted' values represent the volume change measurements obtained after the last hanging column or pressure plate point. "---" indicates no volume changes occurred.

[2] Represents percent volume change from original sample volume. A '+' denotes measured sample swelling, a '-' denotes measured sample settling, and '---' denotes no volume change occurred.

* Weight including tares

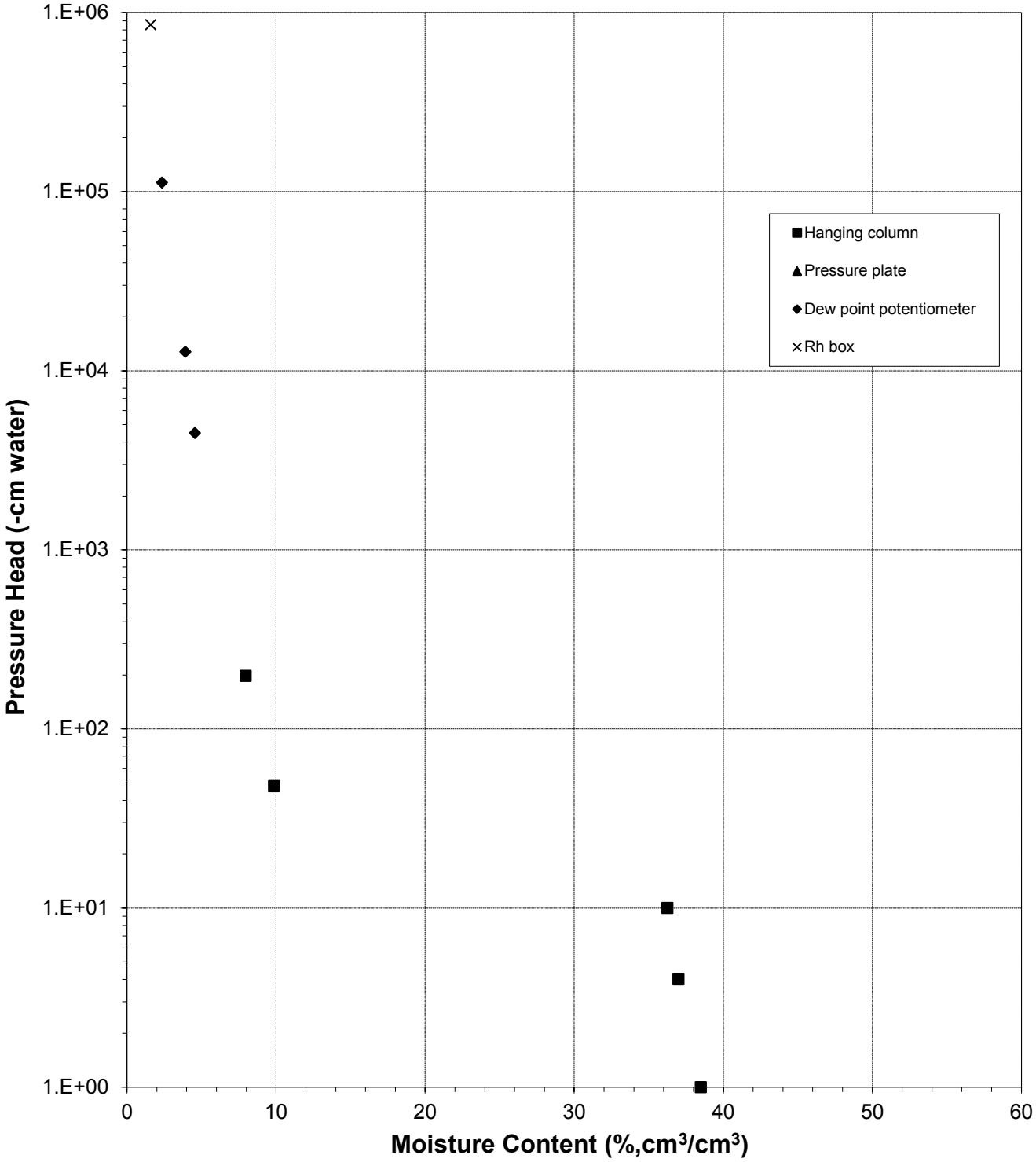
† Adjusted for >2.00mm (#10 sieve) material not used in DPP/RH testing. Assumed moisture content of material >2.00mm is zero, and assumed density of water is 1.0 g/cm^3.

‡‡ Volume adjustments are applicable at this matric potential (see comment #1). Changes in volume, if applicable, are estimated based on obtainable measurements of changes in sample length and diameter.

Laboratory analysis by: D. O'Dowd/ K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

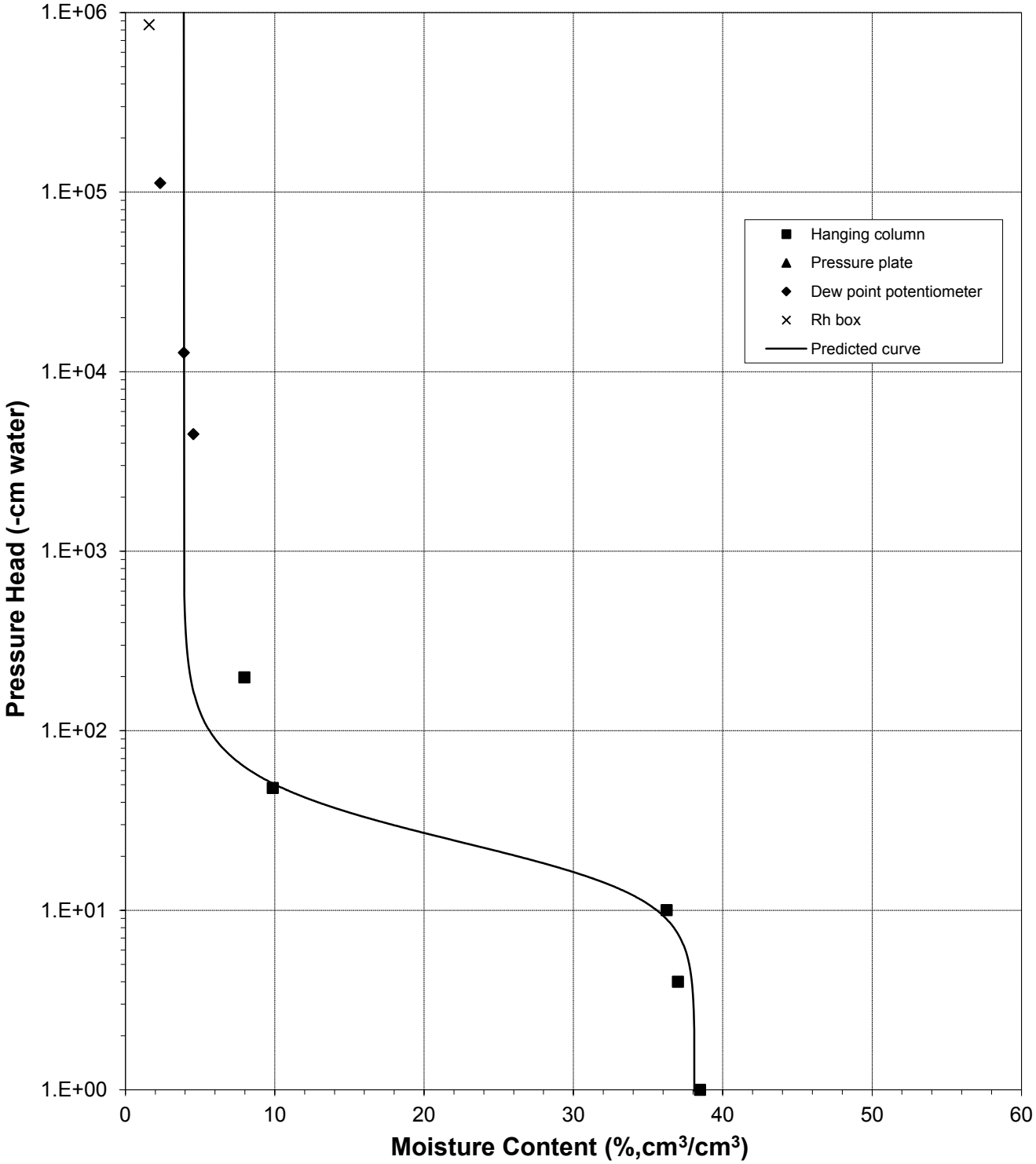
Water Retention Data Points

Sample Number: KRB-1 (1.63)



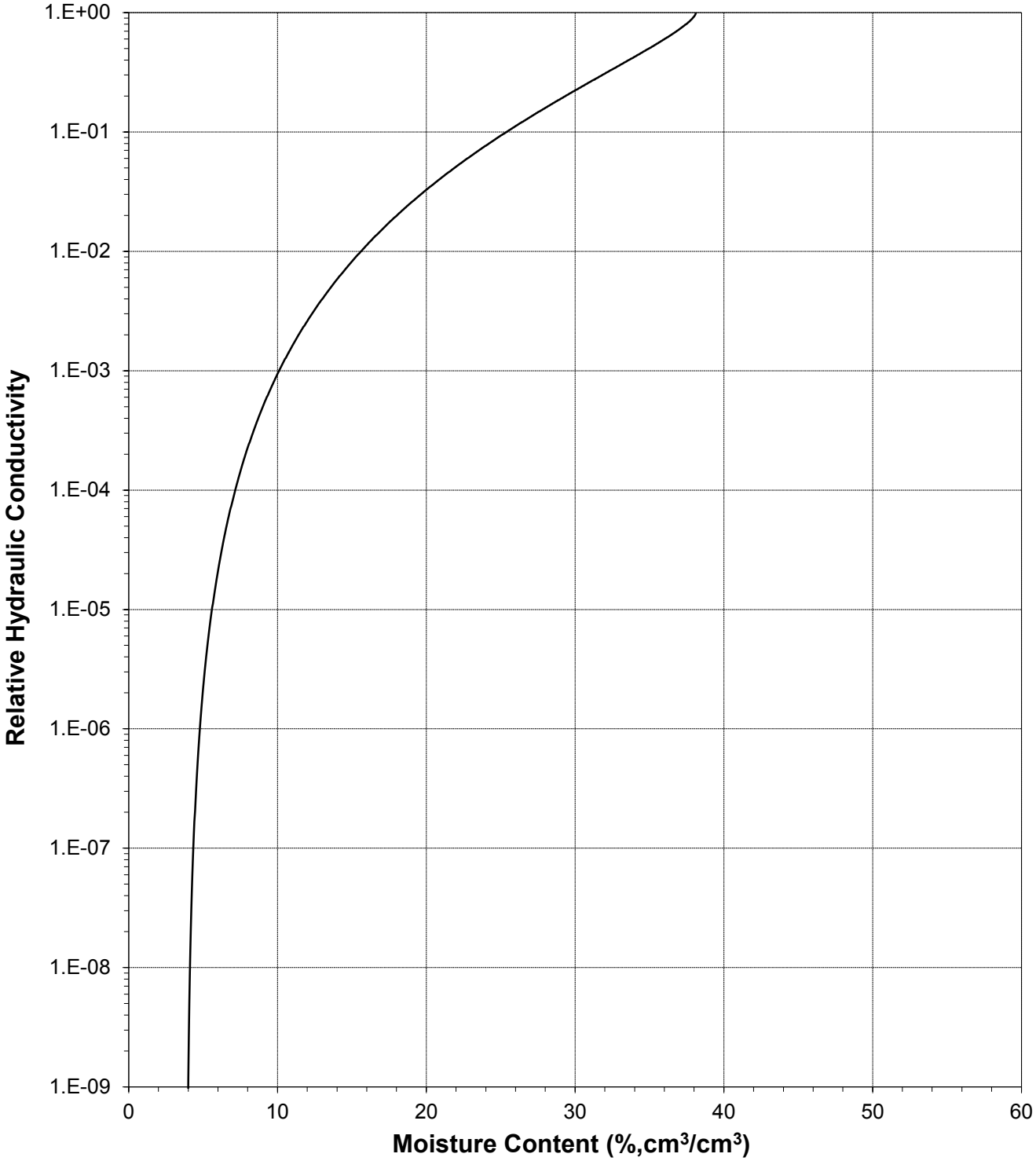
Predicted Water Retention Curve and Data Points

Sample Number: KRB-1 (1.63)



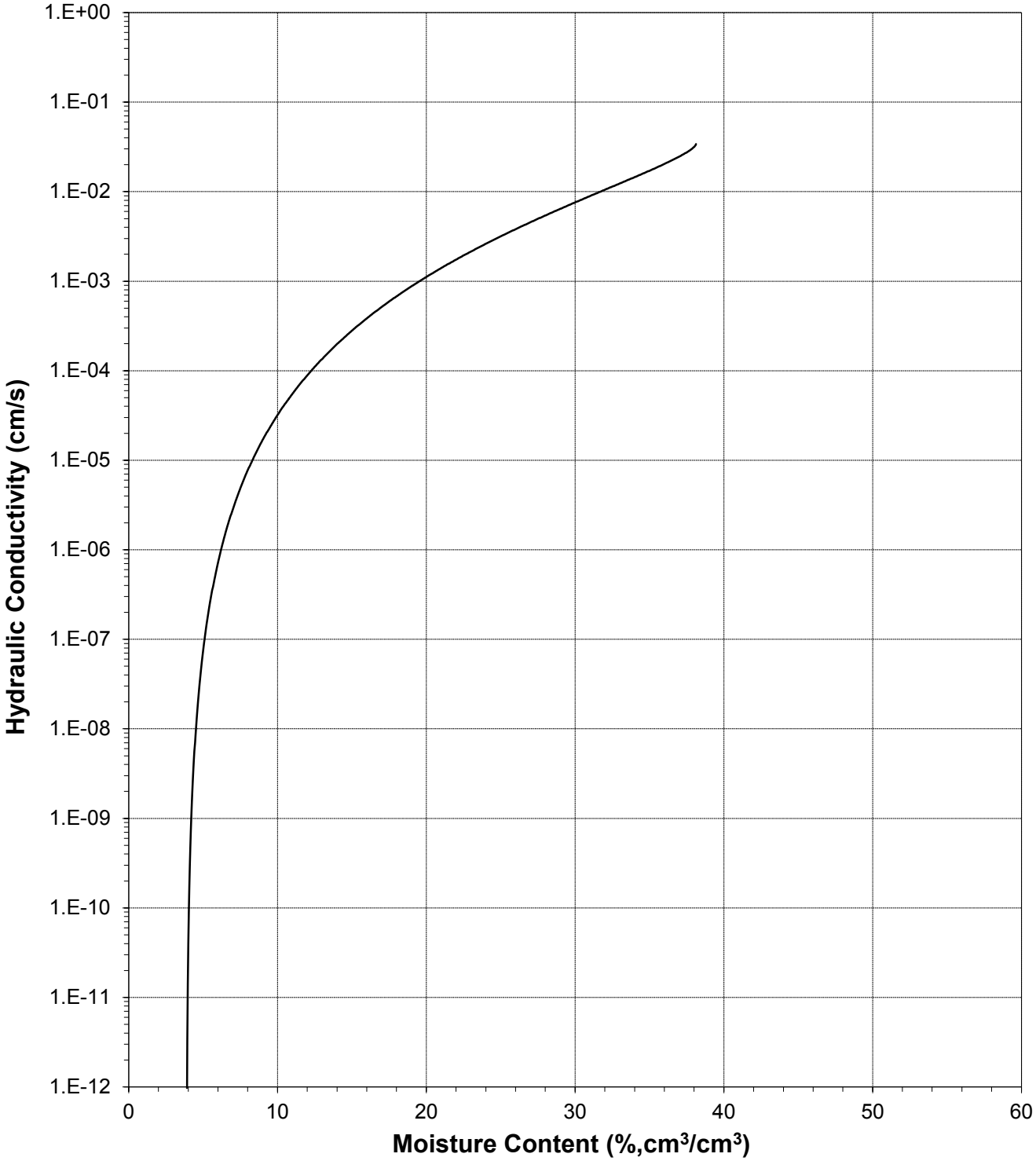
Plot of Relative Hydraulic Conductivity vs Moisture Content

Sample Number: KRB-1 (1.63)



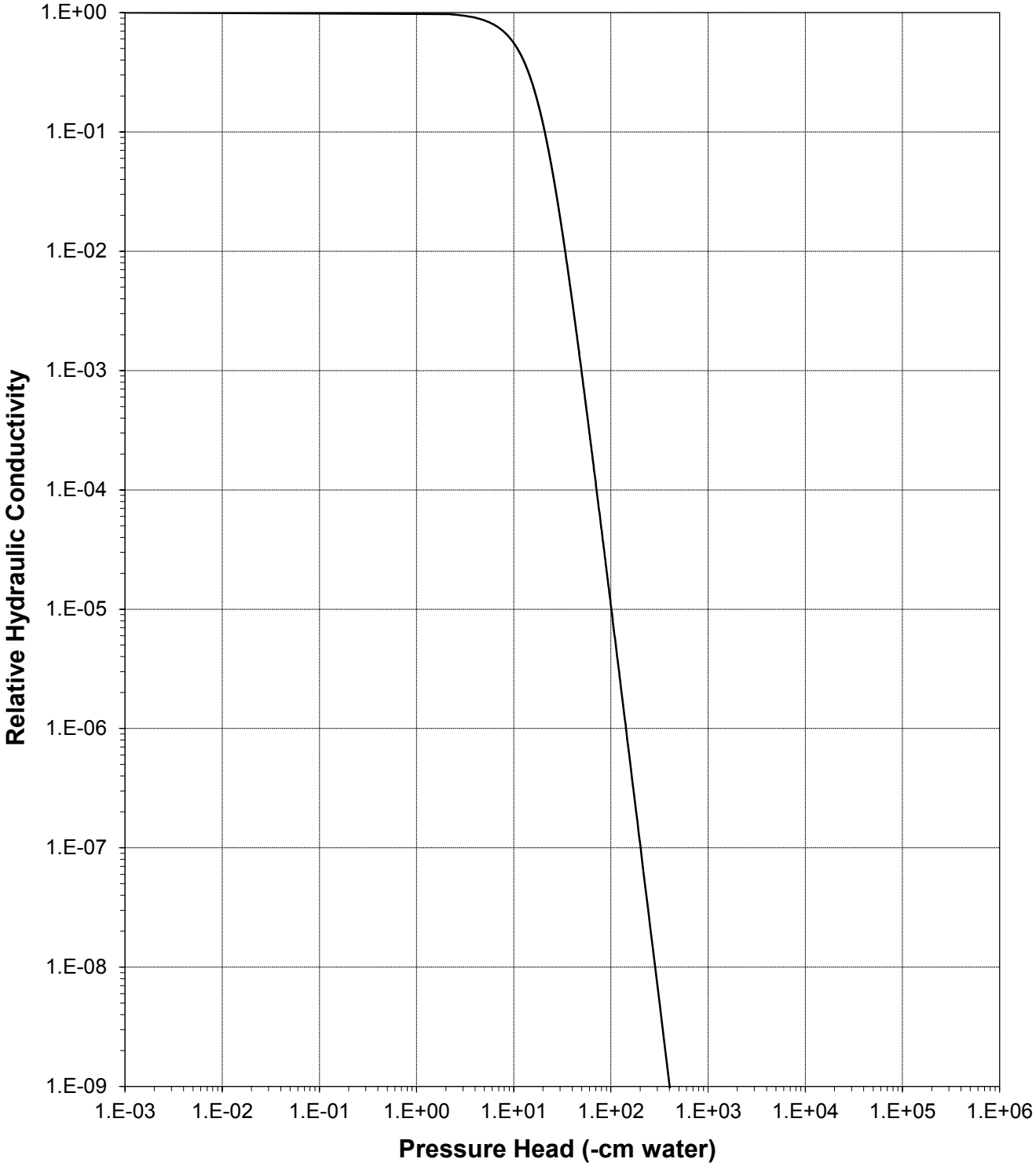
Plot of Hydraulic Conductivity vs Moisture Content

Sample Number: KRB-1 (1.63)



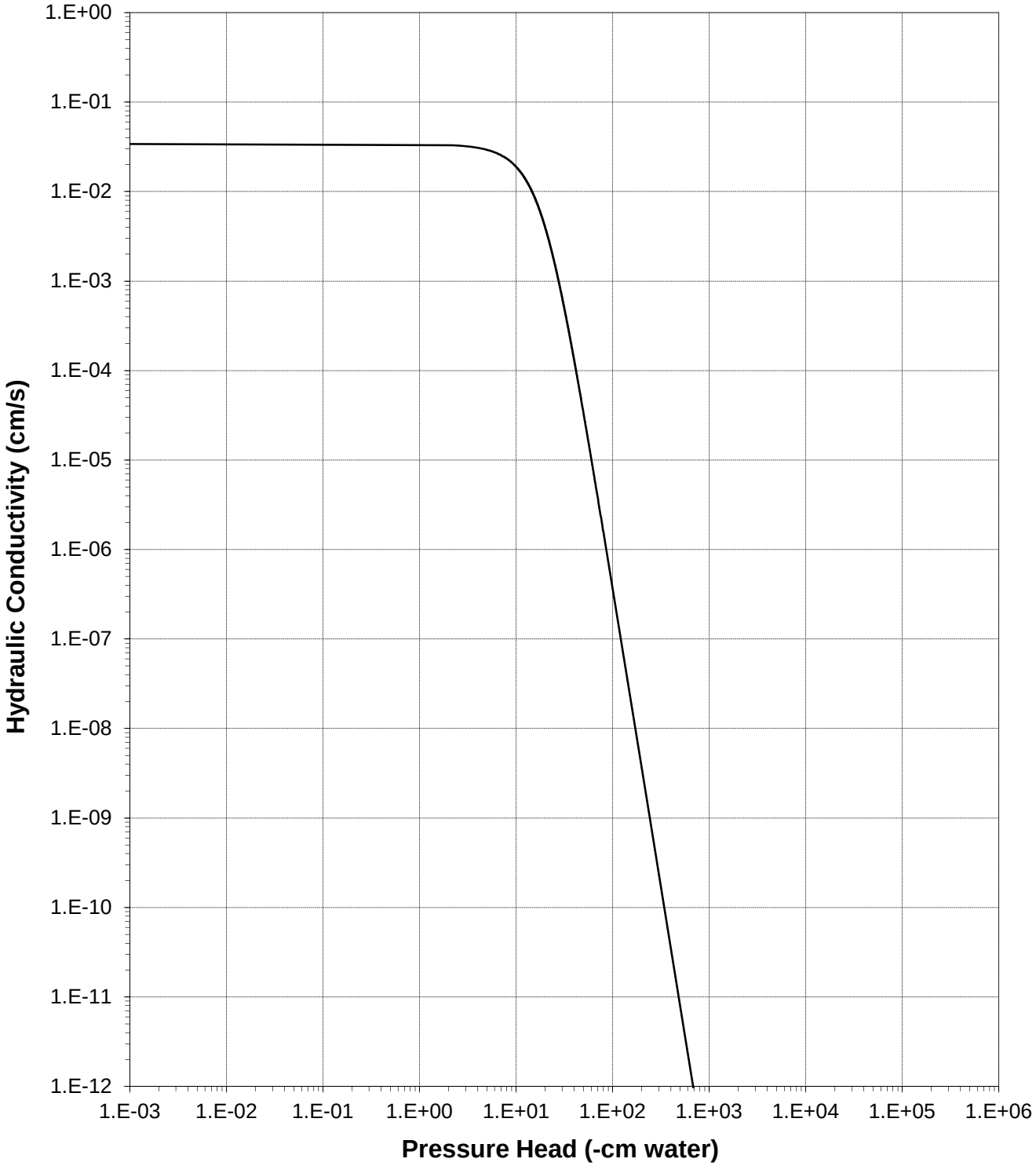
Plot of Relative Hydraulic Conductivity vs Pressure Head

Sample Number: KRB-1 (1.63)



Plot of Hydraulic Conductivity vs Pressure Head

Sample Number: KRB-1 (1.63)



Particle Size Analysis

Summary of Particle Size Characteristics

Sample Number	d_{10} (mm)	d_{50} (mm)	d_{60} (mm)	C_u	C_c	Method	ASTM Classification	USDA Classification
KRB-1	0.26	0.94	1.2	4.6	0.93	WS/H	Poorly-graded sand (SP)	Sand †

d_{50} = Median particle diameter

Est = Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

† Greater than 10% of sample is coarse material

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
KRB-1	7.2	89.4	2.4	1.0

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1
Ring Number: NA
Depth: NA
Test Date: 6-Apr-12

Initial Dry Weight of Sample (g): 2092.20
Weight Passing #10 (g): 1610.37
Weight Retained #10 (g): 481.83
Weight of Hydrometer Sample (g): 77.20
Calculated Weight of Sieve Sample (g): 100.30

Shape: Angular
Hardness: Weathered and friable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	2092.20	100.00
	2"	50	0.00	0.00	2092.20	100.00
	1.5"	38.1	0.00	0.00	2092.20	100.00
	1"	25	31.65	31.65	2060.55	98.49
	3/4"	19.0	0.00	31.65	2060.55	98.49
	3/8"	9.5	48.76	80.41	2011.79	96.16
	4	4.75	69.56	149.97	1942.23	92.83
	10	2.00	331.86	481.83	1610.37	76.97
-10			(Based on calculated sieve wt.)			
	20	0.85	30.72	53.82	46.48	46.34
	40	0.425	25.20	79.02	21.28	21.22
	60	0.250	11.69	90.71	9.59	9.56
	140	0.106	5.79	96.50	3.80	3.79
	200	0.075	0.40	96.90	3.40	3.39
	dry pan		0.03	96.93	3.37	
	wet pan			3.37	0.00	

d_{10} (mm): 0.26
d_{16} (mm): 0.34
d_{30} (mm): 0.54
d_{50} (mm): 0.94
d_{60} (mm): 1.2
d_{84} (mm): 2.9

Median Particle Diameter --d_{50} (mm): 0.94
Uniformity Coefficient, Cu --[d_{60}/d_{10}] (mm): 4.6
Coefficient of Curvature, Cc --[$(d_{30})^2/(d_{10}*d_{60})$] (mm): 0.93
Mean Particle Diameter --[$(d_{16}+d_{50}+d_{84})/3$] (mm): 1.4

Classification of fines (visual method): ML

ASTM Soil Classification: Poorly-graded sand (SP)
USDA Soil Classification: Sand †

† Greater than 10% of sample is coarse material

Laboratory analysis by: K. Wright
Data entered by: J. Hines
Checked by: C. Krous

Particle Size Analysis
Hydrometer Data

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1
Ring Number: NA
Depth: NA
Test Date: 3-Apr-12
Start Time: 9:00

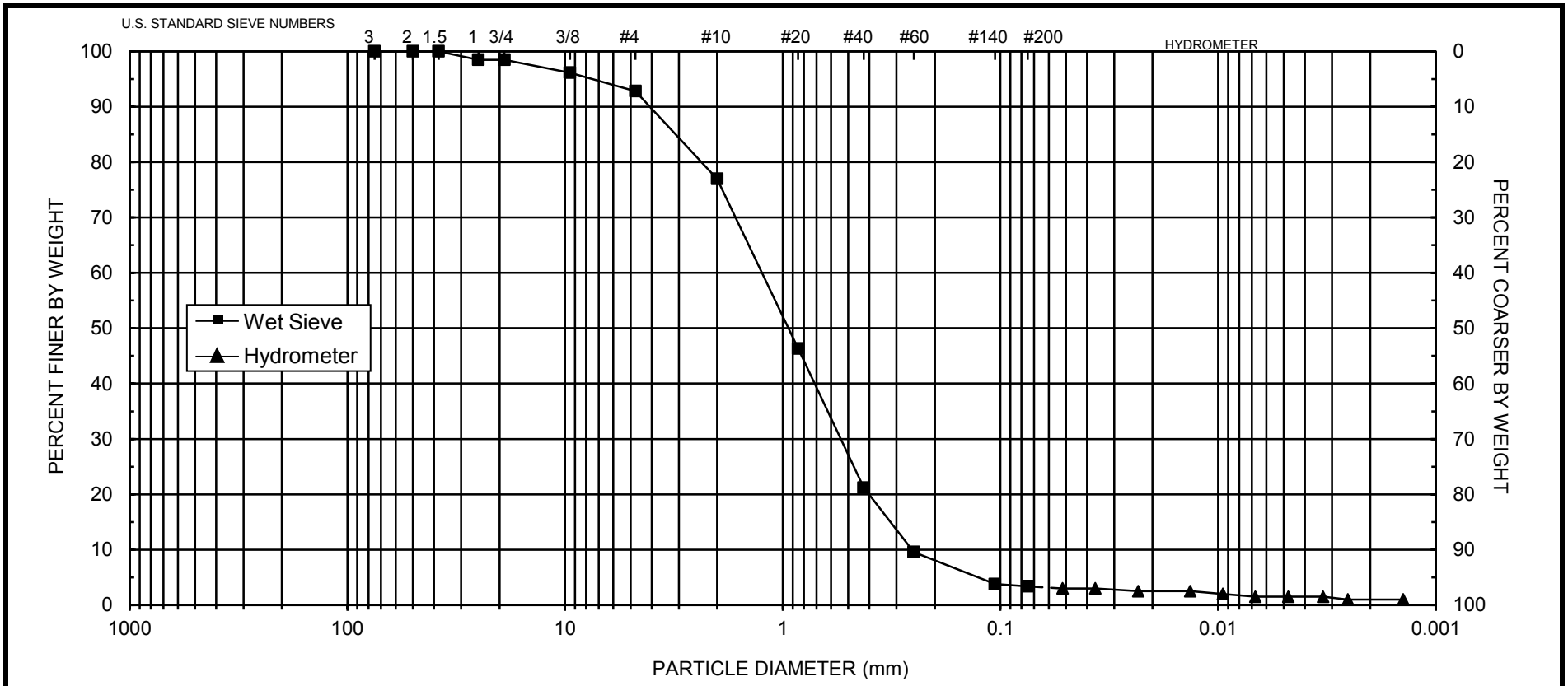
Type of Water Used: DISTILLED
Reaction with H_2O_2*:* NA
Dispersant:* $(NaPO_3)_6$
Assumed particle density: 2.65
Initial Wt. (g)*:* 77.20
Total Sample Wt. (g)*:* 2092.20
Wt. Passing #10 (g): 1610.37

Date	Time (min)	Temp (°C)	R (g/L)	R_L (g/L)	R_{corr} (g/L)	L (cm)	D (mm)	P (%)	% Finer
3-Apr-12	1	20.8	9.5	6.5	3.0	14.7	0.05179	3.9	3.0
	2	20.8	9.5	6.5	3.0	14.7	0.03662	3.9	3.0
	5	20.8	9.0	6.5	2.5	14.8	0.02323	3.2	2.5
	15	20.8	9.0	6.5	2.5	14.8	0.01341	3.2	2.5
	30	20.9	8.5	6.5	2.0	14.9	0.00950	2.6	2.0
	60	20.9	8.0	6.5	1.5	15.0	0.00673	1.9	1.5
	120	21.0	8.0	6.5	1.5	15.0	0.00476	1.9	1.5
	250	21.0	8.0	6.5	1.5	15.0	0.00330	1.9	1.5
	420	21.5	7.5	6.5	1.0	15.1	0.00253	1.3	1.0
4-Apr-12	1380	20.8	7.5	6.5	1.0	15.1	0.00141	1.3	1.0

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: K. Wright
Data entered by: J. Hines
Checked by: C. Krous



UNIFIED	COBBLES	GRAVEL		SAND			SILT OR CLAY
		Coarse	Fine	Coarse	Medium	Fine	
USDA	COBBLES	GRAVEL	SAND				SILT	CLAY
			Very coarse	Coarse	Medium	Fine	Very fine		

d_{10} = **0.26**	d_{30} = **0.54**	d_{50} = **0.94**	d_{60} = **1.2**	C_u = **4.6**	C_c = **0.93**

SAMPLE NUMBER	DEPTH	ASTM CLASSIFICATION	USDA CLASSIFICATION
KRB-1	**NA**	**Poorly-graded sand (SP)**	**Sand** †

† Greater than 10% of sample is coarse material

Atterberg Limits/ Identification of Fines

Summary of Atterberg Tests

Sample Number	Liquid Limit	Plastic Limit	Plasticity Index	Classification
KRB-1	---	---	---	ML

--- = Soil requires visual-manual classification due to non-plasticity

Atterberg Limits

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1
Ring Number: NA
Depth: NA

Test Date: 3-Apr-12

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:			
Pan number:			
Weight of pan plus moist soil (g):			
Weight of pan plus dry soil (g)			
Weight of pan (g):			
Gravimetric moisture content (% g/g):	---	---	---
Liquid Limit:	---		

Plastic Limit

	Trial 1	Trial 2
Pan number:		
Weight of pan plus moist soil (g):		
Weight of pan plus dry soil (g)		
Weight of pan (g):		
Gravimetric moisture content (% g/g):	---	---
Plastic Limit:	---	

Results

Percent of Sample Retained on #40 Sieve: See Sieve

Liquid Limit: ---
Plastic Limit: ---
Plasticity Index: ---

Classification (Visual Method): ML

Comments:

--- = Soil requires visual-manual classification due to non-plasticity
* = 1-point method requested by client

Laboratory analysis by: D. O'Dowd
Data entered by: C. Krous
Checked by: J. Hines

Data for Description and Identification of Fines
(Visual-Manual Procedure)

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1
Ring Number: NA
Depth: NA

Test Date: 3-Apr-12

Visual-manual classification of material passing the #40 sieve in lieu of Atterberg analysis due to non-plasticity:

Descriptive Information:

Color of Moist Sample: Dark Brown (10 YR 3/3)
Odor: None
Moisture Condition: Moist
HCl Reaction: None

Preliminary Identification:

Dry Strength: None
Dilatency: Rapid
Toughness: Low
Plasticity: Non-plastic

Identification of Inorganic Fine Grained Soils:

Silt (ML)

Laboratory analysis by: D. O'Dowd
Data entered by: C. Krous
Checked by: J. Hines

Percent Organic Matter

Summary of Percent Organic Matter

Sample Number	Organic Matter* (%, g/g)
KRB-1	0.54

*Correction for oversize material applied, if necessary

Data for Percent Organic Matter

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1
Ring Number: NA
Depth: NA

Test Date: 22-May-12

Fraction of bulk sample used (<3/8" fraction) (%)*:* 96.16

Tare weight, pan (g)*:* 82.59
Oven Dry (105°C) weight of sample* (g)*:* 203.45

Muffle Furnace Dry (440°C) weight of sample* (g)*:* 202.77

Organic Matter of <3/8" fraction (%, g/g)*:* 0.56
***Organic Matter of Bulk Sample* (%, g/g)*:* 0.54**

Comments:

* Weight including tares

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Laboratory Tests and Methods

Tests and Methods

Dry Bulk Density:	ASTM D7263
Moisture Content:	ASTM D7263
Calculated Porosity:	ASTM D7263
Saturated Hydraulic Conductivity:	
Constant Head: (Rigid Wall)	ASTM D 2434 (modified apparatus)
Hanging Column Method:	ASTM D6836 (modified apparatus)
Pressure Plate Method:	ASTM D6836 (modified apparatus)
Water Potential (Dewpoint Potentiometer) Method:	ASTM D6836
Relative Humidity (Box) Method:	Campbell, G. and G. Gee. 1986. Water Potential: Miscellaneous Methods. Chp. 25, pp. 631-632, in A. Klute (ed.), Methods of Soil Analysis. Part 1. American Society of Agronomy, Madison, WI; Karathanasis & Hajek. 1982. Quantitative Evaluation of Water Adsorption on Soil Clays. SSA Journal 46:1321-1325
Moisture Retention Characteristics & Calculated Unsaturated Hydraulic Conductivity:	ASTM D6836; van Genuchten, M.T. 1980. A closed-form equation for predicting the hydraulic conductivity of unsaturated soils. SSSAJ 44:892-898; van Genuchten, M.T., F.J. Leij, and S.R. Yates. 1991. The RETC code for quantifying the hydraulic functions of unsaturated soils. Robert S. Kerr Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Ada, Oklahoma. EPA/600/2091/065. December 1991
Particle Size Analysis:	ASTM D422
USCS (ASTM) Classification:	ASTM D422, ASTM D2487
USDA Classification:	ASTM D422, USDA Soil Textural Triangle
Atterberg Limits:	ASTM D4318
Visual-Manual Description:	ASTM D2488
Percent Organic Matter:	ASTM D2974

SPEEDIE AND ASSOCIATES
Geotechnical ▪ Environmental ▪ Materials Engineers
3125 E. 47TH STREET ▪ TUCSON, ARIZONA 85713

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Environmental Quality Management, Inc.
ATTN: Laurie Telin
18939 120th Ave. NE, 103
Bothell, AWA 98011

Project No. 131408TT
Lab No. 403305
Field No. 1
Report Date: 10-15-2013

Project: Klondyke Mine Site
Location: Klondyke, AZ
Material: Cap Clay — Sampled By: WJS — Date: 10-10-2013
Source: Native — Submitted By: DWH — Date: 10-11-2013
Supplier: n/a — Authorized By: Client — Date: 10-10-2013
Sample Location: UTP

SIEVE ANALYSIS - ASTM C 136 & D 1140 or D 6913

SIEVE SIZE in/mm	CUMULATIVE % PASSING	ASTM D 422
6" / 150	100	
3" / 75	100	
2½" / 62.5	100	
2" / 50	100	
1½" / 37.5	100	
1" / 25	100	
3/4" / 19	100	
½" / 12.5	99	
3/8" / 9.5	97	
1/4" / 6.3	94	
#4 / 4.75	91	
#8 / 2.36	83	
#10 / 2.00	80	
#16 / 1.18	74	
#30 / .600	66	
#40 / .425	63	
#50 / .300	59	
#100 / .150	52	
#200 / .075	42.6	

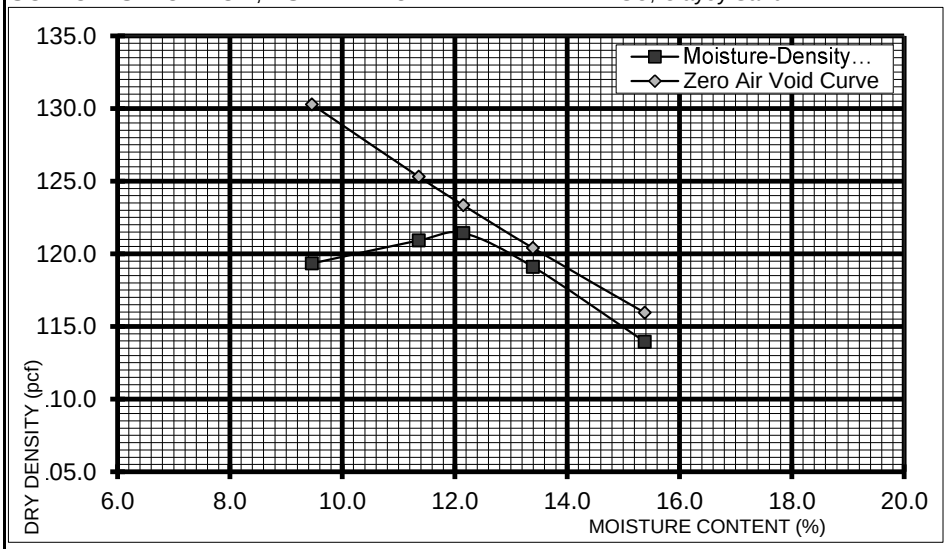
Comments: NT denotes material not tested for this property.

* denotes material out of specification.

% Gravel	9
% Sand	48
% Silt/clay	43

ADDITIONAL TESTING

PHYSICAL PROPERTIES	TEST RESULTS	TARGET/ SPECIFICATION
MOISTURE CONTENT OF AGGREGATE, ASTM C 566		
Percent Moisture by Wt of Dry Aggr.	8.0	
LABORATORY TEST FOR MOISTURE(microwave method)	8.4%	
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	26	
Plastic Limit	15	
Plasticity Index	11	
SOIL CLASIFICATION, ASTM D 2487	SC, Clayey Sand	



MAX DRY DENSITY (PCF) = 121.4
OPT MOISTURE CONT (%) = 12.4

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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Laboratory Manager

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Geotechnical ▪ Environmental ▪ Materials Engineers
3125 E. 47TH STREET ▪ TUCSON, ARIZONA 85713

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Environmental Quality Management, Inc.
ATTN: Laurie Telin
18939 120th Ave. NE, 103
Bothell, AWA 98011

Project No. 131408TT
Lab No. 403306
Field No. 2
Report Date: 10-15-2013

Project: Klondyke Mine Site
Location: Klondyke, AZ
Material: Clay — Sampled By: WJS — Date: 10-10-2013
Source: Native — Submitted By: DWH — Date: 10-11-2013
Supplier: n/a — Authorized By: Client — Date: 10-10-2013
Sample Location: Area D

SIEVE ANALYSIS - ASTM C 136 & D 1140 or D 6913

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6" / 150	100	
3" / 75	100	
2½" / 62.5	100	
2" / 50	100	
1½" / 37.5	100	
1" / 25	100	
3/4" / 19	99	
½" / 12.5	98	
3/8" / 9.5	97	
1/4" / 6.3	97	
#4 / 4.75	96	
#8 / 2.36	95	
#10 / 2.00	94	
#16 / 1.18	93	
#30 / .600	91	
#40 / .425	90	
#50 / .300	88	
#100 / .150	86	
#200 / .075	83.0	

Comments: NT denotes material not tested for this property.

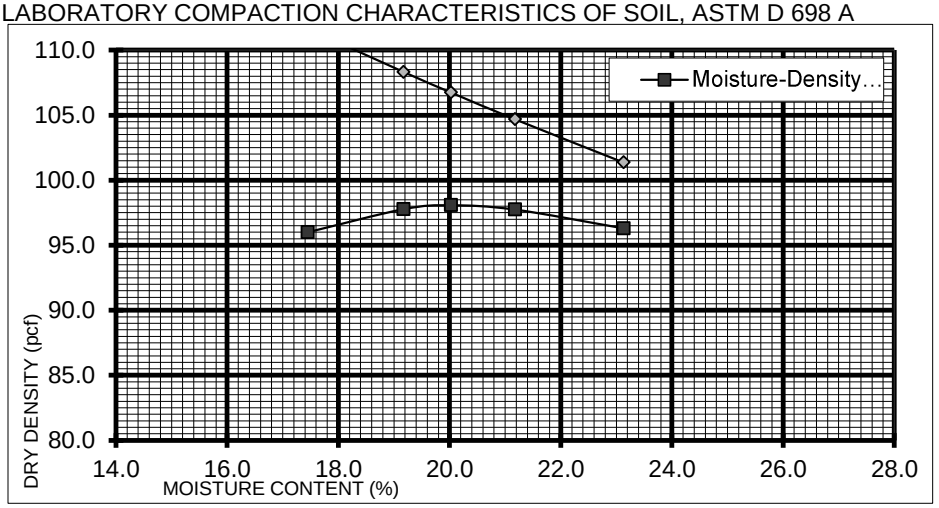
* denotes material out of specification.

% Gravel	4
% Sand	13
% Silt/clay	83

ADDITIONAL TESTING

PHYSICAL PROPERTIES	TEST RESULTS	TARGET/ SPECIFICATION
MOISTURE CONTENT OF AGGREGATE, ASTM C 566		
Percent Moisture by Wt of Dry Aggr.	12.0	
LABORATORY TEST FOR MOISTURE(microwave method)	12.9%	
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	41	
Plastic Limit	21	
Plasticity Index	20	
SOIL CLASIFICATION, ASTM D 2487	CL, Lean Clay	

LABORATORY COMPACTION CHARACTERISTICS OF SOIL, ASTM D 698 A



MAX DRY DENSITY (PCF) = 98.1
OPT MOISTURE CONT (%) = 20.0

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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3125 E. 47TH STREET ▪ TUCSON, ARIZONA 85713

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Environmental Quality Management, Inc.
ATTN: Laurie Telin
18939 120th Ave. NE, 103
Bothell, AWA 98011

Project No. 131408TT
Lab No. 403829
Field No. 3
Report Date: 10-22-2013

Project: Klondyke Mine Site
Location: Klondyke, AZ
Material: Soil — Sampled By: Client — Date: 10-20-2013
Source: Native — Submitted By: DWH — Date: 10-21-2013
Supplier: n/a — Authorized By: Client — Date: 10-20-2013
Sample Location: 2:3 Blend #1

SIEVE ANALYSIS - ASTM C 136 & D 1140 or D 6913

SIEVE SIZE in/mm	CUMULATIVE % PASSING	ASTM D 422
6" / 150	100	
3" / 75	100	
2½" / 62.5	100	
2" / 50	100	
1½" / 37.5	100	
1" / 25	97	
3/4" / 19	94	
½" / 12.5	87	
3/8" / 9.5	83	
1/4" / 6.3	76	
#4 / 4.75	71	
#8 / 2.36	61	
#10 / 2.00	58	
#16 / 1.18	49	
#30 / .600	39	
#40 / .425	35	
#50 / .300	31	
#100 / .150	28	
#200 / .075	25.0	

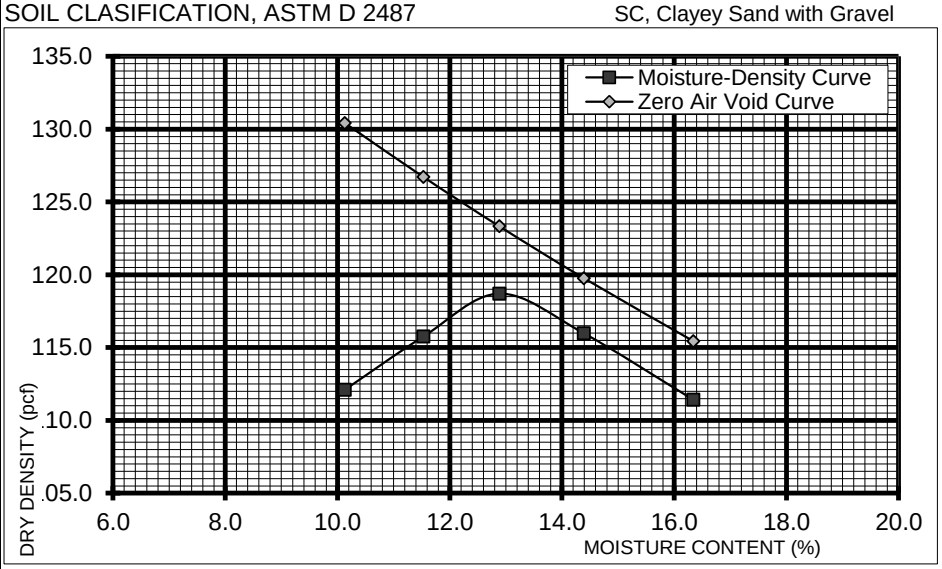
Comments: NT denotes material not tested for this property.

* denotes material out of specification.

% Gravel	29
% Sand	46
% Silt/clay	25

ADDITIONAL TESTING

PHYSICAL PROPERTIES	TEST RESULTS	TARGET/ SPECIFICATION
MOISTURE CONTENT OF AGGREGATE, ASTM C 566		
Percent Moisture by Wt of Dry Aggr.	8.0	
LABORATORY TEST FOR MOISTURE(microwave method)	8.2%	
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	32	
Plastic Limit	19	
Plasticity Index	13	
SOIL CLASIFICATION, ASTM D 2487	SC, Clayey Sand with Gravel	



MAX DRY DENSITY (PCF) = 118.7 — MDD PLUS 4 CORRECTED= 125.0
OPT MOISTURE CONT (%) = 12.9 — OM PLUS 4 CORRECTED= 9.4

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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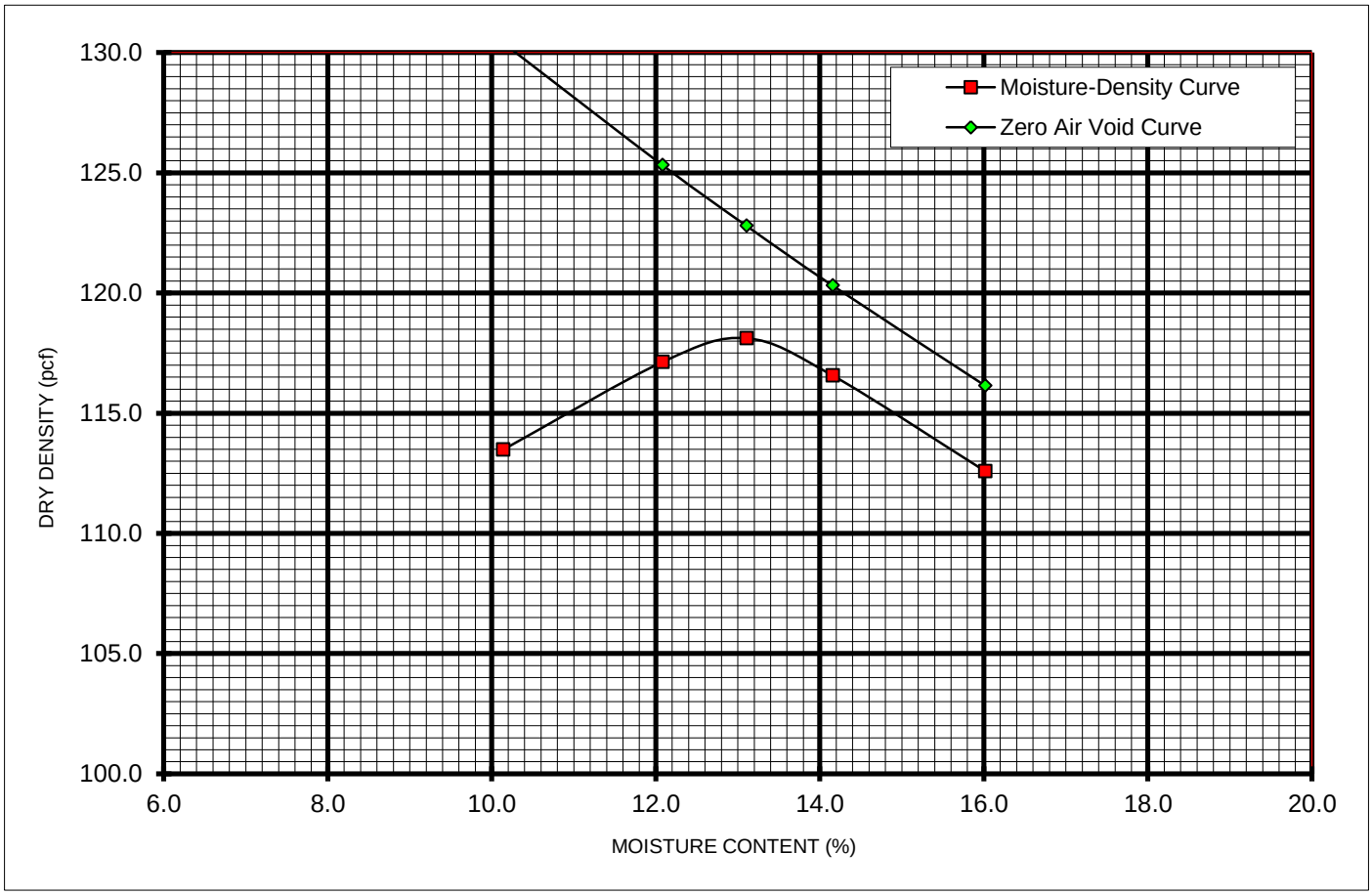
Geotechnical ▪ Environmental ▪ Materials Engineers
3125 E. 47TH STREET ▪ TUCSON, ARIZONA 85713

OPTIMUM MOISTURE - MAXIMUM DENSITY DETERMINATION

CLIENT:	Environmental Quality Management, Inc.	JOB NO:	131408TT
PROJECT:	Klondyke Mine Site	REPORT DATE:	10-22-2013
LOCATION:	Klondyke, AZ	TEST DATE:	10-21-2013
TESTED BY:	S&A	SAMPLED BY:	Client
MATERIAL:	Soil	REVIEWED BY:	DWH
SOURCE OF SAMPLE:	Native SUPPLIER: n/a	TEST DESIGNATION:	ASTM D 698 A
SAMPLE LOCATION:	2:3 Blend #2	%PLUS #4 MATERIAL:	32.0
	PROCTOR I.D.: 403830	PLUS #4 SP.G.	2.50

MAXIMUM DRY DENSITY (PCF) =	118.1	MDD PLUS #4 CORRECTED=	125.2
OPTIMUM MOISTURE CONTENT (%) =	13.1	OM PLUS #4 CORRECTED=	9.2



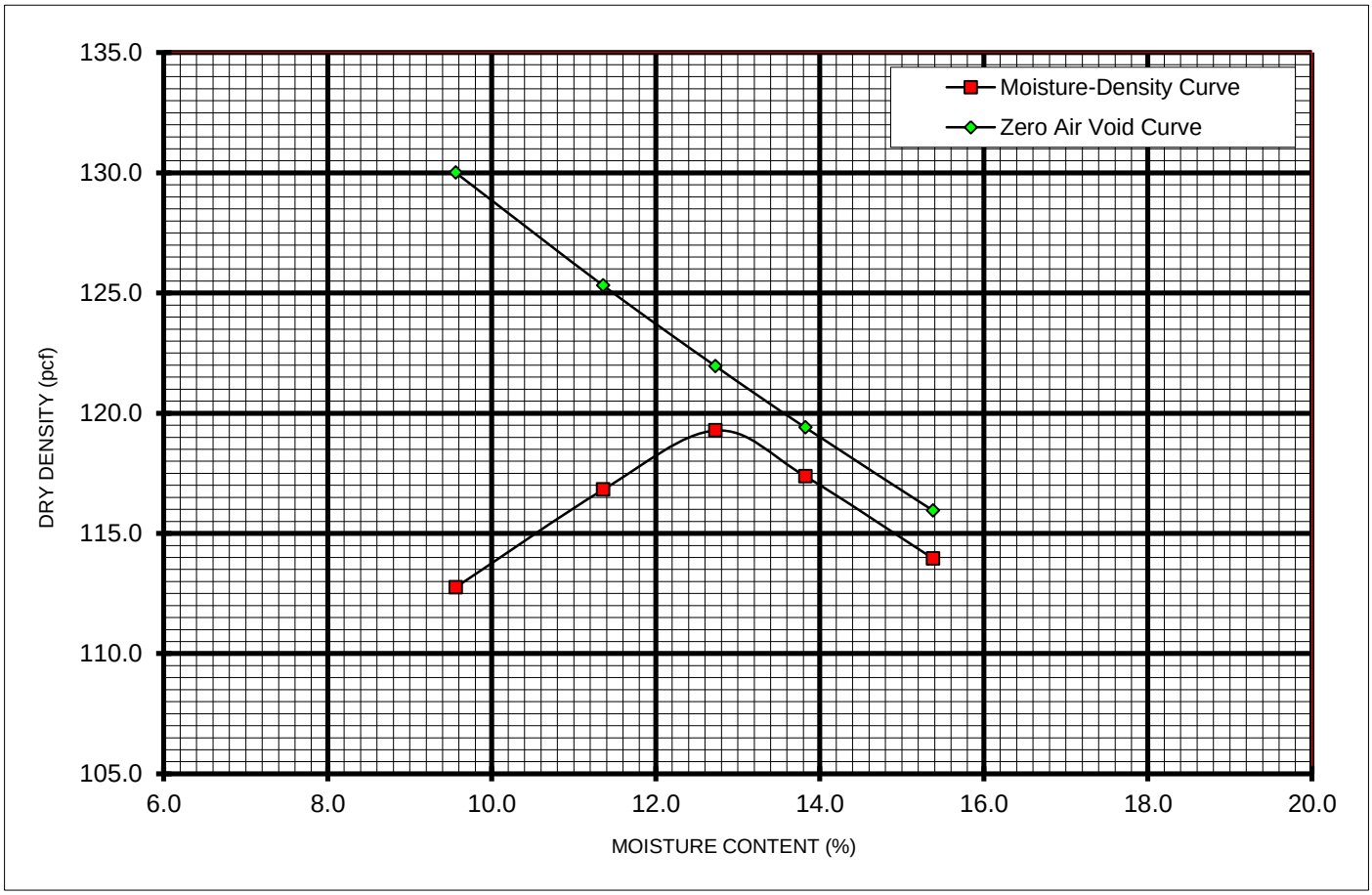
Reviewed by
Laboratory Manager

SPEEDIE AND ASSOCIATES
Geotechnical ▪ Environmental ▪ Materials Engineers
3125 E. 47TH STREET ▪ TUCSON, ARIZONA 85713

OPTIMUM MOISTURE - MAXIMUM DENSITY DETERMINATION

CLIENT:	Environmental Quality Management, Inc.	JOB NO:	131408TT
PROJECT:	Klondyke Mine Site	REPORT DATE:	10-22-2013
LOCATION:	Klondyke, AZ	TEST DATE:	10-21-2013
TESTED BY:	S&A	SAMPLED BY:	Client
MATERIAL:	Soil	REVIEWED BY:	DWH
SOURCE OF SAMPLE:	Native SUPPLIER: n/a	TEST DESIGNATION:	ASTM D 698 A
SAMPLE LOCATION:	2:3 Blend #3	%PLUS #4 MATERIAL:	26.0
	PROCTOR I.D.: 403831	PLUS #4 SP.G.	2.50

MAXIMUM DRY DENSITY (PCF) =	119.3	MDD PLUS #4 CORRECTED=	124.8
OPTIMUM MOISTURE CONTENT (%) =	12.7	OM PLUS #4 CORRECTED=	9.7



Reviewed by
Laboratory Manager

Appendix H: Field and Laboratory Results Summary Tables

Table 1. Residential Additional Characterization Sample Results for Lead and Arsenic
Table 2. Residential Removal Confirmation Sample Results for Lead and Arsenic
Table 3. On-Site Additional Characterization Sample Results for Lead and Arsenic
Table 4. On-Site Removal Confirmation Sample Results for Lead and Arsenic
Table 5. Backfill Material Stockpile Sample Results for Lead and Arsenic
Table 6. Stockpile Sample Results for Full Metals List

Table 1 - Residential Additional Characterization Sample Results for Lead and Arsenic
Klondyke Tailings Removal, Graham County, Arizona

E & E Project No. 002693.2156.01RA — TDD No.02-09-11-09-0001

Sample ID	Date Sampled	Description	XRF Lead (mg/kg)	Lab Lead (mg/kg)	XRF Arsenic (mg/kg)	Lab Arsenic (mg/kg)
HS-03 Hillside Assessment						
SH-01-00	6/9/2012	Surface soil assessment	**30,000**	--	<280	--
SH-02-00	6/9/2012		**2,900**	**3,100**	<53	**96.3**
SH-03-00	6/9/2012		**4,900**	--	<68	--
SH-04-00	6/9/2012		**9,200**	--	<110	--
SH-05-00	6/9/2012		**31,000**	--	**310**	--
SH-06-00	6/9/2012		**12,000**	--	<140	--
SH-07-00	6/9/2012		**16,000**	--	<170	--
SH-08-00	6/9/2012		**62,000**	--	**1,200**	--
SH-09-00	6/9/2012		**11,000**	--	**160**	--
SH-10-00	6/9/2012		**9,300**	--	<110	--
SH-11-00	6/9/2012		**21,000**	--	**320**	--
SH-12-00	6/9/2012		**13,000**	--	**200**	--
SH-13-00	6/9/2012		**34,000**	**43,500**	**420**	**1,010**
SH-14-00	6/9/2012		**2,000**	--	<41	--
SH-15-00	6/9/2012		**10,000**	--	<120	--
SH-16-00	6/9/2012		**3,200**	--	<54	--
SH-17-00	6/9/2012		**9,700**	--	<110	--
SH-18-00	6/10/2012		**830**	--	<25	--
SH-19-00	6/10/2012		750	751	<24	25.1
SH-20-00	6/10/2012		**870**	**828**	<26	16.5
SH-21-00	6/10/2012		**3,400**	--	<56	--
SH-22-00	6/10/2012		**3,900**	--	**83**	--
SH-BKG-00	6/9/2012		620	726	<22	25.4
SH-BKG2-00	6/10/2012		290	--	<15	--
SH-09-06	6/13/2012	Subsurface hillside sampling	**3,000**	--	<51	--
SH-23-12	6/13/2012		**21,000**	--	<230	--
SH-23-24	6/13/2012		**13,000**	--	<150	--
SH-24-12	6/13/2012		**16,000**	--	<160	--
SH-25-06	6/13/2012		**16,000**	--	<160	--
SH-26-06	6/13/2012		**6,100**	--	<80	--
HS-05 Additional Decision Unit Y7						
H5-Y7-COMP	6/14/2012	Y5 assessment sample	**880**	--	<25	--
H5-Y7-COMP-PD	6/14/2012		**910**	--	<26	--
H5-Y7-F	6/19/2012	Dripline assessment	310	--	<15	--
H5-Y7-F-PD	6/19/2012		310	--	<16	--
H5-Y7-G	6/19/2012		370	--	<16	--

-- = Sample was not submitted for laboratory analysis.

bold - Indicates the sample result is above the relevant site action level of 400 or 800 mg/kg lead or 80 mg/kg arsenic

<# = concentration of the analyte in the sample was less than the reporting limit of ##

mg/kg = milligrams per kilogram

Laboratory analysis was conducted by GEL Laboratories LLC in Charleston, SC by U.S. EPA Method 6010B

XRF = x-ray fluorescence analysis conducted by START in accordance with U.S. EPA Method 6200

Table 2 - Residential Removal Confirmation Sample Results for Lead and Arsenic
Klondyke Tailings Removal, Graham County, Arizona

E & E Project No. 002693.2156.01RA — TDD No.02-09-11-09-0001

Sample ID	Date Sampled	Description	XRF Lead (mg/kg)	Lab Lead (mg/kg)	XRF Arsenic (mg/kg)	Lab Arsenic (mg/kg)
Home Site 3						
SH-27-06	6/18/2012	Post excavation hillside sampling	790	--	<26	--
SH-28-06	6/18/2012		**18,000**	--	<190	--
HS03-Y1-12	10/15/2013	5 pt composite in the excavated decision units	510	610	<14	22
HS03-Y3-12	10/15/2013		120	--	11.0	--
HS03-Y5-12	10/16/2013		200	--	<32	--
HS03-Y6-12	10/16/2013		120	--	<8.0	--
HS03-BF-SIDE	10/18/2013	Discrete backfill sample (0-1 in bgs)	33	27	5.0	4.2
HS03-BF-BACK	10/18/2013		26	--	<4.0	--
Home Site 4						
HS04-Y3-12	10/21/2013	5 pt composite in the excavated decision units	190	--	<9.0	--
HS04-Y5-12	10/21/2013		150	--	<8.0	--
HS04-Y6-12	10/22/2013		190	180	<9.0	6.2
HS04-Y6-112	10/22/2013		180	170	<9.0	7
HS04-Y7-12	10/21/2013		140	--	<8.0	--
HS04-Y8-12	10/22/2013		220	--	<39	--
HS04-BF-SIDE	10/22/2013	Discrete backfill sample (0-1 in bgs)	29	--	<5.0	--
HS04-BF-BACK	10/22/2013		24	16	<4.0	4.7
HS04-BF-BACK-PD	10/22/2013		25	--	7.0	--
Home Site 5						
H5-Y1-12-COMP	6/22/2012	5 pt composite in the excavated decision units	470	--	<19	--
H5-Y1-12-COMP-PD	6/22/2013		480	--	<19	--
H5-Y2-12-COMP	6/23/2012		**1,300**	--	<30	--
H5-Y5-12-COMP	6/22/2012		220	--	<13	--
H5-Y6-12-COMP	6/22/2012		170	--	<62	--
H5-Y7-12-COMP	6/23/2012		560	--	<21	--
H5-G(1-5)-24-COMP	6/22/2012	5 pt composite in the excavated garden area	170	--	<12	--

-- = Sample was not submitted for laboratory analysis.

bold - Indicates the sample result is above the relevant site action level of 400 or 800 mg/kg lead or 80 mg/kg arsenic

<# = concentration of the analyte in the sample was less than the reporting limit of ##

mg/kg = milligrams per kilogram

For samples collected in 2012, laboratory analysis was conducted by GEL Laboratories LLC in Charleston, SC by U.S. EPA Method 6010B

For samples collected in 2013, laboratory analysis was conducted by U.S. EPA Region 9 Richmond Laboratory in Richmond, CA by U.S. EPA Method 6010B

XRF = x-ray fluorescence analysis conducted by START in accordance with U.S. EPA Method 6200

Table 3 - On-Site Additional Characterization Sample Results for Lead and Arsenic
Klondyke Tailings Removal, Graham County, Arizona

E & E Project No. 002693.2156.01RA — TDD No.02-09-11-09-0001

Sample ID	Date Sampled	Description	XRF Lead (mg/kg)	Lab Lead (mg/kg)	XRF Arsenic (mg/kg)	Lab Arsenic (mg/kg)
Area D						
AD-SP-01-COMP	6/5/2012	5 point composite sample from existing stockpile in Area D	**6,200**	**7,440**	<77	49.6J
AD-01-00	6/8/2012	Area D surface soil sampling (0 to 1 inch bgs) in Area D on 75 foot confirmation samling grid	490	--	<35	--
AD-02-00	6/8/2012		**1,200**	**1,220**	<29	14.0
AD-03-00	6/8/2012		**1,200**	--	<30	--
AD-03-00-PD	6/8/2013		**1,200**	**1,170**	<30	20.5
AD-04-00	6/8/2012		**860**	**871**	<25	13.9
AD-05-00	6/8/2012		470	--	<19	--
AD-06-00	6/8/2012		760	748	<24	11.1
AD-07-00	6/8/2012		440	--	<18	--
AC-01-00*	6/9/2012		**830**	**899**	<25	12.1
AC-02-00*	6/9/2012		510	415	<19	8.94
AC-03-00	6/9/2012	Limited surface soil sampling in Area C between UTP ramp and Area D to assess site traffic patterns and work zones	**2,700**	--	<45	--
AC-03-00-PD	6/9/2012		**2,700**	--	<46	--
AC-04-00	6/10/2012		**6,000**	--	<74	--
AC-05-00	6/10/2012		**29,000**	--	<230	--
AC-06-00	6/10/2012		**59,000**	--	<400	--
AD-44-12 COMP	6/12/2012	Area D subsurface vertical composite samples from 0-12 inches bgs** on 75 foot confirmation sampling grid. Samples collected with hand auger.	790	781	<24	16.8
AD-45-12 COMP**	6/12/2012		100	--	10	--
AD-46-12 COMP	6/12/2012		770	753	<24	13.2
AD-47-12 COMP	6/12/2012		**2,800**	--	<49	--
AD-48-12 COMP	6/12/2012		460	469	<19	11.2
AD-49-12 COMP	6/12/2012		**2,900**	--	<48	--
AD-50-12 COMP	6/12/2012		440	461	19	10.5
AD-51-12 COMP	6/12/2012		200	--	<13	--
AD-PH-S	6/13/2012	Deep subsurface sampling to assess Area D as a borrow area for claylike cap material	**38*** **	--	7	--
AD-PH-N	6/13/2012		**60*** **	--	11	--
AD-CLAY-48	6/22/2012		86	--	<20	--

Table 3 - On-Site Additional Characterization Sample Results for Lead and Arsenic
Klondyke Tailings Removal, Graham County, Arizona

E & E Project No. 002693.2156.01RA — TDD No.02-09-11-09-0001

Sample ID	Date Sampled	Description	XRF Lead (mg/kg)	Lab Lead (mg/kg)	XRF Arsenic (mg/kg)	Lab Arsenic (mg/kg)
Area A						
AA-01-00	10/14/2013	Area A surface soil sampling (0 to 1 inch bgs) in Area D on 75 foot confirmation samling grid	**8,300**	--	**200**	--
AA-02-00	10/14/2013		**2,300**	--	**120**	--
AA-03-00	10/14/2013		**3,500**	**3,700**	**100**	97
AA-03-00-PD	10/14/2013		**3,600**	--	**120**	--
AA-04-00	10/14/2013		**8,700**	**8,100**	**130**	74
AA-05-00	10/14/2013		**4,100**	--	**100**	--
AA-06-00	10/14/2013		**3,700**	--	<44	--
AA-07-00	10/14/2013		**4,300**	--	69	--
AA-08-00	10/14/2013		**6,400**	--	73	--
AA-09-00	10/14/2013		**4,400**	--	**100**	--
AA-09-100	10/14/2013		**4,400**	--	77	--
AA-10-00	10/14/2013		**7,300**	--	**120**	--

* = AC-01-00 and AC-02-00 are duplicate samples of AD-06-00 and AD-05-00 respectively

** = Depth of sample AD-45-12-COMP is 12-15 inches bgs. Sample location had been excavated to 12 inches bgs prior to sampling.

*** = Samples were not dried, sieved, or otherwise prepared prior to XRF analysis. Data is preliminary.

-- = Sample was not submitted for laboratory analysis.

bold - Indicates the sample result is above the relevant site action level of 800 mg/kg lead or 80 mg/kg arsenic

<# = concentration of the analyte in the sample was less than the reporting limit of ##

mg/kg = milligrams per kilogram

bgs = below ground surface

For samples collected in 2012, laboratory analysis was conducted by GEL Laboratories LLC in Charleston, SC by

For samples collected in 2013, laboratory analysis was conducted by U.S. EPA Region 9 Richmond Laboratory in

XRF = x-ray fluorescence analysis conducted by START in accordance with U.S. EPA Method 6200

Table 4 - On-Site Removal Confirmation Sample Results for Lead and Arsenic
Klondyke Tailings Removal, Graham County, Arizona

E & E Project No. 002693.2156.01RA — TDD No.02-09-11-09-0001

Sample ID	Date Sampled	Description	XRF Lead (mg/kg)	Lab Lead (mg/kg)	XRF Arsenic (mg/kg)	Lab Arsenic (mg/kg)
Area D						
AD-02-01	6/8/2012	Confirmation sampling from 75 foot grid points within the 1 foot bgs excavation area in Area D	340	--	<16	--
AD-03-01	6/8/2012		98	87.2	10	8.27
AD-04-01	6/8/2012		97	89.5	<9.0	6.81
AD-47-12	6/15/2012		720	--	<24	--
AD-49-12	6/14/2012		**900**	--	<21	--
AD-50-12	6/14/2012		110	--	<10	--
AD-53-12	6/15/2012		**970**	--	<26	--
AD-52-12	6/15/2012		110	--	<10	--
AD-49-24	6/18/2012	Confirmation sampling from 75 foot grid points within the 2 feet bgs excavation area in Area D	**2,200**	--	<42	--
AD-53-24	6/18/2012		110	--	<9.0	--
Area A						
AA-06-36	10/23/2013	Samples from 75 food grid points within the consolidation area in Area A (36 or 48 inches bgs as specified in sample name)	**4,000**	--	69	--
AA-08-36	10/23/2013		**4,800**	--	<48	--
AA-08-136	10/23/2013		**4,600**	--	**85**	--
AA-09-48	10/23/2013		**920**	--	<19	--
AA-10-48	10/23/2013		**2,800**	--	<35	--

-- = Sample was not submitted for laboratory analysis.

bold - Indicates that the sample result is above the relevant site action level of 800 mg/kg lead or 80 mg/kg arsenic

<# = concentration of the analyte in the sample was less than the reporting limit of ##

mg/kg = milligrams per kilogram

bgs = below (pre-excavation) ground surface

For samples collected in 2012, laboratory analysis was conducted by GEL Laboratories LLC in Charleston, SC by U.S. EPA Method 6010B

For samples collected in 2013, laboratory analysis was conducted by U.S. EPA Region 9 Richmond Laboratory in Richmond, CA by U.S. EPA Method 6010B

XRF = x-ray fluorescence analysis conducted by START in accordance with U.S. EPA Method 6200

Table 5 - Backfill Material Stockpile Sample Results for Lead and Arsenic
Klondyke Tailings Removal, Graham County, Arizona

E & E Project No. 002693.2156.01RA — TDD No.02-09-11-09-0001

Sample ID	Date Sampled	Description	XRF Lead (mg/kg)	Lab Lead (mg/kg)	XRF Arsenic (mg/kg)	Lab Arsenic (mg/kg)
Upper Tailings Pile Samples						
UTP-CAP-01-COMP	6/5/2012	5 pt composite sample of the UTP cap material prior to removal of the top 1 foot.	41	27.4	<7.0	3.63J
UTP-CAP-01-COMP-PD	6/5/2012		39	29.4	<7	3.73J
WR-COMP-North	10/10/2013	5 pt composite of soil in each windrow of UTP cap material prior to reinstallation, 0 -2 inch depth.	33	--	<5.0	--
WR-COMP-Center	10/10/2013		44	--	<5.0	--
WR-COMP-West	10/10/2013		50	--	<5.0	--
1.5 Inch Minus Stockpile						
SP-F1-COMP	6/2/2012	4 and 5 pt composite samples from the 1.5 inch minus screen plant product from Aravaipa Borrow Area	68	35.3	<9.0	3.52J
SP-F2-COMP	6/2/2012		31	25.4	<7.0	3.46J
RFSP-COMP-01	10/12/2013		29	22	6.0	6.0
RFSP-COMP-02	10/12/2013		28	21	5.0	5.5
RFSP-COMP-03	10/12/2013		30	--	<5.0	--
Area D Clay						
AD-SP-WEST	10/10/2013	5 pt composite sample from the Area D clay stockpile	200	170	<9.0	10
AD-SP-WEST-PD	10/10/2013		200	--	<9.0	
AD-SP-EAST	10/10/2013		130	--	<8.0	--
AD-SP-NORTH	10/10/2013		190	170	<9.0	10
2:3 Blend Stockpile -- UTP cap augmentation material						
2:3-BLEND-SP-1	10/22/2013	5 pt composite from the 2:3 blend pile (0-1 in bgs) taken after every 20 truckloads removed for deposition on the upper tailings pile.	200	140	<9.0	7.6
2:3-BLEND-SP-2	10/25/2013		210	--	**14**	--
2:3-BLEND-SP-3	10/25/2013		240	--	**11**	--
2:3-BLEND-SP-4	10/25/2013		250	--	**17**	--
2:3-BLEND-SP-5	10/25/2013		160	--	**14**	--
2:3-BLEND-SP-6	10/26/2013		200	--	10	--
2:3-BLEND-SP-7	10/26/2013		170	--	<9.0	--
2:3-BLEND-SP-8	10/26/2013		140	--	10	--
2:3-BLEND-SP-9	10/26/2013		160	--	10	--
2:3-BLEND-SP-10	10/28/2013		150	--	<8.0	--
2:3-BLEND-SP-11	10/28/2013		150	--	<8.0	--
2:3-BLEND-SP-11-PD	10/28/2013		150	--	10	--
2:3-BLEND-SP-12	10/28/2013		150	--	<8.0	--
2:3 BLEND-SP-13	10/28/2013		140	--	<8.0	--

-- = Sample was not submitted for laboratory analysis.

bold - Indicates the sample result is above the Arizona Department of Environmental Quality Industrial Soil Remediation Level of 800 mg/kg lead or 10 mg/kg arsenic

<# = concentration of the analyte in the sample was less than the reporting limit of ##

mg/kg = milligrams per kilogram

J - Indicates that the reported concentration is considered an estimate

2:3 blend = 2 parts Area D clay mixed with 3 parts 1.5 inch minus screen plant product from the Aravaipa borrow area

For samples collected in 2012, laboratory analysis was conducted by GEL Laboratories LLC in Charleston, SC by U.S. EPA Method 6010B

For samples collected in 2013, laboratory analysis was conducted by U.S. EPA Region 9 Richmond Laboratory in Richmond, CA by U.S. EPA Method 6010B

XRF = x-ray fluorescence analysis conducted by START in accordance with U.S. EPA Method 6200

Table 6 - Stockpile Sample Results for Full Metals List
Klondyke Tailings Removal, Graham County, Arizona

E & E Project No. 002693.2156.01RA | TDD No.02-09-11-09-0001

		Sample ID		AD-SP-NORTH	AD-SP-WEST	RFSP-COMP-01	RFSP-COMP-02	2:3-BLEND-SP-COMP-1
Analyte	**units**	***ADEQ residential SRL***	***ADEQ non-residential SRL***	**Area D Clay**		**1.5" Minus Stockpile**		**Blended Cap Material (2 parts Area D Clay to 3 parts 1.5" Minus)**
Aluminum	mg/kg	*76,000*	*920,000*	31000	30000	14000	13000	18000
Antimony	mg/kg	*31*	*410*	<2.0	<2.0	<2.0	<2.0	<2.0
Arsenic	mg/kg	*10*	*10*	10	10	6	5.5	7.6
Barium	mg/kg	*15,000*	*170,000*	180	160	130	130	130
Beryllium	mg/kg	*150*	*1,900*	2	2.1	0.84	0.81	1.4
Cadmium	mg/kg	*39*	*510*	1.7	1.7	<0.50	<0.50	1.3
Calcium	mg/kg	*NA*	*NA*	14000	12000	8000	8100	9100
Chromium	mg/kg	*120,000*	*1,000,000*	21	19	67	55	21
Cobalt	mg/kg	*1,400*	*13,000*	11	11	11	11	8.8
Copper	mg/kg	*3,100*	*41,000*	58	56	27	27	42
Iron	mg/kg	*NA*	*NA*	28000	26000	38000	33000	24000
Lead	mg/kg	*400*	*800*	170	170	22	21	140
Magnesium	mg/kg	*NA*	*NA*	11000	11000	5800	5700	7300
Manganese	mg/kg	*3,300*	*32,000*	970	1000	630	560	720
Mercury	mg/kg	*23*	*310*	0.023 J	0.019 J	0.026 J	0.025 J	0.02 J
Molybdenum	mg/kg	*390*	*5,100*	<5.0	<5.0	<5.0	<5.0	<5.0
Nickel	mg/kg	*1,600*	*20,000*	24	22	32	30	20
Potassium	mg/kg	*NA*	*NA*	6400	6100	2000	1900	3800
Selenium	mg/kg	*390*	*5,100*	<2.0	<2.0	<2.0	<2.0	<2.0
Silver	mg/kg	*390*	*5,100*	<1.0	<1.0	<1.0	<1.0	<1.0
Sodium	mg/kg	*NA*	*NA*	260	200	180	160	170
Thallium	mg/kg	*5.2*	*67*	<5.0	<5.0	<5.0	<5.0	<5.0
Vanadium	mg/kg	*78*	*1,000*	44	41	100	89	46
Zinc	mg/kg	*23,000*	*310,000*	340	390	77	72	280

ADEQ = Arizona Department of Environmental Quality
SRL = Soil Remediation Levels
mg/kg = milligrams per kilogram
<# = concentration of the analyte in the sample was less than the reporting limit of ##
All samples analyzed by U.S. EPA Method 6010B/7471A at U.S. EPA Region 9 Richmond Laboratory in Richmond, CA
NA = not available

Appendix I: Dust Monitoring Log

Air Monitoring Log for Total Particulates
2012 Air Monitoring Log for PM10
2013 Air Monitoring Lob for PM10

Air Monitoring Log for Total Particulates, Klondyke Tailings Pile Removal, Graham County, Arizona

Date	PDR-1000 Instrument ID	Location	Max Display[1] Conc (mg/m^3)	Max STEL[2] Conc (mg/m^3)	Overall Average[3] Conc (mg/m^3)	Elapsed Time (Hours)	(mins)	Comment
6/1/2012	NA	In cab of loader at screen plant	3.69	0.093	0.015	9	38	Clean soil area, no TWA exceedance
6/2/2012	NA	In cab of loader at screen plant	1.56	0.079	0.012	7	53	Clean soil area, no TWA exceedance
6/5/2012	2836	In cab of excavator	6.26	0.297	0.039	8	55	no TWA exceedance
6/7/2012	14-04	Southeast of Area D excavation	76.6	**7.060**	0.667	8	39	exceedance 13:33 to 14:26, ~5mph winds from NNW, ERRS is moving mine waste stockpile
	2834	In cab of haul truck in Area D	3.1	0.082	0.025	8	52	no TWA exceedance
	2836	In cab of loader in Area D	2.61	0.220	0.031	9	27	no TWA exceedance
	2838	North of Area D excavation	34.9	**4.510**	0.198	8	52	exceedance 13:52 to 14:10, ~5 mph winds from NNW, ERRS is moving mine waste stockpile
6/8/2012	2834	In cab of water truck or haul truck	3.44	0.379	0.120	9	51	no exceedance
6/9/2012	2836	SW of Area D excavation	2.42	0.092	0.022	9	36	no exceedance
	2838	SE of Area D excavation	3.38	0.166	0.032	9	36	no TWA exceedance
6/11/2012	2836	In cab of loader at screen plant	0.43	0.046	0.008	3	21	no exceedance
	2838	In cab of excavator in Area D	NA	NA	NA	NA	NA	Equipment issues, did not log data
6/12/2012	2836	In cab of loader at screen plant	1.02	0.058	0.004	8	43	no TWA exceedance
	2838	In cab of haul truck	2.21	0.061	0.008	12	37	no TWA exceedance, left logging data in command post overnight
6/13/2012	2836	In cab of loader at screen plant	1.16	0.073	0.006	9	32	no TWA exceedance
	2837	In cab of dozer/mini excavator	1.96	0.087	0.014	9	34	no TWA exceedance
6/14/2012	14-04	NW of Area D excavation	22	0.465	0.053	8	48	no exceedance
	2834	NE of Area D excavation	3.24	0.081	0.019	8	46	no TWA exceedance
	2836	South of Area D excavation	1.37	0.064	0.015	8	47	no TWA exceedance
	2837	Top of HS03 hillside	3.34	0.148	0.013	8	54	Hillside source removal, no TWA exceedance
	2838	NW corner of house at HS03	1.09	0.029	0.013	8	54	Hillside source removal, no TWA exceedance
6/18/2012	2836	In cab of excavator on HS03 Hillside	1.18	0.038	0.012	8	57	Hillside source removal, no TWA exceedance
	2837	In cab of loader at HS03 Hillside	1.86	0.087	0.020	8	24	Hillside source removal, no TWA exceedance
	2838	Upwind/uphill of HS03 Hillside excavation	2.84	0.120	0.019	17	0	no TWA exceedance, left logging data in command post overnight
6/19/2012	14-04	South of HS05 excavation area (Y5/Y6)	4.01	0.056	0.010	3	22	no TWA exceedance
	2836	North of HS05 excavation area (Y5/Y6)	0.963	0.062	0.020	3	24	no exceedance
	2837	West of HS05 excavation area (Y5/Y6)	0.119	0.007	0.002	3	17	no exceedance
	2838	East of HS05 excavation area (Y5/Y6)	3.55	0.124	0.040	3	23	no TWA exceedance
6/20/2012	14-04	East of HS05 excavaiton area (Y1/Y2)	15.2	0.767	0.174	9	19	no TWA exceedance
	2834	South of HS05 excavaiton area (Y1/Y2&Y7)	3.17	0.260	0.035	9	18	no TWA exceedance
	2836	West of HS05 excavaiton area (Y1/Y2&Y5/Y6)	1.69	0.057	0.015	9	15	no TWA exceedance
	2837	North of HS05 excavaiton area (Y1/Y2)	1.06	0.045	0.010	9	13	no TWA exceedance
6/21/2012	14-04	East of HS05 excavation area	4.65	0.206	0.064	8	13	no TWA exceedance
	2834	South of HS05 excavation area	1.22	0.016	0.001	8	8	no exceedance
	2836	North of HS05 excavation area	0.464	0.025	0.005	8	10	no exceedance
	2837	West of HS05 excavation area	1.18	0.036	0.012	8	6	no TWA exceedance

Air Monitoring Log for Total Particulates, Klondyke Tailings Pile Removal, Graham County, Arizona

Date	PDR-1000 Instrument ID	Location	Max Display[1] Conc (mg/m^3)	Max STEL[2] Conc (mg/m^3)	Overall Average[3] Conc (mg/m^3)	Elapsed Time (Hours)	(mins)	Comment
6/22/2012	14-04	West corner of HS05 house	NA	NA	NA	NA	NA	data inadvertantly overwritten, begin clean backfill
	2834	South corner of HS05 house	0.799	0.055	0.021	8	43	no exceedance, begin clean backfill
	2836	North of HS05 driveway	1.97	0.084	0.009	8	39	no TWA exceedance, begin clean backfill
	2837	East of HS05 Y1/Y2 excavation zone	4.82	0.297	0.035	8	40	no TWA exceedance, begin clean backfill
6/23/2012	14-04	North of HS05 driveway	0.528	0.062	0.027	9	0	no exceedance
	2834	East of HS05 Y1/Y2 excavation zone	2.73	0.057	0.015	9	0	no TWA exceedance
	2836	South corner of HS05 house	0.656	0.034	0.007	9	0	no exceedance
	2837	West corner of HS05 house	1.5	0.072	0.016	9	3	no TWA exceedance
6/24/2012	14-04	North of HS05 driveway	1.24	0.151	0.057	3	41	no TWA exceedance
	2834	South corner of HS05 house	7.07	0.093	0.009	6	35	no TWA exceedance
	2836	East of HS05 driveway	0.891	0.047	0.011	6	37	no TWA exceedance
	2837	West corner of HS05 house	6.97	0.122	0.02	6	37	no TWA exceedance
6/25/2012	14-04	North of HS05 workzone	0.919	0.083	0.028	5	21	no TWA exceedance, finish placing clean fill
	2834	South of HS05 workzone	5.87	0.470	0.040	7	53	no TWA exceedance, finish placing clean fill
	2836	West of HS05 workzone	6.23	0.155	0.017	7	52	no TWA exceedance, finish placing clean fill
	2837	East of HS05 workzone	7.58	0.272	0.06	7	52	no TWA exceedance, finish placing clean fill
6/26/2012	2838	West of Area D excavation	2.86	0.148	0.022	5	18	no TWA exceedance, generating clay material
6/27/2012	2838	SE of Area D excavation	10.4	0.427	0.101	6	46	no TWA exceedance, generating clay material

Notes:

bold = an action level was exceeded

= apply on-site action level

(1) Maximum instantaneous daily reading (not TWA).

(2) STEL = Short term exposure limit, 15 minute TWA for comparison to action level

(3) Time Weighted Average (TWA) for entire shift, see Run Time for duration.

15-Minute TWA Residential Area Total Dust Action Level = 1.470 mg/m^3, which is a calculated allowable action level based on the maximum observed COC concentrations in soils near the residences (17,000 mg/kg lead) and the OSHA PEL.

15-Minute TWA On Site Area Total Dust Action Level = 0.83 mg/m^3, which is a calculated allowable action level based on the maximum observed COC concentrations in soils within site work zones (30,000 mg/kg lead) and the OSHA PEL.

mg/m3 = milligrams per cubic meter

conc = concentration

mins = minutes

2012 Air Monitoring Log for PM10, Klondyke Tailings Pile Removal, Graham County, Arizona

Date	Instrument ID	Instrument Serial Number	Location	Max [1] Conc (ug/m^3)	Time Weighted Average (TWA) [2] (ug/m^3)	Run Time (mins)	Comment
6/8/2012	NA	D268	North of Area D excavation	1519	35.7	237	no TWA exceedance
	NA	D270	South of Area D excavation	NA	NA	NA	equipment issues, did not log data
6/9/2012	NA	D705	North of Area D excavation	NA	NA	NA	equipment issues, did not log data
6/10/2012	NA	D268	East of Area D excavation	NA	NA	NA	equipment issues, did not log data
	NA	D270	South of Area D excavation	NA	NA	NA	equipment issues, did not log data
	NA	D705	North of Area D excavation	NA	NA	NA	equipment issues, did not log data
6/14/2012	NA	D270	NE corner of house at HS03	NA	NA	NA	equipment issues, did not log data
6/15/2012	NA	D270	North of Area D excavation	NA	NA	NA	equipment issues, did not log data
	NA	D286	South of Area D excavation	NA	NA	NA	equipment issues, did not log data
	NA	D703	West of Area D excavation	404	14.0	557	no exceedance
	NA	D705	East of Area D excavation	799	29.9	542	no exceedance
6/16/2012	NA	D703	West of Area D excavation/HS03	59.7	7.83	422	no exceedance
	NA	D705	East of Area D excavation/HS03	176	15.3	421	no exceedance
6/18/2012	NA	D268	NE corner of house at HS03	NA	NA	NA	equipment issues, did not log data
	NA	D705	NW corner of house at HS03	160	12.4	534	no exceedance
6/19/2012	NA	D268	North of stockpiled Area D spoils	NA	NA	NA	equipment issues, did not log data
	NA	D269	West of stockpiled Area D spoils	531	23.3	553	no exceedance
	NA	D270	East of stockpiled Area D spoils	NA	NA	NA	equipment issues, did not log data
	NA	D705	South of stockpiled Area D spoils	513	9.16	551	no exceedance
6/20/2012	NA	D268	West corner of LTP	165	6.68	514	no exceedance, placing waste soil
	NA	D269	South corner of LTP	637	14.5	515	no exceedance, placing waste soil
	NA	D270	North corner of LTP	123	15.8	512	no exceedance, placing waste soil
	NA	D705	East corner of LTP	176	9.38	512	no exceedance, placing waste soil
6/21/2012	NA	D268	NE of LTP	252	5.52	574	no exceedance, placing waste soil
	NA	D269	SW of LTP	696	67.7	568	no exceedance, placing waste soil
	NA	D270	South of LTP	749	19.2	566	no exceedance, placing waste soil
	NA	D705	West of LTP	26.5	4.26	562	no exceedance, placing waste soil
6/22/2012	NA	D268	SE of LTP, near Area B	214	23.2	561	no exceedance, placing waste soil
	NA	D270	South of ramp on top of LTP	132	18.2	550	no exceedance, placing waste soil
	NA	D703	SW of LTP	266	9.81	556	no exceedance, placing waste soil
	NA	D705	North of access ramp for LTP	97.3	13.0	568	no exceedance, placing waste soil
6/23/2012	NA	D268	North of Area D excavation	214	23.2	561	no exceedance, generating clay material
	NA	D270	South of Area D excavation	154	14.8	539	no exceedance, generating clay material
	NA	D703	West of Area D excavation	61.3	4.44	538	no exceedance, generating clay material
	NA	D705	East of Area D excavation	105	6.17	539	no exceedance, generating clay material
6/24/2012	NA	D269	West of Area D excavation	NA	NA	NA	equipment issues, did not log data
	NA	D270	North of Area D excavation	785	57.5	397	no exceedance, generating clay material
	NA	D703	South of Area D excavation	146	8.01	399	no exceedance, generating clay material
	NA	D705	East of Area D excavation	330	11.9	401	no exceedance, generating clay material
6/25/2012	NA	D269	East of Area D excavation	NA	NA	NA	equipment issues, did not log data
	NA	D270	North of Area D excavation	117	11.9	476	no exceedance, generating clay material
	NA	D703	West of Area D excavation	NA	NA	NA	equipment issues, did not log data
	NA	D705	South of Area D excavation	310	14.9	482	no exceedance, generating clay material

2012 Air Monitoring Log for PM10, Klondyke Tailings Pile Removal, Graham County, Arizona

Date	Instrument ID	Instrument Serial Number	Location	Max [1] Conc (ug/m^3)	Time Weighted Average (TWA) [2] (ug/m^3)	Run Time (mins)	Comment
6/26/2012	NA	D268	North of Area D excavation	NA	NA	NA	equipment issues, did not log data
	NA	D270	East of Area D excavation	NA	NA	NA	equipment issues, did not log data
	NA	D705	South of Area D excavation	290	17.0	345	no exceedance, generating clay material
6/27/2012	NA	D268	SW of Area D excavation	649	13.6	405	no exceedance, generating clay material
	NA	D270	NE of Area D excavation	NA	NA	NA	equipment issues, did not log data
	NA	D705	West of Area D excavation	440	10.2	406	no exceedance, generating clay material

PM10 = Particulate Matter Less than 10 Microns

= apply on-site action level

ug/m^3 = micrograms per cubic meter

mins = minutes

LTP = lower tailings pile

HS## = Homesite ##

(1) Maximum instantaneous daily reading (not TWA).

(2) Time weighted average (TWA) for entire shift (8-10 hour), see Run Time for duration.

24 hour U.S. EPA national Ambient Air Quality Standard for PM10 particle pollution = 150 ug/m^3, which is a primary and secondary standard not to be exceeded more than once per year on average over three years.

2013 Air Monitoring Log for PM10, Klondyke Tailings Pile Removal, Graham County, Arizona

Date	Instrument ID	Instrument Serial Number	Location	Max [1] (ug/m^3)	Time Weighted Average (TWA) [2] (ug/m^3)	Run Time (mins)	Comment
10/12/2013	1	D702	E of LTP, workzone	0.070	0.005	317	background
	2	D270	NW of LTP, fugitive	0.067	0.006	253	background
	3	D268	W of LTP, workzone	0.096	0.010	312	background
10/14/2013	1	D702	E of LTP, workzone	122	3.60	466	
	3	D268	W of LTP, workzone	25.4	4.00	470	
	4	D703	HS03 North workzone edge	11.5	1.00	369	
	5	D271	HS03 West workzone edge	316	17.7	359	
	6	D705	HS03 Porch/south	104	11.3	358	
10/15/2013	1	D702	E of LTP, workzone	75.0	6.70	483	
	3	D268	N of LTP, workzone	162	7.70	473	
	4	D703	HS03 North workzone edge	103	7.00	508	
	5	D271	HS03 West workzone edge	449	14.8	511	
	6	D705	HS03 Porch/south	104	11.3	510	
10/16/2013	1	D702	E of LTP, workzone	115	9.30	461	
	3	D268	W of LTP, workzone	47.6	6.20	455	
	4	D703	HS03 North workzone edge	50.8	5.50	412	
	5	D271	HS03 West workzone edge	304	16.9	409	
	6	D705	HS03 Porch/south	43.6	5.00	408	
10/17/2013	1	D702	E of LTP, workzone	217	6.19	490	
	3	D268	W of LTP, workzone	30.7	5.39	491	
10/18/2013	1	D702	E of LTP	217	6.20	496	
	3	D268	W of LTP	142	7.40	494	
10/19/2013	1	D702	HS04 NE corner on telephone poles	105	3.30	533	
	3	D268	HS04 Front Porch	171	6.60	526	
	4	D703	HS04 S of excavation at car port	130	4.80	525	
	5	D271	E of LTP	90.7	7.20	484	
	6	D705	S of LTP	49.7	3.80	476	
10/20/2013	1	D702	SW end of LTP (compacting tailings in lifts)	46.9	3.60	515	Observed to have an inconsistent flow rate
	4	D703	NW end of LTP (loading trucks with excavator)	253	5.80	519	
	6	D705	E side of LTP next to ramp	142	6.30	518	
10/21/2013	1	D702	E of LTP	85.1	5.10	490	
	3	D268	W of LTP	27.9	5.70	487	
	4	D703	N of LTP	253	5.80	486	
	5	D271	HS4 (Porch)	153	5.40	480	
	6	D705	HS4 (Car Port)	89.7	7.10	404	Started the day at only 32% battery, shut off early at 1%
10/22/2013	1	D702	W of LTP	40.6	5.12	495	
	3	D268	N of LTP	0.635	0.002	499	
	4	D703	E of LTP	93.5	3.82	494	
	5	D271	HS4 (Car Port)	194	11.1	436	

2013 Air Monitoring Log for PM10, Klondyke Tailings Pile Removal, Graham County, Arizona

Date	Instrument ID	Instrument Serial Number	Location	Max [1] (ug/m^3)	Time Weighted Average (TWA) [2] (ug/m^3)	Run Time (mins)	Comment
10/23/2013	1	D702	SE of LTP	41.8	6.90	399	
	3	D268	N of LTP	113	11.7	376	Operations shut down for the day at 3pm
10/24/2013	5	D271	E of LTP	99.3	9.80	492	
	6	D705	W of LTP	293	8.00	491	
10/25/2013	4	D703	E of LTP	56.1	6.37	502	
	5	D271	W of LTP	80.0	9.97	501	Final day of air monitoring

PM10 = Particulate Matter Less than 10 Microns

= apply on-site action level

ug/m^3 = micrograms per cubic meter

mins = minutes

LTP = lower tailings pile

HS## = Homesite ##

(1) Maximum instantaneous daily reading (not TWA).

(2) Time weighted average (TWA) for entire shift (8-10 hour), see Run Time for duration.

24 hour U.S. EPA national Ambient Air Quality Standard for PM10 particle pollution = 150 ug/m^3, which is a primary and secondary standard not to be exceeded more than once per year on average over three years.

Appendix J: Description of Proposed Cap Augmentation for UTP, Technical Memorandum

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KLONDYKE TAILING PILE CAPPING OPTIONS

To: Martin Powell, On-Scene Coordinator, U.S. Environmental Protection Agency

From: Kate Villars, Ecology and Environment Inc.

CC: Brian Milton, E2 Consulting Engineers, Inc.

Date: October 17, 2013

Subject: Description of Proposed Cap Augmentation at Klondyke Tailings Pile, Graham County, Arizona

In May 2012 the U.S. EPA removal action began to prepare the Upper Tailings Pile (UTP) to accept additional contaminated material. Due to a number of factors the U.S. EPA determined that it will not place additional contaminated material within the UTP. EPA is in the process of restoring the UTP cap back to pre-May 2012 condition (URS 2008 As-Built).

During EPA's May 2012 action every effort was made to preserve the existing UTP cap material for later use. The existing cap material was scraped to within approximately 6 inches of the tailings, and stockpiled in compacted windrows on top of the UTP. To date, no cap material was removed from the top of the UTP, nor other material added. EPA has expressed its desire to restore the cap to the 2008 As-Built, which should be achievable with the windrowed material alone. However, during the May 2012 removal action, it was observed that the cap was as thin as 7 inches in places, and the As-Built drawings show that the minimum 3 percent slope specification was not uniformly achieved. In order to better meet ADEQ's cap specifications, as outlined by URS, EPA proposes it use on site materials to augment the cap with an additional 6 to 12 inch lift. The thickness of the additional cap material would vary as necessary to meet both the minimum 2 foot cap thickness and 3 to 5 percent slope specifications.

It is E & E's interpretation of the URS construction specifications that cap material must be free from debris, vegetation and oversized material, have 100 percent by weight passing a 3 inch sieve, 5 to 60 percent by weight passing a number 200 sieve, a maximum plasticity index of 17, and a maximum permeability of 8.3×10^{-3} cm/s. Additionally, a sample collected October 10th, 2013 of the windrowed imported cap material found a maximum dry density of 121.4 pcf and an optimum moisture content of 12.4 percent. Supporting documentation is provided in Appendix A.

In May 2012, during removal actions in an area northeast of the UTP, U.S. EPA identified an onsite source of clay-like material. Geotechnical testing demonstrated that

this material had 83 percent by weight passing the number 200 sieve. Additional 2012 construction activities included screening alluvial material from a soil borrow area along Aravaipa Creek, upstream of the site. The 1-1/2" minus material produced by this screen plant was observed to be a poorly graded sand that would potentially mix well with the Area D clay to generate a material similar to the imported cap material.

To evaluate blended soil properties for use as cap material, several mixtures using varying proportions of the alluvial sand and Area D clay were prepared for laboratory geotechnical testing. A mix of 2 parts by volume Area D clay to 3 parts by volume screened riverbed fines was determined to be the most similar in characteristics to the existing cap material. The bench scale sample of this 2:3 blend was determined to have a saturated hydraulic conductivity of $3.4x10^{-4}$ cm/sec, a plasticity index of 13, 100 percent by weight passing a 1.5" sieve and 23 percent by weight passing a number 200 sieve. Additionally, this 2:3 blend sample was analyzed by Standard Proctor and found to have a maximum dry density of 124.0 pcf and an optimum moisture content of 10.6 percent, which was most similar to the moisture density properties of the exiting cap material properties. Therefore, it appears to meet the existing specifications used and is suitable for use as cap material should augmentation of the cap with additional material be the chosen course of action. Placement of any source of cap material will adhere to a construction QA plan similar to that used during initial construction.

Respectfully Submitted,
Kate Villars

Attachments:
Attachment A – URS Specifications
Part 1: E & E Response to URS Comment with note regarding permeability
Part 2: URS Construction Specifications - Section 02223: Fill and Backfill
Attachment B – Supporting Geotechnical Laboratory Results

APPENDIX A:

URS SPECIFICATIONS

Table 1. Klondyke Tailings Removal, START Response to URS Comments.

Comment No.	Comment	Response to Comment
1	URS reviewed the alternative cost estimates for the project and has no comments.	Comment noted.
2	The design of the Lower Tailing Pile (LTP) and design modification of the Upper Tailing Pile (UTP) does not provide erosion protection at the top edges of the tailing piles. The design shows the top of the capped piles transitions from 3-5 percent to 4:1. This transition will potentially result in increased and long-term maintenance issues. The URS design of the UTP incorporated a grading concept that allowed for placement of gabion mattresses up to and overlapping the top edges to mitigate this potential erosion.	Minor maintenance may be required until the site achieves final stabilization. However, once vegetation is established, erosion should not be an ongoing issue. Additionally, based on recent information, the minimum thickness of the cap will be increased. Therefore, even if minor rilling does occur, the mine wastes should not be exposed.
3	The original soil cap material for the UTP came from an approved offsite borrow source on BLM land. This material, classified as sandy clay, was found to possess a permeability of 8.3×10^{-3} cm/s through laboratory testing. HELP modeling was performed to estimate cap performance, with a resulting discharge estimated at 0.5 inches/acre/year when installed per the design drawings and specifications of the original URS design for the UTP. The proposed source for the new cap material is the streambed of Aravaipa Creek, which may be a coarser material. What are the design criteria for the cap?	An evapotranspiration cap that will limit or prevent precipitation from percolating into and through mine wastes is currently being designed. Expected cap performance will be based on the principals described in *Water Balance Covers for Waste Containment, Principals and Practices* , Albright, Benson, and Waugh, 2010. Cap thickness will be based on assumed soil properties. Based on recent geotechnical laboratory testing of the proposed borrow soil, the cap thickness and construction methods will be revised. New drawings and specifications will be issued accordingly.
4	Detail 1 on Drawing 4 indicates direct contact between the gabion mattress and tailing material which could result in the migration of tailing material through the gabions. URS recommends the design be modified to provide placement of cap material between tailing and gabions.	The drawings will be revised to indicate that geotextile fabric shall be installed to prevent direct contact between mine wastes and gabion baskets.
5	The seed mix specified in the original design of the upper tailing pile was obtained from the local Natural Resource Conservation Service (NRCS) office. It did not include trees, as they would potentially have an adverse effect on the performance of the soil cap. The proposed ADOT seed mix should be reviewed to ensure no tree species are included.	The seed specifications will be reviewed, and a mixture that does not contain undesirable species will be used.
6	URS is concerned about potential erosion on the side slopes of both tailing piles above the gabions. Both the upper and lower tailing piles call for a 4:1 slope for the soil cap above the gabions. These slopes will be subject to rill erosion from flow off the top of the pile that will likely result in long term maintenance requirements. The URS design of the UTP incorporated a grading concept that allowed for placement of gabion mattresses up to the top edges to mitigate potential side slope erosion.	See Response to Comment No. 1.
7	The plans do not identify a basis of elevations (datum). The basis of elevations for the upper tailing pile improvements and the floodplain analysis is NGVD29. Coordination of the datum is important for understanding impacts to existing gabion toe-down elevations and scour depth.	Comment is noted. It will be recommended in the revised drawings/specifications that surveys be performed relative to existing benchmarks established at the site by URS during the previous remedial efforts.
8	Detail 1 on Drawing 4 indicates a minimum toe down depth of 2 feet for the gabions of the LTP. The standard minimum toe down depth in most Arizona jurisdictions is 3 feet below the adjacent channel thalweg. The toe downs for the existing gabions of the LTP were based upon scour analysis of Aravaipa Creek and the elevation of the adjacent channel thalweg.	The drawings will be revised to indicate that the toe of the gabion baskets shall be installed a minimum of 3 feet below the elevation of the thalweg of the adjacent channel.
9	The outline of the proposed borrow area shown on Drawing 1 appears to conflict with the existing gabion toe downs on the west side of the UTP. These toe downs extend for up to 30 feet horizontally from the exposed toe of the UTP. URS recommends the borrow area be re-located away from the UTP.	It will be recommended on the revised drawings/specifications that excavation not occur within 30 feet of the Upper Tailings Pile (UTP). It will be recommended on the revised drawings/specifications that borrow soil not be excavated within 100 feet of the UTP.
10	The plans do not indicate the proposed depth of the borrow area excavation. The depth of excavation could potentially adversely impact the performance of the existing gabions of the UTP. The elevations of the toe of the gabions range from approximately 3403.0 to 3405.0 feet (NGVD) adjacent to the proposed borrow area. URS recommends the borrow area be re-located away from the UTP.	It will be recommended on the revised drawings/specifications that borrow soil not be excavated within 100 feet of the UTP.
11	The location of the proposed borrow area has the potential for negative impacts to the UTP and LTP. The proposed borrow area could serve as a sediment trap for future flows in Aravaipa Creek, which could lead to increased clear water scour immediately downstream, at the UTP and the LTP. URS recommends the borrow area be re-located away from the UTP.	It will be recommended on the revised drawings/specifications that borrow soil not be excavated within 100 feet of the UTP.
12	As noted in Item Nos. 9 through 11, URS recommends re-location of the proposed borrow area away from the UTP and LTP. Considerations for borrow re-location may include the west side of Aravaipa Creek main channel.	It will be recommended on the revised drawings/specifications that the borrow area be shifted away from the UTP and Lower Tailings Pile to the extent possible.

assume proposed material may not be any more permeable (ie $k_{sat} \leq 8.3 \times 10^{-3}$ cm/s)

SECTION 02223

FILL AND BACKFILL

1.0 GENERAL

1.01 SUMMARY DESCRIPTION

A. This section covers the work associated with fill materials, backfilling operations, and compaction requirements. This section also covers the requirements for each of the various types of fill materials at different locations as noted on the Drawings.

1.02 SECTION INCLUDES

A. Related Sections

B. References

C. Submittals

D General

E Structural Fill

F. Preparation for Fill Placement

H General Compaction Requirements

I Requirements for Filling

J Tests

K Unsuitable Material

1.03 RELATED SECTIONS

A. Section 02210 – Clearing and Grubbing

B. Section 02211 – Grading and Subgrade Preparation

C. Section 02222 – Excavation

F. Section 02778 – Geotextiles

1.04 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM):

1.	C 136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2.	D 422	Standard Test Method for Particle-Size Analysis of Soils
3.	D 698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Proctor
4.	C 1140	Standard Test Method for Amount of Material in Soils Finer than the No. 200 (75 micrometer) sieve
5..	D 1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
6.	D 2216	Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
7.	D 4318	Standard Test Method for Liquidity Limit, Plastic Limit, and Plasticity Index of Soils
8.	D 4914	Standard Test Method for Density of Soil and pack in Place by the Sand Replacement Method in a Test Pit.
9	D 5030	Standard Test Method for Density of Soil and Pack in Place by the Water Replacement Method in a Test Pit
10	D 6938	Standard Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.05 SUBMITTALS

A. Submit under provisions of Section 01300.

B. As requested by Owner, Contractor shall make available (or furnish) samples of material available on-site or from Contractor's source or supplier. Samples may be requested at the initiation of Work, change in the material, and periodically as the Work progresses.

C. Submit, for Owner's and Engineer's review, specifications (brand, type, weights, etc.) of equipment proposed for compaction and fill placement at least ten (10) days before commencing each application.

D. Fill placement plan that describes the approach and proposed equipment for key components of the project utilizing the various fill zones.

2.0 PRODUCTS

2.01 GENERAL

A. Screening of native soils will likely be required to meet gradation specifications of fill materials.

B. Dust control is required at borrow areas, screen plants, haul routes, and fill areas.

C. The Contractor will be responsible for any air permits necessary for screening operations.

D. All processed fill and placed fill materials shall be free of organic matter, vegetation, construction debris, and other deleterious substances.

E. The Contractor shall meet Construction SWPPP requirements for any and all construction activities.

F. Testing required for classifying materials shall be in accordance with ASTM D 4318, ASTM C 136, ASTM D 422, and ASTM D 1140.

2.01 TAILINGS

A. Onsite tailings are contaminated with lead and arsenic at concentrations above residential Soil Remediation Levels (SRLs). All backfilling operations must conform with the requirements of the Health and Safety Plan (HASP) provided under separate cover.

2.02 STRUCTURAL FILL

A. Areas of Structural Fill include, but are not limited to:

1. Soil cap for the upper tailing pile, including top and side slopes

2. Backfill for the subsurface bank protection of the upper tailing pile

B. Provide fill that consists of a well-graded soil suitable for general use from an onsite or off-site source. This material shall be free of roots, organics, construction debris, or other deleterious materials.

C. Structural Fill shall meet either the specification listed below or be pre-approved by the Engineer prior to use:

STRUCTURAL FILL	
Sieve Size (Square Openings)	**Percent Passing (By Weight)**
3 inch	100
No. 200	5 to 60
Maximum Plasticity Index: 17	

D. The maximum particle size is 3 inches in its greatest dimension. Material containing oversize rock will be rejected by the Engineer. However, should occasional random oversize material be encountered and the material otherwise meets the gradation requirements, the Contractor may employ hand labor and equipment to hand pick the oversize rock out of the loose lifts, only upon specific approval of the Engineer. Clods or hard lumps of earth of 6 inches in greatest dimension shall be broken up and moisture conditioned before compacting the material in embankment.

3.0 EXECUTION

3.01 PREPARATION FOR FILL PLACEMENT

A. Prepare subgrade according to Section 02211.

B. **Approvals of subgrade/foundations are required.** Do not place fill until subgrade/foundation has been approved by the Engineer. Subgrade and/or foundations must be pre-approved prior to fill placement, requiring careful planning and scheduling by the Contractor, and factoring time for the Owner and Engineer representatives to observe, sample the exposed subgrade. In many cases, time required for acceptance of subgrade beneath structural fill and geosynthetics will range from one (1) hour to four (24) hours to approve of the subgrade/foundation, largely dependent on the amount of advanced notification given to the Owner/Engineer by the Contractor. The Contractor shall secure approval forms of subgrade/ foundations prior to fill placement. The subgrade beneath concrete structures shall require special inspection by a Geotechnical Engineer, therefore the Contractor shall excavate and expose the bottom of the design excavation and have it remain open for observation at least 72 hours for express approval. Approval may be conditional for treatment of sliver fill zones or additional excavation or a combination of both.

C. Maintain and operate proper and adequate surface drainage to the satisfaction of Owner and Engineer to keep the site dry and in such conditions that placement and compaction of fill may proceed unhindered by saturation of the area.

D. Fill materials must be tested for compliance with the Specifications. QA testing will be performed by the Owner/Engineer representatives. However, the Contractor maintains quality control responsibility for meeting the specification by employing the appropriate screening techniques and equipment, moisture conditioning, fill procedures and compaction methods and equipment as outlined in Section 01400. The Contractor shall give the Engineer at least five (5) working days notice prior to using the proposed fill material to enable the Owner's representative to sample and test the material.

E. Placement of fill shall be made only in areas approved by the Engineer for fill placement.

F. Fill placement shall be temporarily stopped due to inclement weather conditions at the direction of the Engineer. Under marginal weather conditions, the Contractor may place fill, provided the fill, when tested, meets Specifications.

3.02 GENERAL COMPACTION REQUIREMENTS

A. Moisture-conditioning may be performed to fill material either in the borrow area or a working pad. Moisture conditioning within the fill site shall be pre-approved and performed as directed by the Owner, Engineer, or their representatives.

B. During compaction operations, the borrow materials and reworked (in-place) materials requiring moisture conditioning shall be maintained within the range of moisture content required in the Specifications to achieve, with the equipment being used, adequate compaction to the specified density. The moisture content of the fill material, prior to and during compaction, shall be uniform throughout the material.

C. When material is too dry for proper compaction and/or is below the minimum moisture content specified, the Contractor shall spray water on the fill and work the moisture into the fill by discing or scarifying or other approved means until a uniform distribution of moisture is obtained. Material that is too wet for proper compaction and/or is above the maximum moisture content specified, shall be removed from the fill or the material may be spread and permitted to dry, assisted by discing or scarifying until the moisture content is reduced to an amount suitable for obtaining the specified degree of compaction.

D. The Engineer and Owner reserve the right to review the Contractor's equipment list for placement and compaction of various fills and to approve, reject, or recommend substitute equipment. The Engineer may also continuously evaluate the Contractor's equipment and methods. If such equipment or methods are found unsatisfactory for the intended use,

the Engineer will require the Contractor to replace the unsatisfactory equipment with other types, or adjust methods until proper compaction is achieved.

E. The Contractor shall maintain and protect fills in a condition satisfactory to the Engineer at all times until the final completion and acceptance of the Work. Any approved fill material that becomes unsuitable for any reason whatsoever, after being placed and before final acceptance of the Work, shall be removed and replaced by the Contractor in a manner satisfactory to the Engineer.

F. The Contractor shall route equipment and take all actions necessary to prevent material of one type from being deposited inadvertently, either by dumping or through travel of equipment, in or on material of another type. Such improperly deposited material shall be removed from the fill areas, as directed by the Engineer. If in-place material becomes contaminated, it shall also be removed. All removed material shall be wasted in locations designated by the Engineer. Removal of all such material shall be at no cost to the Owner.

G. If prior placed, tested, and accepted in-place fills become loosened, softened, or disturbed by construction equipment traffic, during dry or wet weather, these materials shall be moisture-conditioned or dried as previously described and recompacted. If weather or soil conditions prevent soils from being properly compacted, the unsuitable soils shall be removed and replaced with properly compacted fill. Such replacement and/or recompaction shall be at no expense to the Owner.

H. The Contractor shall place in horizontal layers not exceeding the allowable lift thickness and which, after compaction, meet or exceed established compaction requirements.

I. The Contractor shall place fill only after previous lifts have been adequately compacted and approved by the Engineer. Should any of the Work be covered before it has been approved, the Contractor shall uncover all such Work at no cost to the Owner. After the Work has been examined, tested, and approved by the Engineer, the Contractor shall make all repairs and replacements necessary to restore the Work to the Contract Specifications at no additional cost to the Owner.

3.03 REQUIREMENTS FOR FILLING

A. GENERAL

1. Contractor shall be solely responsible for the safety of temporary cuts and fills.

2. Use equipment, tools, and machines to perform Work in accordance with the requirements covered by Specifications. Contractor shall maintain equipment, tools, and machines in satisfactory working condition. Compaction equipment shall be suitable for the soils to be compacted so as to consistently produce the required moistures and densities throughout the compacted soil mass as required by Specifications.

3. Obtain fill materials from the required excavation and borrow areas and effectively screen the material to produce a uniform fill material at the required gradation. Screening is required for onsite soils to meet specified gradations. Materials shall be free of objectionable material, with no stone dimensions greater than that specified by material type.

4. Import fill material from other locations on the Owner's property or offsite commercial supplier as required. Import sources are subject to pre-approval by the Owner and Engineer. Materials shall be free of objectionable material, with no stone dimensions greater than that specified by material type.

5. The distribution of materials shall be such that the fill is free from lenses, pockets, streaks, or layers of materials differing substantially in texture or gradation from the surrounding material. The combined borrow excavations and fill placement operation shall be such that the materials, when compacted in the fill, will be blended sufficiently to provide the best practicable distribution of the material, subject to the approval of the Engineer. **Nesting of coarse rock will be rejected.**

6. Provide all fill types to the lines, grades, and elevations as shown on Drawings or as approved by the Engineer. Final lines and grades shall be within a tolerance of 0.1 ft of that shown on the drawings, unless otherwise specified elsewhere.

7. Make changes in grade gradual. Blend slopes into level areas.

8. Excess excavation or backfill materials are not to be removed from site without the Owner's written permission.

B. SELECTION OF BORROW MATERIAL

1. Borrow material shall only be obtained from the borrow area designated by the Owner. Unless specifically directed by the Owner in writing, no borrow shall be obtained on the project site.

2. Borrow pits shall be neatly drained and trimmed after the excavation is completed. The Contractor shall ensure that

operation of the borrow pits results in minimum detrimental effects on the natural environment.

3. Borrow material shall be selected to meet the requirements and conditions of the particular fill for which it is to be used.

C TAILINGS

1. Place Tailings in 12-inch maximum loose lifts.

2. Final lines and grades for Tailings shall be within a tolerance of 0.1 ft of that shown on the drawings.

3. A method specification for the moisture conditioning and compaction of the tailing materials shall be developed and demonstrated in the field by the Contractor and approved by the Engineer. The desired moisture content of the tailing materials during compaction shall be within plus or minus three (3) percent of the optimum moisture content as determined by ASTM D 698. The tailing material shall be compacted to a minimum of 85 percent of the maximum dry density in accordance with ASTM D 698. The method for moisture conditioning and compaction determined in the field by the Contractor shall achieve a uniform moisture content and compaction throughout the compacted lift. Compaction of the tailing materials shall be tested using ASTM D 2922 (nuclear method) and/or ASTM D 1556 (sand cone method). Moisture content of the tailing materials shall be tested using ASTM D 3017 (nuclear method) for each nuclear density test and/or ASTM D 2216/4643 (oven dry/microwave methods) for each sand cone density test.

4. Tailings shall be compacted using a self-propelled, padded-foot vibratory compactor unless hand held compaction equipment is required.

D. STRUCTURAL FILL

1. Place Structural Fill in 8-inch maximum loose lifts.

2. Compact to 85 percent of maximum dry density within +/- 2 percent of optimum moisture content as determined by ASTM D 698 (Standard Proctor).

3. Structural Fill shall be compacted using a self-propelled, padded-foot vibratory compactor unless hand held compaction equipment is required.

4. Place Structural Fill in a manner to avoid nesting of rock, avoid 3-inch rock particles from being made part of the subgrade surface beneath geotextile materials. Rocks protruding more than 1 inch above the graded surface where geotextile materials are to be deployed shall be removed and the remaining void shall be filled with Structural Fill to achieve a smooth subgrade. Proof rolling with rubber tire equipment, capping with screened material, and/or hand picking oversize/protruding rocks at the surface may be required prior to approval of subgrade for geotextile deployment.

3.04 TESTS

A. Pre-qualification testing and conformance testing prior to placement will be conducted on the structural fill and tailings, in accordance with the QA/QC Plan.

B. The fill shall be thoroughly compacted to not less than the stated densities when tested and determined by ASTM D 6938 (nuclear gauge) and D1556 (sand cone), with the percent of density adjusted in accordance with the rock correction procedure for maximum density determination by either ASTM D 4914 or ASTM D 5030, to compensate for the rock content larger than that which will pass a No. 4 sieve. When ASTM D 6938 is used, the calibration curves shall be checked and adjusted using the sand cone method as described in ASTM D 1556. At a minimum, the Contractor shall perform one (1) sand cone density test for every ten (10) nuclear density tests taken. If field density tests determined by the nuclear method vary by more than 1.5 lbs per cubic feet from comparison sand-cone test, and are consistently high or low, adjustment of the calibration curve is necessary.

C. The moisture content of the fill shall be tested in accordance with ASTM D 2216.

D. Failing results are the responsibility of the Contractor. Rework, fill replacement, and retesting shall be at the Contractor's expense.

3.05 UNSUITABLE MATERIAL

A. Unsuitable material characterized by the Owner and Engineer as either construction debris, sediments, or tailings encountered shall be removed and transported to the designated disposal location as directed by the Owner and Engineer. Unsuitable material is defined as material the Owner and Engineer determines to be one of the following:

1. Unsuitable material (out of spec) encountered below the natural ground surface in fill areas or below the grading plane in excavation areas.

2. Of such unstable nature as to be incapable of being compacted to specified density using ordinary methods at optimum moisture content.

3. Too wet to be properly compacted and circumstances prevent suitable inplace drying prior to incorporation into the Work.

4. Otherwise unsuitable for the planned use.

5. Concrete rubble or other buried structures.

B. The presence of excessive moisture in a material is not, by itself, sufficient cause for determining that the material is unsuitable.

C. When unsuitable material is removed and disposed of, the resulting space shall be filled with material suitable for the planned use.

END OF SECTION

APPENDIX B:

SUPPORTING GEOTECHNICAL LABORATORY RESULTS

Geotechnical Summary
Proposed Cap Materials

		UTP Cap Clay	Area D Clay	KRB-1	2:3 Mix
Sample & Analysis Information					
Description		Imported 2008 UTP cap material after scraping and windrowing	Material excavated from 2 to 10 ft bgs in area NE of UTP in 2012	Unscreened Riverbed Material	Mix of 2 parts Area D Clay and 3 parts 1.5" minus screened riverbed fines
Sampler		Speedie	Speedie	E & E	E & E
Sample Date		10/10/2013	10/10/2013	2/29/2012	6/28/2012
Laboratory		Speedie	Speedie	DBS&A	DBS&A
Hydraulic Conductivity					
k_{sat} (cm/sec) @ 85% compaction		8.3E-03 (per URS comments in May 2012)	NA	3.40E-02	2.00E-04
Atterberg Limits					
LL		26	41	NP	30
PL		15	21	NP	17
PI		11	20	NP	13
Proctor Compaction					
Optimum Moisture (%)		12.4	20.0	NA	10.6
Max Dry Density (PCF)		121.4	98.1	NA	124.0
Particle Size Analysis					
Sieve	mm	Percent Passing			
6"	150	100	100	NA	NA
3"	75	100	100	100	100
2.5"	62.5	100	100	NA	NA
2"	50	NA	NA	100	100
1.5"	37.5	100	100	100	100
1"	25	100	100	98	93
3/4"	19	100	99	98	89
1/2"	12.5	99	98	NA	NA
3/8"	9.5	97	97	96	80
1/4"	6.3	94	97	NA	NA
#4	4.75	91	96	93	70
#8	83	83	95	NA	NA
#10	80	80	94	77	56
#16	1.18	74	93	NA	NA
#20		NA	NA	46	43
#30	0.6	66	91	NA	NA
#40	0.425	63	90	21	32
#50	0.3	59	88	NA	NA
#60		NA	NA	10	26
#100	0.15	52	86	NA	NA
#140		NA	NA	4	23
#200	0.075	43	83	3	23

SPEEDIE AND ASSOCIATES
Geotechnical ▪ Environmental ▪ Materials Engineers
3125 E. 47TH STREET ▪ TUCSON, ARIZONA 85713

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Environmental Quality Management, Inc.
ATTN: Laurie Telin
18939 120th Ave. NE, 103
Bothell, AWA 98011

Project No. 131408TT
Lab No. 403305
Field No. 1
Report Date: 10-15-2013

Project: Klondyke Mine Site
Location: Klondyke, AZ
Material: Cap Clay — Sampled By: WJS — Date: 10-10-2013
Source: Native — Submitted By: DWH — Date: 10-11-2013
Supplier: n/a — Authorized By: Client — Date: 10-10-2013
Sample Location: UTP

SIEVE ANALYSIS - ASTM C 136 & D 1140 or D 6913

SIEVE SIZE in/mm	CUMULATIVE % PASSING	ASTM D 422
6" / 150	100	
3" / 75	100	
2½" / 62.5	100	
2" / 50	100	
1½" / 37.5	100	
1" / 25	100	
3/4" / 19	100	
½" / 12.5	99	
3/8" / 9.5	97	
1/4" / 6.3	94	
#4 / 4.75	91	
#8 / 2.36	83	
#10 / 2.00	80	
#16 / 1.18	74	
#30 / .600	66	
#40 / .425	63	
#50 / .300	59	
#100 / .150	52	
#200 / .075	42.6	

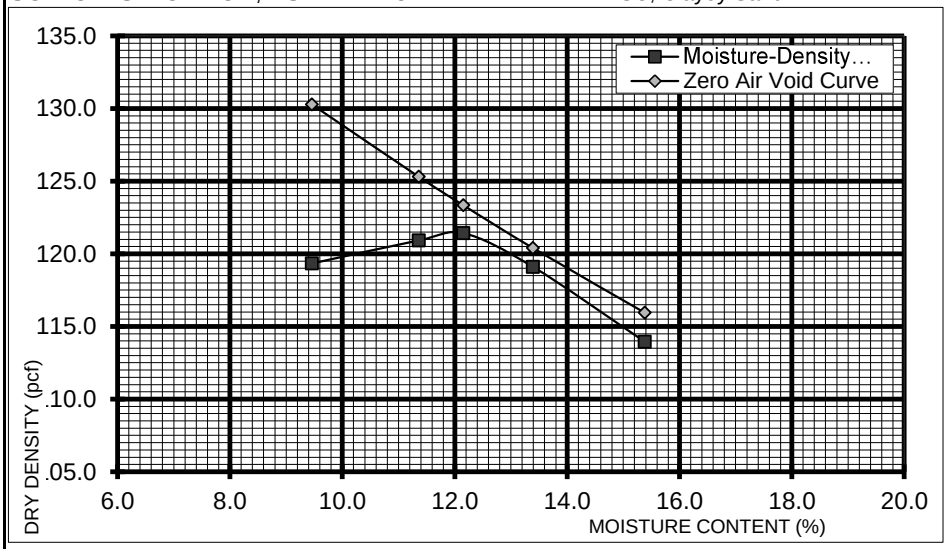
Comments: NT denotes material not tested for this property.

* denotes material out of specification.

% Gravel	9
% Sand	48
% Silt/clay	43

ADDITIONAL TESTING

PHYSICAL PROPERTIES	TEST RESULTS	TARGET/ SPECIFICATION
MOISTURE CONTENT OF AGGREGATE, ASTM C 566		
Percent Moisture by Wt of Dry Aggr.	8.0	
LABORATORY TEST FOR MOISTURE(microwave method)	8.4%	
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	26	
Plastic Limit	15	
Plasticity Index	11	
SOIL CLASIFICATION, ASTM D 2487	SC, Clayey Sand	



MAX DRY DENSITY (PCF) = 121.4
OPT MOISTURE CONT (%) = 12.4

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

Copies to: Addressee (1)

Reviewed by
Laboratory Manager

SPEEDIE AND ASSOCIATES
Geotechnical ▪ Environmental ▪ Materials Engineers
3125 E. 47TH STREET ▪ TUCSON, ARIZONA 85713

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Environmental Quality Management, Inc.
ATTN: Laurie Telin
18939 120th Ave. NE, 103
Bothell, AWA 98011

Project No. 131408TT
Lab No. 403306
Field No. 2
Report Date: 10-15-2013

Project: Klondyke Mine Site
Location: Klondyke, AZ
Material: Clay — Sampled By: WJS — Date: 10-10-2013
Source: Native — Submitted By: DWH — Date: 10-11-2013
Supplier: n/a — Authorized By: Client — Date: 10-10-2013
Sample Location: Area D

SIEVE ANALYSIS - ASTM C 136 & D 1140 or D 6913

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6" / 150	100	
3" / 75	100	
2½" / 62.5	100	
2" / 50	100	
1½" / 37.5	100	
1" / 25	100	
3/4" / 19	99	
½" / 12.5	98	
3/8" / 9.5	97	
1/4" / 6.3	97	
#4 / 4.75	96	
#8 / 2.36	95	
#10 / 2.00	94	
#16 / 1.18	93	
#30 / .600	91	
#40 / .425	90	
#50 / .300	88	
#100 / .150	86	
#200 / .075	83.0	

Comments: NT denotes material not tested for this property.

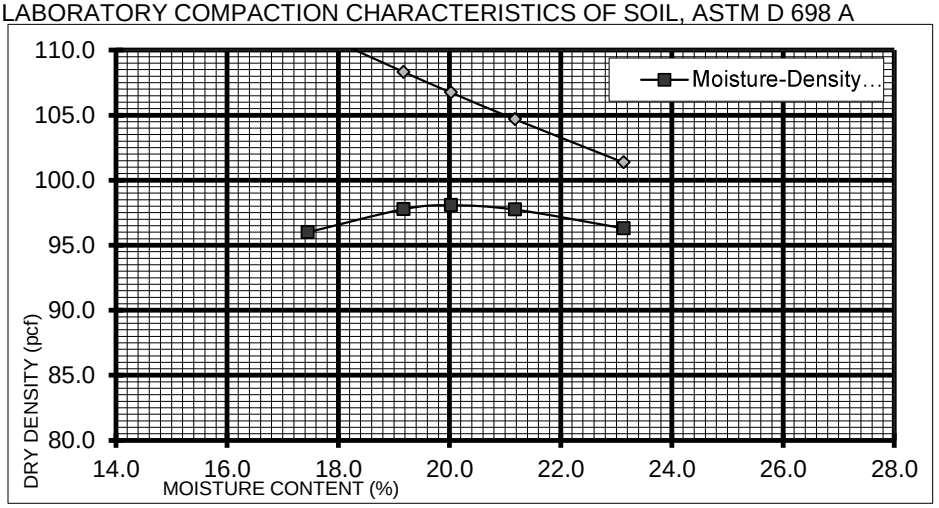
* denotes material out of specification.

% Gravel	4
% Sand	13
% Silt/clay	83

ADDITIONAL TESTING

PHYSICAL PROPERTIES	TEST RESULTS	TARGET/ SPECIFICATION
MOISTURE CONTENT OF AGGREGATE, ASTM C 566		
Percent Moisture by Wt of Dry Aggr.	12.0	
LABORATORY TEST FOR MOISTURE(microwave method)	12.9%	
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	41	
Plastic Limit	21	
Plasticity Index	20	
SOIL CLASIFICATION, ASTM D 2487	CL, Lean Clay	

LABORATORY COMPACTION CHARACTERISTICS OF SOIL, ASTM D 698 A



MAX DRY DENSITY (PCF) = 98.1
OPT MOISTURE CONT (%) = 20.0

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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Laboratory Manager

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	Oversize Corrected K_{sat} (cm/sec)	Method of Analysis	
			Constant Head	Falling Head
KRB-1 (1.58) (Moderate)	2.6E-02	---	X	
KRB-1 (1.68) (Extra Firm)	1.6E-02	---	X	
KRB-1(1.63)	3.4E-02	---	X	

DRAFT

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1
Ring Number: NA
Depth: NA
Test Date: 6-Apr-12

Initial Dry Weight of Sample (g): 2092.20
Weight Passing #10 (g): 1610.37
Weight Retained #10 (g): 481.83
Weight of Hydrometer Sample (g): 77.20
Calculated Weight of Sieve Sample (g): 100.30
Shape: Angular
Hardness: Weathered and friable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	2092.20	100.00
	2"	50	0.00	0.00	2092.20	100.00
	1.5"	38.1	0.00	0.00	2092.20	100.00
	1"	25	31.65	31.65	2060.55	98.49
	3/4"	19.0	0.00	31.65	2060.55	98.49
	3/8"	9.5	48.76	80.41	2011.79	96.16
	4	4.75	69.56	149.97	1942.23	92.83
	10	2.00	331.86	481.83	1610.37	76.97
-10			(Based on calculated sieve wt.)			
	20	0.85	30.72	53.82	46.48	46.34
	40	0.425	25.20	79.02	21.28	21.22
	60	0.250	11.69	90.71	9.59	9.56
	140	0.106	5.79	96.50	3.80	3.79
	200	0.075	0.40	96.90	3.40	3.39
	dry pan		0.03	96.93	3.37	
	wet pan			3.37	0.00	

d_{10} (mm): 0.26
d_{16} (mm): 0.34
d_{30} (mm): 0.54
d_{50} (mm): 0.94
d_{60} (mm): 1.2
d_{84} (mm): 2.9

Median Particle Diameter --d_{50} (mm): 0.94
Uniformity Coefficient, Cu --[d_{60}/d_{10}] (mm): 4.6
Coefficient of Curvature, Cc --[$(d_{30})^2/(d_{10}*d_{60})$] (mm): 0.93
Mean Particle Diameter --[$(d_{16}+d_{50}+d_{84})/3$] (mm): 1.4

Classification of fines (visual method): ML

ASTM Soil Classification: Poorly-graded sand (SP)
USDA Soil Classification: Sand †

† Greater than 10% of sample is coarse material

Laboratory analysis by: K. Wright
Data entered by: J. Hines
Checked by: C. Krous

DRAFT

Particle Size Analysis
Hydrometer Data

Job Name: Ecology and Environment, Inc.
Job Number: LB12.0068.00
Sample Number: KRB-1
Ring Number: NA
Depth: NA

Test Date: 3-Apr-12
Start Time: 9:00

Type of Water Used: DISTILLED
Reaction with H_2O_2*:* NA
Dispersant:* $(NaPO_3)_6$
Assumed particle density: 2.65

Initial Wt. (g)*:* 77.20
Total Sample Wt. (g)*:* 2092.20
Wt. Passing #10 (g): 1610.37

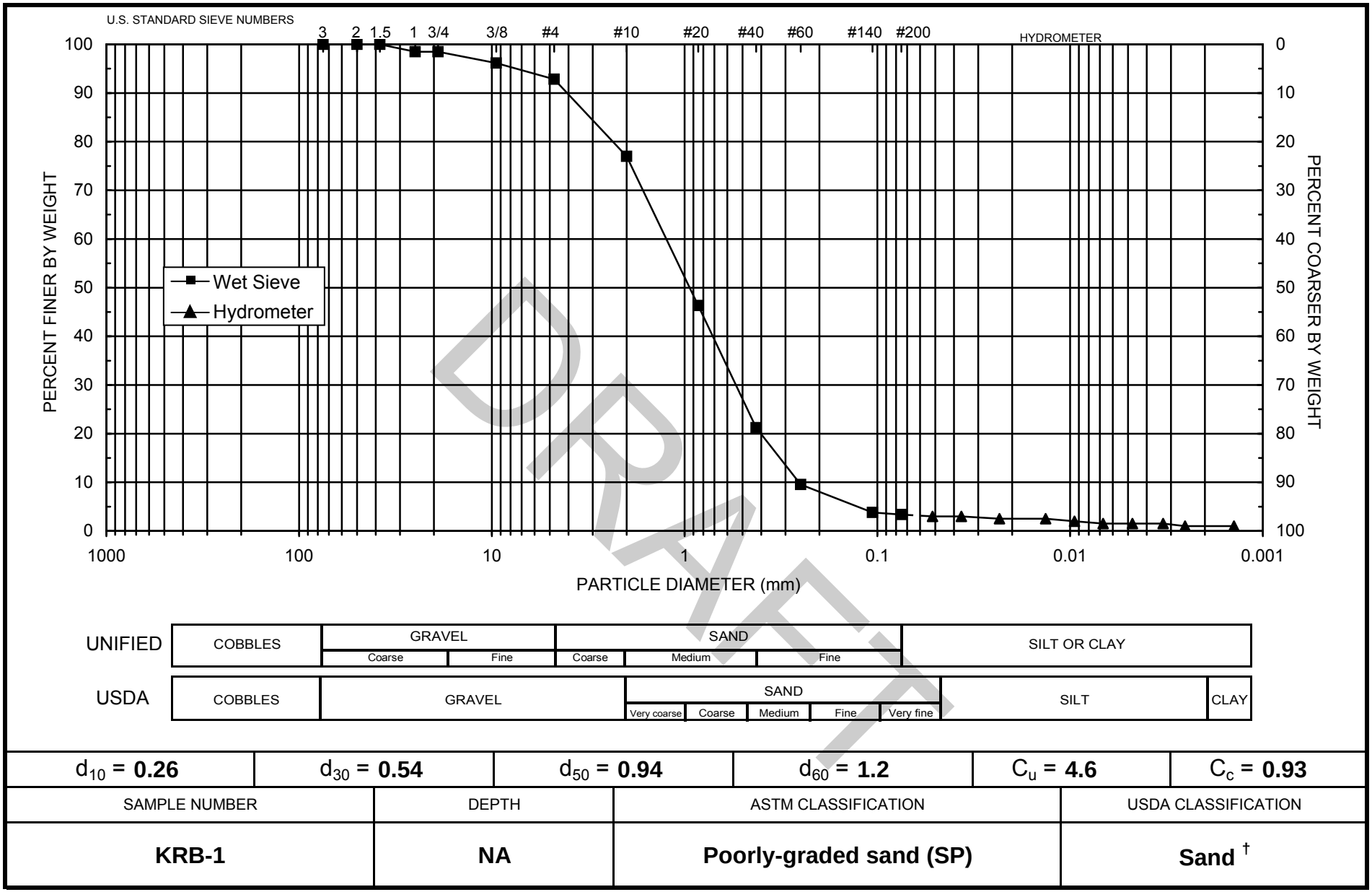
DRAFT

Date	Time (min)	Temp (°C)	R (g/L)	R_L (g/L)	R_{corr} (g/L)	L (cm)	D (mm)	P (%)	% Finer
3-Apr-12	1	20.8	9.5	6.5	3.0	14.7	0.05179	3.9	3.0
	2	20.8	9.5	6.5	3.0	14.7	0.03662	3.9	3.0
	5	20.8	9.0	6.5	2.5	14.8	0.02323	3.2	2.5
	15	20.8	9.0	6.5	2.5	14.8	0.01341	3.2	2.5
	30	20.9	8.5	6.5	2.0	14.9	0.00950	2.6	2.0
	60	20.9	8.0	6.5	1.5	15.0	0.00673	1.9	1.5
	120	21.0	8.0	6.5	1.5	15.0	0.00476	1.9	1.5
	250	21.0	8.0	6.5	1.5	15.0	0.00330	1.9	1.5
	420	21.5	7.5	6.5	1.0	15.1	0.00253	1.3	1.0
4-Apr-12	1380	20.8	7.5	6.5	1.0	15.1	0.00141	1.3	1.0

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: K. Wright
Data entered by: J. Hines
Checked by: C. Krous



DRAFT

d_{10} = **0.26**	d_{30} = **0.54**	d_{50} = **0.94**	d_{60} = **1.2**	C_u = **4.6**	C_c = **0.93**

SAMPLE NUMBER	DEPTH	ASTM CLASSIFICATION	USDA CLASSIFICATION
KRB-1	**NA**	**Poorly-graded sand (SP)**	**Sand** †

† Greater than 10% of sample is coarse material

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	Oversize Corrected K_{sat} (cm/sec)	Method of Analysis	
			Constant Head	Falling Head
K-cap-1:2 (85%)	1.4E-03	1.2E-03	X	
K-cap-1:3 (85%)	4.7E-03	3.8E-03	X	
K-cap-1:4 (85%)	1.8E-02	1.5E-02	X	
K-cap-2:3 (85%)	2.0E-04	1.6E-04	X	

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Atterberg Limits

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 30-Nov-12

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:	33	21	15
Pan number:	LL1	LL2	LL3
Weight of pan plus moist soil (g):	136.37	127.42	123.29
Weight of pan plus dry soil (g)	133.58	124.85	121.16
Weight of pan (g):	124.11	116.51	114.39
Gravimetric moisture content (% g/g):	29.46	30.82	31.46

Liquid Limit: 30

Plastic Limit

	Trial 1	Trial 2
Pan number:	PL1	PL2
Weight of pan plus moist soil (g):	122.62	121.25
Weight of pan plus dry soil (g)	121.18	120.08
Weight of pan (g):	112.92	113.20
Gravimetric moisture content (% g/g):	17.43	17.01

Plastic Limit: 17

Results

Percent of Sample Retained on #40 Sieve: See Sieve

Liquid Limit: 30
Plastic Limit: 17
Plasticity Index: 13

Classification: CL

Comments:

--- = Soil requires visual-manual classification due to non-plasticity
* = 1-point method requested by client

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

Proctor Compaction Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 8-Nov-12

As Received Moisture Content (% g/g): NA

Split (3/4", 3/8", #4): 3/8
Mass of coarse material (g)*:* 450.36
Mass of fines material (g)*:* 1849.38
Mold weight (g): 4237
Mold volume (cm^3)*:* 939
Compaction Method: Modified B
Preparation Method: Dry
Type of Rammer: Mechanical

Trial	Weight of Mold and Compacted Soil (g)	Weight of Container and Wet Soil (g)	Weight of Container and Dry Soil (g)	Weight of Container (g)	Dry Bulk Density (g/cm^3)	Moisture Content (% g/g)
1	6163	798.06	763.83	266.48	1.92	6.88
2	6254	962.20	904.80	269.21	1.97	9.03
3	6304	869.80	803.80	212.70	1.98	11.17
4	6268	811.80	741.34	208.60	1.91	13.23
5	6182	879.50	792.34	211.98	1.80	15.02

Soil Fractions
Coarse Fraction (% g/g): 19.6
Fines Fraction (% g/g): 80.4

Properties of Coarse Material
Assumed particle density (g/cm^3)*:* 2.65
Assumed Initial Moisture Content (% g/g): 0.0

Oversize Corrected Values for Dry Bulk Density and Moisture Content

Trial	Dry Bulk Density of Composite (g/cm^3)	Moisture Content of Composite (% g/g)
1	2.03	5.53
2	2.07	7.26
3	2.08	8.98
4	2.02	10.64
5	1.92	12.08

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

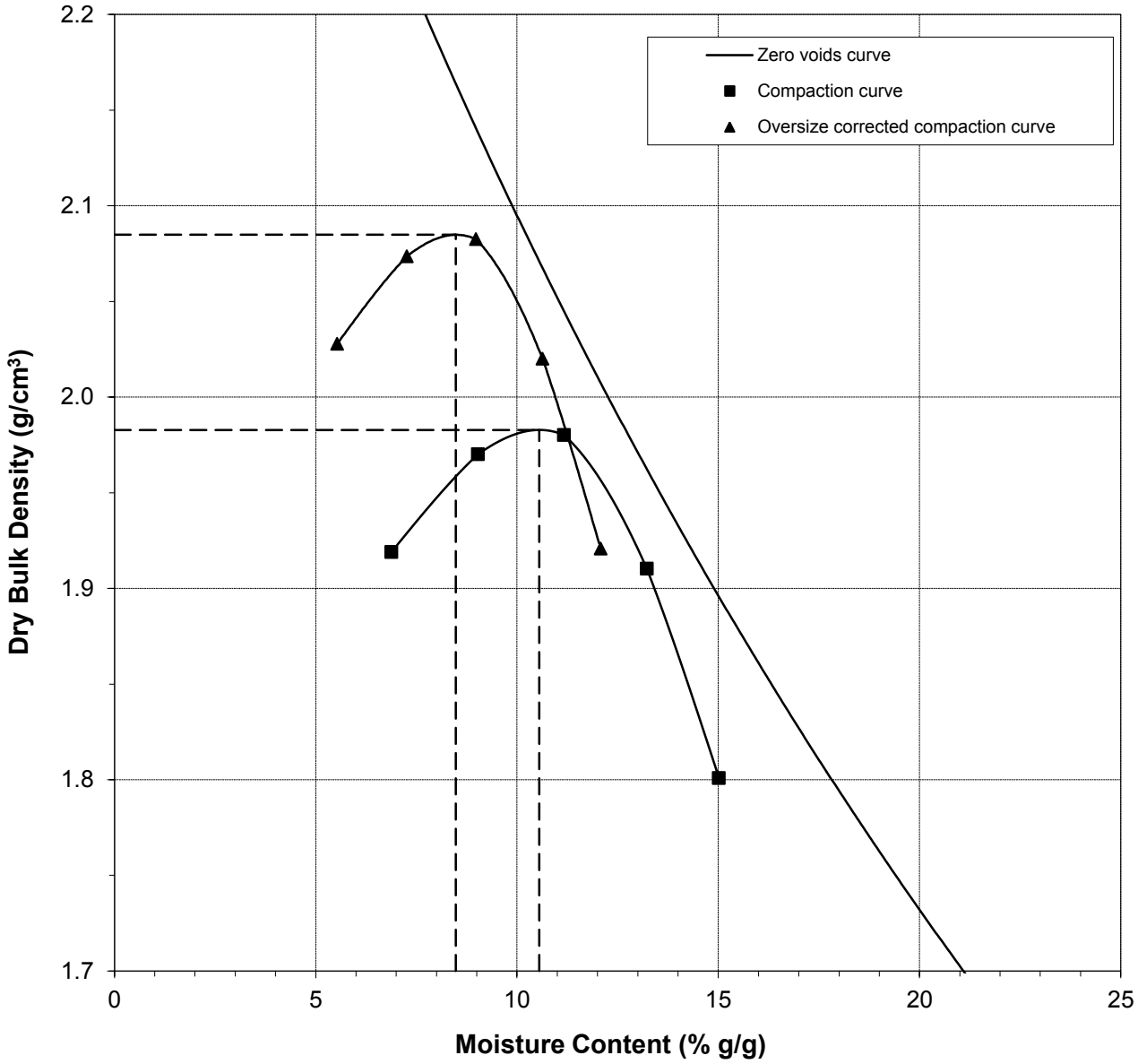
Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Proctor Compaction Data Points with Fitted Curve

Sample Number: K-cap-2:3

	Measured	Corrected
Optimum Moisture Content (% g/g)*:*	10.6	8.5
Maximum Dry Bulk Density (g/cm^3)*:*	1.98	2.08

Test Date: 8-Nov-12



--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

Laboratory analysis by: K. Wright
Data entered by: K. Wright
Checked by: J. Hines

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3
Project Name: Klondyke Cap Design
Depth: NA
Test Date: 13-Nov-12

Initial Dry Weight of Sample (g): 2299.74
Weight Passing #10 (g): 1286.76
Weight Retained #10 (g): 1012.98
Weight of Hydrometer Sample (g): 56.86
Calculated Weight of Sieve Sample (g): 101.62

Shape: Angular
Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	2299.74	100.00
	2"	50	0.00	0.00	2299.74	100.00
	1.5"	38.1	0.00	0.00	2299.74	100.00
	1"	25	162.42	162.42	2137.32	92.94
	3/4"	19.0	81.69	244.11	2055.63	89.39
	3/8"	9.5	206.25	450.36	1849.38	80.42
	4	4.75	241.94	692.30	1607.44	69.90
	10	2.00	320.68	1012.98	1286.76	55.95
-10			(Based on calculated sieve wt.)			
	20	0.85	13.51	58.27	43.35	42.66
	40	0.425	11.29	69.56	32.06	31.55
	60	0.250	5.07	74.63	26.99	26.56
	140	0.106	3.24	77.87	23.75	23.37
	200	0.075	0.67	78.54	23.08	22.71
	dry pan		0.04	78.58	23.04	
	wet pan			23.04	0.00	

d_{10} (mm): 0.0025
d_{16} (mm): 0.0077
d_{30} (mm): 0.36
d_{50} (mm): 1.4
d_{60} (mm): 2.6
d_{84} (mm): 13

Median Particle Diameter --d_{50} (mm): 1.4
Uniformity Coefficient, Cu --[d_{60}/d_{10}] (mm): 1040
Coefficient of Curvature, Cc --[$(d_{30})^2/(d_{10}*d_{60})$] (mm): 20
Mean Particle Diameter --[$(d_{16}+d_{50}+d_{84})/3$] (mm): 4.8

Classification of fines: CL

ASTM Soil Classification: Clayey sand with gravel (SC)g
USDA Soil Classification: Sandy Loam †

† Greater than 10% of sample is coarse material

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines

Particle Size Analysis
Hydrometer Data

Job Name: Ecology & Environment, Inc.
Job Number: LB12.0208.00
Sample Number: K-cap-2:3
Project Name: Klondyke Cap Design
Depth: NA

Test Date: 8-Nov-12
Start Time: 9:06

Type of Water Used: DISTILLED
Reaction with H_2O_2*:* NA
Dispersant:* $(NaPO_3)_6$
Assumed particle density: 2.65

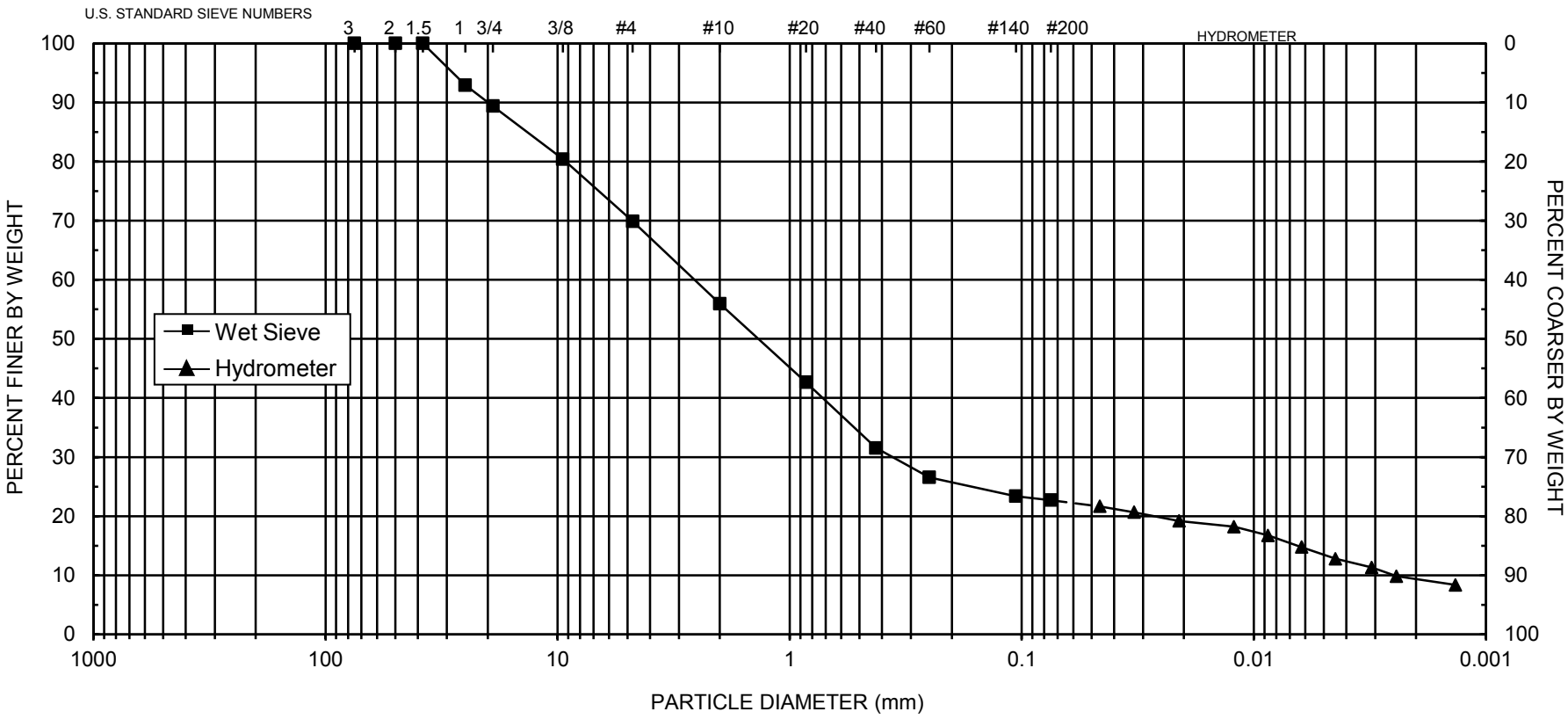
Initial Wt. (g)*:* 56.86
Total Sample Wt. (g)*:* 2299.74
Wt. Passing #10 (g): 1286.76

Date	Time (min)	Temp (°C)	R (g/L)	R_L (g/L)	R_{corr} (g/L)	L (cm)	D (mm)	P (%)	% Finer
8-Nov-12	1	20.7	28.5	6.5	22.0	11.6	0.04605	38.7	21.6
	2	20.7	27.5	6.5	21.0	11.8	0.03279	36.9	20.7
	5	20.7	26.0	6.5	19.5	12.0	0.02096	34.3	19.2
	15	20.8	25.0	6.5	18.5	12.2	0.01217	32.5	18.2
	30	20.9	23.5	6.5	17.0	12.4	0.00868	29.9	16.7
	60	20.9	21.5	6.5	15.0	12.8	0.00622	26.4	14.8
	120	21.0	19.5	6.5	13.0	13.1	0.00445	22.9	12.8
	250	21.2	18.0	6.5	11.5	13.3	0.00310	20.2	11.3
	415	21.3	16.5	6.5	10.0	13.6	0.00243	17.6	9.8
9-Nov-12	1375	20.8	15.0	6.5	8.5	13.8	0.00135	14.9	8.4

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: K. Wright
Data entered by: C. Sessa
Checked by: J. Hines



UNIFIED	COBBLES	GRAVEL		SAND			SILT OR CLAY				
		Coarse	Fine	Coarse	Medium	Fine					
USDA	COBBLES	GRAVEL		SAND					SILT	CLAY	
				Very coarse	Coarse	Medium	Fine	Very fine			

d_{10} = **0.0025**	d_{30} = **0.36**	d_{50} = **1.4**	d_{60} = **2.6**	C_u = **1040**	C_c = **20**

SAMPLE NUMBER	DEPTH	ASTM CLASSIFICATION	USDA CLASSIFICATION
K-cap-2:3	**NA**	**Clayey sand with gravel (SC)g**	**Sandy Loam †**

† Greater than 10% of sample is coarse material

Appendix K: Seed and Mulch Specifications and Documentation

Certificate of Compliance

Project Name: Klondyke Mine WQARF Site **Date:** 10-28-13

Owner/Representative: Arizona Department of Environmental Quality and URS

Project Location: Klondyke, AZ

Type of Work/Item: **Section 02921, Revegetation**

Contractor: Environmental Quality Management, Inc.
Subcontractor: Desert Seeders, LLC

Material: Seeding Quantity: +/-3.6 Acres

Species	PLS lbs/acre
Bothriochloa barbinodes, Cane bluestem	1.4
Bouteloua curtipendula, 'Vaughns' Side oats grama	7.6
Sporobolus cryptandrus, Sand dropseed	0.4
Leptochloa dubia, Green sprangletop	2.05
Hilaria jamesii, 'Viva' Galleta grass	6.8
Sphaeralcea ambigua, Desert globemallow	2.2
Atriplex canescens, Four wing saltbush	4.2
Eriogonum fasciculatum, Shrubby flat top buckwheat	3.0

Straw mulch: Rio Ranch brand 'Shotstraw' hydraulic straw @ 2,000 lbs/acre, and/ or 'Hydrostraw' brand hydraulic straw @ 2,000 lbs/acre.
Wood fiber mulch: Terrawood 100% virgin wood cellulose hydromulch @ 1,000 lbs/acre
Tackifier: Plantago mucilage hydrophilic colloid @ 150 lbs/acre

Application: Hydraulic slurry

This material meets the requirements of the Standards for Construction and the Special Provisions and includes any relevant approved changes for this item. Additional product and MSDS information will be attached or supplied as needed.

Signed _____

Dan James, President

Desert Seeders, LLC
14854 W.Belmont, Casa Grande, Arizona 85222
ROC# 201792

p.o. box 132
decatur, ga 30031-0132
404-294-5450
FAX: 404-294-TEST
e-mail: huisey.seed@mindspring.com

ALL ANALYSIS ACCORDING TO AOSA PROCEDURES

MEMBER: AMERICAN SEED TRADE ASSOCIATION - SOUTHERN SEEDMEN'S ASSOCIATION
SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS

lab. number 05- 1262 ← WHEN REFERRING TO THIS REPORT, PLEASE GIVE LAB. NO. 10S

1888

DOUBLE O ENTERPRISES
ATTN: TOM OHMART
2821 W. COLT ROAD
CHANDLER, AZ 85224

(480)229-4837

date 06/03/13 lot no. ERFA-13-EITP no. bags

kind and variety BUCKWHEAT CZ2

purity and germination analysis of seed sample — type of test / name of other crop — name of weeds

pure seed	69.04	%
inert matter	30.96	%
other crop	0.00	%
weed seeds	0.00	%
germination	9.00	%
hard seed		%
total germ. & hard seed		%
dormant seed	86.00	%
tetrazolium		%

PURITY & GERMINATION
TZ TEST: 94.00%
SEED COUNT:
395,470 SEEDS/LB.
CC/E-MAIL: NATIVE SEED CO.
-NATIVESEEDCOMPANY@GMAIL.COM-
- E-MAIL RESULTS -

name and no. of noxious weed seeds per lb.
(all states noxious count unless otherwise indicated.)

NONE

SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS — SENIOR AUTHORIZED MEMBER #030

Jerry Huisey

registered seed technologist

ATCAe 5-13

hulsey seed laboratory, inc.

p.o. box 132
decatur, georgia 30031
ofc: 404-294-5450
fax: 404-294-TEST (8378)
hulsey.seed@mindspring.com

All analysis according to AOSA procedures
Member American Seed Trade Association - Southern Seedsmen's Association
Society of Commercial Seed Technologists

lab. number 05- 282 cust. number 1888

DOUBLE O ENTERPRISES
ATTN: TOM OHMART
2821 W. COLT ROAD (480)229-4837
CHANDLER, AZ 85224 FAX:

date 05/10/13 lot no. ATCA-13 (EITP) bags/lbs
kind
variety SALTBUSH, FOURWINGED

purity and germination analysis of seed sample		type of test/ name of other crop	
pure seed	99.68 %	PURITY TEST	
inert matter	0.32 %	TZ TEST:	81.00 %
other crop	0.00 %	SEED COUNT:	
weed seeds	0.00 %	50,518 SEEDS/LB.	
germination		- E-MAIL RESULTS -	
hard seed			
total germ. & hard seed			
dormant seed			

name of weeds

name and no. of noxious weed seeds per lb.
(all states noxious count unless otherwise indicated.)

NONE

SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS
SENIOR AUTHORIZED MEMBER #030

Jerry Hulsey
registered seed technologist

Since we have no control over the manner in which the sample was taken, our analysis is based upon the sample received and does not guarantee the uniformity of the lot. Our liability in all instances is limited to the sample received and price for making analysis on same. This analysis does not refer to trueness of variety in instances where the varieties are indistinguishable from the seed characteristics.

SPAM 7-13
EITP

hulsey seed laboratory, inc.

p.o. box 132
decatur, georgia 30031
ofc: 404-294-5450
fax: 404-294-TEST (8378)
hulsey.seed@mindspring.com

All analysis according to AOSA procedures
Member American Seed Trade Association - Southern Seedsmen's Association
Society of Commercial Seed Technologists

lab. number 07- 13 cust. number 1888

DOUBLE O ENTERPRISES
ATTN: TOM OHMART
2821 W. COLT ROAD (480)229-4837
CHANDLER, AZ 85224 FAX:

date 07/01/13 lot no. SPAM-13 (EITP) bags/lbs
kind
variety SPHAERALEA AMBIGUA

purity and germination analysis of seed sample		type of test/ name of other crop	
pure seed	98.27 %	PURITY TEST	
inert matter	1.73 %	TZ TEST:	90.00 %
other crop	0.00 %	SEED COUNT:	
weed seeds	0.00 %	500,662 SEEDS/LB.	
germination		- E-MAIL RESULTS -	
hard seed			
total germ. & hard seed			
dormant seed			

name of weeds

name and no. of noxious weed seeds per lb.
(all states noxious count unless otherwise indicated.)

NONE

SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS ★★★★★ 1982 ★★★★★ SENIOR AUTHORIZED MEMBER #030

Jerry Hulsey
registered seed technologist

Since we have no control over the manner in which the sample was taken, our analysis is based upon the sample received and does not guarantee the uniformity of the lot. Our liability in all instances is limited to the sample received and price for making analysis on same. This analysis does not refer to trueness of variety in instances where the varieties are indistinguishable from the seed characteristics.

hulsey seed laboratory, inc.

registered seed technologists

p.o. box 132
decatur, ga 30031-0132
404-294-5450
FAX: 404-294-TEST
e-mail: hulsey.seed@mindspring.com

MEMBER AMERICAN SEED TRADE ASSOCIATION - SOUTHERN SEEDMEN'S ASSOCIATION
SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS

lab. number 11-356 ◄ WHEN REFERRING TO THIS REPORT, PLEASE GIVE LAB. NO. 1888 05M

ACKNOWLEDGEMENT OF SEED SAMPLE

DOUBLE O ENTERPRISES
ATTN: TOM OHMART
2821 W. COLT ROAD
CHANDLER, AZ 85224 (480)229-4837

date 11/06/12 lot no. HIJA-12 no. bags PZ

kind and variety GALLETA JAMES GALLETA *

purity and germination analysis of seed sample

		type of test / name of other crop	name of weeds
pure seed	72.80 %	PURITY TEST	BARNYARDGRASS
inert matter	27.12 %	TZ TEST: 94.00%	
other crop	0.01 %	*(JO;AROA KA,ESOO VAR. VIVA)	
weed seeds	0.07 %	SORGHUM	
germination	%	—E-MAIL: THOMAS.K.OHMART	
hard seed	%	@PHOENIX.GOV—	
total germ. & hard seed	%		
dormant seed	%		
tetrazolium	%		

name and no. of noxious weed seeds per lb.
(all states noxious count unless otherwise indicated.)

NONE

registered seed technologist

This will acknowledge with thanks receipt of your seed sample. If a germination test has been requested, it has been started and will be sent as soon as completed.
Since we have no control over the manner in which the sample was taken, our analysis is based upon the sample received and does not guarantee the uniformity of the lot. Our liability in all instances is limited to the sample received and price for making analysis on same. This analysis does not refer to trueness of variety in instances where the varieties are indistinguishable from the seed characteristics.

hulsey seed laboratory, inc.

registered seed technologists

p.o. box 132
decatur, ga 30031-0132
404-294-5450
FAX: 404-294-TEST
e-mail: hulsey.seed@mindspring.com

MEMBER AMERICAN SEED TRADE ASSOCIATION - SOUTHERN SEEDMEN'S ASSOCIATION
SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS

lab. number 11-398 ← WHEN REFERRING TO THIS REPORT, PLEASE GIVE LAB. NO. 1888

ACKNOWLEDGEMENT OF SEED SAMPLE

DOUBLE O ENTERPRISES
ATTN: TOM OHMART
2821 W. COLT ROAD
CHANDLER, AZ 85224

(480)229-4837

date 11/06/12 lot no. 31029A no. bags 2

kind and variety GREEN SPRANGLETOP (LEPTOCHLOA VIRGATUM)

purity and germination analysis of seed sample | type of test / name of other crop | name of weeds

pure seed	%	TZ TEST:	98.00%
inert matter	%	---E-MIAL:	THOMAS.K.OHMART
other crop	%		@PHOENIX.GOV---
weed seeds	%		
germination	%		
hard seed	%		
total germ. & hard seed	%		
dormant seed	%		
tetrazolium	%		

name and no. of noxious weed seeds per lb.
(all states noxious count unless otherwise indicated.)

Jerry Hulsey
registered seed technologist

This will acknowledge with thanks receipt of your seed sample. If a germination test has been requested, it has been started and will be sent as soon as completed.

Since we have no control over the manner in which the sample was taken, our analysis is based upon the sample received and does not guarantee the uniformity of the lot. Our liability in all instances is limited to the sample received and price for making analysis on same. This analysis does not refer to trueness of variety in instances where the varieties are indistinguishable from the seed characteristics.

RECEIVED 07-02-12 02:55 FROM-

hulsey seed laboratory, inc.

registered seed technologists

p.o. box 132
decatur, ga 30031-0132
404-294-5450
FAX: 404-294-TEST
e-mail: hulsey.seed@mindspring.com

ALL ANALYSIS ACCORDING TO AOSA PROCEDURES

MEMBER: AMERICAN SEED TRADE ASSOCIATION - SOUTHERN SEEDMEN'S ASSOCIATION
SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS

lab. number 10- 1697 ◄ WHEN REFERRING TO THIS REPORT, PLEASE GIVE LAB. NO. 05M

123

For Supplier Info Contact
Double "O" Enterprises
(480)229-4837

(800)262-9892
FAX: (806)272-3114

date 11/29/11
kind and variety GREEN SPRANGLETOP VAN HORN
lot no. 31029A
no. bags C

purity and germination analysis of seed sample

type of test / name of other crop: PURITY & GERMINATION (PRECHILL) (NEW CROP)

name of weeds: PIGWEED

pure seed	99.33	%
inert matter	0.66	%
other crop	0.00	%
weed seeds	0.01	%
germination	97.00	%
hard seed		%
total germ. & hard seed		%
dormant seed		%
tetrazolium		%

PLS: 96.36%

- E-MAIL RESULTS -

name and no. of noxious weed seeds per lb.
(all states noxious count unless otherwise indicated.)

NONE

registered seed technologist

Since we have no control over the manner in which the sample was taken, our analysis is based upon the sample received and does not guarantee the uniformity of the lot. Our liability in all instances is limited to the sample received and price for making analysis on same. This analysis does not refer to trueness of variety in instances where the varieties are indistinguishable from the seed characteristics.

BOCU(V)-13

Bocuv 8-13

hulsey seed laboratory, inc.

p.o. box 132
decatur, georgia 30031
ofc: 404-294-5450
fax: 404-294-TEST (8378)
hulsey.seed@mindspring.com

All analysis according to AOSA procedures
Member American Seed Trade Association - Southern Seedsmen's Association
Society of Commercial Seed Technologists

lab. number 08-333 cust. number 1888

DOUBLE O ENTERPRISES
ATTN: TOM OHMART
2821 W. COLT ROAD (480)229-4837
CHANDLER, AZ 85224 FAX:

date 08/05/13 lot no. BOCU(V)-13 bags/lbs
kind SIDEOATS GRAMA
variety VAUGHNS *

purity and germination analysis of seed sample		type of test/ name of other crop	
pure seed	98.43 %	PURITY TEST	
inert matter	1.56 %	CARYOPSIS:	95.00 %
other crop	0.00 %	TZ TEST:	92.00 %
weed seeds	0.01 %	*(BOUTELOUA CURTIPENDULA)	
germination		- E-MAIL RESULTS -	
hard seed			
total germ. & hard seed			
dormant seed			

name of weeds

YELLOW FOXTAIL

name and no. of noxious weed seeds per lb.
(all states noxious count unless otherwise indicated.)

NONE

SOCIETY COMMERCIAL SEED TECHNOLOGISTS ★ 1922 ★ SENIOR AUTHORIZED MEMBER #030

Jerry Hulsey
registered seed technologist

Since we have no control over the manner in which the sample was taken, our analysis is based upon the sample received and does not guarantee the uniformity of the lot. Our liability in all instances is limited to the sample received and price for making analysis on same. This analysis does not refer to trueness of variety in instances where the varieties are indistinguishable from the seed characteristics.

BOBA 5-13

hulsey seed laboratory, inc.

p.o. box 132
decatur, georgia 30031
ofc: 404-294-5450
fax: 404-294-TEST (8378)
hulsey.seed@mindspring.com

All analysis according to AOSA procedures
Member American Seed Trade Association - Southern Seedsmen's Association
Society of Commercial Seed Technologists

lab. number 05-269 cust. number 1888

DOUBLE O ENTERPRISES
ATTN: TOM OHMART
2821 W. COLT ROAD (480)229-4837
CHANDLER, AZ 85224 FAX:

date 05/09/13 lot no. BOBA-12A bags/lbs
kind
variety CANE BEARDGRASS *

purity and germination analysis of seed sample		type of test/ name of other crop	
pure seed	54.73 %	TZ TEST:	99.00 %
inert matter	45.27 %	PURITY TEST	
other crop	0.00 %	*(BOTHRIOCHLOA BARBINODIS)	
weed seeds	0.00 %	---PURITY TAKEN FROM LAB #05-1735---	
germination		CC/E-MAIL: ARMENTA SEED	
hard seed			
total germ. & hard seed		-ARMENTASEED@YAHOO.COM-	
dormant seed		- E-MAIL RESULTS -	

name of weeds

name and no. of noxious weed seeds per lb.
(all states noxious count unless otherwise indicated.)

NONE

SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS ® SENIOR AUTHORIZED MEMBER #030

Jerry Hulsey
registered seed technologist

Since we have no control over the manner in which the sample was taken, our analysis is based upon the sample received and does not guarantee the uniformity of the lot. Our liability in all instances is limited to the sample received and price for making analysis on same. This analysis does not refer to trueness of variety in instances where the varieties are indistinguishable from the seed characteristics.

SPCR 4-13

UNIVERSITY OF WYOMING

Wyoming Seed Analysis Laboratory
749 Road 9 • Powell, WY 82435-9135
Ph. 307.754.4750 • Fax 307.754.4932

REPORT OF SEED SAMPLE ANALYSIS

Account No.	Date Received	Date Completed	Lab Number
168	04/19/13	04/24/13	12-3905

For supplier Info contact
Double "O" Enterprises
(480)229-4837

Sender's Information*

Product	VNS
Kind	Dropseed, sand
Genus/Species	Sporobolus cryptandrus
Lot Number	2013.0136
Class	Source Identified

*The information provided here is that of the sender and not of the laboratory.

Purity Analysis

Pure Seed Components In .3918 grams.

		Purity
Dropseed, sand	*Sporobolus cryptandrus*	99.19%
Purity Grams Required	.25	
Noxious Grams Required	2.5	
Grams Submitted	194.27	
Weed Seed		0.00%
Crop Seed		0.10%
Inert Matter		0.71%

Viability Analysis

Germ Date	Germination %	Dormant %	Hard %	Total Viable	PLS%
-N-	-N-	-N-	-N-	-N-	-N-

Other Crop Seeds

Grama, side-oats	*Bouteloua curtipendula*	1158 per lb
Galleta grass	*Pleuraphis jamesii*	1158 per lb

Noxious Weed Seeds: None Found
States: ALL STATES
In 2.5 Grams.
(P)Prohibited Noxious (R)Restricted Noxious

Weed Seeds: None Found

Other Determinations
Dropseed, sand TZ test 97 %

Status: None.

Remarks
Inert Matter: Chaff and seed parts.

Tests Requested: Purity, Noxious exam, TZ test. No other tests requested.

WARRANTY: We warrant that the purity and germination test results reported on this form have been carried out in accordance with AOSA rules unless otherwise specified. Test results reflect the condition of the submitted sample and may not reflect the condition of the seed lot from which the sample was taken.

DISCLAIMER OF WARRANTIES: WE MAKE NO OTHER WARRANTIES OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Signature: M/ Wiebel

Registered Seed Technologist Seal #45

HYDROSTRAW, LLC
CERTIFICATE OF COMPLIANCE

CERTIFICATE OF COMPLIANCE
Patents Pending

Manufacturer: HydroStraw, LLC · 3676 W 9000N Rd · Manteno, IL 60950
Toll Free: 800-545-1755 · Fax: 815-468-7450 · www.hydrostraw.com · info@hydrostraw.com

HydroStraw, LLC certifies that HydroStraw® Original contains the following properties and characteristics

DESCRIPTION-
HydroStraw® Original is a a hydraulically applied mulch with a specially formulated composition of annually renewable straw fiber, cellulose, natural fibers for fiber matrix entanglement, and a non toxic soil stabilizer.

SPECIFICATIONS-
The primary fiber shall be produced from annually renewable straw fiber; all fiber materials should be free from plastic materials or other non bio-degradable substances. Fiber shall be of such character that the fiber will disperse into a uniform slurry when mixed with water.. Fiber shall be colored green, and shall not stain concrete or other surfaces. Fiber and other mulch ingredients shall be free from growth or germination inhibiting ingredients. Mulch Fiber shall be applied as a slurry solution by means of hydroseeder.

MIXTURE RATES
- 60 lbs per 100 Gallons for hose work
- 75 lbs per 100 gallons for tower work

Increased performance can be achieved by mixing infield a hydro-colloid tackifier such as guar per manufacturer's recommended rates. It is imperative that the mulch be applied at the specified rate: too wet of a mixture will cause the fibers to be buried into soil. Mulch Fiber shall be applied as a slurry solution by means of hydroseeding. Mulch Fiber shall be applied at the specified rate per the specifications in a uniform manner. Care shall be exercised to ensure that the mulch application is uniform and even throughout the seeded area; mulch shall not be bunched or clumped up on the site. Care shall also be taken as to not create a shadowing effect on the site, mulch applications shall be started on the windward side of the project.

Physical Characteristics	
Toxicity	Non-Toxic
Applied Color	Green
Sufrace Tension	Material will evenly disperse and suspend when agitated in water
Absorbancy	When sprayed uniformly at the recommended rate, the mulch fibers form an absorbent mulch cover which will allow percolation of water and increased water infiltration to the underlying soil matrix
Solubility	Mulch Fibers are non water soluble
PH	06.8 +/- 0.5
Average Fiber Length	1/2" +/- 1/4"

Packaging and Shipping Data	
Bag Size	11.5" x 17" x 25"
Bag Weight	50 lbs. - Compressed Bales
Pallet	40 bags (52W x 45D x 96H)
Full Truck	22 Pallets, 880 Bales
Packaging	Moisture resistant packaging

Composition	
Heat & Mechanically Treated (HMT™) - Straw	84.0% +/- 1.0%
Natural Fibers	4.0% +/- 1.0%
Moisture	10.0% +/- 1.0%
Fiber Binder	2.0% +/- 1.0%

Slope Gradient/Condition	lb/acre
≤ 4:1	2,000 lbs/ac
≤ 3:1	2,000 - 3,000 lbs/ac
≤ 2:1	3,000 - 4,000 lbs/ac

WARRANTY
HydroStraw, LLC warrants that its products are free from defects and will perform as stated in this literature. If our product does not meet products specifications, notice of failure must be received within 15 days of failure. HydroStraw, LLC will not warrant that the product will perform under unlimited circumstances that are caused by soil conditions, installation, and/or weather variables.

SHOTSTRAW

December 30th, 2012

Re: Certificate of Compliance

To Whom It May Concern:

This letter is to certify that Rio Ranches, LLC manufactures Shotstraw® 1. Each bag of Shotstraw® 1 is made in the U.S. and has been subjected to our product's quality assurance and quality control program and is manufactured to meet or exceed all technical and packaging requirements listed in the following certificate of compliance.

Respectfully,

Jason Hardison
Owner
Rio Ranches, LLC

SHOTSTRAW

Certificate Of Compliance

Product Name: Shotstraw® I

Manufacturer: Rio Ranches, LLC
P.O. Box 156
Palo Verde, Arizona 85343

Phone: 602.680.8320
Website: www.shotstraw.com

I ~ DESCRIPTION

Shotstraw® I is a hydraulically applied mechanically treated straw mulch with a specific selection of annually renewable fiber material designed with particular length for superior erosion control.

Shotstraw® I when mixed with wood fiber and soil stabilizer forms an intimate bond with the soil surface to create an absorbent layer that enhances germination and plant growth.

II ~ SPECIFICATIONS

The straw mulch fiber shall be produced from annually renewable straw fiber and should be certified noxious weed free by either the North American Weed Management Association (NAWMA) or the Arizona Crop Improvement Association (ACIA) to their particular standards and procedures. Straw mulch fibers shall be colored green and shall be free from growth or germination inhibiting ingredients.

III ~ TECHNICAL DATA

Physical Properties:

Applied color: Green
Toxicity: Non-toxic
Absorbancy: When applied correctly mulch fibers will form an absorbent layer that forms an intimate bond with the surface to create an absorbent layer that will allow percolation of water and increased water infiltration to the underlying soil matrix that will enhance germination and plant growth.
Solubility: Straw mulch fibers are non water soluble but will evenly disburse and suspend when agitated in water in tank.
Product Composition: Mechanical treated Straw - 90% : Moisture 10% +-3%
Green dye: Trace

Packaging Data:

Bag weight: +- 43 lbs.
Bags per pallet: 35 bags
Bag size: 17"x12"x26"
Packaging: Moisture resistant packaging

IV ~ MIXTURE RATES AND RECOMMENDED APPLICATIONS

Increased performance can be achieved and it is recommended to add a tackifier and a wood fiber product per job specifications to create a fiber slurry matrix. The final slurry matrix shall be applied via a hydroseeder at the specified rate per the specifications in a uniform manner.

Mixture Rates:

- 60 lbs of final slurry matrix per 100 gallons for hose work
- 70 lbs of final slurry matrix per 100 gallons for tower work

Recommended Applications:

- Erosion control and revegitation
- Slopes and rough graded slopes
- Enhancement of vegetation establishment

To the best of our knowledge, the information contained herein is accurate. However, Rio Ranches LLC cannot assume any liability whatsoever for the accuracy or completeness thereof. Final determination of the suitability of any information or material for the use contemplated, or its manner of use and whether the suggested use infringes any patents is the sole responsibility of the user. Rio ranches LLC will not warrant that the product will perform under unlimited circumstances that are caused by soil conditions, installation, and/or weather variables.

SHOTSTRAW

Material Safety Data Sheet

VI – HANDLING AND STORAGE

Procedures for:

Handling: Clean up areas where dust settles. Minimize blowdown or other practices that generate high airborne dust concentrations.

Storage: Store in dry place away from fire.

VII – EXPOSURE CONTROL / PERSONAL PROTECTION

Protective Equipment:

Eye Protection: wear goggles when emptying bags and during other operations where there is a risk of dust entering the eyes.
Gloves: Leather, plastic, or rubber gloves could be worn to minimize irritation.
Respirators: When handling methods generate dust at concentrations that exceed occupational exposure limits, wear a NIOSH approved respirator. A fabric respirator or a facepiece respirator with dust cartridges will generally provide adequate protection.
Footwear: The product is slippery when wet. Wear appropriate footwear.

VIII – STABILITY AND REACTIVITY

Stability: Stable product.
Hazardous Polymerization: Will not occur.
Materials to avoid: Strong acids and oxidizers.

This MSDS is prepared and distributed pursuant to the Federal Hazard Communication Standard, 29 CFR 1910.1200

The information presented herein is believed to be correct and is submitted in good faith. Nonetheless, Rio Ranches makes no representations regarding the completeness or accuracy of this information. Users are advised to read the product label and determine the safety and suitability of each product or product combination for their own purposes. NO REPRESENTATION OR WARRANTIES EITHER EXPRESSED OR IMPLIED, OR MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY NATURE ARE MADE HEREUNDER. There is no guarantee or warranty of any kind that the use or disposal of this product is in compliance with all federal, state, and local laws. It is the obligation of each user of the product mentioned herein to determine and comply with the requirements of all applicable statues. Since actual use of the produce is beyond Rio Ranches' control, no warranty, expressed or implied, is given and no responsibility is assumed.

SHOTSTRAW

Material Safety Data Sheet

Product Name: Shotstraw® I

Product Description: Hydraulically applied mechanically treated straw mulch
Product Use: Erosion control mulch for hydraulic seeding

I ~ COMPANY IDENTIFICATION

Rio Ranches, LLC
P.O. Box 156
Palo Verde, Arizona 85343

Phone: 602.680.8320
www.shotstraw.com

II ~ HAZARDS IDENTIFICATION

OSHA Classification: Cellulose dust is a hazardous substance as defined by the Hazard Communication Standard 29CFR 1910.1200

Inhalation:	Straw dust may cause sneezing, irritation, and dryness of the nose, and throat. Dust my aggravate pre-existing respiratory conditions.
Skin Contact:	Straw dust can cause irritation. Skin absorption is not known to occur.
Eye Contact:	Straw dust can irritate the eyes.
Ingestion:	No known effects.
NFPA Ratings:	(scale 0-4): Health – 1, Fire – 2, Reactivity – 0

III ~ FIRST AID MEASURES

Inhalation:	Usually not a problem. Remove to fresh air if respiratory irritation develops, and get medical aid promptly if irritation persists.
Skin Contact:	If irritation is experienced wash area as soon as possible.
Eye Contact:	Flush eyes with water for at least 10 minutes.
Ingestion:	No known effects.

IV ~ FIRE FIGHTING MEASURES

Flash Point:	N/A
Flash Point Method:	N/A
Autoignition Temperature:	400°- 500°F
Flammability Classification:	Combustible product

Extinguishing Method – water

V ~ ACCIDENTAL RELEASE MEASURES

Procedures for:

Safe Clean Up:	Wear protective goggles and respirator if dust is produced in unventilated areas. Product is slippery when wet be cautious.
Containment:	Product may be removed by scraping or scooping area.

Profile™

Your Trusted Partner In Soil Solutions

TERRA-MULCH

Certificate of Compliance: Terra Mulch Wood

Terra Mulch Wood® is a 100% virgin wood fiber mulch manufactured from specially prepared wood chips. The wood fiber is produced by a Thermally Refined™ process and manufactured to contain a specified range of fibers averaging 0.25 inches or longer, with 50% or more retained on a 28-mesh screen (a Tyler Ro-Tap method). The manufacturing process of pressurized disc refining separates the solid wood into its individual fibers and fiber bundles, and the high temperature steam (300^0F) completely sterilizes the fiber. ***Terra Mulch Wood®*** is dyed green and packaged in 50 lb. plastic bags with 40 bags per pallet.

Profile Products certifies that ***Terra Mulch Wood®*** meets the following specifications:

Physical Properties:

Moisture Content (total air dry weight basis)	12% ±3%
Organic Matter (oven dry weight basis)	96.2% ±0.8%
Ash Content (oven dry weight basis)	0.8% ±0.3%
pH at 3% consistency in water	4.5 ±0.1
Moisture holding capacity	min 1,350
Boron Content	<250 ppm
Non-toxic to plant or animal life	
The fiber is sterilized and is weed free	

Terra Mulch Wood® specifications are monitored by the Profile Products Technical Services group. Tests are conducted using scientifically sound and reliable methods. Other test methods may produce slightly different results.

Becky Gauthier

Profile Products Technical Representative

Profile Products LLC 750 Lake Cook Road, Ste. 440, Buffalo Grove, IL 60089 847-215-1144

JUN-04-2012 16:40 From:JACKRABBIT 6238538881 To:15204260327 Page:2/3

MATERIAL SAFETY DATA SHEET

TERRA-MULCH® TERRA-WOOD™
(FORMERLY LABELED AS WOOD FIBER)

PROFILE PRODUCTS LLC
750 LAKE COOK ROAD - SUITE 440
BUFFALO GROVE, IL 60089

847-215-1144
800-726-6371
FAX 847-215-0577

HAZARDOUS COMPOUNDS	CAS NO	NIOSH	ACGIH	IDLH MG/CU METER
POPLAR, PINE & OAK WOOD DUST			5 MG / CUBIC METER	

HAZARDOUS RATINGS

HEALTH 2 FLAMMABILITY 1 REACTIVITY 0 DUST EXPLOSION 1

PHYSICAL / CHEMICAL CHARACTERISTICS

BOILING POINT	N/A	VAPOR PRESSURE	N/A
PECIFIC GRAVITY	0.6444	VAPOR DENSITY	N/A
MELTING POINT	N/A	EVAPORATIVE RATE BuAc=1	N/A
SOLUBILITY IN WATER		"SLIGHT TO INSOLUBLE"	
APPEARANCE AND ODOR		"DARK GREEN WITH WOOD ODOR"	

FIRE AND EXPLOSION HAZARD DATA N/A **"NOT APPLICABLE"**

FLASH POINT N/A FLAMMABLE LIMITS N/A LEL UEL

EXTINGUISHING MEDIA "WATER"

FIRE FIGHTING PROCEDURES "NORMAL – AVOID FUMES (IF ANY)"

UNUSUAL FIRE AND EXPLOSION HAZARDS "DUST MAY FORM AN EXPLOSIVE MIXTURE IN AIR"

REACTIVITY DATA

STABILITY UNSTABLE CONDITIONS TO AVOID
TABLE YES "AVOID OXIDIZERS / REDUCERS"

INCOMPATIBLE MATERIALS "AVOID STRONG OXIDIZERS / REDUCERS"

MATERIAL SAFETY DATA SHEET

TERRA-MULCH® TERRA-WOOD™

PAGE 2

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS **NONE**

HAZARDOUS POLYMERIZATION	MAY OCCUR? "WILL NOT OCCUR"	CONDITIONS TO AVOID "WILL NOT OCCUR"	NONE

HEALTH HAZARDS DATA

ROUTE OF ENTRY: INHALATION? X SKIN? X INGESTION? X

HEALTH HAZARD: AVOID INHALATION OF ANY DUST, AVOID SKIN CONTACT, PROTECT EYES, AVOID INGESTION AND PROLONGED EXPOSURE.

OBSERVE FOR DEVELOPMENT OF ALLERGENIC REACTIONS AND CALL A PHYSICIAN

CARCINOGENICITY:	**NPT?**	**IARC MONOGRAPHS?**	**OSHA REGULATED?**
	"NO"	"NO"	"NO"

SYMPTOMS OF EXPOSURE IRRITATES SKIN, EYE IRRITATION; BURNING, TEARING, SWELLING.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

ALLERGIES, DERMATITIS

EMERGENCY FIRST AID PROCEDURES: USE WATER TO CLEANSE AREA, EYES FLUSH WITH WATER, CONTACT PHYSICIAN IF ALLERGIC REACTIONS OCCUR WITHIN 0-2 HOURS.

PRECAUTIONS FOR SAFE HANDLING AND USE

GOGGLES FOR EYES, GLOVES FOR HANDS, WEAR CLOTHING TO PREVENT SKIN CONTACT

STEPS TO BE TAKEN IN CASE OF SPILL

SPRINKLE SPILLAGE COMPOUND TO MINIMIZE DUST AND SWEEP UP SPILLED DEBRIS, ABSORB AND SWEEP UP / COLLECT; AVOID INHALATION AND / OR INGESTION OF ANY DUST.

WASTE DISPOSAL METHOD NO SPECIAL DISPOSAL METHOD STANDARD LANDFILL

DISPOSAL ACCORDING TO LOCAL, STATE AND FEDERAL ENVIRONMENTAL REQUIREMENTS

RECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

"NO SPECIAL REQUIREMENTS EXCEPT FOR CONTAINER DAMAGE". 1-1-03

5. *All HM should be completely loaded before water level reaches 75% of the top of tank.*
6. *Top off with water and mix until all fiber is fully broken apart and hydrated (minimum of 10 minutes).*
7. *Add fertilizer*
8. *Shut off recirculation valve to minimize potential for air entrainment within the slurry.*
9. *Slow down agitator and start applying with a 50-degree fan tip nozzle.*
10. *Spray in opposing directions for maximum soil coverage.*

D. Application Rates: These application rates are for standard conditions. Designers may wish to reduce rates to encourage faster vegetation establishment or may need to increase application rates on rough surfaces.

Slope Gradient / Condition	English	SI
≤ 4H to 1V	2000 lb/ac	2250 kg/ha
> 4H to 1V and ≤ 3H to 1V	2500 lb/ac	2800 kg/ha
≥ 3H to 1V and ≤ 2H to 1V	3000 lb/ac	3400 kg/ha

3.03 CLEANING AND PROTECTION

A. After application, thoroughly flush the tank, pumps and hoses to remove all material. Wash all material from the exterior of the machine and remove any slurry spills.

B. Clean spills promptly. Advise owner of methods for protection of treated areas. Do not allow treated areas to be trafficked or subjected to grazing.

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MATERIALS CHARACTERIZATION REPORT

Date: January 29, 2013

Lab ID: 73057

Client: Desert Seeders, LLC
14854 W. Belmont
Casa Grande, AZ 85194

Payment: Credit Card

Sample: One Tackifier Sample, Received by Chandler Analytical Laboratories January 25th, 2013. Sample ID: Plantago Tacking Agent

Method: Swell Volume was determined in duplicate for Tackifier using ~ 0.5 g of sample in 100 ml of water. Sample was added in 0.1 g increments over an 8 hr period of time and the gel plug volume was determined after 24 hours from the initial sample addition.

Results:

Swell Volume Using Water

Replicate #	Sample Wt.	Swell Volume
	Grams	mL/gram
1	0.5535	31.62
2	0.5881	28.91
		Average 30.26 mL/g

We appreciate your business and look forward to working with you in the future.

Chandler Analytical Laboratories

Sara Sanders, Ph.D.
Lab Manager

PRODUCT DATA SHEET

PLANTAGO

Binder/Tackifier

DESCRIPTION

Plantago Binder is a natural, 100% psyllium fiber derived fro the outer coating of the seed. It is a solid beige-tan powder used as a binding agent with hydroseeding mulch for seeding or erosion control applications. Plantago Binder has proven to be effective in holding fiber in place, improving grass stands and reducing overall erosion. It is a stable non-toxic dust with no components listed as carcinogens.

CHARACTERISTICS

Active Ingredient: 100% Psyllium

% Protein content	16.7
% Settleable solids	80.8
1% Solution pH	5.5
% Total Nitrogen	2.68

USES

Plantago Binder may be applied as a wet slurry or to dry surfaces in the following applications. To be used in well ventilated areas with a dust mask, goggles and rubber gloves for safety measures. The material is slippery when wet, sweep up any spills and avoid washing them down.

*Erosion control *Dust Control *Caltrans compliant *Binding agent

APPLICATION RATES

40 to 160 pounds per acre depending on degree of slope.

Prepare the slurry by mixing seed, mulch, fertilizer, Plantago Binder and water in the tank in the amounts specified. Add all material slowly and mix thoroughly.
It should be stored in a cool dry place.

PACKAGING

50 lb. heavy duty paper bags.
Palletized at 40 bags/pallet (2,000 lb.)

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Fact Sheet

SPIKE DROPSEED

Sporobolus contractus Hitchc.

Plant Symbol = SPCO4

Contributed by: USDA NRCS James E. "Bud" Smith Plant Materials Center, Knox City, Texas

USDA/NRCS

Uses

Erosion Control: Spike dropseed may be used as a component of a seeding mixture for critical area plantings and conservation cover. It is a bunchgrass with very thick vegetation near the soil surface which can be used to stabilize sandy eroding soils.

Wildlife: Spike dropseed is utilized as a food source by various wildlife species. Particularly, upland birds feed on the mature seed that is produced. It also provides good cover for birds and small mammals.

Livestock: Many species of livestock will graze on spike dropseed. It has a nutritional value of fair. The species has the ability to recover and reseed itself if heavy grazing occurs.

Status

Please consult the PLANTS Web site (http://plants.usda.gov) and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Weediness

This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Please consult your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use. Weed information is also available from the PLANTS Web site at http://www.plants.usda.gov. Please consult this and Related Web Sites and view the plant profile for this species for further information.

Description

Spike dropseed is a native, perennial, warm season bunchgrass with erect stems that grow 3 feet tall. It begins growing in the spring when moisture levels increase and matures to produce seed in October. The leaf blades grow to about 1.5 feet long and ½ inch wide. The leaves are flat when the plant is actively growing, but as the plant begins to dry, they become V-shaped. The sheaths of the leaves are hairy along the margins. The seedhead is ½ inch wide and six inches to approximately 1.5 feet long.

Adaptation

Spike dropseed is adapted to a large portion of the southwest United States. It is found from Texas to California, and as far north as Nevada and Colorado. Spike dropseed is adapted to a wide range of soil types, but performs best on loamy fine, silty and sandy loam soils.

Distribution: Please consult the Plant Profile page for this species on the PLANTS Web site.

Establishment

Spike dropseed should be planted on a clean, firm seedbed. Planting can be done using either a grass drill or broadcast seeding, but grass drills are the most successful method of planting. Seed should be placed less than 1/8 inch deep on fine textured and ½ inch on sandy soils. Spike dropseed should be planted at a rate of 1.0 lb pure live seed (pls) per acre. When planting spike dropseed as a component of a seed mixture, the seeding rate should be adjusted to the desired percent of the mix. Soil samples should be taken before planting to determine the amount of fertilizer needed to bring the fertility level up to a medium range. Nitrogen should be limited to less than ten pounds per acre until a stand is evident.

Management

Spike dropseed is commonly found as a component in seed mixtures for range and pastures. Stands of spike dropseed should be well established before livestock grazing is permitted. Once the stand is established, spike dropseed should never be grazed or cut below five to six inches. Grazing can begin the first winter after planting on well established areas. Spike dropseed can reseed

itself following overgrazing or drought; however, proper management is required to ensure the plant is not overgrazed or over utilized by livestock or wildlife. Consult your local NRCS Field Office for assistance with planning and applying prescribed grazing.

Pests and Potential Problems
None Known

Control
Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

Cultivars, Improved, and Selected Materials (and area of origin)
Potter County germplasm was released from the James E. "Bud" Smith Plant Materials Center, Knox City, TX in 2000. It was collected originally in 1984 from native plants in the Canadian River bottomland in Potter County, TX, approximately 18 miles north of Amarillo, TX.

Cochise Germplasm was released from the Tucson Plant Materials Center in Tucson, AZ in 2005. Uses include revegetation of denuded range sites, abandoned cropland, and critical areas.

Prepared By:
Brandon Carr, USDA NRCS James E. "Bud" Smith Plant Materials Center, Knox City, Texas

Species Coordinator:

Published: November, 2009

Edited:

For more information about this and other plants, please contact your local NRCS field office or Conservation District <http://www.nrcs.usda.gov/>, and visit the PLANTS Web site <http://plants.usda.gov> or the Plant Materials Program Web site <http://plant-materials.nrcs.usda.gov>

USDA IS AN EQUAL OPPORTUNITY PROVIDER AND EMPLOYER

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Guide

SAND DROPSEED

Sporobolus cryptandrus (Torr.) A. Gray

Plant Symbol = SPCR

Contributed by: USDA NRCS Idaho Plant Materials Program

Figure 1. Sand dropseed. Photo by Robert Soreng @ USDA-NRCS

Alternate Names

Agrostis cryptandra Torr.
Vilfa cryptandra (Torr.) Trin.

Uses

Sand dropseed seed has been used to make bread and porridge by Apache, Hopi and Navajo tribes (Castetter et al., 1936; Colton, 1974; Vestal, 1952). The plant has also been used to create a cold infusion that is applied to sores and bruises on the legs of horses (Vestal, 1952).

Erosion control/rehabilitation of disturbed areas:
Sand dropseed is widely used in disturbed area plantings in the Southwest, Intermountain West and short-grass prairies of the Great Plains. The fibrous root system effectively stabilizes sand dunes and hills. Its abundant seed production makes it a pioneer plant in disturbed areas and an invader of sandy soils. It has also been noted as an early native colonizer in sites suffering from water stress (Coupland, 1958).

Status

This species is listed as threatened in Connecticut and New Hampshire (New Hampshire Natural Heritage Bureau, 2006; State of Connecticut, 2004), and rare in Pennsylvania (Commonwealth of PA, 2009). It is not considered a rare plant in the western United States. Consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values)

Weediness

Sand dropseed may become weedy or invasive in some regions or habitats and may displace more desirable vegetation if not properly managed. Sand dropseed is considered an invader species in the Central and Northern Great Plains where it provides lower quality forage than other native species (Stubbendieck et al., 1994). Consult your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use. Weed information is available from the PLANTS Web site at plants.usda.gov. Consult the related web sites on the Plant Profile for this species for additional information.

Description

General:
Grass Family (Poaceae). Sand dropseed is a long-lived perennial warm season bunchgrass, native throughout North America (Monsen et al., 2004; Ogle et al., 2009). The scientific name, *Sporobolus*, comes from the Greek *sporos* (seed) and *bolos* (a throw), and the common name, dropseed, both refer to the seeds which fall or may be ejected from the inflorescence when the mucilaginous fruit wall dries (Peterson, et al., 2003). Mature plants range from 11 to 40 inches tall. Plants are typically erect but may also be decumbent. The collar is a conspicuous tuft of white hairs which may be up to 0.16 inches long. Leaf blades are 0.08 to 0.25 inches wide and 3 to 10 inches long. The inflorescence is a panicle, 6 to 16 inches long and 1 to 5 inches wide, initially contracted and spike-like, but opening with maturity into a pyramidal shape as the inflorescence escapes the subtending sheath (Welsh et al., 2003). Spikelets contain a small, single

brown to purplish floret, 0.06 to 0.1 inches long. The glumes, lemmas and paleas are membranous (Peterson, et al., 2003) and contain a 1 mm long caryopsis (Welsh et al., 2003).

This species produces a dense, sand binding network of roots which can spread up to 2 feet laterally and over 8 feet deep (Coupland and Johnson, 1965).

Sand dropseed is a prolific seed producer. In one study, a single panicle yielded approximately 10,000 seeds (Brown, 1943). Seeds are very small; there are approximately 5.6 million seeds/lb, and 67 pounds of seed per bushel.

Figure 2. Sand dropseed florets and seed. Photo by Steve Hurst @ USDA-NRCS PLAANTS Database.

Distribution:
Sand dropseed is native throughout North America but is most important as a rangeland species in the Southwest and certain parts of the Snake, Salmon, and Clearwater River drainages in Idaho and Oregon (USDA, 1937). For current distribution, consult the Plant Profile page for this species on the PLANTS web site.

Habitat:
In the Intermountain West it sand dropseed is commonly associated with Indian ricegrass, bluebunch wheatgrass and Galletta grass in sagebrush, desert shrub and pinyon-juniper plant communities. In its southern range it is often found growing with side-oats grama and muhly species. In other regions it is common in the short-grass prairies and chaparral communities.

Adaptation
Sand dropseed is extremely drought tolerant and is adapted to sites receiving 7 to 16 inches annual precipitation (Ogle et al., 2009; USDA 2009). Its fine root system allows sand dropseed to extract water at depths between 0 and 30 cm more effectively than broom snakeweed (*Gutierrezia sarothrae*) (Wan et al., 1993). During periods of summer drought the leaves roll up to reduce surface area and evapotranspiration (Wan et al. 1993). It is considered to be one of the most drought resistant species in short-grass prairie (Wan et al. 1993).

Sand dropseed is most common at lower elevations in sandy soils but can also be found on coarse soils at upper elevations to 8,000 ft (Jensen et al., 2001; Ogle et al., 2009). It is adapted to slightly acidic to slightly basic soils and has a salt tolerance of less than 4 mmhos/cm (Dickerson, 1998).

Establishment
Sand dropseed requires overwintering or scarification for successful germination. The seed coat is very hard and impermeable. Seed lots frequently contain up to 50% hard seed; however, the seed can retain high levels of viability for many years under proper seed storage conditions. One seed lot that was twenty year old recorded 75% viability (USDA, 1937). Older seed generally has better germination and establishment than younger seed (Monsen et al., 2004).

For rangeland plantings, seed 0.5 to 1.0 lbs pure live seed (PLS)/ac for solid stands (Allison, 1988; Ogle et al., 2009). Drill or broadcast seed onto the surface to 1/8 inch depth into lightly prepared sandy and fine soils. Seed can be planted slightly deeper into coarse soils. Follow seeding with a light harrowing or cultipacking. Establishment is dependant upon spring and summer soil moisture. Sand dropseed seedlings have low vigor, but once established the plants are able to withstand severe summer drought periods. Due to slow development, grazing should be deferred for at least two years to ensure good establishment.

Management
This species spreads naturally from seed once established (Plummer et al., 1955) and increases on depleted rangelands and wastelands (Welsh et al., 2003). Sand dropseed plants are able to withstand heavy use due to their protected root crown, late maturity and because they are less preferred than other species (Monsen et al., 2004). Plants can be killed by overgrazing as a result of continued close cropping; however, when grazed properly, sand dropseed increases on poor condition low seral ecological sites (USDA, 1937).

Pests and Potential Problems
There are no pests or potential problems associated with sand dropseed.

Environmental Concerns
There are no known environmental concerns associated with sand dropseed.

Seeds and Plant Production
For seed production fields, sand dropseed should be seeded at a rate of 3.0 lbs/ac in 20 to 36 inch row spacing in a firm weed-free seedbed. In the Southwest it is possible to have two harvests in one growing season in June and September (USDA-NRCS, 2006). Seed shatters readily, however portions of the mature inflorescence are

held in the sheath preventing some seed loss (Majerus 2009). Seed yields range from 250 to 1,000 lbs/ac with an average of 90% PLS. Fields will produce good seed yields for two to three years before needing to be re-established.

Cultivars, Improved, and Selected Materials (and area of origin)

Borden County Germplasm sand dropseed was released in 2000 by the James E. 'Bud' Smith Plant Materials Center in Knox City, Texas. The original collection was made near Gail, Texas in MLRA 78B. Its primary intended use is for rangeland seeding for livestock and wildlife. It is recommended for use in central and western Texas and western Oklahoma in MLRAs 42, 77, 78, 80A, 80B, 81A, 81B and 84B. Generation 0 seed is maintained by the Plant Materials Center and is available in limited quantities for seed increase (USDA-NRCS, 1999).

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Published February, 2010

Edited: 21Jan2010 djt; 21Jan2010dgo;22Jan2010lsj

For more information about this and other plants, please contact your local NRCS field office or Conservation District at http://www.nrcs.usda.gov/ and visit the PLANTS Web site at http://plants.usda.gov/ or the Plant Materials Program Web site http://plant-materials.nrcs.usda.gov.

PLANTS is not responsible for the content or availability of other Web sites.

USDA IS AN EQUAL OPPORTUNITY PROVIDER AND EMPLOYER

Double "O" Enterprises
2821 W. Colt Road, Chandler AZ 85224

Sold to: Desert Seeders, LLC
Project Name Klondyke Mine
Seed Mix WQARF Mine Seed Mix

SEED INFORMATION: 3.75 AC Bag

Sphaeralcea Ambigua		Desert Globemallow	
KIND/LOT:	SPAM 12	ORIGIN:	CA
VARIETY:	VNS	TZ or GERM + HARD	94 + 0
PURE SEED %:	97.47	OTHER CROP %:	0.00
INERT %:	2.53	PURE LIVE SEED %:	91.62
WEED SEED %:	0.00	BULK WEIGHT:	9.00 LBS
TEST DATE:	11/8/2012	PLS WEIGHT:	8.25 LBS
RESTRICTED SEED:	NONE		2.2 # PLS/AC
OTHER CROPS/WEEDS:			

DOUBLE "O" ENTERPRISES L.L.C. GUARANTEE:

Our seed is of prompt quality and true to name as specified. Should the seed prove to be other than stated, liability shall be ours and limited to full replacement or refund.

LET US SPREAD OUR SEED!!!

Double "O" Enterprises
2821 W. Colt Road, Chandler AZ 85224

Sold to: Desert Seeders, LLC
Project Name Klondyke Mine
Seed Mix WOARF Mine Seed Mix

SEED INFORMATION: 3.75 AC Bag

Bothriochloa barinodis		Cane's Beardgrass	
KIND/LOT:	BOBA 12A	ORIGIN:	MX
VARIETY:	VNS	TZ or GERM + HARD	99 + 0
PURE SEED %:	54.73	OTHER CROP %:	0.00
INERT %:	45.27	PURE LIVE SEED %:	0.54
WEED SEED %:	0.00	BULK WEIGHT:	9.69 LBS
TEST DATE.	5/9/2013	PLS WEIGHT:	5.25 LBS
RESTRICTED SEED:	NONE		1.4 # PLS/AC
OTHER CROPS/WEEDS	NONE		

DOUBLE "O" ENTERPRISES L.L.C. GUARANTEE:

Our seed is of promised quality and true to name as specified. Should the seed prove to be other than labeled, liability shall be ours and limited to full replacement or refund.

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Double "O" Enterprises
2821 W. Colt Road, Chandler AZ 85224

Sold to: Desert Seeders, LLC
Project Name Klondyke Mine
Seed Mix WQARF Mine Seed Mix

SEED INFORMATION: 3.75 AC Bag

Leptochloa Dubia		Green Sprangletop	
KIND/LOT:	31029A	ORIGIN:	TX
VARIETY:	VanHorn	TZ or GERM + HARD	98 + 0
PURE SEED %:	99.33	OTHER CROP %:	0.00
INERT %:	0.66	PURE LIVE SEED %:	97.34
WEED SEED %:	0.01	BULK WEIGHT:	7.91 LBS
TEST DATE:	11/6/2012	PLS WEIGHT:	7.70 LBS
RESTRICTED SEED:	NONE		2.05 # PLS/AC
OTHER CROPS/WEEDS: NONE/Pigweed			

DOUBLE "O" ENTERPRISES L.L.C. GUARANTEE:

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Double "O" Enterprises
2821 W. Colt Road, Chandler AZ 85224

Sold to: Desert Seeders, LLC
Project Name Kendyke Mine
Seed Mix WQARF Mine Seed Mix

SEED INFORMATION 3.75 AC Bag

Sporobolus Cryptandrus		Sand Dropseed	
KIND/LOT:	S12-11-4	ORIGIN:	z
VARIETY:	VNS	TZ or GERM + HARD	96 + 0
PURITY %:	99.69	OTHER CROP %:	0.10
INERT %:	0.21	PURE LIVE SEED %:	95.70
WEED SEED %:	0.00	BULK WEIGHT:	1.57 LBS
TEST DATE:	4/1/2013	PLS WEIGHT:	1.50 LBS
RESTRICTED SEED:	NONE/NONE		0.4 # PLS/AC
OTHER CROPS/WEEDS	Grama, Galletta/NONE		

DOUBLE "O" ENTERPRISES L.L.C. GUARANTEE:

Our seed is of promised quality and true to name as specified. Should the seed prove to be other than labeled, liability shall be ours and limited to full replacement or refund

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Double "O" Enterprises
2821 W. Colt Road, Chandler AZ 85224

Sold to: Desert Seeders, LLC
Project Name Klondyke Mine
Seed Mix: VQARF Mine Seed Mix

SEED INFORMATION: 3.75 AC Bag

Pleuraphis jamesii		Galleta Grass	
KIND/LOT:	HIJA-12	ORIGIN:	TX
VARIETY:	Viva	TZ or GERM + HARD	94 + 0
PURE SEED %:	72.80	OTHER CROP %:	0.01
INERT %:	27.12	PURE LIVE SEED %:	68.43
WEED SEED %:	0.07	BULK WEIGHT:	37.41 LBS
TEST DATE:	11/6/2012	PLS WEIGHT:	25.60 LBS
RESTRICTED SEED:	NONE/NONE		6.8 # PLS/AC
OTHER CROPS/WEEDS Sorghum/Barnyardgrass			

2 BAGS

DOUBLE "O" ENTERPRISES L.L.C. GUARANTEE:

Our seed is of promised quality and true to name as specified. Should the seed prove to be other than labeled, liability shall be ours and limited to full replacement or refund.

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2821 W. Colt Road, Chandler AZ 85224

Sold to: Desert Seeders, LLC
Project Name Klondyke Mine
Seed Mix WQARF Mine Seed Mix
SEED INFORMATION: 3.75 AC Bag

Bouteloua Curtipendula		Sideoats Grama	
KIND/LOT:	BOCU 12 V	ORIGIN:	TX
VARIETY:	VAUGHN	TZ or GERM + HARD	95 - 0
PURE SEED %:	98.43	OTHER CROP %:	0.00
INERT %:	1.56	PURE LIVE SEED %:	93.51
WEED SEED %:	0.01	BULK WEIGHT:	30.48 LBS
TEST DATE:	8/5/2013	PLS WEIGHT:	28.50 LBS
RESTRICTED SEED:	NONE		7.6 # PLS/AC
OTHER CROPS/WEEDS:	Ylw Foxtail		

DOUBLE "O" ENTERPRISES L.L.C. GUARANTEE:

Our seed is of promised quality and true to name as specified. Should the seed prove to be other than labeled, liability shall be ours and limited to full replacement or refund.

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Double "O" Enterprises
2821 W. Colt Road, Chandler AZ 85224

Sold to: Desert Seeders, LLC
Project Name Klondyke Mine
Seed Mix WQARF Mine Seed Mix

SEED INFORMATION: 3.75 AC Bag

Atriplex Canescens		Fourwing Saltbush	
KIND/LOT:	ATCA-13(e)	ORIGIN:	NV
VARIETY:	VNS	TZ or GERM + HARD	81 + 0
PURE SEED %:	99.68	OTHER CROP %:	0.00
INERT %:	0.32	PURE LIVE SEED %:	80.74
WEED SEED %:	0.00	BULK WEIGHT:	19.51 LBS
TEST DATE:	5/10/2013	PLS WEIGHT:	15.75 LBS
RESTRICTED SEED:	NONE/NONE		4.2 # PLS/AC
OTHER CROPS/WEEDS	NONE/NONE		

DOUBLE "O" ENTERPRISES L.L.C. GUARANTEE:

Our seed is of promised quality and true to name as specified. Should the seed prove to be other than labeled, liability shall be ours and limited to full replacement or refund.

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Double "O" Enterprises
2821 W. Colt Road, Chandler AZ 85224

Sold to: Desert Seeders, LLC
Project Name Klondyke Mine
Seed Mix WC AR - Mine Seed Mix

SEED INFORMATION: 3.75 AC Bag

Erigonium fasiculatum		Flattop Buckwheat	
KIND/LOT:	ERFA-13-EITP	ORIGIN:	AZ
VARIETY:	AZ - Potifolium	TZ or GERM + HARD	94 + 0
PURE SEED %:	69.04	OTHER CROP %:	0.00
INERT %:	30.96	PURE LIVE SEED %:	64.90
WEED SEED %:	0	BULK WEIGHT:	17.34 LBS
TEST DATE:	6/3/2013	PLS WEIGHT:	11.25 LBS
RESTRICTED SEED:	NONE/NONE		3.0 # PLS/AC
OTHER CROPS/WEEDS:	NONE/NONE		

DOUBLE "O" ENTERPRISES L.L.C. GUARANTEE:

Our seed is of promised quality and true to name as specified. Should the seed prove to be other than labeled, liability shall be ours and limited to full replacement or refund.

HELP US SPREAD OUR SEED!!!

Appendix L: Compaction Testing and Inspection Field Reports

ecology and environment, inc.
International Specialists in the Environment
1940 Webster Street, Suite 100
Oakland, California 94612
Tel: (510) 893-6700, Fax: (510) 550-2760

KLONDYKE MINE REMOVAL CAP INSPECTION SUMMARY

To: Martin Powell, On-Scene Coordinator, U.S. Environmental Protection Agency

From: Brian Milton, E2 Consulting Engineers, Inc.

CC: Kate Villars, Ecology and Environment Inc.

Date: October 30, 2013

Subject: Upper Tailing Pile Cap at Klondyke Tailings Pile, Graham County, Arizona

The subject of this memo is the surface of the final cap at the Upper Tailings Pile (UTP). START understands that as part of the cap reconstruction, an additional 6,425 cubic yards of blended soil material was placed and compacted in approximately 1-foot-thick lifts. Soil density and moisture testing performed by Speedie and Associates of Tucson, Arizona on October 17 and October 21, 2013 confirmed that the first two compacted lifts met the minimum requirements and were within the specified tolerances for soil moisture content. Additionally, the first soil density test performed on the final lift on October 21, 2013 indicated the material met or exceeded the required specifications. Copies of the testing reports will be included in a final report to be submitted to the EPA at the conclusion of the project.

START visually inspected and surveyed portions of the final UTP surface on October 29, 2013. At the time of the inspection, the surface had not received a final compactive effort, nor had the top 6-inches been roughened in preparation for hydroseeding. The surface was regular with no observed depressions or other areas where water would pond. Except for the area near the access ramp and as required, all areas of the edge of the cap were at or above the elevation of the adjacent top of the existing gabion baskets armoring the side slopes. The slopes of the top surface appeared continuous and even. Prior to compaction, all soil surfaces were at or within 2-inches above the required grade lines. Based on this observation, the cap meets the 2-foot minimum thickness requirement in all areas. The surface and shallow subsurface were moisture–conditioned and appeared to be at or near optimum moisture levels. START understands that additional testing that will confirm minimum relative soil densities and required moisture content have been achieved and that the moisture content is within the required specification is scheduled for October 31, 2013. Surveying to confirm cap thickness and elevations is also scheduled for October 31, 2013.

Respectfully Submitted,
Brian Milton

SPEEDIE AND ASSOCIATES
Geotechnical ▪ Environmental ▪ Materials Engineers
3125 E. 47TH STREET ▪ TUCSON, ARIZONA 85713

FIELD DENSITY TEST DAILY REPORT

NUCLEAR METHOD

Project: Klondyke Mine Site
Location: Klondyke, AZ
Client: Environmental Quality Management, Inc.
Contractor: Environmental Quality Management, Inc.

Speedie & Assoc. Project No.: 131408TT
Technician: Skyler Jackson
Person Notified of Results: Gary Wofford

Report Date: 10/17/2013
Gauge #: 25514

Test No.	Test Area, Element	Test Date	Elev.	Test Location	Material & Lab No.	Optimum Moisture %	Maximum Density pcf	% + 4 Rock	+ 4 Specific Gravity	Corrected Opt. Moist.	Corrected Max. Density	Wet Density pcf	% Moist.	Dry Density pcf	% Comp-action	Req'd Comp	Test Result
1	18, C	10/17/13	-2' FS	LIFT 1, TEST 1, NWC	NATIVE 403305	12.4	121.4	0	0	12.4	121.4	135.5	10.9	122.2	100.7	85	PASS
2	18, C	10/17/13	-2' FS	LIFT 1, TEST 2, NWC	NATIVE 403305	12.4	121.4	0	0	12.4	121.4	137.6	12.8	122.0	100.5	85	PASS
3	18, C	10/17/13	-2' FS	LIFT 1, TEST 3, NWC	NATIVE 403305	12.4	121.4	0	0	12.4	121.4	134.8	11.6	120.8	99.5	85	PASS
4	18, C	10/17/13	-2' FS	LIFT 1, TEST 4, NWC	NATIVE 403305	12.4	121.4	0	0	12.4	121.4	135.6	10.9	122.3	100.7	85	PASS
5																	
6																	
7																	
8																	
9																	
10																	

Remarks:

TASK

Elevation	Test Area			Test Element		
FB - Bottom of Footing	1 Building Pad	7 Apron	13 Storm Sewer Trench	A Foundation Over-X Backfill	G Select Cap	M Pipeline/Conduit Bedding
FS - Finish Subgrade	2 Parking Lot	8 Curb/Gutter	14 Elec. Conduit Trench	B Subgrade Prep	H Underslab Base Course	N Pipeline/Conduit Shading
FG - Finish Grade	3 Driveway	9 Sidewalk	15 Irrigation Trench	C Engineered Fill	I Agg. Base Course	O Trench Backfill
FP - Finish Pavement	4 Landscape Area	10 Waterline Trench	16 Other Trench	D Structural Backfill	J AC Pavement-Base Lift	P ABC Millings
FF - Finish Floor	5 Transformer Pad	11 Fireline Trench	17 RCBC	E Lime Stabilized Subgrade	K AC Pavement-Int. Lift	Q
	6 Roadway	12 Sanitary Sewer Trer	18 Tailings Repository Cap	F Non/Low Expansion Cap	L AC Pavement-Surface Lift	R

SPEEDIE AND ASSOCIATES
Geotechnical ▪ Environmental ▪ Meteriele Engineers
3125 E. 47TH STREET ▪ TUCSON, ARIZONA 85713

FIELD DENSITY TEST DAILY REPORT

NUCLEAR METHOD

Project: Klondyke Mine Site
Location: Klondyke, AZ
Client: Environmental Quality Management, Inc.
Contractor: Environmental Quality Management, Inc.

Speedie & Assoc. Project No.: 131408TT
Technician: Skyler Jackson
Person Notified of Results: Gary Wofford

Report Date: 10/21/2013
Gauge #: 25514

Test No.	Test Area, Element	Test Date	Elev.	Test Location	Material & Leb No.	Optimum Moisture %	Maximum Density pcf	% +4 Rock	+4 Specific Gravity	Corrected Opt. Moist.	Corrected Max. Density	Wet Density pcf	% Moist.	Dry Density pcf	% Compaction	Req'd Comp	Test Result
1	18, C	10/21/13	-1' FS	LIFT 3, TEST 1	NATIVE 403830	13.1	118.1	32	2.5	9.2	125.2	132.9	11.8	118.9	95.0	85	PASS
2	18, C	10/21/13	-1' FS	LIFT 2, TEST 1	NATIVE 403305	12.4	121.4	0	0	12.4	121.4	135.0	10.5	122.2	100.7	85	PASS
3	18, C	10/21/13	-1' FS	LIFT 2, TEST 2	NATIVE 403305	12.4	121.4	0	0	12.4	121.4	136.8	11.3	122.9	101.2	85	PASS
4	18, C	10/21/13	-1' FS	LIFT 2, TEST 3	NATIVE 403305	12.4	121.4	0	0	12.4	121.4	133.7	10.4	121.1	99.8	85	PASS
5	18, C	10/21/13	-1' FS	LIFT 2, TEST 4	NATIVE 403305	12.4	121.4	0	0	12.4	121.4	135.9	10.7	122.8	101.2	85	PASS
6	18, C	10/21/13	-1' FS	LIFT 2, TEST 5	NATIVE 403305	12.4	121.4	0	0	12.4	121.4	134.3	11.6	120.3	99.1	85	PASS
7	18, C	10/21/13	-1' FS	LIFT 2, TEST 6	NATIVE 403305	12.4	121.4	0	0	12.4	121.4	135.3	11.9	120.9	99.6	85	PASS
8																	
9																	
10																	

Remarks:

TASK

Elevation	Test Area			Test Element		
FB - Bottom of Footing	1 Building Pad	7 Apron	13 Storm Sewer Trench	A Foundation Over-X Backfill	G Select Cap	M Pipeline/Conduit Bedding
FS - Finish Subgrade	2 Parking Lot	8 Curb/Gutter	14 Elec. Conduit Trench	B Subgrade Prep	H Underslab Base Course	N Pipeline/Conduit Shading
FG - Finish Grade	3 Driveway	9 Sidewalk	15 Irrigation Trench	C Engineered Fill	I Agg. Base Course	O Trench Backfill
FP - Finish Pavement	4 Landscape Area	10 Waterline Trench	16 Other Trench	D Structural Backfill	J AC Pavement-Base Lift	P ABC Millings
FF - Finish Floor	5 Transformer Pad	11 Fireline Trench	17 RCBC	E Lime Stabilized Subgrade	K AC Pavement-Int. Lift	Q
	6 Roadway	12 Senitary Sewer Trer	18 Tailings Repository Cap	F Non/Low Expansion Cap	L AC Pavement-Surface Lift	R

Speedie & Associates
3125 E. 47th Street, Tucson, Arizona 85713

SAND CONE FIELD DENSITY TEST DAILY REPORT

Date:	10-21-13	**Weather:**	Calm/Clear
Project:	Klondyke Mine Site	**Project Number:**	131408TT
Location	Klondyke, AZ	**Technician:**	Skyler Jackson
Client:	Environmental Quality Management, Inc.		
Contractor:	Environmental Quality Management	**Person Notified of Results:**	Gary Wofford

Test No.	1	2	3	4
(O) Offsite (S) Site	Site			
Elevation	6”			
Task #	1			
Test Location	LIFT 2, TEST 6			
Material	NATIVE			
Wt. Of Jar & Sand (lb.)	14.258			
Final Wt. Jar & Sand (lb.)	4.304			
Wt. Of Sand Used (lb.)	9.954			
Wt. Sand in Funn. & Plate (lb.)	3.28			
Wt. Sand to Fill Hole (lb.)	6.704			
Density of Sand (lb./cu. ft.)	85.7			
Volume of Hole (cu. ft.)	.07788			
Wt. Of Wet Sample (lb.) (- Tare Wt.)	10.39			
Wet Density (lb./cu. ft.)	133.4			
Wt. Of Rock (+4Mtl) (- Tare Wt.)	.808			
% of Rock / % of Soil	**8 / 92**	**/**	**/**	**/**
Rock Specific Gravity	2.50			
Optimum Moisture Lab	12.4			
Maximum Density Lab	121.4			
Moisture Content (-4Mtl)	.8			
Corrected Opt. Moisture (%)	12.3			
Corrected Max. Density (lb./cu. ft.)	121.6			
Corrected Moisture Content	11.0			
Dry Density (lb./cu. ft.)	120.2			
Percent Compaction	98.9			
Required Compaction	85			
Test Results (Acceptable or Not Acceptable)	Acceptable			

SPEEDIE AND ASSOCIATES
Geotechnical ▪ Environmental ▪ Materials Engineers
3125 E. 47TH STREET ▪ TUCSON, ARIZONA 85713

FIELD DENSITY TEST DAILY REPORT

NUCLEAR METHOD

Project: Klondyke Mine Site
Location: Klondyke, AZ
Client: Environmental Quality Management, Inc.
Contractor: Environmental Quality Management, Inc.

Speedie & Assoc. Project No.: 131408TT
Technician: Allen Dodd
Person Notified of Results: Gary Wofford

Report Date: 10/31/2013
Gauge #: 30891

Test No.	Test Area, Element	Test Date	Elev.	Test Location	Material & Lab No.	Optimum Moisture %	Maximum Density pcf	% + 4 Rock	+4 Specific Gravity	Corrected Opt. Moist.	Corrected Max. Density	Wet Density pcf	% Moist.	Dry Density pcf	% Comp-action	Req'd. Comp	Test Result
1	18, C	10/31/13	FG	32° 50 M 59.333 SEC 110° 20 M 31.929 SEC	NATIVE 403830	13.1	118.4	32	2.5	9.2	125.4	131.6	7.5	122.4	97.6	85	PASS
2	18, C	10/31/13	FG	32° 50 M 58.515 SEC 110° 20 M 32.624 SEC	NATIVE 403830	13.1	118.4	32	2.5	9.2	125.4	137.9	7.8	127.9	102.0	85	PASS
3	18, C	10/31/13	FG	32° 50 M 58.801 SEC 110° 20 M 33.982 SEC	NATIVE 403830	13.1	118.4	32	2.5	9.2	125.4	125.8	7.5	117.0	93.3	85	PASS
4	18, C	10/31/13	FG	32° 51 M 0.021 SEC 110° 20 M 34.856 SEC	NATIVE 403830	13.1	118.4	32	2.5	9.2	125.4	125.8	7.6	116.9	93.2	85	PASS
5	18, C	10/31/13	FG	32° 51 M 01.332 SEC 110° 20 M 33.742 SEC	NATIVE 403830	13.1	118.4	32	2.5	9.2	125.4	133.4	8.3	123.2	98.2	85	PASS
6	18, C	10/31/13	FG	32° 51 M 01.107 SEC 110° 20 M 32.179 SEC	NATIVE 403830	13.1	118.4	32	2.5	9.2	125.4	131.6	7.9	122.0	97.3	85	PASS
7	18, C	10/31/13	FG	32° 50 M 59.515 SEC 110° 20 M 33.197 SEC	NATIVE 403830	13.1	118.4	32	2.5	9.2	125.4	134.3	8.4	123.9	98.8	85	PASS
8																	
9																	
10																	

Remarks:

TASK

Elevation	Test Area			Test Element		
FB - Bottom of Footing	**1** Building Pad	**7** Apron	**13** Storm Sewer Trench	**A** Foundation Over-X Backfill	**G** Select Cap	**M** Pipeline/Conduit Bedding
FS - Finish Subgrade	**2** Parking Lot	**8** Curb/Gutter	**14** Elec. Conduit Trench	**B** Subgrade Prep	**H** Underslab Base Course	**N** Pipeline/Conduit Shading
FG - Finish Grade	**3** Driveway	**9** Sidewalk	**15** Irrigation Trench	**C** Engineered Fill	**I** Agg. Base Course	**O** Trench Backfill
FP - Finish Pavement	4 Landscape Area	**10** Waterline Trench	**16** Other Trench	**D** Structural Backfill	**J** AC Pavement-Base Lift	**P** ABC Millings
FF - Finish Floor	**5** Transformer Pad	**11** Fireline Trench	**17** RCBC	**E** Lime Stabilized Subgrade	**K** AC Pavement-Int. Lift	**Q**
	6 Roadway	**12** Sanitary Sewer Trench	**18** Mine Cap	**F** Non/Low Expansion Cap	**L** AC Pavement-Surface Lift	**R**

TABLE 1
MINIMUM CQA EARTHWORK TESTING REQUIRED

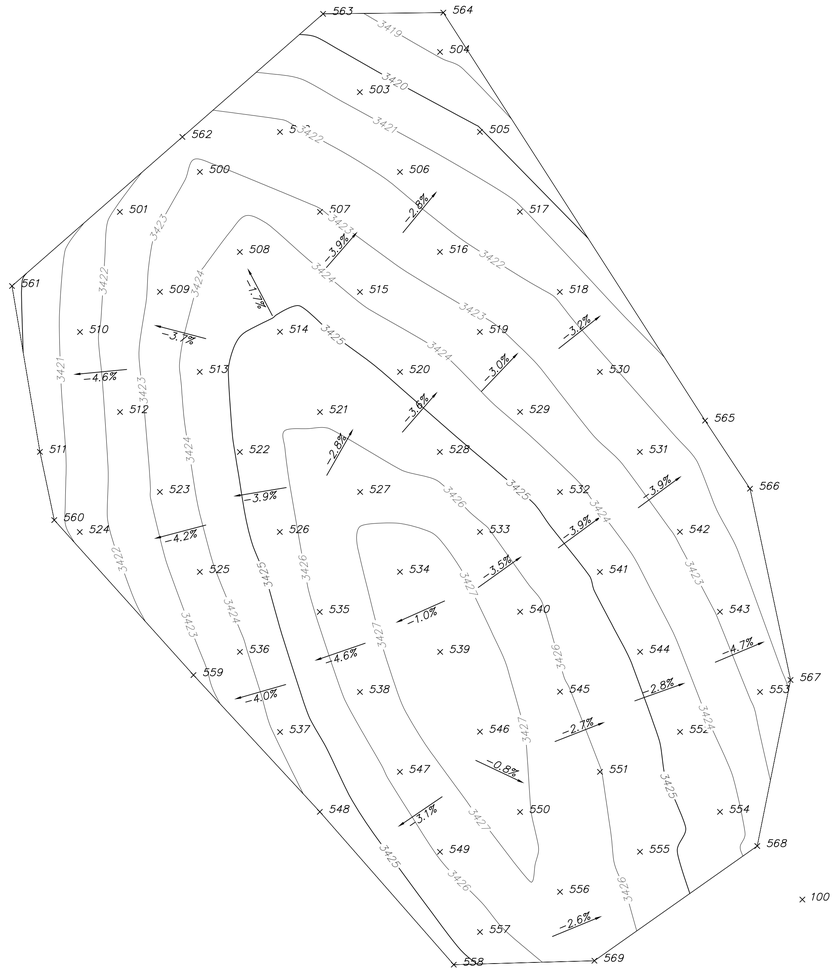
Reference	Description	Foundation Preparation	Structural Fill	Structural Fill Guidance	Corrective action for Failure
ASTM D 136	Laboratory Sieve Analysis for Fine and Coarse Aggregates	N/A	N/A	N/A	N/A
ASTM D 422	Laboratory Test for Particle Size	N/A	1/10,000 cy per material or change of material source	Minimum 2 tests, completed prior to import or placement	N/A
ASTM D 698	Laboratory Test for Moisture-Density Relationships	N/A	1/5,000 cy per material or change of material source	Minimum 4 tests, completed prior to import or placement	N/A
ASTM D 2216	Laboratory Test for Moisture Content (oven-dry method)	N/A	1/3,000 cy per material or change of material source	Minimum 7 tests, completed prior to import	N/A
ASTM D 4643	Laboratory Test for Moisture Content (microwave method)	N/A	1/3,000 cy per material or change of material source	Minimum 7 tests, completed prior to import or placement	N/A
ASTM D 4318	Atterberg Limits	N/A	1/3,000 cy per material or change of material source	Minimum 7 tests, completed prior to import or placement	N/A
ASTM D 2922	Field Test for In-Place Density (nuclear method)	1/250 sy	2/lift or 1/1,000 cy (top of pile) 4/lift or 1/500 cy (side slopes)	Minimum 25 tests, during placement	Additional compactive effort
ASTM D 1556 ASTM D 4718	Field Test for In-Place Density (sand cone method)	N/A	1/10 nuclear tests	Minimum 3 tests, during placement	Additional compactive effort
ASTM D 3017	Field Test for In-Place Moisture (nuclear method)	1 for each nuclear density test	1 for each nuclear density test	Minimum 25 tests, during placement	Scarify, additional moisture, and re-compact

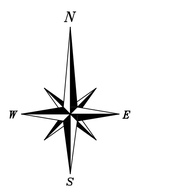
Appendix M: UTP As-Built Topographic Survey

AS BUILT TOPOGRAPHIC SURVEY

ENVIRONMENTAL QUALITY MANAGEMENT INC.
KLONDYKE MINE SITE PROJECT
GRAHAM COUNTY, ARIZONA

PT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	672739.26	646220.14	3415.28	GPS BASE CP
500	673146.08	645883.39	3423.16	GS
501	673123.73	645838.65	3422.27	GS
502	673168.41	645928.15	3422.28	GS
503	673190.68	645972.78	3420.62	GS
504	673213.15	646017.60	3418.89	GS
505	673168.46	646039.89	3420.10	GS
506	673146.06	645995.20	3421.78	GS
507	673123.76	645950.51	3423.05	GS
508	673101.32	645905.72	3424.28	GS
509	673079.02	645861.04	3423.29	GS
510	673056.59	645816.37	3421.55	GS
511	672989.56	645793.97	3420.38	GS
512	673011.84	645838.74	3422.37	GS
513	673034.28	645883.30	3424.50	GS
514	673056.68	645928.14	3425.15	GS
515	673078.96	645972.85	3423.80	GS
516	673101.37	646017.56	3422.34	GS
517	673123.79	646062.25	3421.15	GS
518	673079.00	646084.58	3421.88	GS
519	673056.64	646039.87	3423.27	GS
520	673034.25	645995.25	3424.76	GS
521	673011.82	645950.50	3425.84	GS
522	672989.50	645905.71	3425.11	GS
523	672967.17	645861.02	3423.22	GS
524	672944.76	645816.24	3421.36	GS
525	672922.46	645883.36	3423.65	GS
526	672944.81	645928.04	3425.69	GS
527	672967.17	645972.94	3426.62	GS
528	672989.53	646017.52	3425.45	GS
529	673011.91	646062.35	3423.77	GS
530	673034.26	646106.95	3422.20	GS
531	672989.53	646129.31	3422.53	GS
532	672967.12	646084.65	3424.46	GS
533	672944.82	646039.93	3426.17	GS
534	672922.48	645995.21	3427.47	URS pt 112
535	672900.06	645950.39	3426.13	GS
536	672877.75	645905.75	3423.81	GS
537	672832.97	645928.17	3424.17	GS
538	672855.35	645972.85	3426.43	GS
539	672877.74	646017.68	3427.49	GS
540	672900.17	646062.36	3426.44	GS
541	672922.44	646106.98	3424.80	GS
542	672944.87	646151.71	3422.86	GS
543	672900.18	646174.08	3422.90	GS
544	672877.76	646129.44	3424.82	GS
545	672855.47	646084.66	3426.15	GS
546	672833.11	646039.93	3427.41	GS
547	672810.67	645995.17	3426.32	GS
548	672788.32	645950.41	3424.20	GS
549	672765.95	646017.58	3426.12	GS
550	672788.25	646062.33	3427.11	GS
551	672810.68	646107.01	3426.03	GS
552	672833.02	646151.76	3424.65	GS
553	672855.33	646196.47	3422.75	GS
554	672788.31	646174.09	3424.56	GS
555	672765.99	646129.35	3425.59	GS
556	672743.58	646084.66	3426.88	GS
557	672721.14	646039.94	3425.61	GS
558	672702.86	646025.28	3424.65	URS pt 108
559	672864.78	645879.80	3422.68	URS pt 109
560	672951.44	645801.97	3420.71	URS pt 110
561	673082.30	645778.34	3419.75	URS pt 111
562	673165.64	645873.59	3422.71	URS pt 100
563	673234.46	645952.23	3419.46	URS pt 101
564	673235.14	646019.44	3418.11	URS pt 102
565	673007.04	646165.76	3421.53	URS pt 103
566	672968.98	646190.87	3421.21	URS pt 104
567	672862.05	646213.54	3421.88	URS pt 105
568	672769.22	646194.93	3423.73	URS pt 106
569	672705.07	646103.91	3426.80	URS pt 107





SCALE 1" = 40'

0' 40' 80' 120'

NOTES

1) DATE OF SURVEY: OCTOBER 31, 2013

2) REVISED STATUTE 32-151. CERTIFY; CERTIFICATION – THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" BY A PERSON OR FIRM THAT IS REGISTERED OR CERTIFIED BY THE BOARD IS AN EXPRESSION OF PROFESSIONAL OPINION REGARDING FACTS OR FINDINGS THAT ARE THE SUBJECT OF THE CERTIFICATION AND DOES NOT CONSTITUTE AN EXPRESS OR IMPLIED WARRANTY OR GUARANTEE.

CERTIFICATION

I, Thomas M. Dupont, a Registered Professional Land Surveyor in the State of Arizona, affirm that this plat and the survey from which it is based were made under my direction.

Thomas M. Dupont — 11/5/2013

Thomas M. Dupont, AZ., R.L.S. 52050 — Date

Rev #	Date	Description	By	Chk'd

SOUDER, MILLER & ASSOCIATES
500 WEST MAIN STREET
SAFFORD, AZ 85546
Phone (928) 428-9141 Toll-Free (866) 428-9141 Fax (928) 428-2321
www.soudermiller.com
Serving the Southwest & Rocky Mountains
Albuquerque, Farmington, Las Cruces, Santa Fe, Taos, NM
Cortez, Grand Junction, CO - Safford, AZ - Moab, UT. El Paso, TX
Engineering • Environmental Surveying

Client: EQM, INC
Town: Klondyke, AZ

As Built Topographic Survey
Klondyke Mine Site Project
Graham County, Arizona

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
52050
THOMAS M. DUPONT
Date Signed 11-5-2013
ARIZONA U.S.A.
Expires: 3-31-2014

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

Designed	Drawn	Checked
TMD	TMD	TMD

Date: 11/5/2013

Scale: Horiz: 1" = 40'
Vert: NA

Project No:

Sheet: 1 OF 1

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Appendix N: Laboratory Data Packages and START Data Validation Reports

(available in electronic copy only)

This data package file was not reviewed. Reported data was R9 Tier 2 reviewed. If this package is included as a report deliverable then data in this package needs to include qualifiers or be stamped as "Data without validation Qualifiers.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178

www.gel.com

June 07, 2012

Ms. Mindy Song
Ecology & Environment, Inc.
3700 Industry Ave.
#102
Lakewood, California 90712

Re: Klondyke Tailings Removal Project
Work Order: 305539

Dear Ms. Song:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 06, 2012. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4422.

Sincerely,

Jennifer Pellegrini for
Jake Crook
Project Manager

Purchase Order: 002693.2105.06TTO
Enclosures

Ecology and Environment, Inc. Project #002693
Klondyke Tailings Removal Project
SDG: 305539

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Case Narrative

Case Narrative
for
Ecology and Environment, Inc. Project #002693
SDG: 305539

June 11, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample Receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 06, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
305539001	SP-F1-COMP
305539002	SP-F2-COMP
305539003	AD-SP-01-COMP
305539004	UTP-CAP-01-COMP
305539005	UTP-CAP-01-COMP PD

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Metals.

Jennifer Pellegrini for
Jake Crook
Project Manager

Chain of Custody and Supporting Documentation

Page: 1 of 1
Project #: 002693.2156.01 RF
GEL Quote #:
COC Number (1):
PO Number:

GEL Chain of Custody and Analytical Request

GEL Work Order Number: 305539

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: ECOLOGY & ENVIRONMENT Phone #: 562 997 1200
Project/Site Name: KLONDYKE REMOVAL Fax #:
Address: 3700 INDUSTRY AVE #102 LAKEWOOD CA 90712
Collected by: A. SMITH / R. KELLY Send Results To: RKELLY@ENE.COM

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	QC Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	Should this sample be considered: TSCA Regulated	Total number of containers	EPA 6010B									<-- Preservative Type (6)	Comments
SP-F1-COMP	6/2/12	1230		C	SOIL			1	X										
SP-F2-COMP	6/2/12	1240		C				1	X										
AD-SP-01-COMP	6/5/12	1350		C				1	X										
UTP-CAP-01-COMP	6/5/12	1305		C				1	X										MS/MSD
UTP-CAP-01-COMP PD	6/5/12	1330	FD	C				1	X										

Note: extra sample is required for sample specific QC

TAT Requested: Normal: ____ Rush: (circled) Specify: 24-HR (Subject to Surcharge) | Fax Results: Yes / No | Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

Sample Collection Time Zone: Eastern Pacific Central Other _____ Mountain

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	[signature]	6/5/12	1700	[signature]	6.6.12	0935
2						
3						

Sample Shipping and Delivery Details

GEL PM:
Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: _____ C

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: Ecology & Environment	**SDG/AR/COC/Work Order:** 305539
Received By: SP	**Date Received:** 6.6.12

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		/	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		/	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		/	
Package, COC, and/or Samples markcd as beryllium or asbestos containing?		/	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		/	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		/	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	/			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		/		Preservation Method: Ice bags Blue ice Dry ice (None) Other (describe) 19° *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	/			Temperature Device Serial #: Cors 2460 49 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	/			
4	Sample containers intact and sealed?	/			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		/		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		/		Sample ID's and containers affected:
7	Are Encore containers present?			/	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	/			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	/			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?			/	Sample ID's affected: some had only dates, or times, or neither listed
11	Number of containers received match number indicated on COC?	/			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			/	
13	COC form is properly signed in relinquished/received sections?	/			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground (UPS) Field Services Courier Other 1Z 570 1RR 23 1600 0281

Comments (Usc Continuation Form if necded):

PM (or PMA) review: Initials AH Date 305539 Page 1 of 1

Data Review Qualifier Definitions

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

List of current GEL Certifications as of 07 June 2012

State	Certification
Arizona	AZ0766
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−09−00191
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
Wisconsin	999887790

Metals Analysis

Case Narrative

Metals Fractional Narrative
Ecology and Environment, Inc. Project #002693 (ECOL)
SDG 305539

Sample Analysis

Sample ID	Client ID
305539001	SP-F1-COMP
305539002	SP-F2-COMP
305539003	AD-SP-01-COMP
305539004	UTP-CAP-01-COMP
305539005	UTP-CAP-01-COMP PD
1202672496	Method Blank (MB) **ICP**
1202672497	Laboratory Control Sample (LCS)
1202672500	305539004(UTP-CAP-01-COMPL) Serial Dilution (SD)
1202672498	305539004(UTP-CAP-01-COMPD) Sample Duplicate (DUP)
1202672499	305539004(UTP-CAP-01-COMPS) Matrix Spike (MS)
1202672501	305539001(SP-F1-COMPSD) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch: 1218790
Prep Batch : 1218789
Standard Operating Procedures: GL-MA-E-013 REV# 20 and GL-MA-E-009 REV# 21
Analytical Method: SW846 3050B/6010B
Prep Method : SW846 3050B

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 305539001 (SP-F1-COMP) and 305539004 (UTP-CAP-01-COMP).

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Matrix Spike Duplicate (MSD) Recovery Statement
The percent recovery (%R) obtained from the MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MSD met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes with the exception of lead.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD(s) between the MS and MSD met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The sample 305539003 required dilution in order to bring over range lead concentrations within the linear calibration range of the instrument.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER ID 1086481. A copy is included in the Miscellaneous Data section of this package.

Additional Comments
Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: **Date:** 06.12.12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ECOL007 Ecology and Environment, Inc. Project #002693

Client SDG: 305539 GEL Work Order: 305539

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

B Metals--Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the RL or LOQ.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.

Reviewed By: Nick Cole A. Elmore 06.12.12

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305539 **METHOD TYPE:** SW846

SAMPLE ID: 305539001 **CLIENT ID:** SP−F1−COMP

CONTRACT: ECOL00720

MATRIX: Misc Solid **DATE RECEIVED** 06−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	3.52	mg/kg			P	0.496	1	OPTIMA3	060712−1
7439−92−1	Lead	35.3	mg/kg		N	P	0.327	1	OPTIMA3	060712−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305539 **METHOD TYPE:** SW846

SAMPLE ID: 305539002 **CLIENT ID:** SP−F2−COMP

CONTRACT: ECOL00720

MATRIX: Misc Solid **DATE RECEIVED** 06−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	3.46	mg/kg			P	0.496	1	OPTIMA3	060712−1
7439−92−1	Lead	25.4	mg/kg		N	P	0.327	1	OPTIMA3	060712−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305539 **METHOD TYPE:** SW846

SAMPLE ID: 305539003 **CLIENT ID:** AD−SP−01−COMP

CONTRACT: ECOL00720

MATRIX: Misc Solid **DATE RECEIVED** 06−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	49.6	mg/kg			P	0.488	1	OPTIMA3	060712−1
7439−92−1	Lead	7440	mg/kg		N	P	3.22	10	OPTIMA3	060712−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305539 **METHOD TYPE:** SW846

SAMPLE ID: 305539004 **CLIENT ID:** UTP−CAP−01−COMP

CONTRACT: ECOL00720

MATRIX: Misc Solid **DATE RECEIVED** 06−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	3.63	mg/kg			P	0.49	1	OPTIMA3	060712−1
7439−92−1	Lead	27.4	mg/kg		N	P	0.324	1	OPTIMA3	060712−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305539 **METHOD TYPE:** SW846

SAMPLE ID: 305539005 **CLIENT ID:** UTP−CAP−01−COMP PD

CONTRACT: ECOL00720

MATRIX: Misc Solid **DATE RECEIVED** 06−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	3.73	mg/kg			P	0.472	1	OPTIMA3	060712−1
7439−92−1	Lead	29.4	mg/kg		N	P	0.311	1	OPTIMA3	060712−1

***Analytical Methods:**

P SW846 3050B/6010B

Quality Control Summary

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 305539

Contract: ECOL00720 **Lab Code:** GEL

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: O2Si

Instrument ID: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
ICV01										
	Arsenic	482	ug/L	500	ug/L	96.4	90.0 − 110.0	P	07−JUN−12 07:10	060712−1
	Lead	494	ug/L	500	ug/L	98.9	90.0 − 110.0	P	07−JUN−12 07:10	060712−1
CCV01										
	Arsenic	510	ug/L	500	ug/L	102.1	90.0 − 110.0	P	07−JUN−12 07:30	060712−1
	Lead	511	ug/L	500	ug/L	102.3	90.0 − 110.0	P	07−JUN−12 07:30	060712−1
CCV02										
	Arsenic	506	ug/L	500	ug/L	101.2	90.0 − 110.0	P	07−JUN−12 07:46	060712−1
	Lead	506	ug/L	500	ug/L	101.3	90.0 − 110.0	P	07−JUN−12 07:46	060712−1
CCV03										
	Arsenic	503	ug/L	500	ug/L	100.6	90.0 − 110.0	P	07−JUN−12 07:56	060712−1
	Lead	502	ug/L	500	ug/L	100.5	90.0 − 110.0	P	07−JUN−12 07:56	060712−1
CCV04										
	Arsenic	499	ug/L	500	ug/L	99.9	90.0 − 110.0	P	07−JUN−12 08:32	060712−1
	Lead	498	ug/L	500	ug/L	99.5	90.0 − 110.0	P	07−JUN−12 08:32	060712−1
CCV05										
	Arsenic	505	ug/L	500	ug/L	101	90.0 − 110.0	P	07−JUN−12 09:09	060712−1
	Lead	502	ug/L	500	ug/L	100.5	90.0 − 110.0	P	07−JUN−12 09:09	060712−1
CCV06										
	Arsenic	508	ug/L	500	ug/L	101.6	90.0 − 110.0	P	07−JUN−12 09:45	060712−1
	Lead	503	ug/L	500	ug/L	100.5	90.0 − 110.0	P	07−JUN−12 09:45	060712−1
CCV07										
	Arsenic	506	ug/L	500	ug/L	101.3	90.0 − 110.0	P	07−JUN−12 09:58	060712−1
	Lead	504	ug/L	500	ug/L	100.9	90.0 − 110.0	P	07−JUN−12 09:58	060712−1
CCV08										
	Arsenic	512	ug/L	500	ug/L	102.3	90.0 − 110.0	P	07−JUN−12 10:25	060712−1
	Lead	509	ug/L	500	ug/L	101.9	90.0 − 110.0	P	07−JUN−12 10:25	060712−1
CCV09										
	Arsenic	497	ug/L	500	ug/L	99.5	90.0 − 110.0	P	07−JUN−12 10:53	060712−1
	Lead	492	ug/L	500	ug/L	98.4	90.0 − 110.0	P	07−JUN−12 10:53	060712−1

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 305539

Contract: ECOL00720 **Lab Code:** GEL

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: O2Si

Instrument ID: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
CCV10										
	Arsenic	505	ug/L	500	ug/L	101	90.0 − 110.0	P	07−JUN−12 11:05	060712−1
	Lead	499	ug/L	500	ug/L	99.8	90.0 − 110.0	P	07−JUN−12 11:05	060712−1
CCV11										
	Arsenic	505	ug/L	500	ug/L	101	90.0 − 110.0	P	07−JUN−12 11:38	060712−1
	Lead	506	ug/L	500	ug/L	101.2	90.0 − 110.0	P	07−JUN−12 11:38	060712−1
CCV12										
	Arsenic	492	ug/L	500	ug/L	98.5	90.0 − 110.0	P	07−JUN−12 12:00	060712−1
	Lead	491	ug/L	500	ug/L	98.2	90.0 − 110.0	P	07−JUN−12 12:00	060712−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−2b−
CRDL Standard for AA & ICP

SDG No: 305539

Contract: ECOL00720 **Lab Code:** GEL

AA CRDL Standard Source: SPEX

ICP CRDL Standard Source Solutions Plus

Instrument ID: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Advisory Limits (%R)	M*	Analysis Date/Time	Run Number
PQL01										
	Arsenic	29.3	ug/L	30	ug/L	97.5	70.0 − 130.0	P	07−JUN−12 07:16	060712−1
	Lead	10.9	ug/L	10	ug/L	108.5	70.0 − 130.0	P	07−JUN−12 07:16	060712−1
PQL02										
	Arsenic	31.2	ug/L	30	ug/L	104.1	70.0 − 130.0	P	07−JUN−12 09:12	060712−1
	Lead	9.51	ug/L	10	ug/L	95.1	70.0 − 130.0	P	07−JUN−12 09:12	060712−1
PQL03										
	Arsenic	30.4	ug/L	30	ug/L	101.4	70.0 − 130.0	P	07−JUN−12 09:49	060712−1
	Lead	11.3	ug/L	10	ug/L	113.2	70.0 − 130.0	P	07−JUN−12 09:49	060712−1
PQL04										
	Arsenic	28.5	ug/L	30	ug/L	95.1	70.0 − 130.0	P	07−JUN−12 10:28	060712−1
	Lead	11.7	ug/L	10	ug/L	116.5	70.0 − 130.0	P	07−JUN−12 10:28	060712−1
PQL05										
	Arsenic	31.2	ug/L	30	ug/L	103.9	70.0 − 130.0	P	07−JUN−12 10:56	060712−1
	Lead	9.39	ug/L	10	ug/L	93.9	70.0 − 130.0	P	07−JUN−12 10:56	060712−1

***Analytical Methods:**

P **SW846 3050B/6010B**

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 305539

Contract: ECOL00720

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
ICB01										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 07:13	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 07:13	060712−1
CCB01										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 07:33	060712−1
	Lead	4.06	+/−10	B	3.3	10.0	SOL	P	07−JUN−12 07:33	060712−1
CCB02										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 07:49	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 07:49	060712−1
CCB03										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 07:59	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 07:59	060712−1
CCB04										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 08:35	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 08:35	060712−1
CCB05										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 09:15	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 09:15	060712−1
CCB06										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 09:52	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 09:52	060712−1
CCB07										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 10:01	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 10:01	060712−1
CCB08										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 10:31	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 10:31	060712−1
CCB09										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 10:59	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 10:59	060712−1
CCB10										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 11:09	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 11:09	060712−1

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 305539

Contract: ECOL00720

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
CCB11										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 11:41	060712−1
	Lead	5.09	+/−10	B	3.3	10.0	SOL	P	07−JUN−12 11:41	060712−1
CCB12										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	07−JUN−12 12:03	060712−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	07−JUN−12 12:03	060712−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 305539
Contract: ECOL00720
Matrix: Misc Solid

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202672496								
	Arsenic	0.49	mg/kg	+/−2.94	U	P	0.49	2.94
	Lead	0.324	mg/kg	+/−0.98	U	P	0.324	0.98

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−4−
Interference Check Sample

SDG No: 305539

Contract: ECOL00720 **Lab Code:** GEL

ICS: O2Si

Instrument: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Arsenic	5.81	ug/L					07−JUN−12 07:19	060712−1
	Lead	−8.82	ug/L					07−JUN−12 07:19	060712−1
ICSAB01									
	Arsenic	533	ug/L	500	ug/L	107	80.0 − 120.0	07−JUN−12 07:21	060712−1
	Lead	481	ug/L	500	ug/L	96.1	80.0 − 120.0	07−JUN−12 07:21	060712−1

METALS
−5a−

Matrix Spike Summary

SDG NO. 305539 **Client ID** UTP−CAP−01−COMPS

Contract: ECOL00720 **Level:** Low

Matrix: MISC SOLID **% Solids:**

Sample ID: 305539004 **Spike ID:** 1202672499

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Arsenic	mg/kg	75−125	49.9		3.63		49.7	93.1		P
Lead	mg/kg	75−125	73.3		27.4		49.7	92.4		P

***Analytical Methods:**
P SW846 3050B/6010B

METALS
−5a−

Matrix Spike Duplicate Summary

SDG NO. 305539 **Client ID** SP−F1−COMPSD

Contract: ECOL00720 **Level:** Low

Matrix: MISC SOLID **% Solids:**

Sample ID: 305539001 **Spike ID:** 1202672501

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Arsenic	mg/kg	75−125	47.7		3.52		47.9	92.2		P
Lead	mg/kg	75−125	68.7		35.3		47.9	69.7	N	P

***Analytical Methods:**
P SW846 3050B/6010B

Metals
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Duplicate Sample Summary

SDG No.: 305539 **Lab Code:** GEL

Contract: ECOL00720 **Client ID:** UTP−CAP−01−COMPD

Matrix: SOLID **Level:** Low

Sample ID: 305539004 **Duplicate ID:** 1202672498 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Arsenic	mg/kg	+/−2.95	3.63		3.49		4.01		P
Lead	mg/kg	+/−20%	27.4		27.2		.668		P

***Analytical Methods:**

P SW846 3050B/6010B

Metals
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Duplicate Sample Summary

SDG No.: 305539 **Lab Code:** GEL

Contract: ECOL00720 **Client ID:** SP−F1−COMPSD

Matrix: SOLID **Level:** Low

Sample ID: 1202672499 **Duplicate ID:** 1202672501 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Arsenic	mg/kg	+/−20	49.9		47.7		4.52		P
Lead	mg/kg	+/−20	73.3		68.7		6.54		P

***Analytical Methods:**

P SW846 3050B/6010B

METALS
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Laboratory Control Sample Summary

SDG NO. 305539

Contract: ECOL00720

Aqueous LCS Source: **Solid LCS Source:** OS2I

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202672497								
	Arsenic	mg/kg	48.8	48.2		98.8	80−120	P
	Lead	mg/kg	48.8	48.7		99.7	80−120	P

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
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Serial Dilution Sample Summary

SDG NO. 305539 **Client ID** UTP−CAP−01−COMPL

Contract: ECOL00720

Matrix: SOLID **Level:** Low

Sample ID: 305539004 **Serial Dilution ID:** 1202672500

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Arsenic	37		31.9	B	13.9			P
Lead	280		296		5.98			P

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
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SAMPLE PREPARATION SUMMARY

SDG No: 305539 **Method Type:** P

Contract: ECOL00720 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
Batch Number 1218789							
1202672496	MB for batch 1218789	MB	m	06−JUN−12	.51g	50mL	
1202672497	LCS for batch 1218789	LCS	m	06−JUN−12	.512g	50mL	
1202672499	UTP−CAP−01−COMPS	MS	m	06−JUN−12	.503g	50mL	
1202672501	SP−F1−COMPSD	MSD	m	06−JUN−12	.522g	50mL	
1202672498	UTP−CAP−01−COMPD	DUP	m	06−JUN−12	.508g	50mL	
305539001	SP−F1−COMP	SAMPLE	m	06−JUN−12	.504g	50mL	
305539002	SP−F2−COMP	SAMPLE	m	06−JUN−12	.504g	50mL	
305539003	AD−SP−01−COMP	SAMPLE	m	06−JUN−12	.512g	50mL	
305539004	UTP−CAP−01−COMP	SAMPLE	m	06−JUN−12	.51g	50mL	
305539005	UTP−CAP−01−COMP PD	SAMPLE	m	06−JUN−12	.53g	50mL	

Metals
−14−
Analysis Run Log

Contract: ECOL00720
Lab Code: GEL
Inst Name: OPTIMA3
Start Date: 07−JUN−12
End Date: 07−JUN−12
Client Sdg: 305539
Method*: P
Data File: 060712−1

Samp No.	D/F	Run Time	As	Pb
S0.0	1	06:57:00	X	X
S0.1	1	07:00:00	X	X
S0.5	1	07:02:00	X	X
SCAL	1	07:05:00	X	X
S10	1	07:09:00		
ICV01	1	07:10:00	X	X
ICB01	1	07:13:00	X	X
PQL01	1	07:16:00	X	X
ICSA01	1	07:19:00	X	X
ICSAB01	1	07:21:00	X	X
LR01	1	07:24:00	X	X
LR02	1	07:26:00	X	X
CCV01	1	07:30:00	X	X
CCB01	1	07:33:00	X	X
CCV02	1	07:46:00	X	X
CCB02	1	07:49:00	X	X
ZZZZZZ	1	07:52:00		
CCV03	1	07:56:00	X	X
CCB03	1	07:59:00	X	X
ZZZZZZ	1	08:04:00		
ZZZZZZ	1	08:08:00		
ZZZZZZ	1	08:11:00		
ZZZZZZ	1	08:14:00		
ZZZZZZ	1	08:17:00		
ZZZZZZ	1	08:20:00		
ZZZZZZ	1	08:23:00		
ZZZZZZ	1	08:26:00		
ZZZZZZ	1	08:29:00		
CCV04	1	08:32:00	X	X
CCB04	1	08:35:00	X	X
ZZZZZZ	1	08:39:00		
ZZZZZZ	1	08:42:00		
ZZZZZZ	1	08:45:00		
ZZZZZZ	1	08:48:00		
ZZZZZZ	1	08:51:00		
ZZZZZZ	1	08:54:00		
ZZZZZZ	1	08:57:00		
ZZZZZZ	5	09:00:00		
ZZZZZZ	1	09:03:00		
ZZZZZZ	1	09:06:00		

Metals
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Analysis Run Log

Samp No.	D/F	Run Time		
CCV05	1	09:09:00	X	X
PQL02	1	09:12:00	X	X
CCB05	1	09:15:00	X	X
ZZZZZZ	1	09:18:00		
ZZZZZZ	1	09:21:00		
ZZZZZZ	1	09:24:00		
ZZZZZZ	1	09:28:00		
ZZZZZZ	1	09:31:00		
ZZZZZZ	1	09:34:00		
ZZZZZZ	1	09:36:00		
ZZZZZZ	1	09:39:00		
ZZZZZZ	1	09:42:00		
CCV06	1	09:45:00	X	X
PQL03	1	09:49:00	X	X
CCB06	1	09:52:00	X	X
ZZZZZZ	50	09:55:00		
CCV07	1	09:58:00	X	X
CCB07	1	10:01:00	X	X
ZZZZZZ	1	10:05:00		
ZZZZZZ	1	10:08:00		
ZZZZZZ	1	10:12:00		
ZZZZZZ	1	10:15:00		
ZZZZZZ	1	10:18:00		
ZZZZZZ	5	10:21:00		
CCV08	1	10:25:00	X	X
PQL04	1	10:28:00	X	X
CCB08	1	10:31:00	X	X
ZZZZZZ	1	10:34:00		
ZZZZZZ	1	10:37:00		
ZZZZZZ	1	10:41:00		
ZZZZZZ	1	10:44:00		
ZZZZZZ	1	10:47:00		
ZZZZZZ	1	10:50:00		
CCV09	1	10:53:00	X	X
PQL05	1	10:56:00	X	X
CCB09	1	10:59:00	X	X
ZZZZZZ	50	11:02:00		
CCV10	1	11:05:00	X	X
CCB10	1	11:09:00	X	X
1202672496	1	11:17:00	X	X

Metals
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Analysis Run Log

Samp No.	D/F	Run Time	As	Pb
1202672497	1	11:20:00	X	X
305539001	1	11:23:00	X	X
305539002	1	11:26:00	X	X
305539003	1	11:29:00	X	
305539003	10	11:31:00		X
ZZZZZZ	50	11:35:00		
CCV11	1	11:38:00	X	X
CCB11	1	11:41:00	X	X
305539004	1	11:44:00	X	X
1202672498	1	11:47:00	X	X
1202672499	1	11:49:00	X	X
1202672501	1	11:52:00	X	X
1202672500	5	11:54:00	X	X
305539005	1	11:57:00	X	X
CCV12	1	12:00:00	X	X
CCB12	1	12:03:00	X	X

Standards

METALS
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Instrument Detection Limits

SDG NO. 305539

Contract: ECOL00720 **Lab Code: GEL** **MDL Effective Date:** 23−JAN−11

ICP	Analyte	Wavelength (nm)	MDL ug/L	RDL ug/L
SOLID	Arsenic	188.979	5.0	30
	Lead	220.353	3.3	10

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 305539
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Aluminum	Antimony	Arsenic	Barium	Beryllium
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.07354	0.00000	0.00000	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	−0.75350	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.49463	0.00000	0.00000	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	−0.23554	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	13.1846	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.21575	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00465	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 305539
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Boron	Cadmium	Calcium	Chromium	Cobalt
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	23.3987	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	−4.41902	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	−0.00885	−0.19499	0.00000
Boron	249.677	0.00000	0.00000	0.00000	−1.83304	3.43795
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.26855	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	−1.36933
Lead	220.353	0.00000	0.00000	−0.04535	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	−10.0236
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.60469
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.17047	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	−1.31651
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.01180	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.10056	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	−0.09685	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	−0.03646	0.35209	0.00000
Uranium	367.007	0.00000	0.00000	0.26208	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	−2.79443	0.00000
Zinc	213.857	0.00000	0.00000	0.01118	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 305539
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Copper	Lead	Magnesium	Manganese	Molybdenum
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	37.9834
Antimony	**206.836**	0.00000	0.00000	0.00000	0.00000	−12.9786
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	5.06550
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	−0.01013	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	0.00000	−1.37414
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.15226	0.00000	0.00000	0.00000	−3.69435
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	−7.03373
Manganese	**257.61**	0.00000	0.00000	0.03774	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	23.6803	0.00000	0.00000	0.00000	8.28450
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	11.9716
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	5.24433	−9.70065
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.01115	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	−0.67352	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	−11.1543
Zinc	**213.857**	0.72938	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 305539
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Nickel	Phosphorous	Potassium	Selenium	Silicon
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.40304	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	6.45017	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
Contract: **ECOL00720**
Instrument: **OPTIMA3**
GEL Job No: **305539**
Effective Dates: **01−MAY−12**
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Silver	Strontium	Sulfur	Thallium	Tin
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	0.00000	0.00000	0.00000	−2.80617
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.00000	0.00000	0.00000	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	3.97807
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 305539
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Titanium	Uranium	Vanadium	Zinc
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	−0.46849	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	−1.35629	0.00000
Beryllium	313.107	0.26962	−0.19884	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.98445	−0.73762	0.00000
Cobalt	228.616	2.07030	0.00000	0.00000	0.00000
Copper	324.752	−0.77714	0.83827	0.00000	0.00000
Lead	220.353	0.00000	0.64053	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	−7.26842	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	−1.60778	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	−6.14596	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.42459	0.00000	0.00000	0.00000
Thallium	190.801	−4.09084	−0.46877	0.00000	0.00000
Tin	189.927	−2.84744	0.28891	0.00000	0.00000
Titanium	334.94	0.00000	0.45218	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	−1.68602	0.00000
Vanadium	292.402	0.86620	−0.82394	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000

METALS
−12−
Linear Ranges

SDG NO. 305539

Contract: ECOL00720 **Lab Code: GEL**

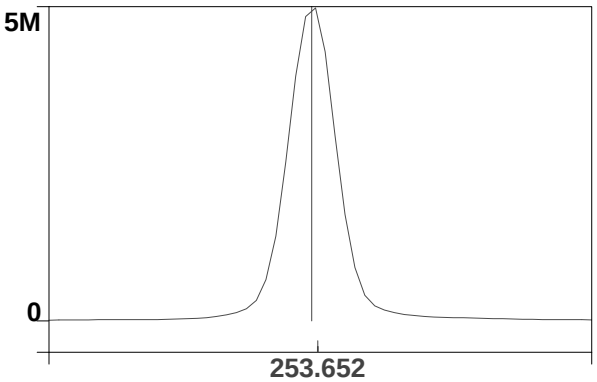
Instrument ID OPTIMA3

Analyte	Integration Time (sec)	LDR	Units	Effective Date
Arsenic	20	10000	ug/L	01−MAY−12
Lead	20	25000	ug/L	01−MAY−12

Raw Data

Method: Hg_ReAlign **Sample ID: Hg_ReAlign**
Result: 060712

Hg 253.652 **Rep: 1**



Intensity: 5016967.2 cps
Conc:

1

6/7/2012 6:44:15 Hg ReAlign... Actual peak offset (nm): 0.001
Drift (nm): 0.000 Slit adjustment: 0

Analysis Begun

Start Time: 6/7/2012 6:57:07 **Plasma On Time: 6/6/2012 9:59:41**
Logged In Analyst: optima3 **Technique: ICP Continuous**
Spectrometer Model: Optima 5300 DV, S/N 077C7090601Autosampler Model: AS-93plus

Sample Information File: C:\pe\Optima3\Sample Information\060712.sif
Batch ID:
Results Data Set: 060712
Results Library: C:\pe\Optima3\Results\Results.mdb

Method Loaded
Method Name: Gen Eng fast_new Si2 **Method Last Saved: 6/6/2012 11:15:43**
IEC File: 041012.iec **MSF File:**
Method Description:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Al 396.153Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
B 249.677	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Be 313.107	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ca 317.933Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Cd 226.502	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cr 267.716	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Fe 238.204 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
K 766.490 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mg 279.077 IEC	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mn 257.610	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Na 589.592 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Ni 231.604	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
P 214.914	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
S 181.975 Axial	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sc 361.383	Lin Thru 0	Peak Area	Axial	n/a	n/a
Sc RADIAL	Lin, Calc Int	Peak Area	Radial	n/a	n/a
Se 196.026	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
SiO2	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Si 251.611	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sn 189.927	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Ti 334.940	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
U 367.007	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Y 371.029	Lin, Calc Int	Peak Area	Axial	n/a	n/a
Zn 213.857	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes

Sequence No.: 1 **Autosampler Location: 8**
Sample ID: S0 **Date Collected: 6/7/2012 6:57:17**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time

1	Sc RADIAL	19098.0	19098.0	0.000	%	06:57:52
1	Al 396.153Radial†	-49.9	-50.0	[0.00]	µg/L	06:57:52
1	Ca 317.933Radial†	123.3	123.6	[0.00]	µg/L	06:58:12
1	Fe 238.204 Radial†	29.6	29.6	[0.00]	µg/L	06:58:12
1	K 766.490 Radial†	685.2	686.8	[0.00]	µg/L	06:57:52
1	Mg 279.077 IEC†	3.5	3.5	[0.00]	µg/L	06:58:12
1	Na 589.592 Radial†	-159.0	-159.4	[0.00]	µg/L	06:57:52
1	Sr 421.552†	-1277.9	-1281.0	[0.00]	µg/L	06:57:52
1	Sc 361.383	600354.4	600354.4	0.0000	%	06:59:09
1	Y 371.029	509723.5	509723.5	0.0000	%	06:59:09
1	Ag 328.068†	-634.5	-636.3	[0.00]	µg/L	06:59:09
1	As 188.979†	-7.2	-7.2	[0.00]	µg/L	06:59:29
1	B 249.677†	93.4	93.7	[0.00]	µg/L	06:59:29
1	Ba 233.527†	-103.6	-103.9	[0.00]	µg/L	06:59:29
1	Be 313.107†	-7997.7	-8021.4	[0.00]	µg/L	06:59:09
1	Cd 226.502†	-207.6	-208.2	[0.00]	µg/L	06:59:29
1	Co 228.616†	-10.9	-11.0	[0.00]	µg/L	06:59:29
1	Cr 267.716†	254.2	255.0	[0.00]	µg/L	06:59:29
1	Cu 324.752†	6152.2	6170.4	[0.00]	µg/L	06:59:09
1	Mn 257.610†	392.0	393.2	[0.00]	µg/L	06:59:29
1	Mo 202.031†	28.8	28.9	[0.00]	µg/L	06:59:29
1	Ni 231.604†	-72.2	-72.4	[0.00]	µg/L	06:59:29
1	P 214.914†	67.8	68.0	[0.00]	µg/L	06:59:29
1	Pb 220.353†	139.6	140.0	[0.00]	µg/L	06:59:29
1	S 181.975 Axial†	59.1	59.2	[0.00]	µg/L	06:59:29
1	Sb 206.836†	71.7	72.0	[0.00]	µg/L	06:59:29
1	Se 196.026†	-12.7	-12.8	[0.00]	µg/L	06:59:29
1	SiO2†	3330.9	3340.7	[0.00]	µg/L	06:59:09
1	Si 251.611†	345.1	346.1	[0.00]	µg/L	06:59:29
1	Sn 189.927†	20.4	20.5	[0.00]	µg/L	06:59:29
1	Ti 334.940†	-78.1	-78.3	[0.00]	µg/L	06:59:09
1	Tl 190.801†	-39.5	-39.6	[0.00]	µg/L	06:59:29
1	U 367.007†	374.5	375.6	[0.00]	µg/L	06:59:09
1	V 292.402†	-156.1	-156.5	[0.00]	µg/L	06:59:09
1	Zn 213.857†	1203.6	1207.2	[0.00]	µg/L	06:59:29
2	Sc RADIAL	19165.8	19165.8	0.000	%	06:58:17
2	Al 396.153Radial†	-41.4	-41.4	[0.00]	µg/L	06:58:17
2	Ca 317.933Radial†	115.5	115.3	[0.00]	µg/L	06:58:37
2	Fe 238.204 Radial†	30.2	30.2	[0.00]	µg/L	06:58:37
2	K 766.490 Radial†	622.2	621.5	[0.00]	µg/L	06:58:17
2	Mg 279.077 IEC†	4.3	4.3	[0.00]	µg/L	06:58:37
2	Na 589.592 Radial†	-216.8	-216.6	[0.00]	µg/L	06:58:17
2	Sr 421.552†	-1291.9	-1290.5	[0.00]	µg/L	06:58:17
2	Sc 361.383	602731.0	602731.0	0.0000	%	06:59:34
2	Y 371.029	511553.7	511553.7	0.0000	%	06:59:34
2	Ag 328.068†	-588.2	-587.6	[0.00]	µg/L	06:59:34
2	As 188.979†	-13.8	-13.7	[0.00]	µg/L	06:59:54
2	B 249.677†	81.7	81.6	[0.00]	µg/L	06:59:54
2	Ba 233.527†	-130.9	-130.8	[0.00]	µg/L	06:59:54
2	Be 313.107†	-7900.7	-7892.8	[0.00]	µg/L	06:59:34
2	Cd 226.502†	-213.7	-213.5	[0.00]	µg/L	06:59:54
2	Co 228.616†	-4.4	-4.4	[0.00]	µg/L	06:59:54
2	Cr 267.716†	237.3	237.0	[0.00]	µg/L	06:59:54
2	Cu 324.752†	6136.3	6130.1	[0.00]	µg/L	06:59:34
2	Mn 257.610†	369.1	368.7	[0.00]	µg/L	06:59:54
2	Mo 202.031†	28.1	28.1	[0.00]	µg/L	06:59:54
2	Ni 231.604†	-90.9	-90.8	[0.00]	µg/L	06:59:54
2	P 214.914†	76.4	76.3	[0.00]	µg/L	06:59:54
2	Pb 220.353†	145.6	145.5	[0.00]	µg/L	06:59:54
2	S 181.975 Axial†	51.9	51.9	[0.00]	µg/L	06:59:54
2	Sb 206.836†	63.2	63.2	[0.00]	µg/L	06:59:54
2	Se 196.026†	-5.9	-5.9	[0.00]	µg/L	06:59:54
2	SiO2†	3358.4	3355.0	[0.00]	µg/L	06:59:34
2	Si 251.611†	412.1	411.7	[0.00]	µg/L	06:59:54
2	Sn 189.927†	17.9	17.9	[0.00]	µg/L	06:59:54
2	Ti 334.940†	-99.9	-99.8	[0.00]	µg/L	06:59:34
2	Tl 190.801†	-39.5	-39.4	[0.00]	µg/L	06:59:54
2	U 367.007†	352.1	351.8	[0.00]	µg/L	06:59:34
2	V 292.402†	-226.2	-225.9	[0.00]	µg/L	06:59:34
2	Zn 213.857†	1237.3	1236.1	[0.00]	µg/L	06:59:54
3	Sc RADIAL	19167.8	19167.8	0.000	%	06:58:42

3	Al 396.153Radial†	-55.5	-55.4	[0.00] µg/L	06:58:42
3	Ca 317.933Radial†	119.0	118.9	[0.00] µg/L	06:59:02
3	Fe 238.204 Radial†	26.4	26.4	[0.00] µg/L	06:59:02
3	K 766.490 Radial†	689.5	688.6	[0.00] µg/L	06:58:42
3	Mg 279.077 IEC†	1.7	1.7	[0.00] µg/L	06:59:02
3	Na 589.592 Radial†	-178.9	-178.6	[0.00] µg/L	06:58:42
3	Sr 421.552†	-1308.3	-1306.7	[0.00] µg/L	06:58:42
3	Sc 361.383	603293.1	603293.1	0.0000 %	06:59:59
3	Y 371.029	512492.7	512492.7	0.0000 %	06:59:59
3	Ag 328.068†	-552.2	-551.1	[0.00] µg/L	06:59:59
3	As 188.979†	-13.4	-13.4	[0.00] µg/L	07:00:19
3	B 249.677†	82.3	82.1	[0.00] µg/L	07:00:19
3	Ba 233.527†	-115.3	-115.1	[0.00] µg/L	07:00:19
3	Be 313.107†	-7975.1	-7959.7	[0.00] µg/L	06:59:59
3	Cd 226.502†	-227.7	-227.3	[0.00] µg/L	07:00:19
3	Co 228.616†	-3.8	-3.8	[0.00] µg/L	07:00:19
3	Cr 267.716†	220.8	220.4	[0.00] µg/L	07:00:19
3	Cu 324.752†	6154.5	6142.6	[0.00] µg/L	06:59:59
3	Mn 257.610†	396.9	396.1	[0.00] µg/L	07:00:19
3	Mo 202.031†	26.6	26.6	[0.00] µg/L	07:00:19
3	Ni 231.604†	-71.8	-71.6	[0.00] µg/L	07:00:19
3	P 214.914†	84.0	83.8	[0.00] µg/L	07:00:19
3	Pb 220.353†	136.1	135.8	[0.00] µg/L	07:00:19
3	S 181.975 Axial†	59.8	59.7	[0.00] µg/L	07:00:19
3	Sb 206.836†	71.9	71.8	[0.00] µg/L	07:00:19
3	Se 196.026†	-6.0	-6.0	[0.00] µg/L	07:00:19
3	SiO2†	3604.4	3597.4	[0.00] µg/L	06:59:59
3	Si 251.611†	550.9	549.8	[0.00] µg/L	07:00:19
3	Sn 189.927†	29.9	29.8	[0.00] µg/L	07:00:19
3	Ti 334.940†	-81.1	-80.9	[0.00] µg/L	06:59:59
3	Tl 190.801†	-40.7	-40.6	[0.00] µg/L	07:00:19
3	U 367.007†	359.4	358.7	[0.00] µg/L	06:59:59
3	V 292.402†	-219.8	-219.3	[0.00] µg/L	06:59:59
3	Zn 213.857†	1214.9	1212.5	[0.00] µg/L	07:00:19

Mean Data: S0

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	602126.2	1559.92	0.26%	0.0000	%
Sc RADIAL	19143.8	39.73	0.21%	0.000	%
Y 371.029	511256.7	1408.30	0.28%	0.0000	%
Ag 328.068†	-591.7	42.75	7.23%	[0.00]	µg/L
Al 396.153Radial†	-48.9	7.05	14.42%	[0.00]	µg/L
As 188.979†	-11.4	3.67	32.09%	[0.00]	µg/L
B 249.677†	85.8	6.81	7.94%	[0.00]	µg/L
Ba 233.527†	-116.6	13.48	11.56%	[0.00]	µg/L
Be 313.107†	-7957.9	64.32	0.81%	[0.00]	µg/L
Ca 317.933Radial†	119.3	4.15	3.48%	[0.00]	µg/L
Cd 226.502†	-216.3	9.85	4.55%	[0.00]	µg/L
Co 228.616†	-6.4	3.97	62.13%	[0.00]	µg/L
Cr 267.716†	237.5	17.29	7.28%	[0.00]	µg/L
Cu 324.752†	6147.7	20.60	0.34%	[0.00]	µg/L
Fe 238.204 Radial†	28.7	2.04	7.10%	[0.00]	µg/L
K 766.490 Radial†	665.7	38.24	5.74%	[0.00]	µg/L
Mg 279.077 IEC†	3.2	1.32	41.62%	[0.00]	µg/L
Mn 257.610†	386.0	15.03	3.89%	[0.00]	µg/L
Mo 202.031†	27.9	1.18	4.23%	[0.00]	µg/L
Na 589.592 Radial†	-184.9	29.11	15.75%	[0.00]	µg/L
Ni 231.604†	-78.3	10.87	13.88%	[0.00]	µg/L
P 214.914†	76.0	7.91	10.41%	[0.00]	µg/L
Pb 220.353†	140.4	4.86	3.46%	[0.00]	µg/L
S 181.975 Axial†	56.9	4.39	7.71%	[0.00]	µg/L
Sb 206.836†	69.0	5.02	7.29%	[0.00]	µg/L
Se 196.026†	-8.2	3.93	47.80%	[0.00]	µg/L
SiO2†	3431.0	144.24	4.20%	[0.00]	µg/L
Si 251.611†	435.9	103.99	23.86%	[0.00]	µg/L
Sn 189.927†	22.8	6.26	27.53%	[0.00]	µg/L
Sr 421.552†	-1292.7	12.99	1.00%	[0.00]	µg/L
Ti 334.940†	-86.3	11.75	13.60%	[0.00]	µg/L
Tl 190.801†	-39.9	0.62	1.55%	[0.00]	µg/L

U 367.007†	362.0	12.25	3.38%	[0.00] µg/L
V 292.402†	-200.6	38.30	19.09%	[0.00] µg/L
Zn 213.857†	1218.6	15.36	1.26%	[0.00] µg/L

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: S0.1 **Date Collected: 6/7/2012 7:00:27**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	18905.1	18905.1	98.8	%	07:00:56
1	K 766.490 Radial†	2657.2	2025.1	[1000]	µg/L	07:00:56
1	Sr 421.552†	19000.2	20532.8	[100]	µg/L	07:00:56
1	Sc 361.383	597009.8	597009.8	99.150	%	07:01:13
1	Y 371.029	506191.7	506191.7	99.009	%	07:01:13
1	Ag 328.068†	14431.2	15146.6	[100]	µg/L	07:01:13
1	As 188.979†	173.5	186.5	[100]	µg/L	07:01:33
1	B 249.677†	3525.6	3469.9	[100]	µg/L	07:01:13
1	Ba 233.527†	11186.3	11398.8	[100]	µg/L	07:01:13
1	Be 313.107†	161771.3	171115.6	[100]	µg/L	07:01:13
1	Cd 226.502†	6492.2	6764.2	[100]	µg/L	07:01:13
1	Co 228.616†	3868.1	3907.7	[100]	µg/L	07:01:33
1	Cr 267.716†	4987.0	4792.3	[100]	µg/L	07:01:13
1	Cu 324.752†	28598.1	22695.5	[100]	µg/L	07:01:13
1	Mn 257.610†	66293.7	66475.9	[100]	µg/L	07:01:13
1	Mo 202.031†	1452.5	1437.1	[100]	µg/L	07:01:33
1	Ni 231.604†	3075.0	3179.7	[100]	µg/L	07:01:33
1	P 214.914†	736.8	667.1	[500]	µg/L	07:01:33
1	Pb 220.353†	742.8	608.7	[100]	µg/L	07:01:33
1	S 181.975 Axial†	178.3	122.9	[200]	µg/L	07:01:33
1	Sb 206.836†	367.6	301.8	[100]	µg/L	07:01:33
1	Se 196.026†	119.9	129.1	[100]	µg/L	07:01:33
1	SiO2†	12038.4	8710.6	[1069.5]	µg/L	07:01:13
1	Si 251.611†	10727.3	10383.3	[500]	µg/L	07:01:13
1	Sn 189.927†	466.8	448.1	[100]	µg/L	07:01:33
1	Ti 334.940†	38274.9	38689.3	[100]	µg/L	07:01:13
1	Tl 190.801†	235.5	277.4	[100]	µg/L	07:01:33
1	U 367.007†	749.9	394.3	[100]	µg/L	07:01:13
1	V 292.402†	9678.5	9962.0	[100]	µg/L	07:01:13
1	Zn 213.857†	11586.1	10466.8	[100]	µg/L	07:01:13
2	Sc RADIAL	18968.8	18968.8	99.1	%	07:01:01
2	K 766.490 Radial†	2729.0	2088.5	[1000]	µg/L	07:01:01
2	Sr 421.552†	19081.6	20550.4	[100]	µg/L	07:01:01
2	Sc 361.383	598883.2	598883.2	99.461	%	07:01:38
2	Y 371.029	508000.4	508000.4	99.363	%	07:01:38
2	Ag 328.068†	14574.3	15244.9	[100]	µg/L	07:01:38
2	As 188.979†	161.2	173.6	[100]	µg/L	07:01:58
2	B 249.677†	3526.6	3459.9	[100]	µg/L	07:01:38
2	Ba 233.527†	11289.0	11466.8	[100]	µg/L	07:01:38
2	Be 313.107†	162894.3	171734.3	[100]	µg/L	07:01:38
2	Cd 226.502†	6541.3	6793.1	[100]	µg/L	07:01:38
2	Co 228.616†	3848.8	3876.0	[100]	µg/L	07:01:58
2	Cr 267.716†	4999.5	4789.1	[100]	µg/L	07:01:38
2	Cu 324.752†	28786.1	22794.3	[100]	µg/L	07:01:38
2	Mn 257.610†	66692.0	66667.1	[100]	µg/L	07:01:38
2	Mo 202.031†	1439.8	1419.7	[100]	µg/L	07:01:58
2	Ni 231.604†	3077.4	3172.4	[100]	µg/L	07:01:58
2	P 214.914†	733.1	661.0	[500]	µg/L	07:01:58
2	Pb 220.353†	759.1	622.8	[100]	µg/L	07:01:58
2	S 181.975 Axial†	177.2	121.2	[200]	µg/L	07:01:58
2	Sb 206.836†	351.1	284.1	[100]	µg/L	07:01:58
2	Se 196.026†	115.2	124.1	[100]	µg/L	07:01:58
2	SiO2†	12135.1	8769.7	[1069.5]	µg/L	07:01:38
2	Si 251.611†	10807.0	10429.7	[500]	µg/L	07:01:38
2	Sn 189.927†	457.4	437.1	[100]	µg/L	07:01:58
2	Ti 334.940†	38464.0	38758.6	[100]	µg/L	07:01:38
2	Tl 190.801†	226.9	268.0	[100]	µg/L	07:01:58
2	U 367.007†	724.8	366.7	[100]	µg/L	07:01:38
2	V 292.402†	9691.3	9944.3	[100]	µg/L	07:01:38

2	Zn 213.857†	11652.5	10497.0	[100]	µg/L	07:01:38
3	Sc RADIAL	19106.8	19106.8	99.8	%	07:01:06
3	K 766.490 Radial†	2745.2	2084.9	[1000]	µg/L	07:01:06
3	Sr 421.552†	19107.0	20436.8	[100]	µg/L	07:01:06
3	Sc 361.383	598589.9	598589.9	99.413	%	07:02:04
3	Y 371.029	507609.9	507609.9	99.287	%	07:02:04
3	Ag 328.068†	14541.9	15219.5	[100]	µg/L	07:02:04
3	As 188.979†	162.0	174.4	[100]	µg/L	07:02:24
3	B 249.677†	3515.1	3450.1	[100]	µg/L	07:02:04
3	Ba 233.527†	11192.6	11375.3	[100]	µg/L	07:02:04
3	Be 313.107†	162122.7	171038.3	[100]	µg/L	07:02:04
3	Cd 226.502†	6536.4	6791.3	[100]	µg/L	07:02:04
3	Co 228.616†	3837.2	3866.2	[100]	µg/L	07:02:24
3	Cr 267.716†	5010.6	4802.8	[100]	µg/L	07:02:04
3	Cu 324.752†	28870.3	22893.2	[100]	µg/L	07:02:04
3	Mn 257.610†	66546.1	66553.3	[100]	µg/L	07:02:04
3	Mo 202.031†	1451.6	1432.3	[100]	µg/L	07:02:24
3	Ni 231.604†	3031.9	3128.1	[100]	µg/L	07:02:24
3	P 214.914†	729.2	657.4	[500]	µg/L	07:02:24
3	Pb 220.353†	746.1	610.1	[100]	µg/L	07:02:24
3	S 181.975 Axial†	172.1	116.1	[200]	µg/L	07:02:24
3	Sb 206.836†	354.5	287.7	[100]	µg/L	07:02:24
3	Se 196.026†	117.3	126.2	[100]	µg/L	07:02:24
3	SiO2†	12197.9	8838.9	[1069.5]	µg/L	07:02:04
3	Si 251.611†	10859.9	10488.2	[500]	µg/L	07:02:04
3	Sn 189.927†	458.2	438.2	[100]	µg/L	07:02:24
3	Ti 334.940†	38551.4	38865.4	[100]	µg/L	07:02:04
3	Tl 190.801†	229.5	270.7	[100]	µg/L	07:02:24
3	U 367.007†	702.0	344.2	[100]	µg/L	07:02:04
3	V 292.402†	9688.0	9945.8	[100]	µg/L	07:02:04
3	Zn 213.857†	11561.0	10410.7	[100]	µg/L	07:02:04

Mean Data: S0.1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	598161.0	1007.69	0.17%	99.341	%
Sc RADIAL	18993.6	103.10	0.54%	99.2	%
Y 371.029	507267.3	951.79	0.19%	99.220	%
Ag 328.068†	15203.7	51.02	0.34%	[100]	µg/L
As 188.979†	178.1	7.24	4.06%	[100]	µg/L
B 249.677†	3460.0	9.93	0.29%	[100]	µg/L
Ba 233.527†	11413.6	47.48	0.42%	[100]	µg/L
Be 313.107†	171296.1	381.46	0.22%	[100]	µg/L
Cd 226.502†	6782.9	16.18	0.24%	[100]	µg/L
Co 228.616†	3883.3	21.64	0.56%	[100]	µg/L
Cr 267.716†	4794.7	7.15	0.15%	[100]	µg/L
Cu 324.752†	22794.3	98.84	0.43%	[100]	µg/L
K 766.490 Radial†	2066.2	35.59	1.72%	[1000]	µg/L
Mn 257.610†	66565.4	96.22	0.14%	[100]	µg/L
Mo 202.031†	1429.7	8.96	0.63%	[100]	µg/L
Ni 231.604†	3160.0	27.90	0.88%	[100]	µg/L
P 214.914†	661.9	4.88	0.74%	[500]	µg/L
Pb 220.353†	613.9	7.76	1.26%	[100]	µg/L
S 181.975 Axial†	120.1	3.51	2.93%	[200]	µg/L
Sb 206.836†	291.2	9.35	3.21%	[100]	µg/L
Se 196.026†	126.5	2.53	2.00%	[100]	µg/L
SiO2†	8773.1	64.22	0.73%	[1069.5]	µg/L
Si 251.611†	10433.7	52.56	0.50%	[500]	µg/L
Sn 189.927†	441.1	6.03	1.37%	[100]	µg/L
Sr 421.552†	20506.7	61.16	0.30%	[100]	µg/L
Ti 334.940†	38771.1	88.75	0.23%	[100]	µg/L
Tl 190.801†	272.1	4.84	1.78%	[100]	µg/L
U 367.007†	368.4	25.12	6.82%	[100]	µg/L
V 292.402†	9950.7	9.82	0.10%	[100]	µg/L
Zn 213.857†	10458.1	43.77	0.42%	[100]	µg/L

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: S0.5 **Date Collected: 6/7/2012 7:02:32**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	19027.8	19027.8	99.4	%	07:03:00
1	Al 396.153Radial†	16269.1	16417.3	[5000]	µg/L	07:03:00
1	Ca 317.933Radial†	10109.3	10051.6	[5000]	µg/L	07:03:20
1	K 766.490 Radial†	10727.8	10127.6	[5000]	µg/L	07:03:00
1	Mg 279.077 IEC†	1017.7	1020.8	[5000]	µg/L	07:03:20
1	Sr 421.552†	100582.3	102488.3	[500]	µg/L	07:03:00
1	Sc 361.383	604007.0	604007.0	100.31	%	07:04:17
1	Y 371.029	507844.8	507844.8	99.333	%	07:04:17
1	Ag 328.068†	74329.7	74690.0	[500]	µg/L	07:04:22
1	As 188.979†	858.4	867.1	[500]	µg/L	07:04:42
1	B 249.677†	17226.8	17087.3	[500]	µg/L	07:04:22
1	Ba 233.527†	55429.8	55373.8	[500]	µg/L	07:04:22
1	Be 313.107†	837481.7	842831.9	[500]	µg/L	07:04:17
1	Cd 226.502†	32702.9	32817.4	[500]	µg/L	07:04:22
1	Co 228.616†	19308.9	19255.2	[500]	µg/L	07:04:22
1	Cr 267.716†	23830.3	23518.6	[500]	µg/L	07:04:22
1	Cu 324.752†	118648.4	112131.3	[500]	µg/L	07:04:22
1	Mn 257.610†	319092.7	317713.1	[500]	µg/L	07:04:22
1	Mo 202.031†	7103.0	7053.0	[500]	µg/L	07:04:42
1	Ni 231.604†	15695.9	15725.3	[500]	µg/L	07:04:22
1	P 214.914†	3390.0	3303.4	[2500]	µg/L	07:04:42
1	Pb 220.353†	3116.1	2965.9	[500]	µg/L	07:04:42
1	S 181.975 Axial†	638.9	580.0	[1000]	µg/L	07:04:42
1	Sb 206.836†	1570.2	1496.3	[500]	µg/L	07:04:42
1	Se 196.026†	642.3	648.5	[500]	µg/L	07:04:42
1	SiO2†	47525.8	43946.8	[5347.5]	µg/L	07:04:22
1	Si 251.611†	53336.2	52734.2	[2500]	µg/L	07:04:22
1	Sn 189.927†	2219.1	2189.4	[500]	µg/L	07:04:42
1	Ti 334.940†	189618.2	189114.1	[500]	µg/L	07:04:22
1	Tl 190.801†	1319.6	1355.3	[500]	µg/L	07:04:42
1	U 367.007†	2132.0	1763.4	[500]	µg/L	07:04:22
1	V 292.402†	48927.1	48975.4	[500]	µg/L	07:04:22
1	Zn 213.857†	52408.6	51026.8	[500]	µg/L	07:04:22
2	Sc RADIAL	18981.2	18981.2	99.2	%	07:03:25
2	Al 396.153Radial†	16358.8	16547.9	[5000]	µg/L	07:03:25
2	Ca 317.933Radial†	10165.0	10132.8	[5000]	µg/L	07:03:45
2	K 766.490 Radial†	10776.9	10203.6	[5000]	µg/L	07:03:25
2	Mg 279.077 IEC†	1023.1	1028.7	[5000]	µg/L	07:03:45
2	Sr 421.552†	100844.0	103001.0	[500]	µg/L	07:03:25
2	Sc 361.383	605593.6	605593.6	100.58	%	07:04:48
2	Y 371.029	509598.0	509598.0	99.676	%	07:04:48
2	Ag 328.068†	74845.4	75008.6	[500]	µg/L	07:04:53
2	As 188.979†	876.5	882.9	[500]	µg/L	07:05:13
2	B 249.677†	17428.5	17242.9	[500]	µg/L	07:04:53
2	Ba 233.527†	56080.1	55875.6	[500]	µg/L	07:04:53
2	Be 313.107†	841615.2	844754.3	[500]	µg/L	07:04:48
2	Cd 226.502†	33236.7	33262.8	[500]	µg/L	07:04:53
2	Co 228.616†	19533.8	19428.3	[500]	µg/L	07:04:53
2	Cr 267.716†	24093.8	23718.4	[500]	µg/L	07:04:53
2	Cu 324.752†	119568.9	112736.6	[500]	µg/L	07:04:53
2	Mn 257.610†	322949.3	320714.2	[500]	µg/L	07:04:53
2	Mo 202.031†	7103.1	7034.6	[500]	µg/L	07:05:13
2	Ni 231.604†	15909.4	15896.5	[500]	µg/L	07:04:53
2	P 214.914†	3416.0	3320.4	[2500]	µg/L	07:05:13
2	Pb 220.353†	3096.1	2938.0	[500]	µg/L	07:05:13
2	S 181.975 Axial†	648.8	588.1	[1000]	µg/L	07:05:13
2	Sb 206.836†	1572.1	1494.1	[500]	µg/L	07:05:13
2	Se 196.026†	642.7	647.3	[500]	µg/L	07:05:13
2	SiO2†	48129.0	44422.3	[5347.5]	µg/L	07:04:53

2	Si 251.611†	53995.2	53250.1	[2500]	µg/L	07:04:53
2	Sn 189.927†	2224.7	2189.2	[500]	µg/L	07:05:13
2	Ti 334.940†	191191.5	190183.1	[500]	µg/L	07:04:53
2	Tl 190.801†	1331.3	1363.5	[500]	µg/L	07:05:13
2	U 367.007†	2144.8	1770.4	[500]	µg/L	07:04:53
2	V 292.402†	49546.3	49463.2	[500]	µg/L	07:04:53
2	Zn 213.857†	52962.1	51440.3	[500]	µg/L	07:04:53
3	Sc RADIAL	19046.4	19046.4	99.5	%	07:03:50
3	Al 396.153Radial†	16485.9	16619.2	[5000]	µg/L	07:03:50
3	Ca 317.933Radial†	10084.2	10016.5	[5000]	µg/L	07:04:10
3	K 766.490 Radial†	10760.4	10149.8	[5000]	µg/L	07:03:50
3	Mg 279.077 IEC†	1014.7	1016.8	[5000]	µg/L	07:04:10
3	Sr 421.552†	101677.6	103490.5	[500]	µg/L	07:03:50
3	Sc 361.383	607374.6	607374.6	100.87	%	07:05:18
3	Y 371.029	510758.2	510758.2	99.902	%	07:05:18
3	Ag 328.068†	74683.9	74630.2	[500]	µg/L	07:05:24
3	As 188.979†	854.2	858.2	[500]	µg/L	07:05:44
3	B 249.677†	17329.4	17093.8	[500]	µg/L	07:05:24
3	Ba 233.527†	55778.5	55413.1	[500]	µg/L	07:05:24
3	Be 313.107†	842744.2	843419.8	[500]	µg/L	07:05:18
3	Cd 226.502†	33036.4	32967.3	[500]	µg/L	07:05:24
3	Co 228.616†	19481.4	19319.5	[500]	µg/L	07:05:24
3	Cr 267.716†	23862.7	23419.0	[500]	µg/L	07:05:24
3	Cu 324.752†	119230.9	112052.9	[500]	µg/L	07:05:24
3	Mn 257.610†	321402.2	318238.9	[500]	µg/L	07:05:24
3	Mo 202.031†	7052.3	6963.5	[500]	µg/L	07:05:44
3	Ni 231.604†	15788.2	15730.1	[500]	µg/L	07:05:24
3	P 214.914†	3373.6	3268.4	[2500]	µg/L	07:05:44
3	Pb 220.353†	3097.4	2930.2	[500]	µg/L	07:05:44
3	S 181.975 Axial†	640.0	577.5	[1000]	µg/L	07:05:44
3	Sb 206.836†	1544.8	1462.5	[500]	µg/L	07:05:44
3	Se 196.026†	629.6	632.3	[500]	µg/L	07:05:44
3	SiO2†	48197.5	44349.9	[5347.5]	µg/L	07:05:24
3	Si 251.611†	54080.8	53177.6	[2500]	µg/L	07:05:24
3	Sn 189.927†	2194.0	2152.3	[500]	µg/L	07:05:44
3	Ti 334.940†	190550.2	188990.0	[500]	µg/L	07:05:24
3	Tl 190.801†	1309.6	1338.2	[500]	µg/L	07:05:44
3	U 367.007†	2177.7	1796.8	[500]	µg/L	07:05:24
3	V 292.402†	49341.2	49115.4	[500]	µg/L	07:05:24
3	Zn 213.857†	52633.8	50960.4	[500]	µg/L	07:05:24

Mean Data: S0.5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	605658.4	1684.76	0.28%	100.59	%
Sc RADIAL	19018.5	33.61	0.18%	99.3	%
Y 371.029	509400.3	1466.73	0.29%	99.637	%
Ag 328.068†	74776.3	203.42	0.27%	[500]	µg/L
Al 396.153Radial†	16528.1	102.39	0.62%	[5000]	µg/L
As 188.979†	869.4	12.52	1.44%	[500]	µg/L
B 249.677†	17141.4	87.99	0.51%	[500]	µg/L
Ba 233.527†	55554.1	279.06	0.50%	[500]	µg/L
Be 313.107†	843668.7	985.11	0.12%	[500]	µg/L
Ca 317.933Radial†	10067.0	59.68	0.59%	[5000]	µg/L
Cd 226.502†	33015.8	226.60	0.69%	[500]	µg/L
Co 228.616†	19334.3	87.51	0.45%	[500]	µg/L
Cr 267.716†	23552.0	152.45	0.65%	[500]	µg/L
Cu 324.752†	112306.9	374.14	0.33%	[500]	µg/L
K 766.490 Radial†	10160.3	39.13	0.39%	[5000]	µg/L
Mg 279.077 IEC†	1022.1	6.08	0.59%	[5000]	µg/L
Mn 257.610†	318888.7	1602.60	0.50%	[500]	µg/L
Mo 202.031†	7017.0	47.25	0.67%	[500]	µg/L
Ni 231.604†	15784.0	97.53	0.62%	[500]	µg/L
P 214.914†	3297.4	26.49	0.80%	[2500]	µg/L
Pb 220.353†	2944.7	18.80	0.64%	[500]	µg/L
S 181.975 Axial†	581.9	5.57	0.96%	[1000]	µg/L
Sb 206.836†	1484.3	18.90	1.27%	[500]	µg/L
Se 196.026†	642.7	9.00	1.40%	[500]	µg/L
SiO2†	44239.7	256.23	0.58%	[5347.5]	µg/L
Si 251.611†	53054.0	279.28	0.53%	[2500]	µg/L

Sn 189.927†	2176.9	21.38	0.98%	[500] µg/L
Sr 421.552†	102993.2	501.11	0.49%	[500] µg/L
Ti 334.940†	189429.1	655.97	0.35%	[500] µg/L
Tl 190.801†	1352.4	12.93	0.96%	[500] µg/L
U 367.007†	1776.9	17.63	0.99%	[500] µg/L
V 292.402†	49184.7	251.17	0.51%	[500] µg/L
Zn 213.857†	51142.5	260.04	0.51%	[500] µg/L

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Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SCAL **Date Collected: 6/7/2012 7:05:51**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: SCAL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	19011.5	19011.5	99.3	%	07:06:39
1	Al 396.153Radial†	32757.1	33034.0	[10000]	µg/L	07:06:19
1	Ca 317.933Radial†	20454.3	20477.3	[10000]	µg/L	07:06:39
1	Fe 238.204 Radial†	18269.1	18367.5	[10000]	µg/L	07:06:39
1	K 766.490 Radial†	20816.3	20295.5	[10000]	µg/L	07:06:19
1	Mg 279.077 IEC†	2047.7	2058.8	[10000]	µg/L	07:06:39
1	Na 589.592 Radial†	5334.3	5556.3	[10000]	µg/L	07:06:39
1	Sr 421.552†	203099.4	205805.6	[1000]	µg/L	07:06:19
1	Sc 361.383	605047.8	605047.8	100.49	%	07:07:38
1	Y 371.029	509822.2	509822.2	99.719	%	07:07:38
1	Ag 328.068†	149241.3	149112.3	[1000]	µg/L	07:07:38
1	As 188.979†	1723.8	1726.9	[1000]	µg/L	07:07:58
1	B 249.677†	34933.5	34679.0	[1000]	µg/L	07:07:38
1	Ba 233.527†	111448.6	111027.0	[1000]	µg/L	07:07:38
1	Be 313.107†	1680740.6	1680582.8	[1000]	µg/L	07:07:38
1	Cd 226.502†	65590.2	65489.9	[1000]	µg/L	07:07:38
1	Co 228.616†	38106.3	37928.7	[1000]	µg/L	07:07:38
1	Cr 267.716†	47254.1	46788.4	[1000]	µg/L	07:07:38
1	Cu 324.752†	231962.7	224694.9	[1000]	µg/L	07:07:38
1	Mn 257.610†	647216.6	643705.4	[1000]	µg/L	07:07:38
1	Mo 202.031†	14174.8	14078.5	[1000]	µg/L	07:07:58
1	Ni 231.604†	30843.9	30773.2	[1000]	µg/L	07:07:58
1	P 214.914†	6719.8	6611.4	[5000]	µg/L	07:07:58
1	Pb 220.353†	6015.3	5845.8	[1000]	µg/L	07:07:58
1	S 181.975 Axial†	1222.7	1159.9	[2000]	µg/L	07:07:58
1	Sb 206.836†	3067.6	2983.9	[1000]	µg/L	07:07:58
1	Se 196.026†	1276.3	1278.4	[1000]	µg/L	07:07:58
1	SiO2†	91420.7	87548.3	[10695]	µg/L	07:07:38
1	Si 251.611†	105637.4	104691.5	[5000]	µg/L	07:07:38
1	Sn 189.927†	4405.5	4361.5	[1000]	µg/L	07:07:58
1	Ti 334.940†	384180.7	382411.9	[1000]	µg/L	07:07:38
1	Tl 190.801†	2704.8	2731.6	[1000]	µg/L	07:07:58
1	U 367.007†	4026.7	3645.3	[1000]	µg/L	07:07:38
1	V 292.402†	98748.1	98471.9	[1000]	µg/L	07:07:38
1	Zn 213.857†	102983.3	101267.5	[1000]	µg/L	07:07:38
2	Sc RADIAL	18923.5	18923.5	98.8	%	07:07:04
2	Al 396.153Radial†	33153.9	33588.9	[10000]	µg/L	07:06:44
2	Ca 317.933Radial†	20376.7	20494.7	[10000]	µg/L	07:07:04
2	Fe 238.204 Radial†	18181.2	18364.2	[10000]	µg/L	07:07:04
2	K 766.490 Radial†	21093.0	20673.0	[10000]	µg/L	07:06:44
2	Mg 279.077 IEC†	2042.3	2062.9	[10000]	µg/L	07:07:04
2	Na 589.592 Radial†	5338.7	5585.8	[10000]	µg/L	07:07:04
2	Sr 421.552†	206169.7	209863.1	[1000]	µg/L	07:06:44
2	Sc 361.383	607480.9	607480.9	100.89	%	07:08:06
2	Y 371.029	511703.9	511703.9	100.09	%	07:08:06
2	Ag 328.068†	149754.6	149026.3	[1000]	µg/L	07:08:06
2	As 188.979†	1747.0	1743.1	[1000]	µg/L	07:08:26
2	B 249.677†	35061.0	34666.1	[1000]	µg/L	07:08:06
2	Ba 233.527†	112073.8	111202.5	[1000]	µg/L	07:08:06
2	Be 313.107†	1690278.5	1683337.2	[1000]	µg/L	07:08:06
2	Cd 226.502†	66084.1	65717.9	[1000]	µg/L	07:08:06
2	Co 228.616†	38393.7	38061.6	[1000]	µg/L	07:08:06
2	Cr 267.716†	47637.0	46979.6	[1000]	µg/L	07:08:06
2	Cu 324.752†	232823.3	224623.3	[1000]	µg/L	07:08:06
2	Mn 257.610†	651291.8	645164.9	[1000]	µg/L	07:08:06
2	Mo 202.031†	14181.9	14029.0	[1000]	µg/L	07:08:26
2	Ni 231.604†	30957.6	30763.0	[1000]	µg/L	07:08:26
2	P 214.914†	6763.3	6627.6	[5000]	µg/L	07:08:26
2	Pb 220.353†	6049.4	5855.6	[1000]	µg/L	07:08:26

2	S 181.975 Axial†	1226.9	1159.2	[2000]	µg/L	07:08:26
2	Sb 206.836†	3075.7	2979.6	[1000]	µg/L	07:08:26
2	Se 196.026†	1278.8	1275.7	[1000]	µg/L	07:08:26
2	SiO2†	92306.0	88061.3	[10695]	µg/L	07:08:06
2	Si 251.611†	106750.4	105373.6	[5000]	µg/L	07:08:06
2	Sn 189.927†	4423.8	4362.1	[1000]	µg/L	07:08:26
2	Ti 334.940†	386068.6	382751.9	[1000]	µg/L	07:08:06
2	Tl 190.801†	2706.2	2722.2	[1000]	µg/L	07:08:26
2	U 367.007†	4010.5	3613.1	[1000]	µg/L	07:08:06
2	V 292.402†	99327.9	98653.0	[1000]	µg/L	07:08:06
2	Zn 213.857†	103700.6	101567.9	[1000]	µg/L	07:08:06
3	Sc RADIAL	18943.7	18943.7	99.0	%	07:07:29
3	Al 396.153Radial†	33004.7	33402.4	[10000]	µg/L	07:07:09
3	Ca 317.933Radial†	20392.8	20489.0	[10000]	µg/L	07:07:29
3	Fe 238.204 Radial†	18228.3	18392.2	[10000]	µg/L	07:07:29
3	K 766.490 Radial†	20918.5	20473.9	[10000]	µg/L	07:07:09
3	Mg 279.077 IEC†	2044.9	2063.4	[10000]	µg/L	07:07:29
3	Na 589.592 Radial†	5290.0	5530.8	[10000]	µg/L	07:07:29
3	Sr 421.552†	205328.3	208790.8	[1000]	µg/L	07:07:09
3	Sc 361.383	609122.3	609122.3	101.16	%	07:08:34
3	Y 371.029	512717.2	512717.2	100.29	%	07:08:34
3	Ag 328.068†	150007.5	148876.3	[1000]	µg/L	07:08:34
3	As 188.979†	1719.7	1711.4	[1000]	µg/L	07:08:54
3	B 249.677†	35204.3	34714.1	[1000]	µg/L	07:08:34
3	Ba 233.527†	112182.9	111011.0	[1000]	µg/L	07:08:34
3	Be 313.107†	1691536.7	1680066.3	[1000]	µg/L	07:08:34
3	Cd 226.502†	66077.0	65534.4	[1000]	µg/L	07:08:34
3	Co 228.616†	38456.3	38021.0	[1000]	µg/L	07:08:34
3	Cr 267.716†	47535.1	46751.7	[1000]	µg/L	07:08:34
3	Cu 324.752†	233684.9	224853.1	[1000]	µg/L	07:08:34
3	Mn 257.610†	651897.5	644024.1	[1000]	µg/L	07:08:34
3	Mo 202.031†	14185.5	13994.7	[1000]	µg/L	07:08:54
3	Ni 231.604†	30852.0	30575.9	[1000]	µg/L	07:08:54
3	P 214.914†	6711.8	6558.7	[5000]	µg/L	07:08:54
3	Pb 220.353†	6002.6	5793.2	[1000]	µg/L	07:08:54
3	S 181.975 Axial†	1220.7	1149.8	[2000]	µg/L	07:08:54
3	Sb 206.836†	3070.4	2966.1	[1000]	µg/L	07:08:54
3	Se 196.026†	1273.4	1267.0	[1000]	µg/L	07:08:54
3	SiO2†	92722.1	88226.1	[10695]	µg/L	07:08:34
3	Si 251.611†	107159.2	105492.5	[5000]	µg/L	07:08:34
3	Sn 189.927†	4411.1	4337.7	[1000]	µg/L	07:08:54
3	Ti 334.940†	386418.7	382066.8	[1000]	µg/L	07:08:34
3	Tl 190.801†	2692.5	2701.5	[1000]	µg/L	07:08:54
3	U 367.007†	4014.9	3606.7	[1000]	µg/L	07:08:34
3	V 292.402†	99241.2	98302.0	[1000]	µg/L	07:08:34
3	Zn 213.857†	103592.7	101184.3	[1000]	µg/L	07:08:34

Mean Data: SCAL

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	607217.0	2050.06	0.34%	100.85	%
Sc RADIAL	18959.6	46.12	0.24%	99.0	%
Y 371.029	511414.4	1469.06	0.29%	100.03	%
Ag 328.068†	149005.0	119.44	0.08%	[1000]	µg/L
Al 396.153Radial†	33341.8	282.36	0.85%	[10000]	µg/L
As 188.979†	1727.1	15.86	0.92%	[1000]	µg/L
B 249.677†	34686.4	24.84	0.07%	[1000]	µg/L
Ba 233.527†	111080.2	106.20	0.10%	[1000]	µg/L
Be 313.107†	1681328.7	1758.44	0.10%	[1000]	µg/L
Ca 317.933Radial†	20487.0	8.87	0.04%	[10000]	µg/L
Cd 226.502†	65580.7	120.87	0.18%	[1000]	µg/L
Co 228.616†	38003.8	68.13	0.18%	[1000]	µg/L
Cr 267.716†	46839.9	122.36	0.26%	[1000]	µg/L
Cu 324.752†	224723.8	117.60	0.05%	[1000]	µg/L
Fe 238.204 Radial†	18374.6	15.29	0.08%	[10000]	µg/L
K 766.490 Radial†	20480.8	188.83	0.92%	[10000]	µg/L
Mg 279.077 IEC†	2061.7	2.53	0.12%	[10000]	µg/L
Mn 257.610†	644298.1	767.36	0.12%	[1000]	µg/L
Mo 202.031†	14034.1	42.13	0.30%	[1000]	µg/L
Na 589.592 Radial†	5557.6	27.50	0.49%	[10000]	µg/L

Ni 231.604†	30704.0	111.05	0.36%	[1000]	µg/L
P 214.914†	6599.2	36.05	0.55%	[5000]	µg/L
Pb 220.353†	5831.5	33.54	0.58%	[1000]	µg/L
S 181.975 Axial†	1156.3	5.66	0.49%	[2000]	µg/L
Sb 206.836†	2976.5	9.26	0.31%	[1000]	µg/L
Se 196.026†	1273.7	5.95	0.47%	[1000]	µg/L
SiO2†	87945.2	353.50	0.40%	[10695]	µg/L
Si 251.611†	105185.8	432.25	0.41%	[5000]	µg/L
Sn 189.927†	4353.8	13.89	0.32%	[1000]	µg/L
Sr 421.552†	208153.2	2102.59	1.01%	[1000]	µg/L
Ti 334.940†	382410.2	342.53	0.09%	[1000]	µg/L
Tl 190.801†	2718.4	15.42	0.57%	[1000]	µg/L
U 367.007†	3621.7	20.65	0.57%	[1000]	µg/L
V 292.402†	98475.6	175.55	0.18%	[1000]	µg/L
Zn 213.857†	101339.9	201.82	0.20%	[1000]	µg/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: S10 **Date Collected: 6/7/2012 7:09:01**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	19168.1	19168.1	100	%	07:09:34
1	Al 396.153Radial†	163977.3	163818.8	[50000]	µg/L	07:09:29
1	Ca 317.933Radial†	102311.0	102062.3	[50000]	µg/L	07:09:34
1	Fe 238.204 Radial†	35686.7	35612.8	[20000]	µg/L	07:09:34
1	Mg 279.077 IEC†	9835.5	9819.9	[50000]	µg/L	07:09:34
1	Na 589.592 Radial†	10494.2	10665.8	[20000]	µg/L	07:09:34
1	Sc 361.383	600917.7	600917.7	99.799	%	07:10:01
1	Y 371.029	503679.7	503679.7	98.518	%	07:10:01
2	Sc RADIAL	19179.0	19179.0	100	%	07:09:44
2	Al 396.153Radial†	164700.6	164447.2	[50000]	µg/L	07:09:39
2	Ca 317.933Radial†	102316.4	102009.3	[50000]	µg/L	07:09:44
2	Fe 238.204 Radial†	35789.0	35694.6	[20000]	µg/L	07:09:44
2	Mg 279.077 IEC†	9848.2	9827.0	[50000]	µg/L	07:09:44
2	Na 589.592 Radial†	10590.4	10755.9	[20000]	µg/L	07:09:44
2	Sc 361.383	599574.5	599574.5	99.576	%	07:10:06
2	Y 371.029	502367.4	502367.4	98.261	%	07:10:06
3	Sc RADIAL	19077.8	19077.8	99.7	%	07:09:54
3	Al 396.153Radial†	165205.8	165826.2	[50000]	µg/L	07:09:49
3	Ca 317.933Radial†	102003.2	102236.9	[50000]	µg/L	07:09:54
3	Fe 238.204 Radial†	35617.7	35712.2	[20000]	µg/L	07:09:54
3	Mg 279.077 IEC†	9804.9	9835.6	[50000]	µg/L	07:09:54
3	Na 589.592 Radial†	10628.2	10849.9	[20000]	µg/L	07:09:54
3	Sc 361.383	600123.5	600123.5	99.667	%	07:10:12
3	Y 371.029	503096.5	503096.5	98.404	%	07:10:12

Mean Data: S10

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	600205.2	675.35	0.11%	99.681	%
Sc RADIAL	19141.7	55.54	0.29%	100.0	%
Y 371.029	503047.9	657.50	0.13%	98.394	%
Al 396.153Radial†	164697.4	1026.86	0.62%	[50000]	µg/L
Ca 317.933Radial†	102102.8	119.08	0.12%	[50000]	µg/L
Fe 238.204 Radial†	35673.2	53.04	0.15%	[20000]	µg/L
Mg 279.077 IEC†	9827.5	7.86	0.08%	[50000]	µg/L
Na 589.592 Radial†	10757.2	92.01	0.86%	[20000]	µg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	3	Lin Thru 0	0.0	149.1	0.00000	0.999997	
Al 396.153Radial	3	Lin Thru 0	0.0	3.296	0.00000	0.999997	
As 188.979	3	Lin Thru 0	0.0	1.730	0.00000	0.999993	
B 249.677	3	Lin Thru 0	0.0	34.61	0.00000	0.999989	
Ba 233.527	3	Lin Thru 0	0.0	111.1	0.00000	0.999997	
Be 313.107	3	Lin Thru 0	0.0	1683	0.00000	0.999998	
Ca 317.933Radial	3	Lin Thru 0	0.0	2.042	0.00000	0.999999	
Cd 226.502	3	Lin Thru 0	0.0	65.69	0.00000	0.999992	
Co 228.616	3	Lin Thru 0	0.0	38.14	0.00000	0.999975	
Cr 267.716	3	Lin Thru 0	0.0	46.90	0.00000	0.999995	
Cu 324.752	3	Lin Thru 0	0.0	224.7	0.00000	0.999999	
Fe 238.204 Radia	2	Lin Thru 0	0.0	1.794	0.00000	0.999928	
K 766.490 Radial	3	Lin Thru 0	0.0	2.045	0.00000	0.999995	
Mg 279.077 IEC	3	Lin Thru 0	0.0	0.1970	0.00000	0.999950	
Mn 257.610	3	Lin Thru 0	0.0	643.2	0.00000	0.999987	
Mo 202.031	3	Lin Thru 0	0.0	14.04	0.00000	0.999999	
Na 589.592 Radia	2	Lin Thru 0	0.0	0.5414	0.00000	0.999913	

Ni 231.604	3	Lin Thru 0	0.0	30.88	0.00000	0.999936
P 214.914	3	Lin Thru 0	0.0	1.320	0.00000	1.000000
Pb 220.353	3	Lin Thru 0	0.0	5.845	0.00000	0.999982
S 181.975 Axial	3	Lin Thru 0	0.0	0.5791	0.00000	0.999991
Sb 206.836	3	Lin Thru 0	0.0	2.974	0.00000	0.999998
Se 196.026	3	Lin Thru 0	0.0	1.276	0.00000	0.999993
SiO2	3	Lin Thru 0	0.0	8.233	0.00000	0.999997
Si 251.611	3	Lin Thru 0	0.0	21.07	0.00000	0.999994
Sn 189.927	3	Lin Thru 0	0.0	4.354	0.00000	0.999999
Sr 421.552	3	Lin Thru 0	0.0	207.7	0.00000	0.999991
Ti 334.940	3	Lin Thru 0	0.0	381.7	0.00000	0.999992
Tl 190.801	3	Lin Thru 0	0.0	2.716	0.00000	0.999998
U 367.007	3	Lin Thru 0	0.0	3.609	0.00000	0.999970
V 292.402	3	Lin Thru 0	0.0	98.46	0.00000	0.999999
Zn 213.857	3	Lin Thru 0	0.0	101.6	0.00000	0.999990

Sequence No.: 6 **Autosampler Location: 9**
Sample ID: ICV **Date Collected: 6/7/2012 7:10:19**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19082.4	19082.4	99.7	%			07:10:48
1	Al 396.153Radial†	16050.9	16151.5	4882.5	µg/L	4882.5	ppb	07:10:48
1	Ca 317.933Radial†	10229.7	10143.3	4967.3	µg/L	4967.3	ppb	07:11:08
1	Fe 238.204 Radial†	8943.2	8943.3	4988.9	µg/L	4988.9	ppb	07:11:08
1	K 766.490 Radial†	5598.6	4950.9	2416.3	µg/L	2416.3	ppb	07:10:48
1	Mg 279.077 IEC†	994.7	994.8	5056.9	µg/L	5056.9	ppb	07:11:08
1	Na 589.592 Radial†	1194.5	1383.3	2554.8	µg/L	2554.8	ppb	07:11:08
1	Sr 421.552†	99241.1	100853.3	485.55	µg/L	485.55	ppb	07:10:48
1	Sc 361.383	607241.2	607241.2	100.85	%			07:12:05
1	Y 371.029	512349.3	512349.3	100.21	%			07:12:05
1	Ag 328.068†	36893.1	37174.1	253.57	µg/L	253.57	ppb	07:12:05
1	As 188.979†	828.2	832.6	481.20	µg/L	481.20	ppb	07:12:25
1	B 249.677†	17124.5	16894.4	486.69	µg/L	486.69	ppb	07:12:05
1	Ba 233.527†	55515.8	55164.7	497.01	µg/L	497.01	ppb	07:12:05
1	Be 313.107†	411517.7	416009.3	247.33	µg/L	247.33	ppb	07:12:05
1	Cd 226.502†	32436.7	32379.8	492.34	µg/L	492.34	ppb	07:12:05
1	Co 228.616†	19012.0	18858.3	494.30	µg/L	494.30	ppb	07:12:25
1	Cr 267.716†	23757.6	23320.0	497.21	µg/L	497.21	ppb	07:12:25
1	Cu 324.752†	120210.0	113049.7	504.43	µg/L	504.43	ppb	07:12:05
1	Mn 257.610†	321403.2	318309.9	495.22	µg/L	495.22	ppb	07:12:05
1	Mo 202.031†	6908.6	6822.6	486.27	µg/L	486.27	ppb	07:12:25
1	Ni 231.604†	15517.9	15465.5	500.57	µg/L	500.57	ppb	07:12:25
1	P 214.914†	3347.5	3243.3	2439.6	µg/L	2439.6	ppb	07:12:25
1	Pb 220.353†	3035.6	2869.6	491.32	µg/L	491.32	ppb	07:12:25
1	S 181.975 Axial†	1495.7	1426.1	2463.4	µg/L	2463.4	ppb	07:12:25
1	Sb 206.836†	1532.7	1450.8	483.88	µg/L	483.88	ppb	07:12:25
1	Se 196.026†	3221.8	3202.8	2514.1	µg/L	2514.1	ppb	07:12:25
1	SiO2†	91667.7	87464.5	10659	µg/L	10659	ppb	07:12:05
1	Si 251.611†	105643.2	104317.5	4942.6	µg/L	4942.6	ppb	07:12:05
1	Sn 189.927†	2207.5	2166.1	499.58	µg/L	499.58	ppb	07:12:25
1	Ti 334.940†	189045.3	187539.2	490.95	µg/L	490.95	ppb	07:12:05
1	Tl 190.801†	1345.7	1374.2	508.60	µg/L	508.60	ppb	07:12:25
1	U 367.007†	2204.9	1824.3	482.2	µg/L	482.2	ppb	07:12:05
1	V 292.402†	48877.0	48665.9	501.07	µg/L	501.07	ppb	07:12:05
1	Zn 213.857†	51693.2	50039.2	488.41	µg/L	488.41	ppb	07:12:05
2	Sc RADIAL	19219.6	19219.6	100	%			07:11:13
2	Al 396.153Radial†	16141.8	16127.2	4875.2	µg/L	4875.2	ppb	07:11:13
2	Ca 317.933Radial†	10298.6	10138.8	4965.0	µg/L	4965.0	ppb	07:11:33
2	Fe 238.204 Radial†	8970.3	8906.3	4968.3	µg/L	4968.3	ppb	07:11:33
2	K 766.490 Radial†	5781.2	5092.8	2485.6	µg/L	2485.6	ppb	07:11:13
2	Mg 279.077 IEC†	993.3	986.2	5013.4	µg/L	5013.4	ppb	07:11:33
2	Na 589.592 Radial†	1193.0	1373.2	2536.2	µg/L	2536.2	ppb	07:11:33
2	Sr 421.552†	100084.7	100983.1	486.18	µg/L	486.18	ppb	07:11:13
2	Sc 361.383	612464.6	612464.6	101.72	%			07:12:31
2	Y 371.029	516926.0	516926.0	101.11	%			07:12:31
2	Ag 328.068†	37148.4	37113.0	253.16	µg/L	253.16	ppb	07:12:31
2	As 188.979†	835.1	832.4	481.09	µg/L	481.09	ppb	07:12:51
2	B 249.677†	17278.5	16901.0	486.89	µg/L	486.89	ppb	07:12:31
2	Ba 233.527†	56108.5	55278.0	498.03	µg/L	498.03	ppb	07:12:31
2	Be 313.107†	416004.2	416939.9	247.88	µg/L	247.88	ppb	07:12:31
2	Cd 226.502†	32878.7	32540.0	494.79	µg/L	494.79	ppb	07:12:31
2	Co 228.616†	19121.3	18805.0	492.90	µg/L	492.90	ppb	07:12:51
2	Cr 267.716†	23904.6	23263.7	496.02	µg/L	496.02	ppb	07:12:51
2	Cu 324.752†	121251.4	113056.9	504.47	µg/L	504.47	ppb	07:12:31
2	Mn 257.610†	324484.0	318620.7	495.71	µg/L	495.71	ppb	07:12:31
2	Mo 202.031†	6943.3	6798.3	484.54	µg/L	484.54	ppb	07:12:51
2	Ni 231.604†	15631.2	15445.7	499.93	µg/L	499.93	ppb	07:12:51
2	P 214.914†	3364.5	3231.7	2430.8	µg/L	2430.8	ppb	07:12:51
2	Pb 220.353†	3080.4	2888.0	494.47	µg/L	494.47	ppb	07:12:51

2	S 181.975 Axial†	1512.1	1429.6	2469.4 µg/L	2469.4 ppb	07:12:51
2	Sb 206.836†	1539.3	1444.4	481.72 µg/L	481.72 ppb	07:12:51
2	Se 196.026†	3226.1	3179.9	2496.1 µg/L	2496.1 ppb	07:12:51
2	SiO2†	92841.6	87843.4	10705 µg/L	10705 ppb	07:12:31
2	Si 251.611†	106935.5	104694.6	4960.5 µg/L	4960.5 ppb	07:12:31
2	Sn 189.927†	2223.7	2163.5	498.96 µg/L	498.96 ppb	07:12:51
2	Ti 334.940†	190906.6	187770.5	491.56 µg/L	491.56 ppb	07:12:31
2	Tl 190.801†	1357.9	1374.9	508.83 µg/L	508.83 ppb	07:12:51
2	U 367.007†	2195.9	1796.8	474.6 µg/L	474.6 ppb	07:12:31
2	V 292.402†	49304.4	48672.7	501.11 µg/L	501.11 ppb	07:12:31
2	Zn 213.857†	52286.3	50185.1	489.86 µg/L	489.86 ppb	07:12:31
3	Sc RADIAL	19115.5	19115.5	99.9 %		07:11:38
3	Al 396.153Radial†	16088.4	16161.1	4885.4 µg/L	4885.4 ppb	07:11:38
3	Ca 317.933Radial†	10354.4	10250.4	5019.7 µg/L	5019.7 ppb	07:11:58
3	Fe 238.204 Radial†	9029.4	9014.1	5028.3 µg/L	5028.3 ppb	07:11:58
3	K 766.490 Radial†	5665.8	5008.6	2444.5 µg/L	2444.5 ppb	07:11:38
3	Mg 279.077 IEC†	1003.1	1001.5	5090.9 µg/L	5090.9 ppb	07:11:58
3	Na 589.592 Radial†	1202.4	1389.0	2565.4 µg/L	2565.4 ppb	07:11:58
3	Sr 421.552†	100152.2	101593.1	489.11 µg/L	489.11 ppb	07:11:38
3	Sc 361.383	610228.6	610228.6	101.35 %		07:12:57
3	Y 371.029	514677.4	514677.4	100.67 %		07:12:57
3	Ag 328.068†	37092.7	37191.8	253.70 µg/L	253.70 ppb	07:12:57
3	As 188.979†	836.6	836.9	483.70 µg/L	483.70 ppb	07:13:17
3	B 249.677†	17280.7	16965.4	488.74 µg/L	488.74 ppb	07:12:57
3	Ba 233.527†	55697.7	55074.7	496.20 µg/L	496.20 ppb	07:12:57
3	Be 313.107†	414070.0	416530.0	247.64 µg/L	247.64 ppb	07:12:57
3	Cd 226.502†	32750.5	32531.9	494.66 µg/L	494.66 ppb	07:12:57
3	Co 228.616†	19150.6	18902.7	495.47 µg/L	495.47 ppb	07:13:17
3	Cr 267.716†	23978.7	23422.9	499.41 µg/L	499.41 ppb	07:13:17
3	Cu 324.752†	120531.3	112783.2	503.25 µg/L	503.25 ppb	07:12:57
3	Mn 257.610†	322652.3	317982.2	494.72 µg/L	494.72 ppb	07:12:57
3	Mo 202.031†	6956.1	6835.9	487.23 µg/L	487.23 ppb	07:13:17
3	Ni 231.604†	15683.6	15553.6	503.42 µg/L	503.42 ppb	07:13:17
3	P 214.914†	3377.4	3256.5	2449.7 µg/L	2449.7 ppb	07:13:17
3	Pb 220.353†	3086.1	2904.7	497.35 µg/L	497.35 ppb	07:13:17
3	S 181.975 Axial†	1518.2	1441.0	2489.2 µg/L	2489.2 ppb	07:13:17
3	Sb 206.836†	1525.7	1436.5	479.02 µg/L	479.02 ppb	07:13:17
3	Se 196.026†	3243.9	3209.1	2519.0 µg/L	2519.0 ppb	07:13:17
3	SiO2†	92607.0	87946.4	10717 µg/L	10717 ppb	07:12:57
3	Si 251.611†	106741.8	104888.6	4969.6 µg/L	4969.6 ppb	07:12:57
3	Sn 189.927†	2239.4	2186.9	504.35 µg/L	504.35 ppb	07:13:17
3	Ti 334.940†	189814.1	187380.1	490.53 µg/L	490.53 ppb	07:12:57
3	Tl 190.801†	1355.5	1377.4	509.76 µg/L	509.76 ppb	07:13:17
3	U 367.007†	2219.3	1827.8	483.0 µg/L	483.0 ppb	07:12:57
3	V 292.402†	49141.9	48690.0	501.33 µg/L	501.33 ppb	07:12:57
3	Zn 213.857†	51998.6	50089.6	488.89 µg/L	488.89 ppb	07:12:57

Mean Data: ICV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	609978.1	101.30	%	0.435				0.43%
Sc RADIAL	19139.2	100.0	%	0.37				0.37%
Y 371.029	514650.9	100.66	%	0.448				0.44%
Ag 328.068†	37159.6	253.48	µg/L	0.285	253.48	ppb	0.285	0.11%
QC value within limits for Ag 328.068 Recovery = 101.39%								
Al 396.153Radial†	16146.6	4881.0	µg/L	5.26	4881.0	ppb	5.26	0.11%
QC value within limits for Al 396.153Radial Recovery = 97.62%								
As 188.979†	834.0	482.00	µg/L	1.476	482.00	ppb	1.476	0.31%
QC value within limits for As 188.979 Recovery = 96.40%								
B 249.677†	16920.3	487.44	µg/L	1.129	487.44	ppb	1.129	0.23%
QC value within limits for B 249.677 Recovery = 97.49%								
Ba 233.527†	55172.5	497.08	µg/L	0.917	497.08	ppb	0.917	0.18%
QC value within limits for Ba 233.527 Recovery = 99.42%								
Be 313.107†	416493.1	247.61	µg/L	0.276	247.61	ppb	0.276	0.11%
QC value within limits for Be 313.107 Recovery = 99.05%								
Ca 317.933Radial†	10177.5	4984.0	µg/L	30.95	4984.0	ppb	30.95	0.62%
QC value within limits for Ca 317.933Radial Recovery = 99.68%								
Cd 226.502†	32483.9	493.93	µg/L	1.374	493.93	ppb	1.374	0.28%
QC value within limits for Cd 226.502 Recovery = 98.79%								
Co 228.616†	18855.3	494.22	µg/L	1.285	494.22	ppb	1.285	0.26%

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   QC value within limits for Co 228.616  Recovery = 98.84%
Cr 267.716†          23335.5      497.55 µg/L         1.718      497.55 ppb          1.718   0.35%
   QC value within limits for Cr 267.716  Recovery = 99.51%
Cu 324.752†         112963.3      504.05 µg/L         0.691      504.05 ppb          0.691   0.14%
   QC value within limits for Cu 324.752  Recovery = 100.81%
Fe 238.204 Radial†     8954.5      4995.2 µg/L         30.54      4995.2 ppb          30.54   0.61%
   QC value within limits for Fe 238.204 Radial  Recovery = 99.90%
K 766.490 Radial†      5017.4      2448.8 µg/L         34.87      2448.8 ppb          34.87   1.42%
   QC value within limits for K 766.490 Radial  Recovery = 97.95%
Mg 279.077 IEC†         994.1      5053.7 µg/L         38.86      5053.7 ppb          38.86   0.77%
   QC value within limits for Mg 279.077 IEC  Recovery = 101.07%
Mn 257.610†          318304.3      495.22 µg/L         0.495      495.22 ppb          0.495   0.10%
   QC value within limits for Mn 257.610  Recovery = 99.04%
Mo 202.031†           6818.9      486.01 µg/L         1.360      486.01 ppb          1.360   0.28%
   QC value within limits for Mo 202.031  Recovery = 97.20%
Na 589.592 Radial†     1381.8      2552.1 µg/L         14.76      2552.1 ppb          14.76   0.58%
   QC value within limits for Na 589.592 Radial  Recovery = 102.09%
Ni 231.604†           15488.3      501.31 µg/L         1.860      501.31 ppb          1.860   0.37%
   QC value within limits for Ni 231.604  Recovery = 100.26%
P 214.914†            3243.8      2440.0 µg/L          9.42      2440.0 ppb           9.42   0.39%
   QC value within limits for P 214.914  Recovery = 97.60%
Pb 220.353†           2887.4      494.38 µg/L         3.014      494.38 ppb          3.014   0.61%
   QC value within limits for Pb 220.353  Recovery = 98.88%
S 181.975 Axial†       1432.3      2474.0 µg/L         13.48      2474.0 ppb          13.48   0.54%
   QC value within limits for S 181.975 Axial  Recovery = 98.96%
Sb 206.836†           1443.9      481.54 µg/L         2.433      481.54 ppb          2.433   0.51%
   QC value within limits for Sb 206.836  Recovery = 96.31%
Se 196.026†           3197.3      2509.7 µg/L         12.09      2509.7 ppb          12.09   0.48%
   QC value within limits for Se 196.026  Recovery = 100.39%
SiO2†                87751.4       10694 µg/L          30.8       10694 ppb           30.8   0.29%
   QC value within limits for SiO2  Recovery = 99.99%
Si 251.611†          104633.6      4957.6 µg/L         13.77      4957.6 ppb          13.77   0.28%
   QC value within limits for Si 251.611  Recovery = 99.15%
Sn 189.927†           2172.2      500.96 µg/L         2.947      500.96 ppb          2.947   0.59%
   QC value within limits for Sn 189.927  Recovery = 100.19%
Sr 421.552†          101143.2      486.95 µg/L         1.902      486.95 ppb          1.902   0.39%
   QC value within limits for Sr 421.552  Recovery = 97.39%
Ti 334.940†          187563.3      491.01 µg/L         0.516      491.01 ppb          0.516   0.11%
   QC value within limits for Ti 334.940  Recovery = 98.20%
Tl 190.801†           1375.5      509.06 µg/L         0.617      509.06 ppb          0.617   0.12%
   QC value within limits for Tl 190.801  Recovery = 101.81%
U 367.007†            1816.3       479.9 µg/L          4.58       479.9 ppb           4.58   0.95%
   QC value within limits for U 367.007  Recovery = 95.98%
V 292.402†           48676.2      501.17 µg/L         0.142      501.17 ppb          0.142   0.03%
   QC value within limits for V 292.402  Recovery = 100.23%
Zn 213.857†          50104.6      489.05 µg/L         0.736      489.05 ppb          0.736   0.15%
   QC value within limits for Zn 213.857  Recovery = 97.81%
All analyte(s) passed QC.
```

Sequence No.: 7 **Autosampler Location: 10**
Sample ID: ICB **Date Collected: 6/7/2012 7:13:25**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19112.3	19112.3	99.8	%			07:13:53
1	Al 396.153Radial†	-79.7	-30.9	-9.4522	µg/L	-9.4522	ppb	07:13:53
1	Ca 317.933Radial†	117.2	-1.8	-0.9021	µg/L	-0.9021	ppb	07:14:13
1	Fe 238.204 Radial†	38.3	9.6	5.3680	µg/L	5.3680	ppb	07:14:13
1	K 766.490 Radial†	688.7	24.2	11.823	µg/L	11.823	ppb	07:13:53
1	Mg 279.077 IEC†	6.6	3.5	17.648	µg/L	17.648	ppb	07:14:13
1	Na 589.592 Radial†	-151.8	32.8	60.616	µg/L	60.616	ppb	07:13:53
1	Sr 421.552†	-1272.7	17.9	0.0861	µg/L	0.0861	ppb	07:13:53
1	Sc 361.383	592383.9	592383.9	98.382	%			07:15:09
1	Y 371.029	502868.4	502868.4	98.359	%			07:15:09
1	Ag 328.068†	-476.4	107.4	0.7231	µg/L	0.7231	ppb	07:15:09
1	As 188.979†	-9.8	1.5	0.8433	µg/L	0.8433	ppb	07:15:29
1	B 249.677†	118.3	34.4	0.9946	µg/L	0.9946	ppb	07:15:29
1	Ba 233.527†	-118.6	-4.0	-0.0358	µg/L	-0.0358	ppb	07:15:29
1	Be 313.107†	-7955.4	-128.3	-0.0767	µg/L	-0.0767	ppb	07:15:09
1	Cd 226.502†	-191.2	22.0	0.3336	µg/L	0.3336	ppb	07:15:29
1	Co 228.616†	-12.8	-6.6	-0.1704	µg/L	-0.1704	ppb	07:15:29
1	Cr 267.716†	247.5	14.1	0.3033	µg/L	0.3033	ppb	07:15:29
1	Cu 324.752†	6101.8	54.5	0.2449	µg/L	0.2449	ppb	07:15:09
1	Mn 257.610†	404.6	25.2	0.0392	µg/L	0.0392	ppb	07:15:29
1	Mo 202.031†	53.8	26.8	1.9086	µg/L	1.9086	ppb	07:15:29
1	Ni 231.604†	-93.5	-16.8	-0.5427	µg/L	-0.5427	ppb	07:15:29
1	P 214.914†	56.1	-19.0	-14.395	µg/L	-14.395	ppb	07:15:29
1	Pb 220.353†	140.4	2.3	0.4064	µg/L	0.4064	ppb	07:15:29
1	S 181.975 Axial†	60.9	5.0	8.5726	µg/L	8.5726	ppb	07:15:29
1	Sb 206.836†	79.0	11.4	3.8334	µg/L	3.8334	ppb	07:15:29
1	Se 196.026†	-13.5	-5.5	-4.3310	µg/L	-4.3310	ppb	07:15:29
1	SiO2†	3234.7	-143.1	-17.359	µg/L	-17.359	ppb	07:15:09
1	Si 251.611†	237.2	-194.8	-9.2647	µg/L	-9.2647	ppb	07:15:29
1	Sn 189.927†	19.7	-2.7	-0.6243	µg/L	-0.6243	ppb	07:15:29
1	Ti 334.940†	13.8	100.4	0.2636	µg/L	0.2636	ppb	07:15:09
1	Tl 190.801†	-34.0	5.3	1.9458	µg/L	1.9458	ppb	07:15:29
1	U 367.007†	348.8	-7.5	-2.117	µg/L	-2.117	ppb	07:15:09
1	V 292.402†	-177.3	20.4	0.2269	µg/L	0.2269	ppb	07:15:09
1	Zn 213.857†	1210.6	11.9	0.1198	µg/L	0.1198	ppb	07:15:29
2	Sc RADIAL	19059.5	19059.5	99.6	%			07:14:18
2	Al 396.153Radial†	-69.2	-20.6	-6.2805	µg/L	-6.2805	ppb	07:14:18
2	Ca 317.933Radial†	121.4	2.7	1.2995	µg/L	1.2995	ppb	07:14:38
2	Fe 238.204 Radial†	36.1	7.5	4.2013	µg/L	4.2013	ppb	07:14:38
2	K 766.490 Radial†	717.3	54.8	26.807	µg/L	26.807	ppb	07:14:18
2	Mg 279.077 IEC†	7.7	4.6	23.205	µg/L	23.205	ppb	07:14:38
2	Na 589.592 Radial†	-181.4	2.6	4.8473	µg/L	4.8473	ppb	07:14:18
2	Sr 421.552†	-1309.2	-22.3	-0.1075	µg/L	-0.1075	ppb	07:14:18
2	Sc 361.383	593598.4	593598.4	98.584	%			07:15:35
2	Y 371.029	504012.1	504012.1	98.583	%			07:15:35
2	Ag 328.068†	-524.3	59.8	0.4001	µg/L	0.4001	ppb	07:15:35
2	As 188.979†	-9.9	1.4	0.8197	µg/L	0.8197	ppb	07:15:55
2	B 249.677†	110.2	25.9	0.7476	µg/L	0.7476	ppb	07:15:55
2	Ba 233.527†	-102.3	12.9	0.1153	µg/L	0.1153	ppb	07:15:55
2	Be 313.107†	-7870.3	-25.4	-0.0143	µg/L	-0.0143	ppb	07:15:35
2	Cd 226.502†	-202.3	11.1	0.1689	µg/L	0.1689	ppb	07:15:55
2	Co 228.616†	4.7	11.2	0.2943	µg/L	0.2943	ppb	07:15:55
2	Cr 267.716†	233.8	-0.3	-0.0107	µg/L	-0.0107	ppb	07:15:55
2	Cu 324.752†	6136.8	77.2	0.3415	µg/L	0.3415	ppb	07:15:35
2	Mn 257.610†	403.1	22.9	0.0353	µg/L	0.0353	ppb	07:15:55
2	Mo 202.031†	37.5	10.1	0.7218	µg/L	0.7218	ppb	07:15:55
2	Ni 231.604†	-79.0	-1.8	-0.0590	µg/L	-0.0590	ppb	07:15:55
2	P 214.914†	81.0	6.2	4.6472	µg/L	4.6472	ppb	07:15:55
2	Pb 220.353†	143.7	5.3	0.9109	µg/L	0.9109	ppb	07:15:55

2	S 181.975 Axial†	61.6	5.5	9.5066 µg/L	9.5066 ppb	07:15:55
2	Sb 206.836†	86.3	18.6	6.2743 µg/L	6.2743 ppb	07:15:55
2	Se 196.026†	-4.2	3.9	3.0987 µg/L	3.0987 ppb	07:15:55
2	SiO2†	3227.3	-157.3	-19.071 µg/L	-19.071 ppb	07:15:35
2	Si 251.611†	239.2	-193.2	-9.1881 µg/L	-9.1881 ppb	07:15:55
2	Sn 189.927†	32.8	10.5	2.4093 µg/L	2.4093 ppb	07:15:55
2	Ti 334.940†	-59.8	25.7	0.0655 µg/L	0.0655 ppb	07:15:35
2	Tl 190.801†	-37.7	1.6	0.5912 µg/L	0.5912 ppb	07:15:55
2	U 367.007†	370.6	13.9	3.823 µg/L	3.823 ppb	07:15:35
2	V 292.402†	-232.9	-35.7	-0.3511 µg/L	-0.3511 ppb	07:15:35
2	Zn 213.857†	1214.1	12.9	0.1268 µg/L	0.1268 ppb	07:15:55
3	Sc RADIAL	19046.9	19046.9	99.5 %		07:14:43
3	Al 396.153Radial†	-81.2	-32.7	-9.9424 µg/L	-9.9424 ppb	07:14:43
3	Ca 317.933Radial†	123.8	5.1	2.5037 µg/L	2.5037 ppb	07:15:03
3	Fe 238.204 Radial†	33.2	4.6	2.5552 µg/L	2.5552 ppb	07:15:03
3	K 766.490 Radial†	716.8	54.8	26.803 µg/L	26.803 ppb	07:14:43
3	Mg 279.077 IEC†	6.8	3.7	18.639 µg/L	18.639 ppb	07:15:03
3	Na 589.592 Radial†	-178.1	5.9	10.857 µg/L	10.857 ppb	07:14:43
3	Sr 421.552†	-1251.8	34.5	0.1663 µg/L	0.1663 ppb	07:14:43
3	Sc 361.383	595790.1	595790.1	98.948 %		07:16:00
3	Y 371.029	505851.1	505851.1	98.943 %		07:16:00
3	Ag 328.068†	-559.2	26.5	0.1773 µg/L	0.1773 ppb	07:16:00
3	As 188.979†	-18.7	-7.4	-4.2943 µg/L	-4.2943 ppb	07:16:20
3	B 249.677†	111.0	26.3	0.7599 µg/L	0.7599 ppb	07:16:20
3	Ba 233.527†	-123.0	-7.7	-0.0693 µg/L	-0.0693 ppb	07:16:20
3	Be 313.107†	-7922.0	-48.4	-0.0289 µg/L	-0.0289 ppb	07:16:00
3	Cd 226.502†	-198.5	15.7	0.2383 µg/L	0.2383 ppb	07:16:20
3	Co 228.616†	-6.7	-0.4	-0.0091 µg/L	-0.0091 ppb	07:16:20
3	Cr 267.716†	219.6	-15.5	-0.3297 µg/L	-0.3297 ppb	07:16:20
3	Cu 324.752†	6099.6	16.7	0.0751 µg/L	0.0751 ppb	07:16:00
3	Mn 257.610†	409.6	27.9	0.0431 µg/L	0.0431 ppb	07:16:20
3	Mo 202.031†	35.5	8.1	0.5746 µg/L	0.5746 ppb	07:16:20
3	Ni 231.604†	-66.5	11.0	0.3571 µg/L	0.3571 ppb	07:16:20
3	P 214.914†	88.6	13.5	10.206 µg/L	10.206 ppb	07:16:20
3	Pb 220.353†	128.7	-10.3	-1.7614 µg/L	-1.7614 ppb	07:16:20
3	S 181.975 Axial†	64.5	8.3	14.318 µg/L	14.318 ppb	07:16:20
3	Sb 206.836†	95.5	27.5	9.2719 µg/L	9.2719 ppb	07:16:20
3	Se 196.026†	-6.8	1.4	1.0634 µg/L	1.0634 ppb	07:16:20
3	SiO2†	3269.8	-126.4	-15.376 µg/L	-15.376 ppb	07:16:00
3	Si 251.611†	239.9	-193.4	-9.1891 µg/L	-9.1891 ppb	07:16:20
3	Sn 189.927†	25.8	3.3	0.7685 µg/L	0.7685 ppb	07:16:20
3	Ti 334.940†	-82.1	3.4	0.0090 µg/L	0.0090 ppb	07:16:00
3	Tl 190.801†	-40.7	-1.3	-0.4675 µg/L	-0.4675 ppb	07:16:20
3	U 367.007†	356.7	-1.5	-0.436 µg/L	-0.436 ppb	07:16:00
3	V 292.402†	-215.2	-16.9	-0.1667 µg/L	-0.1667 ppb	07:16:00
3	Zn 213.857†	1226.4	20.9	0.2029 µg/L	0.2029 ppb	07:16:20

Mean Data: ICB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	593924.1	98.638	%	0.2867				0.29%
Sc RADIAL	19072.9	99.6	%	0.18				0.18%
Y 371.029	504243.9	98.628	%	0.2943				0.30%
Ag 328.068†	64.6	0.4335	µg/L	0.27440	0.4335	ppb	0.27440	63.30%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-28.1	-8.5584	µg/L	1.98789	-8.5584	ppb	1.98789	23.23%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.5	-0.8771	µg/L	2.95938	-0.8771	ppb	2.95938	337.41%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	28.9	0.8340	µg/L	0.13923	0.8340	ppb	0.13923	16.69%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	0.4	0.0034	µg/L	0.09834	0.0034	ppb	0.09834	>999.9%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-67.4	-0.0400	µg/L	0.03261	-0.0400	ppb	0.03261	81.61%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	2.0	0.9670	µg/L	1.72706	0.9670	ppb	1.72706	178.60%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	16.3	0.2469	µg/L	0.08271	0.2469	ppb	0.08271	33.49%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	1.4	0.0383	µg/L	0.23590	0.0383	ppb	0.23590	616.47%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -0.6     -0.0124 µg/L       0.31652     -0.0124 ppb        0.31652 >999.9%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              49.5      0.2205 µg/L       0.13487      0.2205 ppb        0.13487  61.17%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        7.3      4.0415 µg/L       1.41320      4.0415 ppb        1.41320  34.97%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         44.6      21.811 µg/L        8.6501      21.811 ppb         8.6501  39.66%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           3.9      19.831 µg/L        2.9640      19.831 ppb         2.9640  14.95%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              25.3      0.0392 µg/L       0.00394      0.0392 ppb        0.00394  10.05%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              15.0      1.0683 µg/L       0.73142      1.0683 ppb        0.73142  68.46%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       13.8      25.440 µg/L       30.6110      25.440 ppb        30.6110 120.33%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -2.5     -0.0815 µg/L       0.45031     -0.0815 ppb        0.45031 552.22%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                0.2      0.1528 µg/L      12.90139      0.1528 ppb       12.90139 >999.9%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              -0.9     -0.1480 µg/L       1.41979     -0.1480 ppb        1.41979 959.11%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          6.2      10.799 µg/L        3.0828      10.799 ppb         3.0828  28.55%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              19.2      6.4599 µg/L       2.72399      6.4599 ppb        2.72399  42.17%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†              -0.1     -0.0563 µg/L       3.83929     -0.0563 ppb        3.83929 >999.9%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                  -142.3     -17.269 µg/L        1.8491     -17.269 ppb         1.8491  10.71%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†            -193.8     -9.2140 µg/L       0.04395     -9.2140 ppb        0.04395   0.48%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               3.7      0.8512 µg/L       1.51846      0.8512 ppb        1.51846 178.39%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              10.0      0.0483 µg/L       0.14072      0.0483 ppb        0.14072 291.41%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              43.2      0.1127 µg/L       0.13369      0.1127 ppb        0.13369 118.62%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               1.9      0.6898 µg/L       1.20967      0.6898 ppb        1.20967 175.36%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                1.6       0.423 µg/L        3.0622       0.423 ppb         3.0622 723.44%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -10.7     -0.0970 µg/L       0.29526     -0.0970 ppb        0.29526 304.49%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              15.2      0.1498 µg/L       0.04609      0.1498 ppb        0.04609  30.77%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 8 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/7/2012 7:16:28**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	18750.2	18750.2	97.9	%			07:16:56
1	Al 396.153Radial†	576.5	637.6	193.03	µg/L	193.03	ppb	07:16:56
1	Ca 317.933Radial†	515.2	406.8	199.19	µg/L	199.19	ppb	07:17:16
1	Fe 238.204 Radial†	217.3	193.1	107.69	µg/L	107.69	ppb	07:17:16
1	K 766.490 Radial†	1036.0	392.0	191.68	µg/L	191.68	ppb	07:16:56
1	Mg 279.077 IEC†	63.4	61.6	313.14	µg/L	313.14	ppb	07:17:16
1	Na 589.592 Radial†	-33.1	151.1	279.06	µg/L	279.06	ppb	07:16:56
1	Sr 421.552†	-213.9	1074.3	5.1713	µg/L	5.1713	ppb	07:16:56
1	Sc 361.383	591855.1	591855.1	98.294	%			07:18:13
1	Y 371.029	502650.5	502650.5	98.317	%			07:18:13
1	Ag 328.068†	217.4	812.9	5.5082	µg/L	5.5082	ppb	07:18:13
1	As 188.979†	41.3	53.4	30.837	µg/L	30.837	ppb	07:18:33
1	B 249.677†	1781.2	1726.3	49.862	µg/L	49.862	ppb	07:18:13
1	Ba 233.527†	433.8	557.9	5.0247	µg/L	5.0247	ppb	07:18:33
1	Be 313.107†	625.0	8593.8	5.1192	µg/L	5.1192	ppb	07:18:13
1	Cd 226.502†	119.9	338.3	5.1354	µg/L	5.1354	ppb	07:18:33
1	Co 228.616†	174.5	184.0	4.8303	µg/L	4.8303	ppb	07:18:33
1	Cr 267.716†	455.6	226.0	4.7737	µg/L	4.7737	ppb	07:18:33
1	Cu 324.752†	8359.4	2356.8	10.468	µg/L	10.468	ppb	07:18:13
1	Mn 257.610†	6905.0	6638.8	10.323	µg/L	10.323	ppb	07:18:13
1	Mo 202.031†	182.3	157.6	11.234	µg/L	11.234	ppb	07:18:33
1	Ni 231.604†	62.0	141.3	4.5758	µg/L	4.5758	ppb	07:18:33
1	P 214.914†	265.1	193.7	146.42	µg/L	146.42	ppb	07:18:33
1	Pb 220.353†	190.6	53.5	9.1041	µg/L	9.1041	ppb	07:18:33
1	S 181.975 Axial†	111.7	56.7	97.837	µg/L	97.837	ppb	07:18:33
1	Sb 206.836†	98.8	31.5	10.687	µg/L	10.687	ppb	07:18:33
1	Se 196.026†	30.4	39.1	30.793	µg/L	30.793	ppb	07:18:33
1	SiO2†	4940.1	1594.8	194.70	µg/L	194.70	ppb	07:18:13
1	Si 251.611†	2271.7	1875.2	88.808	µg/L	88.808	ppb	07:18:33
1	Sn 189.927†	71.2	49.7	11.432	µg/L	11.432	ppb	07:18:33
1	Ti 334.940†	1756.2	1873.0	4.8827	µg/L	4.8827	ppb	07:18:13
1	Tl 190.801†	9.7	49.8	18.377	µg/L	18.377	ppb	07:18:33
1	U 367.007†	549.7	197.2	54.13	µg/L	54.13	ppb	07:18:13
1	V 292.402†	276.0	481.4	5.0685	µg/L	5.0685	ppb	07:18:13
1	Zn 213.857†	2173.3	992.4	9.7188	µg/L	9.7188	ppb	07:18:33
2	Sc RADIAL	19067.1	19067.1	99.6	%			07:17:21
2	Al 396.153Radial†	619.7	671.1	203.24	µg/L	203.24	ppb	07:17:21
2	Ca 317.933Radial†	514.2	397.0	194.42	µg/L	194.42	ppb	07:17:42
2	Fe 238.204 Radial†	216.2	188.4	105.03	µg/L	105.03	ppb	07:17:42
2	K 766.490 Radial†	1011.5	350.0	171.09	µg/L	171.09	ppb	07:17:21
2	Mg 279.077 IEC†	64.7	61.7	313.95	µg/L	313.95	ppb	07:17:42
2	Na 589.592 Radial†	-1.5	183.4	338.74	µg/L	338.74	ppb	07:17:21
2	Sr 421.552†	-225.7	1066.1	5.1322	µg/L	5.1322	ppb	07:17:21
2	Sc 361.383	591004.1	591004.1	98.153	%			07:18:39
2	Y 371.029	501920.2	501920.2	98.174	%			07:18:39
2	Ag 328.068†	198.9	794.3	5.3854	µg/L	5.3854	ppb	07:18:39
2	As 188.979†	38.9	51.0	29.479	µg/L	29.479	ppb	07:18:59
2	B 249.677†	1766.4	1713.8	49.500	µg/L	49.500	ppb	07:18:39
2	Ba 233.527†	452.6	577.7	5.2036	µg/L	5.2036	ppb	07:18:59
2	Be 313.107†	593.8	8562.9	5.1012	µg/L	5.1012	ppb	07:18:39
2	Cd 226.502†	126.7	345.5	5.2444	µg/L	5.2444	ppb	07:18:59
2	Co 228.616†	183.0	192.8	5.0617	µg/L	5.0617	ppb	07:18:59
2	Cr 267.716†	462.8	234.0	4.9426	µg/L	4.9426	ppb	07:18:59
2	Cu 324.752†	8411.6	2422.2	10.757	µg/L	10.757	ppb	07:18:39
2	Mn 257.610†	6872.9	6616.2	10.287	µg/L	10.287	ppb	07:18:39
2	Mo 202.031†	169.7	145.0	10.334	µg/L	10.334	ppb	07:18:59
2	Ni 231.604†	59.7	139.1	4.5031	µg/L	4.5031	ppb	07:18:59
2	P 214.914†	267.5	196.5	148.53	µg/L	148.53	ppb	07:18:59
2	Pb 220.353†	216.0	79.6	13.558	µg/L	13.558	ppb	07:18:59

2	S 181.975 Axial†	113.2	58.4	100.80 µg/L	100.80 ppb	07:18:59
2	Sb 206.836†	102.9	35.8	12.118 µg/L	12.118 ppb	07:18:59
2	Se 196.026†	31.2	40.0	31.506 µg/L	31.506 ppb	07:18:59
2	SiO2†	4903.8	1565.0	191.11 µg/L	191.11 ppb	07:18:39
2	Si 251.611†	2272.1	1879.0	88.995 µg/L	88.995 ppb	07:18:59
2	Sn 189.927†	72.5	51.1	11.756 µg/L	11.756 ppb	07:18:59
2	Ti 334.940†	1820.8	1941.4	5.0605 µg/L	5.0605 ppb	07:18:39
2	Tl 190.801†	8.4	48.5	17.905 µg/L	17.905 ppb	07:18:59
2	U 367.007†	557.4	205.8	56.53 µg/L	56.53 ppb	07:18:39
2	V 292.402†	315.2	521.7	5.4708 µg/L	5.4708 ppb	07:18:39
2	Zn 213.857†	2189.1	1011.8	9.9096 µg/L	9.9096 ppb	07:18:59
3	Sc RADIAL	18998.6	18998.6	99.2 %		07:17:47
3	Al 396.153Radial†	610.4	664.0	201.09 µg/L	201.09 ppb	07:17:47
3	Ca 317.933Radial†	522.1	406.8	199.22 µg/L	199.22 ppb	07:18:07
3	Fe 238.204 Radial†	218.9	191.8	106.93 µg/L	106.93 ppb	07:18:07
3	K 766.490 Radial†	1019.9	362.1	177.01 µg/L	177.01 ppb	07:17:47
3	Mg 279.077 IEC†	69.3	66.7	338.82 µg/L	338.82 ppb	07:18:07
3	Na 589.592 Radial†	-14.7	170.1	314.17 µg/L	314.17 ppb	07:17:47
3	Sr 421.552†	-223.1	1067.9	5.1406 µg/L	5.1406 ppb	07:17:47
3	Sc 361.383	590426.4	590426.4	98.057 %		07:19:04
3	Y 371.029	501384.3	501384.3	98.069 %		07:19:04
3	Ag 328.068†	179.2	774.5	5.2503 µg/L	5.2503 ppb	07:19:04
3	As 188.979†	35.4	47.5	27.421 µg/L	27.421 ppb	07:19:24
3	B 249.677†	1773.9	1723.2	49.770 µg/L	49.770 ppb	07:19:04
3	Ba 233.527†	432.5	557.6	5.0222 µg/L	5.0222 ppb	07:19:24
3	Be 313.107†	611.8	8581.8	5.1102 µg/L	5.1102 ppb	07:19:04
3	Cd 226.502†	127.2	346.0	5.2527 µg/L	5.2527 ppb	07:19:24
3	Co 228.616†	197.4	207.7	5.4515 µg/L	5.4515 ppb	07:19:24
3	Cr 267.716†	458.2	229.8	4.8642 µg/L	4.8642 ppb	07:19:24
3	Cu 324.752†	8344.3	2361.9	10.500 µg/L	10.500 ppb	07:19:04
3	Mn 257.610†	6854.7	6604.6	10.269 µg/L	10.269 ppb	07:19:04
3	Mo 202.031†	172.4	148.0	10.549 µg/L	10.549 ppb	07:19:24
3	Ni 231.604†	79.4	159.3	5.1555 µg/L	5.1555 ppb	07:19:24
3	P 214.914†	272.8	202.2	152.89 µg/L	152.89 ppb	07:19:24
3	Pb 220.353†	194.7	58.1	9.8974 µg/L	9.8974 ppb	07:19:24
3	S 181.975 Axial†	119.8	65.3	112.69 µg/L	112.69 ppb	07:19:24
3	Sb 206.836†	105.5	38.7	13.072 µg/L	13.072 ppb	07:19:24
3	Se 196.026†	27.0	35.7	28.138 µg/L	28.138 ppb	07:19:24
3	SiO2†	4908.6	1574.9	192.15 µg/L	192.15 ppb	07:19:04
3	Si 251.611†	2285.9	1895.3	89.765 µg/L	89.765 ppb	07:19:24
3	Sn 189.927†	76.3	55.1	12.675 µg/L	12.675 ppb	07:19:24
3	Ti 334.940†	1817.6	1940.0	5.0621 µg/L	5.0621 ppb	07:19:04
3	Tl 190.801†	11.4	51.5	19.021 µg/L	19.021 ppb	07:19:24
3	U 367.007†	515.1	163.3	44.73 µg/L	44.73 ppb	07:19:04
3	V 292.402†	272.7	478.7	5.0266 µg/L	5.0266 ppb	07:19:04
3	Zn 213.857†	2198.0	1022.9	10.015 µg/L	10.015 ppb	07:19:24

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	591095.2	98.168	%	0.1194				0.12%
Sc RADIAL	18938.6	98.9	%	0.87				0.88%
Y 371.029	501985.0	98.186	%	0.1243				0.13%
Ag 328.068†	793.9	5.3813	µg/L	0.12903	5.3813	ppb	0.12903	2.40%
QC value within limits for Ag 328.068 Recovery = 107.63%								
Al 396.153Radial†	657.6	199.12	µg/L	5.383	199.12	ppb	5.383	2.70%
QC value within limits for Al 396.153Radial Recovery = 99.56%								
As 188.979†	50.6	29.246	µg/L	1.7199	29.246	ppb	1.7199	5.88%
QC value within limits for As 188.979 Recovery = 97.49%								
B 249.677†	1721.1	49.711	µg/L	0.1882	49.711	ppb	0.1882	0.38%
QC value within limits for B 249.677 Recovery = 99.42%								
Ba 233.527†	564.4	5.0835	µg/L	0.10402	5.0835	ppb	0.10402	2.05%
QC value within limits for Ba 233.527 Recovery = 101.67%								
Be 313.107†	8579.5	5.1102	µg/L	0.00897	5.1102	ppb	0.00897	0.18%
QC value within limits for Be 313.107 Recovery = 102.20%								
Ca 317.933Radial†	403.5	197.61	µg/L	2.766	197.61	ppb	2.766	1.40%
QC value within limits for Ca 317.933Radial Recovery = 98.81%								
Cd 226.502†	343.3	5.2108	µg/L	0.06546	5.2108	ppb	0.06546	1.26%
QC value within limits for Cd 226.502 Recovery = 104.22%								
Co 228.616†	194.8	5.1145	µg/L	0.31393	5.1145	ppb	0.31393	6.14%

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   QC value within limits for Co 228.616  Recovery = 102.29%
Cr 267.716†              230.0      4.8602 µg/L       0.08451      4.8602 ppb        0.08451   1.74%
   QC value within limits for Cr 267.716  Recovery = 97.20%
Cu 324.752†             2380.3      10.575 µg/L        0.1585      10.575 ppb         0.1585   1.50%
   QC value within limits for Cu 324.752  Recovery = 105.75%
Fe 238.204 Radial†       191.1      106.55 µg/L         1.370      106.55 ppb          1.370   1.29%
   QC value within limits for Fe 238.204 Radial  Recovery = 106.55%
K 766.490 Radial†        368.0      179.93 µg/L        10.597      179.93 ppb         10.597   5.89%
   QC value within limits for K 766.490 Radial  Recovery = 119.95%
Mg 279.077 IEC†           63.3      321.97 µg/L        14.595      321.97 ppb         14.595   4.53%
   QC value within limits for Mg 279.077 IEC  Recovery = 107.32%
Mn 257.610†             6619.9      10.293 µg/L        0.0275      10.293 ppb         0.0275   0.27%
   QC value within limits for Mn 257.610  Recovery = 102.93%
Mo 202.031†              150.2      10.706 µg/L        0.4701      10.706 ppb         0.4701   4.39%
   QC value within limits for Mo 202.031  Recovery = 107.06%
Na 589.592 Radial†       168.2      310.66 µg/L        29.998      310.66 ppb         29.998   9.66%
   QC value within limits for Na 589.592 Radial  Recovery = 103.55%
Ni 231.604†              146.6      4.7448 µg/L       0.35754      4.7448 ppb        0.35754   7.54%
   QC value within limits for Ni 231.604  Recovery = 94.90%
P 214.914†               197.5      149.28 µg/L         3.300      149.28 ppb          3.300   2.21%
   QC value within limits for P 214.914  Recovery = 99.52%
Pb 220.353†               63.7      10.853 µg/L        2.3758      10.853 ppb         2.3758  21.89%
   QC value within limits for Pb 220.353  Recovery = 108.53%
S 181.975 Axial†          60.1      103.78 µg/L         7.861      103.78 ppb          7.861   7.58%
   QC value within limits for S 181.975 Axial  Recovery = 103.78%
Sb 206.836†               35.4      11.959 µg/L        1.2003      11.959 ppb         1.2003  10.04%
   QC value within limits for Sb 206.836  Recovery = 119.59%
Se 196.026†               38.3      30.146 µg/L        1.7750      30.146 ppb         1.7750   5.89%
   QC value within limits for Se 196.026  Recovery = 100.49%
SiO2†                   1578.2      192.66 µg/L         1.849      192.66 ppb          1.849   0.96%
   QC value within limits for SiO2  Recovery = 90.45%
Si 251.611†             1883.2      89.189 µg/L        0.5073      89.189 ppb         0.5073   0.57%
   QC value within limits for Si 251.611  Recovery = 89.19%
Sn 189.927†               51.9      11.954 µg/L        0.6445      11.954 ppb         0.6445   5.39%
   QC value within limits for Sn 189.927  Recovery = 119.54%
Sr 421.552†             1069.4      5.1481 µg/L       0.02061      5.1481 ppb        0.02061   0.40%
   QC value within limits for Sr 421.552  Recovery = 102.96%
Ti 334.940†             1918.1      5.0018 µg/L       0.10314      5.0018 ppb        0.10314   2.06%
   QC value within limits for Ti 334.940  Recovery = 100.04%
Tl 190.801†               49.9      18.434 µg/L        0.5603      18.434 ppb         0.5603   3.04%
   QC value within limits for Tl 190.801  Recovery = 92.17%
U 367.007†               188.8       51.80 µg/L         6.232       51.80 ppb          6.232  12.03%
   QC value within limits for U 367.007  Recovery = 103.59%
V 292.402†               493.9      5.1886 µg/L       0.24530      5.1886 ppb        0.24530   4.73%
   QC value within limits for V 292.402  Recovery = 103.77%
Zn 213.857†             1009.0      9.8813 µg/L       0.15031      9.8813 ppb        0.15031   1.52%
   QC value within limits for Zn 213.857  Recovery = 98.81%
All analyte(s) passed QC.
```

Sequence No.: 9 **Autosampler Location: 103**
Sample ID: ICSA **Date Collected: 6/7/2012 7:19:32**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSA

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	18364.3	18364.3	95.9	%			07:20:06
1	Al 396.153Radial†	1601992.4	1670044.2	506750	µg/L	506750	ppb	07:20:01
1	Ca 317.933Radial†	931828.3	971264.2	475640	µg/L	475640	ppb	07:20:01
1	Fe 238.204 Radial†	311312.6	324498.8	180840	µg/L	180840	ppb	07:20:01
1	K 766.490 Radial†	526.4	-116.9	-8.4857	µg/L	-8.4857	ppb	07:20:06
1	Mg 279.077 IEC†	90348.4	94180.5	478100	µg/L	478100	ppb	07:20:06
1	Na 589.592 Radial†	-162.4	15.6	28.761	µg/L	28.761	ppb	07:20:06
1	Sr 421.552†	-789.2	470.0	0.1029	µg/L	0.1029	ppb	07:20:06
1	Sc 361.383	544682.7	544682.7	90.460	%			07:20:34
1	Y 371.029	459324.7	459324.7	89.842	%			07:20:34
1	Ag 328.068†	-6316.9	-6391.4	3.3072	µg/L	3.3072	ppb	07:20:54
1	As 188.979†	-10.0	0.4	5.5697	µg/L	5.5697	ppb	07:20:54
1	B 249.677†	796.1	794.3	-3.2047	µg/L	-3.2047	ppb	07:20:34
1	Ba 233.527†	349.3	502.7	-0.8639	µg/L	-0.8639	ppb	07:20:54
1	Be 313.107†	-13347.2	-6796.9	0.3505	µg/L	0.3505	ppb	07:20:34
1	Cd 226.502†	1555.5	1935.9	0.8168	µg/L	0.8168	ppb	07:20:54
1	Co 228.616†	5.2	12.1	0.0270	µg/L	0.0270	ppb	07:20:54
1	Cr 267.716†	-148.7	-401.8	-1.5474	µg/L	-1.5474	ppb	07:20:54
1	Cu 324.752†	67.7	-6072.9	-0.7860	µg/L	-0.7860	ppb	07:20:54
1	Mn 257.610†	-435.0	-866.9	1.3266	µg/L	1.3266	ppb	07:20:34
1	Mo 202.031†	-52.3	-85.7	1.2875	µg/L	1.2875	ppb	07:20:54
1	Ni 231.604†	-224.6	-170.0	-2.4909	µg/L	-2.4909	ppb	07:20:54
1	P 214.914†	158.0	98.6	102.63	µg/L	102.63	ppb	07:20:54
1	Pb 220.353†	872.3	823.9	-9.6734	µg/L	-9.6734	ppb	07:20:54
1	S 181.975 Axial†	112.9	67.9	-40.004	µg/L	-40.004	ppb	07:20:54
1	Sb 206.836†	95.9	37.0	-7.1097	µg/L	-7.1097	ppb	07:20:54
1	Se 196.026†	-117.1	-121.3	-3.5288	µg/L	-3.5288	ppb	07:20:54
1	SiO2†	2941.0	-179.8	11.156	µg/L	11.156	ppb	07:20:54
1	Si 251.611†	151.2	-268.7	-14.617	µg/L	-14.617	ppb	07:20:54
1	Sn 189.927†	-222.0	-268.2	-9.3599	µg/L	-9.3599	ppb	07:20:54
1	Ti 334.940†	-3246.9	-3502.9	-1.0283	µg/L	-1.0283	ppb	07:20:34
1	Tl 190.801†	-53.6	-19.4	5.0904	µg/L	5.0904	ppb	07:20:54
1	U 367.007†	3234.3	3213.4	-15.14	µg/L	-15.14	ppb	07:20:34
1	V 292.402†	-568.5	-427.8	-3.2990	µg/L	-3.2990	ppb	07:20:54
1	Zn 213.857†	3748.0	2924.7	-0.6385	µg/L	-0.6385	ppb	07:20:54
2	Sc RADIAL	18395.0	18395.0	96.1	%			07:20:17
2	Al 396.153Radial†	1622999.5	1689117.9	512540	µg/L	512540	ppb	07:20:12
2	Ca 317.933Radial†	941759.7	979977.8	479900	µg/L	479900	ppb	07:20:12
2	Fe 238.204 Radial†	314858.5	327647.1	182590	µg/L	182590	ppb	07:20:12
2	K 766.490 Radial†	604.1	-37.0	31.083	µg/L	31.083	ppb	07:20:17
2	Mg 279.077 IEC†	90802.9	94496.1	479700	µg/L	479700	ppb	07:20:17
2	Na 589.592 Radial†	-149.3	29.5	54.481	µg/L	54.481	ppb	07:20:17
2	Sr 421.552†	-776.2	484.9	0.1553	µg/L	0.1553	ppb	07:20:17
2	Sc 361.383	548349.3	548349.3	91.069	%			07:20:59
2	Y 371.029	462337.2	462337.2	90.432	%			07:20:59
2	Ag 328.068†	-6334.4	-6364.0	3.9401	µg/L	3.9401	ppb	07:21:19
2	As 188.979†	-10.3	0.1	5.4245	µg/L	5.4245	ppb	07:21:19
2	B 249.677†	837.6	834.0	-2.3110	µg/L	-2.3110	ppb	07:20:59
2	Ba 233.527†	349.7	500.6	-0.9350	µg/L	-0.9350	ppb	07:21:19
2	Be 313.107†	-13532.7	-6901.9	0.3273	µg/L	0.3273	ppb	07:20:59
2	Cd 226.502†	1534.5	1901.3	0.0129	µg/L	0.0129	ppb	07:21:19
2	Co 228.616†	4.8	11.6	0.0096	µg/L	0.0096	ppb	07:21:19
2	Cr 267.716†	-138.4	-389.4	-1.2448	µg/L	-1.2448	ppb	07:21:19
2	Cu 324.752†	63.9	-6077.5	-0.5506	µg/L	-0.5506	ppb	07:21:19
2	Mn 257.610†	-510.3	-946.3	1.3207	µg/L	1.3207	ppb	07:20:59
2	Mo 202.031†	-73.1	-108.1	-0.2407	µg/L	-0.2407	ppb	07:21:19
2	Ni 231.604†	-218.9	-162.1	-2.2058	µg/L	-2.2058	ppb	07:21:19
2	P 214.914†	161.1	100.9	104.88	µg/L	104.88	ppb	07:21:19
2	Pb 220.353†	900.5	848.3	-7.3802	µg/L	-7.3802	ppb	07:21:19

2	S 181.975 Axial†	127.8	83.4	-14.892 µg/L	-14.892 ppb		07:21:19
2	Sb 206.836†	115.0	57.3	-0.5603 µg/L	-0.5603 ppb		07:21:19
2	Se 196.026†	-108.6	-111.1	5.3573 µg/L	5.3573 ppb		07:21:19
2	SiO2†	2952.8	-188.6	10.383 µg/L	10.383 ppb		07:21:19
2	Si 251.611†	172.5	-246.4	-13.558 µg/L	-13.558 ppb		07:21:19
2	Sn 189.927†	-227.4	-272.4	-9.8153 µg/L	-9.8153 ppb		07:21:19
2	Ti 334.940†	-3378.0	-3622.9	-1.2459 µg/L	-1.2459 ppb		07:20:59
2	Tl 190.801†	-53.0	-18.3	5.6134 µg/L	5.6134 ppb		07:21:19
2	U 367.007†	3278.1	3237.5	-17.21 µg/L	-17.21 ppb		07:20:59
2	V 292.402†	-558.2	-412.3	-3.1487 µg/L	-3.1487 ppb		07:21:19
2	Zn 213.857†	3749.8	2899.0	-1.1757 µg/L	-1.1757 ppb		07:21:19
3	Sc RADIAL	18203.8	18203.8	95.1 %			07:20:27
3	Al 396.153Radial†	1621313.9	1705091.1	517390 µg/L	517390 ppb		07:20:22
3	Ca 317.933Radial†	939959.4	988381.7	484020 µg/L	484020 ppb		07:20:22
3	Fe 238.204 Radial†	314319.3	330522.7	184190 µg/L	184190 ppb		07:20:22
3	K 766.490 Radial†	601.9	-32.7	33.607 µg/L	33.607 ppb		07:20:27
3	Mg 279.077 IEC†	90991.6	95687.4	485750 µg/L	485750 ppb		07:20:27
3	Na 589.592 Radial†	-162.8	13.7	25.319 µg/L	25.319 ppb		07:20:27
3	Sr 421.552†	-742.7	511.6	0.2653 µg/L	0.2653 ppb		07:20:27
3	Sc 361.383	546502.4	546502.4	90.762 %			07:21:25
3	Y 371.029	460730.1	460730.1	90.117 %			07:21:25
3	Ag 328.068†	-6369.8	-6426.5	3.9280 µg/L	3.9280 ppb		07:21:45
3	As 188.979†	-8.8	1.7	6.4220 µg/L	6.4220 ppb		07:21:45
3	B 249.677†	876.1	879.5	-1.2306 µg/L	-1.2306 ppb		07:21:25
3	Ba 233.527†	360.5	513.8	-0.8645 µg/L	-0.8645 ppb		07:21:45
3	Be 313.107†	-13428.2	-6837.0	0.3985 µg/L	0.3985 ppb		07:21:25
3	Cd 226.502†	1522.3	1893.5	-0.3593 µg/L	-0.3593 ppb		07:21:45
3	Co 228.616†	26.9	36.0	0.6479 µg/L	0.6479 ppb		07:21:45
3	Cr 267.716†	-166.6	-421.0	-1.8121 µg/L	-1.8121 ppb		07:21:45
3	Cu 324.752†	23.3	-6122.0	-0.4934 µg/L	-0.4934 ppb		07:21:45
3	Mn 257.610†	-563.0	-1006.3	1.1965 µg/L	1.1965 ppb		07:21:25
3	Mo 202.031†	-45.2	-77.7	1.9934 µg/L	1.9934 ppb		07:21:45
3	Ni 231.604†	-201.7	-144.0	-1.5944 µg/L	-1.5944 ppb		07:21:45
3	P 214.914†	163.3	103.9	107.50 µg/L	107.50 ppb		07:21:45
3	Pb 220.353†	894.5	845.1	-9.4093 µg/L	-9.4093 ppb		07:21:45
3	S 181.975 Axial†	123.0	78.5	-24.752 µg/L	-24.752 ppb		07:21:45
3	Sb 206.836†	109.5	51.7	-2.5782 µg/L	-2.5782 ppb		07:21:45
3	Se 196.026†	-113.0	-116.2	2.0624 µg/L	2.0624 ppb		07:21:45
3	SiO2†	3003.0	-122.4	18.380 µg/L	18.380 ppb		07:21:45
3	Si 251.611†	146.9	-274.0	-14.925 µg/L	-14.925 ppb		07:21:45
3	Sn 189.927†	-213.0	-257.4	-5.8856 µg/L	-5.8856 ppb		07:21:45
3	Ti 334.940†	-3283.9	-3531.8	-0.9414 µg/L	-0.9414 ppb		07:21:25
3	Tl 190.801†	-56.5	-22.4	4.1918 µg/L	4.1918 ppb		07:21:45
3	U 367.007†	3208.1	3172.6	-43.22 µg/L	-43.22 ppb		07:21:25
3	V 292.402†	-590.7	-450.2	-3.5226 µg/L	-3.5226 ppb		07:21:45
3	Zn 213.857†	3758.8	2922.8	-1.2054 µg/L	-1.2054 ppb		07:21:45

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	546511.5	90.764	%	0.3045				0.34%
Sc RADIAL	18321.0	95.7	%	0.54				0.56%
Y 371.029	460797.3	90.130	%	0.2948				0.33%
Ag 328.068†	-6393.9	3.7251	µg/L	0.36195	3.7251	ppb	0.36195	9.72%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	1688084.4	512230	µg/L	5324.2	512230	ppb	5324.2	1.04%
QC value within limits for Al 396.153Radial Recovery = 102.45%								
As 188.979†	0.7	5.8054	µg/L	0.53891	5.8054	ppb	0.53891	9.28%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	835.9	-2.2488	µg/L	0.98848	-2.2488	ppb	0.98848	43.96%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	505.7	-0.8878	µg/L	0.04083	-0.8878	ppb	0.04083	4.60%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-6845.3	0.3588	µg/L	0.03632	0.3588	ppb	0.03632	10.12%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	979874.6	479850	µg/L	4191.5	479850	ppb	4191.5	0.87%
QC value within limits for Ca 317.933Radial Recovery = 95.97%								
Cd 226.502†	1910.2	0.1568	µg/L	0.60108	0.1568	ppb	0.60108	383.37%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	19.9	0.2282	µg/L	0.36361	0.2282	ppb	0.36361	159.33%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†            -404.1     -1.5347 µg/L       0.28386     -1.5347 ppb        0.28386  18.50%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†           -6090.8     -0.6100 µg/L       0.15505     -0.6100 ppb        0.15505  25.42%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†    327556.2      182540 µg/L        1679.1      182540 ppb         1679.1   0.92%
   QC value within limits for Fe 238.204 Radial  Recovery = 91.27%
K 766.490 Radial†        -62.2      18.735 µg/L       23.6072      18.735 ppb        23.6072 126.01%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†        94788.0      481180 µg/L        4034.4      481180 ppb         4034.4   0.84%
   QC value within limits for Mg 279.077 IEC  Recovery = 96.24%
Mn 257.610†            -939.9      1.2813 µg/L       0.07351      1.2813 ppb        0.07351   5.74%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†            -90.5       1.0134 µg/L       1.14200      1.0134 ppb        1.14200 112.69%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       19.6      36.187 µg/L       15.9359      36.187 ppb        15.9359  44.04%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†            -158.7      -2.0970 µg/L       0.45806     -2.0970 ppb        0.45806  21.84%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†              101.1      105.00 µg/L         2.438      105.00 ppb          2.438   2.32%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†             839.1      -8.8209 µg/L       1.25471     -8.8209 ppb        1.25471  14.22%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         76.6      -26.549 µg/L       12.6517     -26.549 ppb        12.6517  47.65%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              48.7      -3.4161 µg/L       3.35412     -3.4161 ppb        3.35412  98.19%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†            -116.2      1.2969 µg/L       4.49223      1.2969 ppb        4.49223 346.37%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                  -163.6      13.306 µg/L        4.4106      13.306 ppb         4.4106  33.15%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†            -263.1     -14.366 µg/L        0.7168     -14.366 ppb         0.7168   4.99%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†            -266.0      -8.3536 µg/L       2.14943     -8.3536 ppb        2.14943  25.73%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             488.9      0.1745 µg/L       0.08288      0.1745 ppb        0.08288  47.50%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†           -3552.6      -1.0719 µg/L       0.15687     -1.0719 ppb        0.15687  14.64%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†             -20.0      4.9652 µg/L       0.71898      4.9652 ppb        0.71898  14.48%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†             3207.8      -25.19 µg/L         15.649      -25.19 ppb         15.649  62.12%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†             -430.1      -3.3234 µg/L       0.18813     -3.3234 ppb        0.18813   5.66%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†            2915.5      -1.0065 µg/L       0.31907     -1.0065 ppb        0.31907  31.70%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 10 **Autosampler Location: 104**
Sample ID: ICSAB **Date Collected: 6/7/2012 7:21:52**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSAB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	18464.3	18464.3	96.5	%			07:22:26
1	Al 396.153Radial†	1617111.3	1676675.1	508740	µg/L	508740	ppb	07:22:21
1	Ca 317.933Radial†	927069.7	961069.6	470640	µg/L	470640	ppb	07:22:21
1	Fe 238.204 Radial†	313789.5	325309.2	181290	µg/L	181290	ppb	07:22:21
1	K 766.490 Radial†	11298.9	11049.1	5445.3	µg/L	5445.3	ppb	07:22:26
1	Mg 279.077 IEC†	91493.6	94857.7	481550	µg/L	481550	ppb	07:22:26
1	Na 589.592 Radial†	2530.8	2808.8	5187.6	µg/L	5187.6	ppb	07:22:26
1	Sr 421.552†	101545.9	106575.8	510.99	µg/L	510.99	ppb	07:22:21
1	Sc 361.383	545066.8	545066.8	90.524	%			07:22:54
1	Y 371.029	460299.0	460299.0	90.033	%			07:22:54
1	Ag 328.068†	31358.6	35233.0	285.77	µg/L	285.77	ppb	07:22:54
1	As 188.979†	806.6	902.5	526.65	µg/L	526.65	ppb	07:23:14
1	B 249.677†	17848.8	19631.4	540.40	µg/L	540.40	ppb	07:22:54
1	Ba 233.527†	52058.5	57624.7	513.94	µg/L	513.94	ppb	07:22:54
1	Be 313.107†	375083.2	422306.1	255.36	µg/L	255.36	ppb	07:22:54
1	Cd 226.502†	29674.1	32996.8	473.79	µg/L	473.79	ppb	07:23:14
1	Co 228.616†	15859.9	17526.6	459.07	µg/L	459.07	ppb	07:23:14
1	Cr 267.716†	21012.8	22975.0	496.81	µg/L	496.81	ppb	07:23:14
1	Cu 324.752†	118874.4	125170.8	583.91	µg/L	583.91	ppb	07:22:54
1	Mn 257.610†	289423.8	319335.7	499.11	µg/L	499.11	ppb	07:22:54
1	Mo 202.031†	6449.1	7096.3	512.98	µg/L	512.98	ppb	07:23:14
1	Ni 231.604†	12689.3	14096.0	459.18	µg/L	459.18	ppb	07:23:14
1	P 214.914†	3323.6	3595.5	2734.6	µg/L	2734.6	ppb	07:23:14
1	Pb 220.353†	3491.5	3716.6	485.31	µg/L	485.31	ppb	07:23:14
1	S 181.975 Axial†	1568.4	1675.6	2738.7	µg/L	2738.7	ppb	07:23:14
1	Sb 206.836†	1527.7	1618.7	521.18	µg/L	521.18	ppb	07:23:14
1	Se 196.026†	2742.0	3037.2	2473.5	µg/L	2473.5	ppb	07:23:14
1	SiO2†	89549.2	95492.5	11667	µg/L	11667	ppb	07:22:54
1	Si 251.611†	104195.3	114666.9	5431.6	µg/L	5431.6	ppb	07:22:54
1	Sn 189.927†	1763.7	1925.6	495.77	µg/L	495.77	ppb	07:23:14
1	Ti 334.940†	180935.5	199962.8	531.39	µg/L	531.39	ppb	07:22:54
1	Tl 190.801†	1098.7	1253.6	476.27	µg/L	476.27	ppb	07:23:14
1	U 367.007†	4911.7	5063.9	496.9	µg/L	496.9	ppb	07:22:54
1	V 292.402†	46509.8	51579.2	531.95	µg/L	531.95	ppb	07:22:54
1	Zn 213.857†	50692.6	54780.7	506.58	µg/L	506.58	ppb	07:22:54
2	Sc RADIAL	18287.0	18287.0	95.5	%			07:22:36
2	Al 396.153Radial†	1616200.3	1691976.8	513390	µg/L	513390	ppb	07:22:31
2	Ca 317.933Radial†	927357.2	970689.5	475350	µg/L	475350	ppb	07:22:31
2	Fe 238.204 Radial†	313746.7	328418.6	183030	µg/L	183030	ppb	07:22:31
2	K 766.490 Radial†	11354.1	11220.4	5529.5	µg/L	5529.5	ppb	07:22:36
2	Mg 279.077 IEC†	91352.1	95629.3	485460	µg/L	485460	ppb	07:22:36
2	Na 589.592 Radial†	2539.0	2842.9	5250.6	µg/L	5250.6	ppb	07:22:36
2	Sr 421.552†	101531.8	107581.9	515.81	µg/L	515.81	ppb	07:22:31
2	Sc 361.383	544322.0	544322.0	90.400	%			07:23:19
2	Y 371.029	459846.1	459846.1	89.944	%			07:23:19
2	Ag 328.068†	31455.5	35387.6	287.25	µg/L	287.25	ppb	07:23:19
2	As 188.979†	821.7	920.4	537.05	µg/L	537.05	ppb	07:23:39
2	B 249.677†	17879.3	19692.2	541.91	µg/L	541.91	ppb	07:23:19
2	Ba 233.527†	51962.7	57597.4	513.64	µg/L	513.64	ppb	07:23:19
2	Be 313.107†	374092.0	421776.6	255.09	µg/L	255.09	ppb	07:23:19
2	Cd 226.502†	29649.6	33014.5	473.78	µg/L	473.78	ppb	07:23:39
2	Co 228.616†	15807.2	17492.2	458.16	µg/L	458.16	ppb	07:23:39
2	Cr 267.716†	21009.3	23002.9	497.48	µg/L	497.48	ppb	07:23:39
2	Cu 324.752†	118787.7	125254.6	584.54	µg/L	584.54	ppb	07:23:19
2	Mn 257.610†	288909.2	319203.9	498.95	µg/L	498.95	ppb	07:23:19
2	Mo 202.031†	6419.9	7073.7	511.45	µg/L	511.45	ppb	07:23:39
2	Ni 231.604†	12643.9	14064.9	458.20	µg/L	458.20	ppb	07:23:39
2	P 214.914†	3312.9	3588.7	2729.7	µg/L	2729.7	ppb	07:23:39
2	Pb 220.353†	3438.5	3663.2	474.84	µg/L	474.84	ppb	07:23:39

2	S 181.975 Axial†	1555.0	1663.2	2715.7 µg/L	2715.7 ppb	07:23:39
2	Sb 206.836†	1548.8	1644.3	529.58 µg/L	529.58 ppb	07:23:39
2	Se 196.026†	2753.9	3054.6	2488.0 µg/L	2488.0 ppb	07:23:39
2	SiO2†	89448.0	95515.9	11670 µg/L	11670 ppb	07:23:19
2	Si 251.611†	104024.2	114635.1	5430.0 µg/L	5430.0 ppb	07:23:19
2	Sn 189.927†	1769.7	1934.9	498.41 µg/L	498.41 ppb	07:23:39
2	Ti 334.940†	180910.7	200208.8	532.13 µg/L	532.13 ppb	07:23:19
2	Tl 190.801†	1092.7	1248.7	474.58 µg/L	474.58 ppb	07:23:39
2	U 367.007†	4890.1	5047.4	483.7 µg/L	483.7 ppb	07:23:19
2	V 292.402†	46399.4	51527.3	531.41 µg/L	531.41 ppb	07:23:19
2	Zn 213.857†	50577.8	54730.4	505.80 µg/L	505.80 ppb	07:23:19
3	Sc RADIAL	18197.1	18197.1	95.1 %		07:22:47
3	Al 396.153Radial†	1609111.2	1692878.2	513660 µg/L	513660 ppb	07:22:42
3	Ca 317.933Radial†	921177.0	968984.2	474520 µg/L	474520 ppb	07:22:42
3	Fe 238.204 Radial†	312017.4	328222.2	182920 µg/L	182920 ppb	07:22:42
3	K 766.490 Radial†	11256.8	11176.8	5508.2 µg/L	5508.2 ppb	07:22:47
3	Mg 279.077 IEC†	90946.7	95675.3	485700 µg/L	485700 ppb	07:22:47
3	Na 589.592 Radial†	2538.1	2855.0	5273.0 µg/L	5273.0 ppb	07:22:47
3	Sr 421.552†	100919.6	107462.9	515.24 µg/L	515.24 ppb	07:22:42
3	Sc 361.383	545932.9	545932.9	90.668 %		07:23:45
3	Y 371.029	461075.7	461075.7	90.185 %		07:23:45
3	Ag 328.068†	31527.6	35364.5	287.06 µg/L	287.06 ppb	07:23:45
3	As 188.979†	819.0	914.8	533.81 µg/L	533.81 ppb	07:24:05
3	B 249.677†	17916.2	19674.6	541.41 µg/L	541.41 ppb	07:23:45
3	Ba 233.527†	52104.5	57584.2	513.53 µg/L	513.53 ppb	07:23:45
3	Be 313.107†	375040.1	421601.1	254.98 µg/L	254.98 ppb	07:23:45
3	Cd 226.502†	29795.1	33078.2	474.77 µg/L	474.77 ppb	07:24:05
3	Co 228.616†	15894.0	17536.4	459.32 µg/L	459.32 ppb	07:24:05
3	Cr 267.716†	21057.4	22987.3	497.13 µg/L	497.13 ppb	07:24:05
3	Cu 324.752†	119082.9	125192.5	584.24 µg/L	584.24 ppb	07:23:45
3	Mn 257.610†	289764.9	319204.6	498.94 µg/L	498.94 ppb	07:23:45
3	Mo 202.031†	6458.5	7095.5	512.99 µg/L	512.99 ppb	07:24:05
3	Ni 231.604†	12704.4	14090.4	459.03 µg/L	459.03 ppb	07:24:05
3	P 214.914†	3328.0	3594.6	2734.3 µg/L	2734.3 ppb	07:24:05
3	Pb 220.353†	3485.2	3703.5	481.51 µg/L	481.51 ppb	07:24:05
3	S 181.975 Axial†	1581.9	1687.8	2758.3 µg/L	2758.3 ppb	07:24:05
3	Sb 206.836†	1540.9	1630.6	525.01 µg/L	525.01 ppb	07:24:05
3	Se 196.026†	2744.9	3035.6	2473.1 µg/L	2473.1 ppb	07:24:05
3	SiO2†	89664.1	95462.3	11663 µg/L	11663 ppb	07:23:45
3	Si 251.611†	104241.2	114534.9	5425.3 µg/L	5425.3 ppb	07:23:45
3	Sn 189.927†	1780.3	1940.8	499.72 µg/L	499.72 ppb	07:24:05
3	Ti 334.940†	181309.7	200058.4	531.70 µg/L	531.70 ppb	07:23:45
3	Tl 190.801†	1092.4	1244.7	473.12 µg/L	473.12 ppb	07:24:05
3	U 367.007†	4951.7	5099.4	498.7 µg/L	498.7 ppb	07:23:45
3	V 292.402†	46477.1	51461.6	530.77 µg/L	530.77 ppb	07:23:45
3	Zn 213.857†	50719.5	54721.5	505.73 µg/L	505.73 ppb	07:23:45

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	545107.2	90.530	%	0.1339				0.15%
Sc RADIAL	18316.1	95.7	%	0.71				0.74%
Y 371.029	460406.9	90.054	%	0.1216				0.14%
Ag 328.068†	35328.4	286.69	µg/L	0.804	286.69	ppb	0.804	0.28%
QC value within limits for Ag 328.068 Recovery = 114.68%								
Al 396.153Radial†	1687176.7	511930	µg/L	2763.1	511930	ppb	2763.1	0.54%
QC value within limits for Al 396.153Radial Recovery = 102.39%								
As 188.979†	912.5	532.50	µg/L	5.323	532.50	ppb	5.323	1.00%
QC value within limits for As 188.979 Recovery = 106.50%								
B 249.677†	19666.1	541.24	µg/L	0.770	541.24	ppb	0.770	0.14%
QC value within limits for B 249.677 Recovery = 108.25%								
Ba 233.527†	57602.1	513.70	µg/L	0.214	513.70	ppb	0.214	0.04%
QC value within limits for Ba 233.527 Recovery = 102.74%								
Be 313.107†	421894.6	255.14	µg/L	0.197	255.14	ppb	0.197	0.08%
QC value within limits for Be 313.107 Recovery = 102.06%								
Ca 317.933Radial†	966914.5	473500	µg/L	2513.7	473500	ppb	2513.7	0.53%
QC value within limits for Ca 317.933Radial Recovery = 94.70%								
Cd 226.502†	33029.8	474.11	µg/L	0.569	474.11	ppb	0.569	0.12%
QC value within limits for Cd 226.502 Recovery = 94.82%								
Co 228.616†	17518.4	458.85	µg/L	0.611	458.85	ppb	0.611	0.13%

QC value within limits for Co 228.616 Recovery = 91.77%

Cr 267.716†	22988.4	497.14 µg/L	0.333	497.14 ppb	0.333	0.07%

QC value within limits for Cr 267.716 Recovery = 99.43%

Cu 324.752†	125206.0	584.23 µg/L	0.317	584.23 ppb	0.317	0.05%

QC value within limits for Cu 324.752 Recovery = 116.85%

Fe 238.204 Radial†	327316.7	182410 µg/L	970.4	182410 ppb	970.4	0.53%

QC value within limits for Fe 238.204 Radial Recovery = 91.21%

K 766.490 Radial†	11148.8	5494.3 µg/L	43.80	5494.3 ppb	43.80	0.80%

QC value within limits for K 766.490 Radial Recovery = 109.89%

Mg 279.077 IEC†	95387.4	484240 µg/L	2331.7	484240 ppb	2331.7	0.48%

QC value within limits for Mg 279.077 IEC Recovery = 96.85%

Mn 257.610†	319248.1	499.00 µg/L	0.097	499.00 ppb	0.097	0.02%

QC value within limits for Mn 257.610 Recovery = 99.80%

Mo 202.031†	7088.5	512.47 µg/L	0.889	512.47 ppb	0.889	0.17%

QC value within limits for Mo 202.031 Recovery = 102.49%

Na 589.592 Radial†	2835.6	5237.1 µg/L	44.27	5237.1 ppb	44.27	0.85%

QC value within limits for Na 589.592 Radial Recovery = 104.74%

Ni 231.604†	14083.8	458.80 µg/L	0.525	458.80 ppb	0.525	0.11%

QC value within limits for Ni 231.604 Recovery = 91.76%

P 214.914†	3592.9	2732.9 µg/L	2.76	2732.9 ppb	2.76	0.10%

QC value within limits for P 214.914 Recovery = 109.31%

Pb 220.353†	3694.4	480.55 µg/L	5.298	480.55 ppb	5.298	1.10%

QC value within limits for Pb 220.353 Recovery = 96.11%

S 181.975 Axial†	1675.5	2737.6 µg/L	21.30	2737.6 ppb	21.30	0.78%

QC value within limits for S 181.975 Axial Recovery = 109.50%

Sb 206.836†	1631.2	525.25 µg/L	4.206	525.25 ppb	4.206	0.80%

QC value within limits for Sb 206.836 Recovery = 105.05%

Se 196.026†	3042.5	2478.2 µg/L	8.47	2478.2 ppb	8.47	0.34%

QC value within limits for Se 196.026 Recovery = 99.13%

SiO2†	95490.2	11667 µg/L	3.2	11667 ppb	3.2	0.03%

QC value within limits for SiO2 Recovery = 109.09%

Si 251.611†	114612.3	5429.0 µg/L	3.29	5429.0 ppb	3.29	0.06%

QC value within limits for Si 251.611 Recovery = 108.58%

Sn 189.927†	1933.8	497.96 µg/L	2.009	497.96 ppb	2.009	0.40%

QC value within limits for Sn 189.927 Recovery = 99.59%

Sr 421.552†	107206.8	514.01 µg/L	2.635	514.01 ppb	2.635	0.51%

QC value within limits for Sr 421.552 Recovery = 102.80%

Ti 334.940†	200076.7	531.74 µg/L	0.370	531.74 ppb	0.370	0.07%

QC value within limits for Ti 334.940 Recovery = 106.35%

Tl 190.801†	1249.0	474.66 µg/L	1.572	474.66 ppb	1.572	0.33%

QC value within limits for Tl 190.801 Recovery = 94.93%

U 367.007†	5070.2	493.1 µg/L	8.20	493.1 ppb	8.20	1.66%

QC value within limits for U 367.007 Recovery = 98.62%

V 292.402†	51522.7	531.38 µg/L	0.592	531.38 ppb	0.592	0.11%

QC value within limits for V 292.402 Recovery = 106.28%

Zn 213.857†	54744.2	506.04 µg/L	0.468	506.04 ppb	0.468	0.09%

QC value within limits for Zn 213.857 Recovery = 101.21%

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location: 105**
Sample ID: LR1 **Date Collected: 6/7/2012 7:24:12**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	18473.3	18473.3	96.5	%			07:24:46
1	Al 396.153Radial†	1592127.5	1649965.0	500660	µg/L	500660	ppb	07:24:41
1	Ca 317.933Radial†	930943.2	964613.9	472380	µg/L	472380	ppb	07:24:41
1	Fe 238.204 Radial†	759451.9	786988.6	438580	µg/L	438580	ppb	07:24:41
1	K 766.490 Radial†	580.9	-63.7	133.84	µg/L	133.84	ppb	07:24:46
1	Mg 279.077 IEC†	91381.0	94694.6	480830	µg/L	480830	ppb	07:24:46
1	Na 589.592 Radial†	252114.8	261450.6	482880	µg/L	482880	ppb	07:24:41
1	Sr 421.552†	-519.1	754.8	1.4887	µg/L	1.4887	ppb	07:24:46
1	Sc 361.383	546878.7	546878.7	90.825	%			07:25:14
1	Y 371.029	458380.5	458380.5	89.658	%			07:25:14
1	Ag 328.068†	-14924.9	-15841.0	5.6700	µg/L	5.6700	ppb	07:25:14
1	As 188.979†	-27.4	-18.8	2.1725	µg/L	2.1725	ppb	07:25:34
1	B 249.677†	1478.0	1541.5	-18.853	µg/L	-18.853	ppb	07:25:14
1	Ba 233.527†	912.1	1120.8	-2.9960	µg/L	-2.9960	ppb	07:25:34
1	Be 313.107†	-18720.2	-12653.4	0.0375	µg/L	0.0375	ppb	07:25:14
1	Cd 226.502†	4138.2	4772.6	3.1642	µg/L	3.1642	ppb	07:25:34
1	Co 228.616†	129.1	148.5	3.1403	µg/L	3.1403	ppb	07:25:34
1	Cr 267.716†	508.2	322.1	2.1239	µg/L	2.1239	ppb	07:25:34
1	Cu 324.752†	-7695.8	-14621.0	-13.815	µg/L	-13.815	ppb	07:25:14
1	Mn 257.610†	-14547.3	-16402.9	1.4699	µg/L	1.4699	ppb	07:25:14
1	Mo 202.031†	-160.1	-204.1	3.3816	µg/L	3.3816	ppb	07:25:34
1	Ni 231.604†	-319.6	-273.6	-1.5549	µg/L	-1.5549	ppb	07:25:34
1	P 214.914†	646.4	635.7	324.84	µg/L	324.84	ppb	07:25:34
1	Pb 220.353†	927.1	880.3	26.477	µg/L	26.477	ppb	07:25:34
1	S 181.975 Axial†	26771.1	29418.6	50664	µg/L	50664	ppb	07:25:34
1	Sb 206.836†	86.2	25.9	-3.5499	µg/L	-3.5499	ppb	07:25:34
1	Se 196.026†	-267.9	-286.7	21.011	µg/L	21.011	ppb	07:25:34
1	SiO2†	1513.9	-1764.2	43.437	µg/L	43.437	ppb	07:25:34
1	Si 251.611†	-554.4	-1046.3	-54.541	µg/L	-54.541	ppb	07:25:34
1	Sn 189.927†	-212.0	-256.2	14.365	µg/L	14.365	ppb	07:25:34
1	Ti 334.940†	-1122.6	-1149.7	-2.2435	µg/L	-2.2435	ppb	07:25:14
1	Tl 190.801†	-80.2	-48.4	18.847	µg/L	18.847	ppb	07:25:34
1	U 367.007†	55908.5	61194.5	14800	µg/L	14800	ppb	07:25:14
1	V 292.402†	-2124.2	-2138.2	-6.9222	µg/L	-6.9222	ppb	07:25:34
1	Zn 213.857†	7028.8	6520.3	-0.1136	µg/L	-0.1136	ppb	07:25:34
2	Sc RADIAL	18437.0	18437.0	96.3	%			07:24:56
2	Al 396.153Radial†	1603877.9	1665412.6	505350	µg/L	505350	ppb	07:24:51
2	Ca 317.933Radial†	935533.6	971278.7	475640	µg/L	475640	ppb	07:24:51
2	Fe 238.204 Radial†	763161.9	792389.6	441590	µg/L	441590	ppb	07:24:51
2	K 766.490 Radial†	465.9	-181.9	77.182	µg/L	77.182	ppb	07:24:56
2	Mg 279.077 IEC†	90826.1	94304.8	478850	µg/L	478850	ppb	07:24:56
2	Na 589.592 Radial†	251714.0	261548.5	483060	µg/L	483060	ppb	07:24:51
2	Sr 421.552†	-558.6	712.7	1.2714	µg/L	1.2714	ppb	07:24:56
2	Sc 361.383	551263.1	551263.1	91.553	%			07:25:40
2	Y 371.029	461837.9	461837.9	90.334	%			07:25:40
2	Ag 328.068†	-15072.2	-15871.2	6.2406	µg/L	6.2406	ppb	07:25:40
2	As 188.979†	-44.4	-37.1	-8.3404	µg/L	-8.3404	ppb	07:26:00
2	B 249.677†	1569.0	1628.0	-16.790	µg/L	-16.790	ppb	07:25:40
2	Ba 233.527†	875.8	1073.2	-3.5131	µg/L	-3.5131	ppb	07:26:00
2	Be 313.107†	-18944.6	-12734.6	-0.0080	µg/L	-0.0080	ppb	07:25:40
2	Cd 226.502†	4154.1	4753.7	2.4005	µg/L	2.4005	ppb	07:26:00
2	Co 228.616†	133.5	152.2	3.2321	µg/L	3.2321	ppb	07:26:00
2	Cr 267.716†	464.9	270.3	1.1742	µg/L	1.1742	ppb	07:26:00
2	Cu 324.752†	-7738.3	-14600.0	-13.163	µg/L	-13.163	ppb	07:25:40
2	Mn 257.610†	-14374.0	-16086.2	2.3068	µg/L	2.3068	ppb	07:25:40
2	Mo 202.031†	-171.1	-214.8	2.7476	µg/L	2.7476	ppb	07:26:00
2	Ni 231.604†	-315.2	-266.0	-1.2581	µg/L	-1.2581	ppb	07:26:00
2	P 214.914†	641.0	624.1	315.38	µg/L	315.38	ppb	07:26:00
2	Pb 220.353†	937.0	883.0	25.684	µg/L	25.684	ppb	07:26:00

2	S 181.975 Axial†	27081.6	29523.4	50843 µg/L	50843 ppb		07:26:00
2	Sb 206.836†	79.4	17.7	-6.5124 µg/L	-6.5124 ppb		07:26:00
2	Se 196.026†	-294.8	-313.7	1.1414 µg/L	1.1414 ppb		07:26:00
2	SiO2†	1555.4	-1732.1	46.040 µg/L	46.040 ppb		07:26:00
2	Si 251.611†	-593.6	-1084.2	-56.389 µg/L	-56.389 ppb		07:26:00
2	Sn 189.927†	-189.3	-229.6	21.100 µg/L	21.100 ppb		07:26:00
2	Ti 334.940†	-1102.4	-1117.8	-1.9970 µg/L	-1.9970 ppb		07:25:40
2	Tl 190.801†	-74.0	-41.0	21.718 µg/L	21.718 ppb		07:26:00
2	U 367.007†	55926.4	60724.5	14650 µg/L	14650 ppb		07:25:40
2	V 292.402†	-2076.7	-2067.7	-6.3189 µg/L	-6.3189 ppb		07:26:00
2	Zn 213.857†	7117.4	6555.5	-0.2106 µg/L	-0.2106 ppb		07:26:00
3	Sc RADIAL	18313.1	18313.1	95.7 %			07:25:07
3	Al 396.153Radial†	1608087.1	1681083.7	510100 µg/L	510100 ppb		07:25:02
3	Ca 317.933Radial†	937131.2	979523.1	479680 µg/L	479680 ppb		07:25:02
3	Fe 238.204 Radial†	764390.8	799037.2	445290 µg/L	445290 ppb		07:25:02
3	K 766.490 Radial†	494.9	-148.3	95.000 µg/L	95.000 ppb		07:25:07
3	Mg 279.077 IEC†	90375.8	94472.4	479700 µg/L	479700 ppb		07:25:07
3	Na 589.592 Radial†	251758.4	263363.8	486410 µg/L	486410 ppb		07:25:02
3	Sr 421.552†	-516.6	752.6	1.4452 µg/L	1.4452 ppb		07:25:07
3	Sc 361.383	552825.5	552825.5	91.812 %			07:26:05
3	Y 371.029	463422.4	463422.4	90.644 %			07:26:05
3	Ag 328.068†	-15344.8	-16121.6	5.5061 µg/L	5.5061 ppb		07:26:05
3	As 188.979†	-26.3	-17.2	3.3026 µg/L	3.3026 ppb		07:26:26
3	B 249.677†	1521.6	1571.5	-18.957 µg/L	-18.957 ppb		07:26:05
3	Ba 233.527†	872.5	1066.9	-3.6804 µg/L	-3.6804 ppb		07:26:26
3	Be 313.107†	-18995.5	-12731.5	0.0210 µg/L	0.0210 ppb		07:26:05
3	Cd 226.502†	4144.1	4730.0	1.4510 µg/L	1.4510 ppb		07:26:26
3	Co 228.616†	134.4	152.8	3.2416 µg/L	3.2416 ppb		07:26:26
3	Cr 267.716†	510.5	318.5	2.3134 µg/L	2.3134 ppb		07:26:26
3	Cu 324.752†	-7707.7	-14542.8	-12.318 µg/L	-12.318 ppb		07:26:05
3	Mn 257.610†	-14931.6	-16649.2	1.7561 µg/L	1.7561 ppb		07:26:05
3	Mo 202.031†	-164.3	-206.8	3.4696 µg/L	3.4696 ppb		07:26:26
3	Ni 231.604†	-350.2	-303.2	-2.4019 µg/L	-2.4019 ppb		07:26:26
3	P 214.914†	648.0	629.8	318.45 µg/L	318.45 ppb		07:26:26
3	Pb 220.353†	886.5	825.1	14.624 µg/L	14.624 ppb		07:26:26
3	S 181.975 Axial†	26940.3	29285.9	50432 µg/L	50432 ppb		07:26:26
3	Sb 206.836†	118.3	59.9	7.4427 µg/L	7.4427 ppb		07:26:26
3	Se 196.026†	-285.6	-302.8	11.468 µg/L	11.468 ppb		07:26:26
3	SiO2†	1573.4	-1717.4	47.822 µg/L	47.822 ppb		07:26:26
3	Si 251.611†	-544.3	-1028.8	-53.808 µg/L	-53.808 ppb		07:26:26
3	Sn 189.927†	-192.0	-231.9	21.259 µg/L	21.259 ppb		07:26:26
3	Ti 334.940†	-1125.5	-1139.5	-1.9339 µg/L	-1.9339 ppb		07:26:05
3	Tl 190.801†	-76.4	-43.3	21.072 µg/L	21.072 ppb		07:26:26
3	U 367.007†	55937.1	60563.5	14590 µg/L	14590 ppb		07:26:05
3	V 292.402†	-2110.1	-2097.6	-6.6422 µg/L	-6.6422 ppb		07:26:26
3	Zn 213.857†	7060.4	6471.4	-1.5757 µg/L	-1.5757 ppb		07:26:26

Mean Data: LR1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	550322.4	91.397	%	0.5120				0.56%
Sc RADIAL	18407.8	96.2	%	0.44				0.46%
Y 371.029	461213.6	90.212	%	0.5043				0.56%
Ag 328.068†	-15944.6	5.8056	µg/L	0.38558	5.8056	ppb	0.38558	6.64%
Al 396.153Radial†	1665487.1	505370	µg/L	4721.3	505370	ppb	4721.3	0.93%
QC value within limits for Al 396.153Radial Recovery = 101.07%								
As 188.979†	-24.3	-0.9551	µg/L	6.42077	-0.9551	ppb	6.42077	672.26%
B 249.677†	1580.3	-18.200	µg/L	1.2222	-18.200	ppb	1.2222	6.72%
Ba 233.527†	1087.0	-3.3965	µg/L	0.35679	-3.3965	ppb	0.35679	10.50%
Be 313.107†	-12706.5	0.0169	µg/L	0.02302	0.0169	ppb	0.02302	136.63%
Ca 317.933Radial†	971805.2	475900	µg/L	3657.4	475900	ppb	3657.4	0.77%
QC value within limits for Ca 317.933Radial Recovery = 95.18%								
Cd 226.502†	4752.1	2.3386	µg/L	0.85824	2.3386	ppb	0.85824	36.70%
Co 228.616†	151.2	3.2047	µg/L	0.05596	3.2047	ppb	0.05596	1.75%
Cr 267.716†	303.7	1.8705	µg/L	0.61036	1.8705	ppb	0.61036	32.63%
Cu 324.752†	-14587.9	-13.098	µg/L	0.7505	-13.098	ppb	0.7505	5.73%
Fe 238.204 Radial†	792805.1	441820	µg/L	3363.2	441820	ppb	3363.2	0.76%
QC value less than the lower limit for Fe 238.204 Radial Recovery = 88.36%								
K 766.490 Radial†	-131.3	102.01	µg/L	28.973	102.01	ppb	28.973	28.40%
Mg 279.077 IEC†	94490.6	479790	µg/L	993.1	479790	ppb	993.1	0.21%

QC value within limits for Mg 279.077 IEC Recovery = 95.96%							
Mn 257.610†	-16379.5	1.8443 µg/L	0.42532	1.8443 ppb	0.42532	23.06%	
Mo 202.031†	-208.6	3.1996 µg/L	0.39392	3.1996 ppb	0.39392	12.31%	
Na 589.592 Radial†	262121.0	484120 µg/L	1990.0	484120 ppb	1990.0	0.41%	
QC value within limits for Na 589.592 Radial Recovery = 96.82%							
Ni 231.604†	-280.9	-1.7383 µg/L	0.59352	-1.7383 ppb	0.59352	34.14%	
P 214.914†	629.9	319.56 µg/L	4.828	319.56 ppb	4.828	1.51%	
Pb 220.353†	862.8	22.262 µg/L	6.6263	22.262 ppb	6.6263	29.77%	
S 181.975 Axial†	29409.3	50646 µg/L	206.2	50646 ppb	206.2	0.41%	
QC value within limits for S 181.975 Axial Recovery = 101.29%							
Sb 206.836†	34.5	-0.8732 µg/L	7.35252	-0.8732 ppb	7.35252	842.02%	
Se 196.026†	-301.1	11.207 µg/L	9.9372	11.207 ppb	9.9372	88.67%	
SiO2†	-1737.9	45.766 µg/L	2.2050	45.766 ppb	2.2050	4.82%	
Si 251.611†	-1053.1	-54.913 µg/L	1.3304	-54.913 ppb	1.3304	2.42%	
Sn 189.927†	-239.2	18.908 µg/L	3.9353	18.908 ppb	3.9353	20.81%	
Sr 421.552†	740.0	1.4018 µg/L	0.11497	1.4018 ppb	0.11497	8.20%	
Ti 334.940†	-1135.7	-2.0581 µg/L	0.16362	-2.0581 ppb	0.16362	7.95%	
Tl 190.801†	-44.2	20.546 µg/L	1.5060	20.546 ppb	1.5060	7.33%	
U 367.007†	60827.5	14680 µg/L	106.6	14680 ppb	106.6	0.73%	
QC value within limits for U 367.007 Recovery = 97.87%							
V 292.402†	-2101.2	-6.6278 µg/L	0.30192	-6.6278 ppb	0.30192	4.56%	
Zn 213.857†	6515.7	-0.6333 µg/L	0.81757	-0.6333 ppb	0.81757	129.10%	

QC Failed. Continue with analysis.

Sequence No.: 12 **Autosampler Location: 108**
Sample ID: LR2 **Date Collected: 6/7/2012 7:26:33**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR2

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	18831.6	18831.6	98.4	%			07:27:08
1	Al 396.153Radial†	1337.0	1408.1	46.258	µg/L	46.258	ppb	07:27:08
1	Ca 317.933Radial†	237.0	121.6	59.550	µg/L	59.550	ppb	07:27:28
1	Fe 238.204 Radial†	-49.0	-78.5	58.421	µg/L	58.421	ppb	07:27:28
1	K 766.490 Radial†	603324.5	612662.8	299390	µg/L	299390	ppb	07:27:03
1	Mg 279.077 IEC†	-16.1	-19.5	-28.726	µg/L	-28.726	ppb	07:27:28
1	Na 589.592 Radial†	-73.4	110.2	203.59	µg/L	203.59	ppb	07:27:08
1	Sr 421.552†	2062270.3	2097758.4	10100	µg/L	10100	ppb	07:27:03
1	Sc 361.383	614856.7	614856.7	102.11	%			07:28:46
1	Y 371.029	518177.7	518177.7	101.35	%			07:28:46
1	Ag 328.068†	-8949.5	-8172.5	9.4922	µg/L	9.4922	ppb	07:28:51
1	As 188.979†	18001.1	17639.8	10259	µg/L	10259	ppb	07:28:51
1	B 249.677†	179342.9	175543.9	5084.5	µg/L	5084.5	ppb	07:28:46
1	Ba 233.527†	1700696.3	1665600.3	15005	µg/L	15005	ppb	07:28:46
1	Be 313.107†	5075352.2	4978225.9	2960.6	µg/L	2960.6	ppb	07:28:39
1	Cd 226.502†	677946.0	664125.6	10114	µg/L	10114	ppb	07:28:46
1	Co 228.616†	397067.9	388853.0	10192	µg/L	10192	ppb	07:28:46
1	Cr 267.716†	1222979.5	1197420.5	25538	µg/L	25538	ppb	07:28:46
1	Cu 324.752†	4839255.6	4732912.0	21082	µg/L	21082	ppb	07:28:39
1	Mn 257.610†	6403130.6	6270168.9	9748.8	µg/L	9748.8	ppb	07:28:39
1	Mo 202.031†	143802.7	140797.4	10031	µg/L	10031	ppb	07:28:51
1	Ni 231.604†	320759.6	314196.7	10168	µg/L	10168	ppb	07:28:46
1	P 214.914†	21612.8	21089.3	15399	µg/L	15399	ppb	07:28:51
1	Pb 220.353†	147688.2	144489.9	24752	µg/L	24752	ppb	07:28:51
1	S 181.975 Axial†	55.4	-2.7	37.166	µg/L	37.166	ppb	07:29:11
1	Sb 206.836†	32460.7	31719.6	10227	µg/L	10227	ppb	07:28:51
1	Se 196.026†	13231.0	12965.3	10175	µg/L	10175	ppb	07:28:51
1	SiO2†	847804.9	826820.2	101750	µg/L	101750	ppb	07:28:46
1	Si 251.611†	1012815.8	991409.8	46886	µg/L	46886	ppb	07:28:46
1	Sn 189.927†	47064.7	46067.5	10608	µg/L	10608	ppb	07:28:51
1	Ti 334.940†	3901765.4	3821066.4	10000	µg/L	10000	ppb	07:28:46
1	Tl 190.801†	27979.3	27439.9	10145	µg/L	10145	ppb	07:28:51
1	U 367.007†	284.6	-83.3	1.323	µg/L	1.323	ppb	07:28:51
1	V 292.402†	1051737.3	1030161.9	10637	µg/L	10637	ppb	07:28:46
1	Zn 213.857†	1525501.0	1492697.2	14618	µg/L	14618	ppb	07:28:46
2	Sc RADIAL	18936.0	18936.0	98.9	%			07:27:39
2	Al 396.153Radial†	1200.8	1262.9	-0.3263	µg/L	-0.3263	ppb	07:27:39
2	Ca 317.933Radial†	199.0	81.9	40.129	µg/L	40.129	ppb	07:27:59
2	Fe 238.204 Radial†	-78.6	-108.3	42.521	µg/L	42.521	ppb	07:27:59
2	K 766.490 Radial†	609362.2	615386.0	300720	µg/L	300720	ppb	07:27:34
2	Mg 279.077 IEC†	-12.5	-15.8	-9.1868	µg/L	-9.1868	ppb	07:27:59
2	Na 589.592 Radial†	-86.1	97.8	180.65	µg/L	180.65	ppb	07:27:39
2	Sr 421.552†	2085012.0	2109193.4	10155	µg/L	10155	ppb	07:27:34
2	Sc 361.383	628250.6	628250.6	104.34	%			07:29:25
2	Y 371.029	528751.0	528751.0	103.42	%			07:29:25
2	Ag 328.068†	-9202.3	-8227.9	9.2813	µg/L	9.2813	ppb	07:29:30
2	As 188.979†	18634.3	17870.9	10393	µg/L	10393	ppb	07:29:30
2	B 249.677†	183800.4	176071.6	5099.7	µg/L	5099.7	ppb	07:29:25
2	Ba 233.527†	1747000.7	1674471.9	15085	µg/L	15085	ppb	07:29:25
2	Be 313.107†	5236782.0	5026979.3	2989.6	µg/L	2989.6	ppb	07:29:18
2	Cd 226.502†	699644.0	670767.1	10216	µg/L	10216	ppb	07:29:25
2	Co 228.616†	408332.2	391358.9	10258	µg/L	10258	ppb	07:29:25
2	Cr 267.716†	1255167.2	1202736.2	25652	µg/L	25652	ppb	07:29:25
2	Cu 324.752†	4950525.9	4738521.0	21107	µg/L	21107	ppb	07:29:18
2	Mn 257.610†	6593835.8	6319258.9	9825.1	µg/L	9825.1	ppb	07:29:18
2	Mo 202.031†	147906.9	141728.6	10097	µg/L	10097	ppb	07:29:30
2	Ni 231.604†	330118.5	316469.5	10241	µg/L	10241	ppb	07:29:25
2	P 214.914†	22265.4	21263.5	15530	µg/L	15530	ppb	07:29:30
2	Pb 220.353†	152516.0	146033.5	25016	µg/L	25016	ppb	07:29:30

2	S 181.975 Axial†	50.3	-8.7	27.013 µg/L	27.013 ppb	07:29:50
2	Sb 206.836†	33411.7	31953.3	10304 µg/L	10304 ppb	07:29:30
2	Se 196.026†	13706.9	13145.2	10316 µg/L	10316 ppb	07:29:30
2	SiO2†	875898.5	836045.0	102880 µg/L	102880 ppb	07:29:25
2	Si 251.611†	1046358.3	1002411.8	47406 µg/L	47406 ppb	07:29:25
2	Sn 189.927†	48579.7	46536.8	10716 µg/L	10716 ppb	07:29:30
2	Ti 334.940†	3971021.3	3805981.0	9960.9 µg/L	9960.9 ppb	07:29:25
2	Tl 190.801†	28904.8	27742.7	10256 µg/L	10256 ppb	07:29:30
2	U 367.007†	346.1	-30.4	16.18 µg/L	16.18 ppb	07:29:30
2	V 292.402†	1077404.2	1032803.2	10665 µg/L	10665 ppb	07:29:25
2	Zn 213.857†	1564964.7	1498670.3	14676 µg/L	14676 ppb	07:29:25
3	Sc RADIAL	18544.5	18544.5	96.9 %		07:28:10
3	Al 396.153Radial†	1176.7	1263.6	5.6801 µg/L	5.6801 ppb	07:28:10
3	Ca 317.933Radial†	195.1	82.2	40.237 µg/L	40.237 ppb	07:28:30
3	Fe 238.204 Radial†	-95.0	-126.8	32.023 µg/L	32.023 ppb	07:28:30
3	K 766.490 Radial†	605834.5	624749.4	305300 µg/L	305300 ppb	07:28:05
3	Mg 279.077 IEC†	-17.3	-21.0	-36.898 µg/L	-36.898 ppb	07:28:30
3	Na 589.592 Radial†	-87.0	95.1	175.61 µg/L	175.61 ppb	07:28:10
3	Sr 421.552†	2077459.1	2145895.4	10332 µg/L	10332 ppb	07:28:05
3	Sc 361.383	633895.8	633895.8	105.28 %		07:30:05
3	Y 371.029	533446.7	533446.7	104.34 %		07:30:05
3	Ag 328.068†	-9117.3	-8068.6	10.220 µg/L	10.220 ppb	07:30:10
3	As 188.979†	18388.6	17478.4	10167 µg/L	10167 ppb	07:30:10
3	B 249.677†	184915.5	175562.1	5084.9 µg/L	5084.9 ppb	07:30:05
3	Ba 233.527†	1760382.7	1672272.3	15065 µg/L	15065 ppb	07:30:05
3	Be 313.107†	5236280.1	4981805.7	2962.8 µg/L	2962.8 ppb	07:29:58
3	Cd 226.502†	703884.1	668823.1	10186 µg/L	10186 ppb	07:30:05
3	Co 228.616†	411459.9	390844.7	10245 µg/L	10245 ppb	07:30:05
3	Cr 267.716†	1262970.3	1199435.1	25581 µg/L	25581 ppb	07:30:05
3	Cu 324.752†	4966453.4	4711396.6	20987 µg/L	20987 ppb	07:29:58
3	Mn 257.610†	6599735.1	6268583.0	9746.3 µg/L	9746.3 ppb	07:29:58
3	Mo 202.031†	146986.6	139592.1	9945.2 µg/L	9945.2 ppb	07:30:10
3	Ni 231.604†	331969.1	315409.7	10207 µg/L	10207 ppb	07:30:05
3	P 214.914†	22110.1	20925.9	15278 µg/L	15278 ppb	07:30:10
3	Pb 220.353†	151307.8	143584.1	24597 µg/L	24597 ppb	07:30:10
3	S 181.975 Axial†	58.8	-1.1	39.113 µg/L	39.113 ppb	07:30:30
3	Sb 206.836†	33106.8	31378.6	10110 µg/L	10110 ppb	07:30:10
3	Se 196.026†	13545.2	12874.5	10104 µg/L	10104 ppb	07:30:10
3	SiO2†	888723.0	840750.9	103450 µg/L	103450 ppb	07:30:05
3	Si 251.611†	1061596.8	1007955.7	47672 µg/L	47672 ppb	07:30:05
3	Sn 189.927†	48205.6	45766.8	10539 µg/L	10539 ppb	07:30:10
3	Ti 334.940†	3998588.6	3798273.4	9940.7 µg/L	9940.7 ppb	07:30:05
3	Tl 190.801†	28674.8	27277.6	10085 µg/L	10085 ppb	07:30:10
3	U 367.007†	350.7	-28.9	16.54 µg/L	16.54 ppb	07:30:10
3	V 292.402†	1084954.3	1030779.0	10642 µg/L	10642 ppb	07:30:05
3	Zn 213.857†	1573986.5	1493882.7	14629 µg/L	14629 ppb	07:30:05

Mean Data: LR2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	625667.7	103.91	%	1.624				1.56%
Sc RADIAL	18770.7	98.1	%	1.06				1.08%
Y 371.029	526791.8	103.04	%	1.530				1.48%
Ag 328.068†	-8156.4	9.6647	µg/L	0.49278	9.6647	ppb	0.49278	5.10%
Al 396.153Radial†	1311.5	17.204	µg/L	25.3401	17.204	ppb	25.3401	147.29%
As 188.979†	17663.0	10273	µg/L	113.8	10273	ppb	113.8	1.11%
QC value within limits for As 188.979 Recovery = 102.73%								
B 249.677†	175725.9	5089.7	µg/L	8.67	5089.7	ppb	8.67	0.17%
QC value within limits for B 249.677 Recovery = 101.79%								
Ba 233.527†	1670781.5	15051	µg/L	41.6	15051	ppb	41.6	0.28%
QC value within limits for Ba 233.527 Recovery = 100.34%								
Be 313.107†	4995670.3	2971.0	µg/L	16.16	2971.0	ppb	16.16	0.54%
QC value within limits for Be 313.107 Recovery = 99.03%								
Ca 317.933Radial†	95.2	46.639	µg/L	11.1819	46.639	ppb	11.1819	23.98%
Cd 226.502†	667905.2	10172	µg/L	52.0	10172	ppb	52.0	0.51%
QC value within limits for Cd 226.502 Recovery = 101.72%								
Co 228.616†	390352.2	10232	µg/L	34.8	10232	ppb	34.8	0.34%
QC value within limits for Co 228.616 Recovery = 102.32%								
Cr 267.716†	1199864.0	25591	µg/L	57.2	25591	ppb	57.2	0.22%
QC value within limits for Cr 267.716 Recovery = 102.36%								

Cu 324.752†	4727609.8	21059 µg/L	63.7	21059 ppb	63.7	0.30%
QC value within limits for Cu 324.752 Recovery = 105.29%						
Fe 238.204 Radial†	-104.5	44.322 µg/L	13.2913	44.322 ppb	13.2913	29.99%
K 766.490 Radial†	617599.4	301800 µg/L	3099.9	301800 ppb	3099.9	1.03%
QC value within limits for K 766.490 Radial Recovery = 100.60%						
Mg 279.077 IEC†	-18.8	-24.937 µg/L	14.2388	-24.937 ppb	14.2388	57.10%
Mn 257.610†	6286003.6	9773.4 µg/L	44.79	9773.4 ppb	44.79	0.46%
QC value within limits for Mn 257.610 Recovery = 97.73%						
Mo 202.031†	140706.0	10025 µg/L	76.3	10025 ppb	76.3	0.76%
QC value within limits for Mo 202.031 Recovery = 100.25%						
Na 589.592 Radial†	101.0	186.62 µg/L	14.913	186.62 ppb	14.913	7.99%
Ni 231.604†	315358.6	10205 µg/L	36.8	10205 ppb	36.8	0.36%
QC value within limits for Ni 231.604 Recovery = 102.05%						
P 214.914†	21092.9	15402 µg/L	125.9	15402 ppb	125.9	0.82%
QC value within limits for P 214.914 Recovery = 102.68%						
Pb 220.353†	144702.5	24788 µg/L	212.1	24788 ppb	212.1	0.86%
QC value within limits for Pb 220.353 Recovery = 99.15%						
S 181.975 Axial†	-4.2	34.430 µg/L	6.4970	34.430 ppb	6.4970	18.87%
Sb 206.836†	31683.8	10213 µg/L	97.7	10213 ppb	97.7	0.96%
QC value within limits for Sb 206.836 Recovery = 102.13%						
Se 196.026†	12995.0	10198 µg/L	108.0	10198 ppb	108.0	1.06%
QC value within limits for Se 196.026 Recovery = 101.98%						
SiO2†	834538.7	102690 µg/L	862.0	102690 ppb	862.0	0.84%
QC value within limits for SiO2 Recovery = 95.98%						
Si 251.611†	1000592.4	47321 µg/L	400.1	47321 ppb	400.1	0.85%
QC value within limits for Si 251.611 Recovery = 94.64%						
Sn 189.927†	46123.7	10621 µg/L	89.1	10621 ppb	89.1	0.84%
QC value within limits for Sn 189.927 Recovery = 106.21%						
Sr 421.552†	2117615.7	10196 µg/L	121.1	10196 ppb	121.1	1.19%
QC value within limits for Sr 421.552 Recovery = 101.96%						
Ti 334.940†	3808440.3	9967.3 µg/L	30.39	9967.3 ppb	30.39	0.30%
QC value within limits for Ti 334.940 Recovery = 99.67%						
Tl 190.801†	27486.7	10162 µg/L	86.9	10162 ppb	86.9	0.86%
QC value within limits for Tl 190.801 Recovery = 101.62%						
U 367.007†	-47.5	11.35 µg/L	8.684	11.35 ppb	8.684	76.52%
V 292.402†	1031248.0	10648 µg/L	14.8	10648 ppb	14.8	0.14%
QC value within limits for V 292.402 Recovery = 106.48%						
Zn 213.857†	1495083.4	14641 µg/L	30.9	14641 ppb	30.9	0.21%
QC value within limits for Zn 213.857 Recovery = 97.61%						

All analyte(s) passed QC.

Sequence No.: 13 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 7:30:38**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19654.2	19654.2	103	%			07:31:28
1	Al 396.153Radial†	16978.1	16586.1	5013.5	µg/L	5013.5	ppb	07:31:08
1	Ca 317.933Radial†	10637.4	10241.8	5015.5	µg/L	5015.5	ppb	07:31:28
1	Fe 238.204 Radial†	9508.6	9233.0	5150.5	µg/L	5150.5	ppb	07:31:28
1	K 766.490 Radial†	11749.3	10778.5	5265.9	µg/L	5265.9	ppb	07:31:08
1	Mg 279.077 IEC†	1050.2	1019.8	5184.0	µg/L	5184.0	ppb	07:31:28
1	Na 589.592 Radial†	5464.4	5507.3	10172	µg/L	10172	ppb	07:31:28
1	Sr 421.552†	105012.2	103577.9	498.67	µg/L	498.67	ppb	07:31:08
1	Sc 361.383	628258.4	628258.4	104.34	%			07:32:25
1	Y 371.029	528962.9	528962.9	103.46	%			07:32:25
1	Ag 328.068†	77562.6	74928.1	506.82	µg/L	506.82	ppb	07:32:30
1	As 188.979†	910.4	884.0	510.83	µg/L	510.83	ppb	07:32:50
1	B 249.677†	18335.8	17487.3	503.76	µg/L	503.76	ppb	07:32:30
1	Ba 233.527†	58287.4	55979.6	504.35	µg/L	504.35	ppb	07:32:30
1	Be 313.107†	873066.3	844709.3	502.08	µg/L	502.08	ppb	07:32:25
1	Cd 226.502†	34637.3	33412.9	508.05	µg/L	508.05	ppb	07:32:30
1	Co 228.616†	20256.1	19419.9	509.04	µg/L	509.04	ppb	07:32:30
1	Cr 267.716†	24958.5	23682.9	504.98	µg/L	504.98	ppb	07:32:30
1	Cu 324.752†	124273.3	112956.4	504.08	µg/L	504.08	ppb	07:32:30
1	Mn 257.610†	334651.2	320345.4	498.40	µg/L	498.40	ppb	07:32:30
1	Mo 202.031†	7467.6	7129.1	508.12	µg/L	508.12	ppb	07:32:50
1	Ni 231.604†	16524.9	15915.8	515.14	µg/L	515.14	ppb	07:32:30
1	P 214.914†	3523.4	3300.9	2483.0	µg/L	2483.0	ppb	07:32:50
1	Pb 220.353†	3241.2	2965.9	507.87	µg/L	507.87	ppb	07:32:50
1	S 181.975 Axial†	656.5	572.2	988.89	µg/L	988.89	ppb	07:32:50
1	Sb 206.836†	1697.7	1558.1	520.06	µg/L	520.06	ppb	07:32:50
1	Se 196.026†	687.9	667.5	527.13	µg/L	527.13	ppb	07:32:50
1	SiO2†	49741.5	44241.5	5409.2	µg/L	5409.2	ppb	07:32:30
1	Si 251.611†	55845.6	53086.8	2511.1	µg/L	2511.1	ppb	07:32:30
1	Sn 189.927†	2324.6	2205.2	508.60	µg/L	508.60	ppb	07:32:50
1	Ti 334.940†	198738.0	190557.9	498.86	µg/L	498.86	ppb	07:32:30
1	Tl 190.801†	1373.0	1355.8	501.83	µg/L	501.83	ppb	07:32:50
1	U 367.007†	2216.5	1762.3	464.2	µg/L	464.2	ppb	07:32:30
1	V 292.402†	51488.7	49547.7	510.27	µg/L	510.27	ppb	07:32:30
1	Zn 213.857†	55092.3	51582.2	503.49	µg/L	503.49	ppb	07:32:30
2	Sc RADIAL	19606.3	19606.3	102	%			07:31:53
2	Al 396.153Radial†	17043.2	16690.1	5045.0	µg/L	5045.0	ppb	07:31:33
2	Ca 317.933Radial†	10680.7	10309.5	5048.6	µg/L	5048.6	ppb	07:31:53
2	Fe 238.204 Radial†	9518.0	9264.7	5168.2	µg/L	5168.2	ppb	07:31:53
2	K 766.490 Radial†	11598.5	10659.3	5207.6	µg/L	5207.6	ppb	07:31:33
2	Mg 279.077 IEC†	1061.9	1033.7	5254.4	µg/L	5254.4	ppb	07:31:53
2	Na 589.592 Radial†	5458.5	5514.7	10185	µg/L	10185	ppb	07:31:53
2	Sr 421.552†	105302.2	104111.0	501.24	µg/L	501.24	ppb	07:31:33
2	Sc 361.383	624661.4	624661.4	103.74	%			07:32:56
2	Y 371.029	525762.1	525762.1	102.84	%			07:32:56
2	Ag 328.068†	77664.5	75454.4	510.35	µg/L	510.35	ppb	07:33:01
2	As 188.979†	899.3	878.3	507.52	µg/L	507.52	ppb	07:33:21
2	B 249.677†	18279.1	17533.9	505.11	µg/L	505.11	ppb	07:33:01
2	Ba 233.527†	58294.0	56307.6	507.30	µg/L	507.30	ppb	07:33:01
2	Be 313.107†	866318.7	843023.3	501.08	µg/L	501.08	ppb	07:32:56
2	Cd 226.502†	34520.1	33491.1	509.24	µg/L	509.24	ppb	07:33:01
2	Co 228.616†	20164.7	19443.6	509.66	µg/L	509.66	ppb	07:33:01
2	Cr 267.716†	24893.9	23758.4	506.59	µg/L	506.59	ppb	07:33:01
2	Cu 324.752†	124389.9	113754.7	507.64	µg/L	507.64	ppb	07:33:01
2	Mn 257.610†	334099.2	321660.3	500.44	µg/L	500.44	ppb	07:33:01
2	Mo 202.031†	7448.7	7152.1	509.76	µg/L	509.76	ppb	07:33:21
2	Ni 231.604†	16470.2	15954.3	516.39	µg/L	516.39	ppb	07:33:01
2	P 214.914†	3509.0	3306.4	2487.1	µg/L	2487.1	ppb	07:33:21
2	Pb 220.353†	3241.0	2983.6	510.89	µg/L	510.89	ppb	07:33:21

2	S 181.975 Axial†	658.5	577.8	998.54 µg/L	998.54 ppb	07:33:21
2	Sb 206.836†	1678.8	1549.2	517.06 µg/L	517.06 ppb	07:33:21
2	Se 196.026†	669.3	653.3	516.06 µg/L	516.06 ppb	07:33:21
2	SiO2†	49785.9	44558.8	5447.8 µg/L	5447.8 ppb	07:33:01
2	Si 251.611†	55842.8	53392.3	2525.6 µg/L	2525.6 ppb	07:33:01
2	Sn 189.927†	2309.4	2203.3	508.18 µg/L	508.18 ppb	07:33:21
2	Ti 334.940†	198785.6	191700.5	501.86 µg/L	501.86 ppb	07:33:01
2	Tl 190.801†	1385.3	1375.3	509.02 µg/L	509.02 ppb	07:33:21
2	U 367.007†	2199.8	1758.4	463.1 µg/L	463.1 ppb	07:33:01
2	V 292.402†	51267.6	49618.7	511.01 µg/L	511.01 ppb	07:33:01
2	Zn 213.857†	54780.9	51586.0	503.52 µg/L	503.52 ppb	07:33:01
3	Sc RADIAL	19507.7	19507.7	102 %		07:32:18
3	Al 396.153Radial†	17017.9	16749.4	5062.9 µg/L	5062.9 ppb	07:31:58
3	Ca 317.933Radial†	10630.4	10312.8	5050.2 µg/L	5050.2 ppb	07:32:18
3	Fe 238.204 Radial†	9476.3	9270.8	5171.6 µg/L	5171.6 ppb	07:32:18
3	K 766.490 Radial†	11439.7	10560.7	5159.4 µg/L	5159.4 ppb	07:31:58
3	Mg 279.077 IEC†	1054.4	1031.5	5243.7 µg/L	5243.7 ppb	07:32:18
3	Na 589.592 Radial†	5343.2	5428.4	10026 µg/L	10026 ppb	07:32:18
3	Sr 421.552†	104632.3	103973.2	500.57 µg/L	500.57 ppb	07:31:58
3	Sc 361.383	625402.5	625402.5	103.87 %		07:33:26
3	Y 371.029	526563.1	526563.1	102.99 %		07:33:26
3	Ag 328.068†	77277.4	74992.9	507.25 µg/L	507.25 ppb	07:33:32
3	As 188.979†	910.1	887.7	512.94 µg/L	512.94 ppb	07:33:52
3	B 249.677†	18150.1	17388.8	500.91 µg/L	500.91 ppb	07:33:32
3	Ba 233.527†	58204.8	56155.1	505.93 µg/L	505.93 ppb	07:33:32
3	Be 313.107†	869128.8	844739.3	502.10 µg/L	502.10 ppb	07:33:26
3	Cd 226.502†	34411.2	33346.8	507.04 µg/L	507.04 ppb	07:33:32
3	Co 228.616†	20234.4	19487.7	510.83 µg/L	510.83 ppb	07:33:32
3	Cr 267.716†	24882.3	23718.8	505.74 µg/L	505.74 ppb	07:33:32
3	Cu 324.752†	123880.3	113121.9	504.82 µg/L	504.82 ppb	07:33:32
3	Mn 257.610†	333477.9	320680.4	498.92 µg/L	498.92 ppb	07:33:32
3	Mo 202.031†	7503.9	7196.7	512.94 µg/L	512.94 ppb	07:33:52
3	Ni 231.604†	16382.1	15850.7	513.03 µg/L	513.03 ppb	07:33:32
3	P 214.914†	3525.4	3318.2	2496.1 µg/L	2496.1 ppb	07:33:52
3	Pb 220.353†	3269.5	3007.3	514.95 µg/L	514.95 ppb	07:33:52
3	S 181.975 Axial†	668.9	587.0	1014.5 µg/L	1014.5 ppb	07:33:52
3	Sb 206.836†	1709.0	1576.4	526.27 µg/L	526.27 ppb	07:33:52
3	Se 196.026†	671.7	655.0	517.35 µg/L	517.35 ppb	07:33:52
3	SiO2†	49707.9	44426.8	5431.9 µg/L	5431.9 ppb	07:33:32
3	Si 251.611†	55978.4	53459.1	2528.7 µg/L	2528.7 ppb	07:33:32
3	Sn 189.927†	2325.7	2216.4	511.17 µg/L	511.17 ppb	07:33:52
3	Ti 334.940†	198414.2	191115.9	500.32 µg/L	500.32 ppb	07:33:32
3	Tl 190.801†	1383.7	1372.1	507.86 µg/L	507.86 ppb	07:33:52
3	U 367.007†	2235.8	1790.5	471.9 µg/L	471.9 ppb	07:33:32
3	V 292.402†	51215.9	49510.3	509.95 µg/L	509.95 ppb	07:33:32
3	Zn 213.857†	54724.6	51469.3	502.39 µg/L	502.39 ppb	07:33:32

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	626107.5	103.98	%	0.315				0.30%
Sc RADIAL	19589.4	102	%	0.4				0.38%
Y 371.029	527096.0	103.10	%	0.326				0.32%
Ag 328.068†	75125.1	508.14	µg/L	1.929	508.14	ppb	1.929	0.38%
QC value within limits for Ag 328.068 Recovery = 101.63%								
Al 396.153Radial†	16675.2	5040.5	µg/L	24.99	5040.5	ppb	24.99	0.50%
QC value within limits for Al 396.153Radial Recovery = 100.81%								
As 188.979†	883.3	510.43	µg/L	2.732	510.43	ppb	2.732	0.54%
QC value within limits for As 188.979 Recovery = 102.09%								
B 249.677†	17470.0	503.26	µg/L	2.144	503.26	ppb	2.144	0.43%
QC value within limits for B 249.677 Recovery = 100.65%								
Ba 233.527†	56147.4	505.86	µg/L	1.478	505.86	ppb	1.478	0.29%
QC value within limits for Ba 233.527 Recovery = 101.17%								
Be 313.107†	844157.3	501.75	µg/L	0.584	501.75	ppb	0.584	0.12%
QC value within limits for Be 313.107 Recovery = 100.35%								
Ca 317.933Radial†	10288.1	5038.1	µg/L	19.61	5038.1	ppb	19.61	0.39%
QC value within limits for Ca 317.933Radial Recovery = 100.76%								
Cd 226.502†	33416.9	508.11	µg/L	1.100	508.11	ppb	1.100	0.22%
QC value within limits for Cd 226.502 Recovery = 101.62%								
Co 228.616†	19450.4	509.85	µg/L	0.905	509.85	ppb	0.905	0.18%

QC value within limits for Co 228.616 Recovery = 101.97%
Cr 267.716† 23720.0 505.77 µg/L 0.806 505.77 ppb 0.806 0.16%
QC value within limits for Cr 267.716 Recovery = 101.15%
Cu 324.752† 113277.7 505.51 µg/L 1.878 505.51 ppb 1.878 0.37%
QC value within limits for Cu 324.752 Recovery = 101.10%
Fe 238.204 Radial† 9256.2 5163.4 µg/L 11.32 5163.4 ppb 11.32 0.22%
QC value within limits for Fe 238.204 Radial Recovery = 103.27%
K 766.490 Radial† 10666.2 5210.9 µg/L 53.35 5210.9 ppb 53.35 1.02%
QC value within limits for K 766.490 Radial Recovery = 104.22%
Mg 279.077 IEC† 1028.3 5227.4 µg/L 37.92 5227.4 ppb 37.92 0.73%
QC value within limits for Mg 279.077 IEC Recovery = 104.55%
Mn 257.610† 320895.4 499.26 µg/L 1.062 499.26 ppb 1.062 0.21%
QC value within limits for Mn 257.610 Recovery = 99.85%
Mo 202.031† 7159.3 510.27 µg/L 2.449 510.27 ppb 2.449 0.48%
QC value within limits for Mo 202.031 Recovery = 102.05%
Na 589.592 Radial† 5483.5 10128 µg/L 88.3 10128 ppb 88.3 0.87%
QC value within limits for Na 589.592 Radial Recovery = 101.28%
Ni 231.604† 15906.9 514.86 µg/L 1.697 514.86 ppb 1.697 0.33%
QC value within limits for Ni 231.604 Recovery = 102.97%
P 214.914† 3308.5 2488.7 µg/L 6.69 2488.7 ppb 6.69 0.27%
QC value within limits for P 214.914 Recovery = 99.55%
Pb 220.353† 2985.6 511.23 µg/L 3.553 511.23 ppb 3.553 0.70%
QC value within limits for Pb 220.353 Recovery = 102.25%
S 181.975 Axial† 579.0 1000.6 µg/L 12.93 1000.6 ppb 12.93 1.29%
QC value within limits for S 181.975 Axial Recovery = 100.06%
Sb 206.836† 1561.2 521.13 µg/L 4.697 521.13 ppb 4.697 0.90%
QC value within limits for Sb 206.836 Recovery = 104.23%
Se 196.026† 658.6 520.18 µg/L 6.054 520.18 ppb 6.054 1.16%
QC value within limits for Se 196.026 Recovery = 104.04%
SiO2† 44409.0 5429.6 µg/L 19.42 5429.6 ppb 19.42 0.36%
QC value within limits for SiO2 Recovery = 101.54%
Si 251.611† 53312.8 2521.8 µg/L 9.39 2521.8 ppb 9.39 0.37%
QC value within limits for Si 251.611 Recovery = 100.87%
Sn 189.927† 2208.3 509.31 µg/L 1.621 509.31 ppb 1.621 0.32%
QC value within limits for Sn 189.927 Recovery = 101.86%
Sr 421.552† 103887.4 500.16 µg/L 1.332 500.16 ppb 1.332 0.27%
QC value within limits for Sr 421.552 Recovery = 100.03%
Ti 334.940† 191124.8 500.35 µg/L 1.497 500.35 ppb 1.497 0.30%
QC value within limits for Ti 334.940 Recovery = 100.07%
Tl 190.801† 1367.7 506.24 µg/L 3.858 506.24 ppb 3.858 0.76%
QC value within limits for Tl 190.801 Recovery = 101.25%
U 367.007† 1770.4 466.4 µg/L 4.83 466.4 ppb 4.83 1.03%
QC value within limits for U 367.007 Recovery = 93.28%
V 292.402† 49558.9 510.41 µg/L 0.543 510.41 ppb 0.543 0.11%
QC value within limits for V 292.402 Recovery = 102.08%
Zn 213.857† 51545.8 503.13 µg/L 0.643 503.13 ppb 0.643 0.13%
QC value within limits for Zn 213.857 Recovery = 100.63%
All analyte(s) passed QC.

Sequence No.: 14 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/7/2012 7:33:59**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19528.1	19528.1	102	%			07:34:27
1	Al 396.153Radial†	-89.5	-38.8	-11.827	µg/L	-11.827	ppb	07:34:27
1	Ca 317.933Radial†	135.9	14.0	6.8496	µg/L	6.8496	ppb	07:34:47
1	Fe 238.204 Radial†	32.6	3.2	1.7902	µg/L	1.7902	ppb	07:34:47
1	K 766.490 Radial†	813.2	131.6	64.343	µg/L	64.343	ppb	07:34:27
1	Mg 279.077 IEC†	-0.2	-3.4	-17.246	µg/L	-17.246	ppb	07:34:47
1	Na 589.592 Radial†	-166.0	22.1	40.842	µg/L	40.842	ppb	07:34:27
1	Sr 421.552†	-1280.0	37.9	0.1823	µg/L	0.1823	ppb	07:34:27
1	Sc 361.383	604513.1	604513.1	100.40	%			07:35:43
1	Y 371.029	512874.0	512874.0	100.32	%			07:35:43
1	Ag 328.068†	-520.7	73.0	0.4880	µg/L	0.4880	ppb	07:35:43
1	As 188.979†	-3.1	8.3	4.8196	µg/L	4.8196	ppb	07:36:03
1	B 249.677†	223.8	137.1	3.9632	µg/L	3.9632	ppb	07:36:03
1	Ba 233.527†	-114.5	2.5	0.0223	µg/L	0.0223	ppb	07:36:03
1	Be 313.107†	-7928.7	60.6	0.0361	µg/L	0.0361	ppb	07:35:43
1	Cd 226.502†	-178.1	38.9	0.5928	µg/L	0.5928	ppb	07:36:03
1	Co 228.616†	-5.7	0.7	0.0194	µg/L	0.0194	ppb	07:36:03
1	Cr 267.716†	252.7	14.3	0.3032	µg/L	0.3032	ppb	07:36:03
1	Cu 324.752†	6655.1	481.1	2.1411	µg/L	2.1411	ppb	07:35:43
1	Mn 257.610†	456.2	68.4	0.1071	µg/L	0.1071	ppb	07:36:03
1	Mo 202.031†	50.5	22.5	1.6023	µg/L	1.6023	ppb	07:36:03
1	Ni 231.604†	-66.7	11.8	0.3830	µg/L	0.3830	ppb	07:36:03
1	P 214.914†	72.9	-3.4	-2.6308	µg/L	-2.6308	ppb	07:36:03
1	Pb 220.353†	170.3	29.1	4.9979	µg/L	4.9979	ppb	07:36:03
1	S 181.975 Axial†	65.1	7.9	13.696	µg/L	13.696	ppb	07:36:03
1	Sb 206.836†	94.1	24.7	8.3337	µg/L	8.3337	ppb	07:36:03
1	Se 196.026†	-8.3	-0.1	-0.0707	µg/L	-0.0707	ppb	07:36:03
1	SiO2†	3388.0	-56.4	-6.8162	µg/L	-6.8162	ppb	07:35:43
1	Si 251.611†	392.7	-44.7	-2.1492	µg/L	-2.1492	ppb	07:36:03
1	Sn 189.927†	31.0	8.1	1.8611	µg/L	1.8611	ppb	07:36:03
1	Ti 334.940†	74.8	160.9	0.4214	µg/L	0.4214	ppb	07:35:43
1	Tl 190.801†	-29.6	10.4	3.8327	µg/L	3.8327	ppb	07:36:03
1	U 367.007†	365.0	1.6	0.425	µg/L	0.425	ppb	07:35:43
1	V 292.402†	-233.4	-31.9	-0.3048	µg/L	-0.3048	ppb	07:35:43
1	Zn 213.857†	1315.6	91.8	0.8994	µg/L	0.8994	ppb	07:36:03
2	Sc RADIAL	19566.5	19566.5	102	%			07:34:52
2	Al 396.153Radial†	-46.0	3.9	1.1045	µg/L	1.1045	ppb	07:34:52
2	Ca 317.933Radial†	125.4	3.4	1.6580	µg/L	1.6580	ppb	07:35:12
2	Fe 238.204 Radial†	33.7	4.2	2.3513	µg/L	2.3513	ppb	07:35:12
2	K 766.490 Radial†	878.0	193.3	94.539	µg/L	94.539	ppb	07:34:52
2	Mg 279.077 IEC†	10.4	7.1	35.755	µg/L	35.755	ppb	07:35:12
2	Na 589.592 Radial†	-155.3	33.0	60.864	µg/L	60.864	ppb	07:34:52
2	Sr 421.552†	-1275.3	45.0	0.2165	µg/L	0.2165	ppb	07:34:52
2	Sc 361.383	609082.1	609082.1	101.16	%			07:36:09
2	Y 371.029	516794.3	516794.3	101.08	%			07:36:09
2	Ag 328.068†	-553.1	44.9	0.2994	µg/L	0.2994	ppb	07:36:09
2	As 188.979†	-5.0	6.5	3.7302	µg/L	3.7302	ppb	07:36:29
2	B 249.677†	189.9	101.9	2.9434	µg/L	2.9434	ppb	07:36:29
2	Ba 233.527†	-107.1	10.7	0.0959	µg/L	0.0959	ppb	07:36:29
2	Be 313.107†	-8013.7	35.8	0.0198	µg/L	0.0198	ppb	07:36:09
2	Cd 226.502†	-190.9	27.7	0.4206	µg/L	0.4206	ppb	07:36:29
2	Co 228.616†	7.1	13.4	0.3527	µg/L	0.3527	ppb	07:36:29
2	Cr 267.716†	240.9	0.7	0.0218	µg/L	0.0218	ppb	07:36:29
2	Cu 324.752†	6652.6	428.9	1.9155	µg/L	1.9155	ppb	07:36:09
2	Mn 257.610†	452.7	61.5	0.0948	µg/L	0.0948	ppb	07:36:29
2	Mo 202.031†	55.8	27.3	1.9422	µg/L	1.9422	ppb	07:36:29
2	Ni 231.604†	-85.3	-6.1	-0.1974	µg/L	-0.1974	ppb	07:36:29
2	P 214.914†	77.6	0.6	0.4275	µg/L	0.4275	ppb	07:36:29
2	Pb 220.353†	148.8	6.6	1.1458	µg/L	1.1458	ppb	07:36:29

2	S 181.975 Axial†	57.8	0.2	0.3461 µg/L	0.3461 ppb	07:36:29
2	Sb 206.836†	105.4	35.2	11.866 µg/L	11.866 ppb	07:36:29
2	Se 196.026†	-10.7	-2.4	-1.8614 µg/L	-1.8614 ppb	07:36:29
2	SiO2†	3397.7	-72.2	-8.8516 µg/L	-8.8516 ppb	07:36:09
2	Si 251.611†	392.6	-47.7	-2.3061 µg/L	-2.3061 ppb	07:36:29
2	Sn 189.927†	42.4	19.1	4.3986 µg/L	4.3986 ppb	07:36:29
2	Ti 334.940†	16.4	102.5	0.2714 µg/L	0.2714 ppb	07:36:09
2	Tl 190.801†	-32.3	8.0	2.9254 µg/L	2.9254 ppb	07:36:29
2	U 367.007†	340.5	-25.4	-7.052 µg/L	-7.052 ppb	07:36:09
2	V 292.402†	-236.7	-33.4	-0.3233 µg/L	-0.3233 ppb	07:36:09
2	Zn 213.857†	1304.5	71.1	0.6994 µg/L	0.6994 ppb	07:36:29
3	Sc RADIAL	19390.0	19390.0	101 %		07:35:17
3	Al 396.153Radial†	-53.3	-3.7	-1.2002 µg/L	-1.2002 ppb	07:35:17
3	Ca 317.933Radial†	120.8	0.0	0.0156 µg/L	0.0156 ppb	07:35:37
3	Fe 238.204 Radial†	34.8	5.6	3.1483 µg/L	3.1483 ppb	07:35:37
3	K 766.490 Radial†	862.2	185.6	90.735 µg/L	90.735 ppb	07:35:17
3	Mg 279.077 IEC†	10.6	7.3	36.927 µg/L	36.927 ppb	07:35:37
3	Na 589.592 Radial†	-173.8	13.3	24.483 µg/L	24.483 ppb	07:35:17
3	Sr 421.552†	-1284.6	24.4	0.1177 µg/L	0.1177 ppb	07:35:17
3	Sc 361.383	612654.5	612654.5	101.75 %		07:36:34
3	Y 371.029	520299.9	520299.9	101.77 %		07:36:34
3	Ag 328.068†	-517.4	83.2	0.5592 µg/L	0.5592 ppb	07:36:34
3	As 188.979†	-7.7	3.8	2.2024 µg/L	2.2024 ppb	07:36:54
3	B 249.677†	198.4	109.2	3.1555 µg/L	3.1555 ppb	07:36:54
3	Ba 233.527†	-108.7	9.7	0.0876 µg/L	0.0876 ppb	07:36:54
3	Be 313.107†	-7941.4	153.0	0.0907 µg/L	0.0907 ppb	07:36:34
3	Cd 226.502†	-201.7	18.1	0.2754 µg/L	0.2754 ppb	07:36:54
3	Co 228.616†	-3.1	3.3	0.0889 µg/L	0.0889 ppb	07:36:54
3	Cr 267.716†	262.3	20.3	0.4352 µg/L	0.4352 ppb	07:36:54
3	Cu 324.752†	6652.1	390.1	1.7375 µg/L	1.7375 ppb	07:36:34
3	Mn 257.610†	446.3	52.6	0.0809 µg/L	0.0809 ppb	07:36:54
3	Mo 202.031†	57.7	28.9	2.0567 µg/L	2.0567 ppb	07:36:54
3	Ni 231.604†	-70.9	8.6	0.2785 µg/L	0.2785 ppb	07:36:54
3	P 214.914†	72.8	-4.5	-3.4376 µg/L	-3.4376 ppb	07:36:54
3	Pb 220.353†	178.8	35.3	6.0456 µg/L	6.0456 ppb	07:36:54
3	S 181.975 Axial†	62.1	4.1	7.0844 µg/L	7.0844 ppb	07:36:54
3	Sb 206.836†	107.2	36.4	12.264 µg/L	12.264 ppb	07:36:54
3	Se 196.026†	-11.0	-2.6	-2.0205 µg/L	-2.0205 ppb	07:36:54
3	SiO2†	3449.8	-40.5	-4.9232 µg/L	-4.9232 ppb	07:36:34
3	Si 251.611†	408.9	-34.0	-1.6580 µg/L	-1.6580 ppb	07:36:54
3	Sn 189.927†	47.4	23.8	5.4751 µg/L	5.4751 ppb	07:36:54
3	Ti 334.940†	47.5	133.1	0.3485 µg/L	0.3485 ppb	07:36:34
3	Tl 190.801†	-32.6	7.8	2.8733 µg/L	2.8733 ppb	07:36:54
3	U 367.007†	364.7	-3.6	-1.006 µg/L	-1.006 ppb	07:36:34
3	V 292.402†	-195.2	8.7	0.1117 µg/L	0.1117 ppb	07:36:34
3	Zn 213.857†	1287.8	47.1	0.4599 µg/L	0.4599 ppb	07:36:54

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	608749.9	101.10	%	0.678				0.67%
Sc RADIAL	19494.9	102	%	0.5				0.48%
Y 371.029	516656.1	101.06	%	0.727				0.72%
Ag 328.068†	67.0	0.4489	µg/L	0.13424	0.4489	ppb	0.13424	29.91%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-12.9	-3.9743	µg/L	6.89773	-3.9743	ppb	6.89773	173.56%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	6.2	3.5841	µg/L	1.31472	3.5841	ppb	1.31472	36.68%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	116.1	3.3540	µg/L	0.53812	3.3540	ppb	0.53812	16.04%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	7.7	0.0686	µg/L	0.04033	0.0686	ppb	0.04033	58.81%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	83.1	0.0489	µg/L	0.03713	0.0489	ppb	0.03713	76.00%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	5.8	2.8411	µg/L	3.56731	2.8411	ppb	3.56731	125.56%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	28.2	0.4296	µg/L	0.15890	0.4296	ppb	0.15890	36.99%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	5.8	0.1537	µg/L	0.17582	0.1537	ppb	0.17582	114.42%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              11.8      0.2534 µg/L       0.21115      0.2534 ppb        0.21115  83.33%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             433.4      1.9313 µg/L       0.20229      1.9313 ppb        0.20229  10.47%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        4.4      2.4299 µg/L       0.68248      2.4299 ppb        0.68248  28.09%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†       170.2      83.206 µg/L       16.4460      83.206 ppb        16.4460  19.77%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           3.6      18.479 µg/L       30.9437      18.479 ppb        30.9437 167.46%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              60.8      0.0943 µg/L       0.01309      0.0943 ppb        0.01309  13.88%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              26.2      1.8671 µg/L       0.23636      1.8671 ppb        0.23636  12.66%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       22.8      42.063 µg/L       18.2214      42.063 ppb        18.2214  43.32%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               4.8      0.1547 µg/L       0.30940      0.1547 ppb        0.30940 200.00%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -2.4     -1.8803 µg/L       2.03889     -1.8803 ppb        2.03889 108.44%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              23.7      4.0631 µg/L       2.58019      4.0631 ppb        2.58019  63.50%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          4.1      7.0420 µg/L       6.67479      7.0420 ppb        6.67479  94.79%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              32.1      10.821 µg/L        2.1633      10.821 ppb         2.1633  19.99%
   QC value greater than the upper limit for Sb 206.836  Recovery = Not calculated
Se 196.026†              -1.7     -1.3175 µg/L       1.08272     -1.3175 ppb        1.08272  82.18%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -56.4     -6.8636 µg/L       1.96463     -6.8636 ppb        1.96463  28.62%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -42.1     -2.0378 µg/L       0.33808     -2.0378 ppb        0.33808  16.59%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†              17.0      3.9116 µg/L       1.85555      3.9116 ppb        1.85555  47.44%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              35.8      0.1722 µg/L       0.05020      0.1722 ppb        0.05020  29.16%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             132.1      0.3471 µg/L       0.07501      0.3471 ppb        0.07501  21.61%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               8.7      3.2104 µg/L       0.53948      3.2104 ppb        0.53948  16.80%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -9.1      -2.544 µg/L        3.9687      -2.544 ppb         3.9687 156.00%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              -18.8     -0.1721 µg/L       0.24599     -0.1721 ppb        0.24599 142.90%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              70.0      0.6862 µg/L       0.22004      0.6862 ppb        0.22004  32.07%
   QC value within limits for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
```

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Analysis Begun

Start Time: 6/7/2012 7:46:12 **Plasma On Time: 6/6/2012 9:59:41**
Logged In Analyst: optima3 **Technique: ICP Continuous**
Spectrometer Model: Optima 5300 DV, S/N 077C7090601Autosampler Model: AS-93plus

Sample Information File: C:\pe\Optima3\Sample Information\060712.sif
Batch ID:
Results Data Set: 060712
Results Library: C:\pe\Optima3\Results\Results.mdb

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Method Loaded
Method Name: Gen Eng fast_new Si2 **Method Last Saved: 6/7/2012 7:00:21**
IEC File: 041012.iec **MSF File:**
Method Description:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Al 396.153Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
B 249.677	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Be 313.107	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ca 317.933Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Cd 226.502	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cr 267.716	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Fe 238.204 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
K 766.490 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mg 279.077 IEC	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mn 257.610	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Na 589.592 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Ni 231.604	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
P 214.914	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
S 181.975 Axial	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sc 361.383	Lin Thru 0	Peak Area	Axial	n/a	n/a
Sc RADIAL	Lin, Calc Int	Peak Area	Radial	n/a	n/a
Se 196.026	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
SiO2	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Si 251.611	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sn 189.927	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Ti 334.940	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
U 367.007	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Y 371.029	Lin, Calc Int	Peak Area	Axial	n/a	n/a
Zn 213.857	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 7:46:13**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19550.6	19550.6	102	%			07:46:42
1	Al 396.153Radial†	16634.5	16337.3	4938.5	µg/L	4938.5	ppb	07:46:42
1	Ca 317.933Radial†	10411.8	10075.9	4934.3	µg/L	4934.3	ppb	07:47:02
1	Fe 238.204 Radial†	9277.2	9055.5	5051.5	µg/L	5051.5	ppb	07:47:02

1	K 766.490 Radial†	10956.5	10062.9	4916.0 µg/L	4916.0 ppb	07:46:42
1	Mg 279.077 IEC†	1042.3	1017.5	5172.2 µg/L	5172.2 ppb	07:47:02
1	Na 589.592 Radial†	5147.8	5225.5	9651.2 µg/L	9651.2 ppb	07:46:42
1	Sr 421.552†	102658.0	101814.7	490.18 µg/L	490.18 ppb	07:46:42
1	Sc 361.383	618957.8	618957.8	102.80 %		07:47:59
1	Y 371.029	521026.8	521026.8	101.91 %		07:47:59
1	Ag 328.068†	75749.5	74281.3	502.41 µg/L	502.41 ppb	07:48:05
1	As 188.979†	883.0	870.4	502.99 µg/L	502.99 ppb	07:48:25
1	B 249.677†	17621.8	17056.8	491.35 µg/L	491.35 ppb	07:48:05
1	Ba 233.527†	56760.9	55334.0	498.53 µg/L	498.53 ppb	07:48:05
1	Be 313.107†	856173.1	840848.7	499.78 µg/L	499.78 ppb	07:47:59
1	Cd 226.502†	33480.0	32785.9	498.52 µg/L	498.52 ppb	07:48:05
1	Co 228.616†	19694.7	19165.5	502.37 µg/L	502.37 ppb	07:48:05
1	Cr 267.716†	24264.7	23367.4	498.25 µg/L	498.25 ppb	07:48:05
1	Cu 324.752†	120909.3	111473.6	497.46 µg/L	497.46 ppb	07:48:05
1	Mn 257.610†	325660.7	316418.8	492.29 µg/L	492.29 ppb	07:48:05
1	Mo 202.031†	7180.7	6957.5	495.89 µg/L	495.89 ppb	07:48:25
1	Ni 231.604†	16056.1	15697.7	508.08 µg/L	508.08 ppb	07:48:05
1	P 214.914†	3431.7	3262.3	2454.1 µg/L	2454.1 ppb	07:48:25
1	Pb 220.353†	3150.7	2924.6	500.76 µg/L	500.76 ppb	07:48:25
1	S 181.975 Axial†	650.1	575.5	994.47 µg/L	994.47 ppb	07:48:25
1	Sb 206.836†	1582.4	1470.4	490.56 µg/L	490.56 ppb	07:48:25
1	Se 196.026†	646.8	637.5	503.55 µg/L	503.55 ppb	07:48:25
1	SiO2†	48213.6	43471.4	5315.0 µg/L	5315.0 ppb	07:48:05
1	Si 251.611†	54057.9	52152.0	2466.9 µg/L	2466.9 ppb	07:48:05
1	Sn 189.927†	2252.7	2168.7	500.18 µg/L	500.18 ppb	07:48:25
1	Ti 334.940†	193270.1	188100.8	492.43 µg/L	492.43 ppb	07:48:05
1	Tl 190.801†	1336.7	1340.3	496.08 µg/L	496.08 ppb	07:48:25
1	U 367.007†	2148.8	1728.3	455.3 µg/L	455.3 ppb	07:48:05
1	V 292.402†	49971.8	48813.5	502.66 µg/L	502.66 ppb	07:48:05
1	Zn 213.857†	53378.2	50708.1	494.95 µg/L	494.95 ppb	07:48:05
2	Sc RADIAL	19728.6	19728.6	103 %		07:47:07
2	Al 396.153Radial†	16969.1	16515.1	4992.1 µg/L	4992.1 ppb	07:47:07
2	Ca 317.933Radial†	10336.9	9911.3	4853.6 µg/L	4853.6 ppb	07:47:27
2	Fe 238.204 Radial†	9213.1	8911.3	4971.2 µg/L	4971.2 ppb	07:47:27
2	K 766.490 Radial†	11215.2	10217.1	4991.3 µg/L	4991.3 ppb	07:47:07
2	Mg 279.077 IEC†	1031.5	997.8	5072.1 µg/L	5072.1 ppb	07:47:27
2	Na 589.592 Radial†	5230.2	5260.1	9715.0 µg/L	9715.0 ppb	07:47:07
2	Sr 421.552†	103906.2	102119.3	491.65 µg/L	491.65 ppb	07:47:07
2	Sc 361.383	614626.9	614626.9	102.08 %		07:48:30
2	Y 371.029	517717.1	517717.1	101.26 %		07:48:30
2	Ag 328.068†	75917.4	74965.0	507.01 µg/L	507.01 ppb	07:48:35
2	As 188.979†	881.8	875.3	505.79 µg/L	505.79 ppb	07:48:55
2	B 249.677†	17680.8	17235.4	496.51 µg/L	496.51 ppb	07:48:35
2	Ba 233.527†	56942.1	55900.6	503.64 µg/L	503.64 ppb	07:48:35
2	Be 313.107†	852184.9	842810.4	500.95 µg/L	500.95 ppb	07:48:30
2	Cd 226.502†	33736.1	33266.3	505.85 µg/L	505.85 ppb	07:48:35
2	Co 228.616†	19800.9	19404.5	508.64 µg/L	508.64 ppb	07:48:35
2	Cr 267.716†	24363.1	23630.2	503.84 µg/L	503.84 ppb	07:48:35
2	Cu 324.752†	121050.9	112441.1	501.75 µg/L	501.75 ppb	07:48:35
2	Mn 257.610†	327338.1	320294.5	498.31 µg/L	498.31 ppb	07:48:35
2	Mo 202.031†	7258.3	7082.8	504.82 µg/L	504.82 ppb	07:48:55
2	Ni 231.604†	16122.5	15872.8	513.75 µg/L	513.75 ppb	07:48:35
2	P 214.914†	3486.8	3339.8	2512.7 µg/L	2512.7 ppb	07:48:55
2	Pb 220.353†	3214.2	3008.3	515.07 µg/L	515.07 ppb	07:48:55
2	S 181.975 Axial†	654.6	584.4	1009.9 µg/L	1009.9 ppb	07:48:55
2	Sb 206.836†	1610.0	1508.3	503.30 µg/L	503.30 ppb	07:48:55
2	Se 196.026†	652.6	647.5	511.41 µg/L	511.41 ppb	07:48:55
2	SiO2†	48601.1	44181.6	5401.8 µg/L	5401.8 ppb	07:48:35
2	Si 251.611†	54457.6	52914.1	2502.9 µg/L	2502.9 ppb	07:48:35
2	Sn 189.927†	2280.0	2210.8	509.86 µg/L	509.86 ppb	07:48:55
2	Ti 334.940†	193869.6	190012.8	497.43 µg/L	497.43 ppb	07:48:35
2	Tl 190.801†	1358.7	1370.9	507.40 µg/L	507.40 ppb	07:48:55
2	U 367.007†	2203.4	1796.5	474.6 µg/L	474.6 ppb	07:48:35
2	V 292.402†	50246.7	49425.4	509.00 µg/L	509.00 ppb	07:48:35
2	Zn 213.857†	53688.7	51378.2	501.52 µg/L	501.52 ppb	07:48:35
3	Sc RADIAL	19237.1	19237.1	100 %		07:47:33
3	Al 396.153Radial†	16541.8	16510.6	4991.1 µg/L	4991.1 ppb	07:47:33
3	Ca 317.933Radial†	10340.2	10170.8	4980.7 µg/L	4980.7 ppb	07:47:53
3	Fe 238.204 Radial†	9221.7	9148.3	5103.2 µg/L	5103.2 ppb	07:47:53
3	K 766.490 Radial†	10948.4	10229.7	4997.6 µg/L	4997.6 ppb	07:47:33

3	Mg 279.077 IEC†	1036.9	1028.7	5229.2 µg/L	5229.2 ppb	07:47:53
3	Na 589.592 Radial†	5214.0	5373.6	9924.7 µg/L	9924.7 ppb	07:47:33
3	Sr 421.552†	102004.1	102802.4	494.94 µg/L	494.94 ppb	07:47:33
3	Sc 361.383	623715.2	623715.2	103.59 %		07:49:01
3	Y 371.029	525056.0	525056.0	102.70 %		07:49:01
3	Ag 328.068†	76193.2	74147.6	501.53 µg/L	501.53 ppb	07:49:06
3	As 188.979†	902.1	882.3	509.90 µg/L	509.90 ppb	07:49:26
3	B 249.677†	17796.2	17094.4	492.42 µg/L	492.42 ppb	07:49:06
3	Ba 233.527†	57230.5	55366.2	498.82 µg/L	498.82 ppb	07:49:06
3	Be 313.107†	866744.3	844701.0	502.08 µg/L	502.08 ppb	07:49:01
3	Cd 226.502†	33896.2	32939.3	500.85 µg/L	500.85 ppb	07:49:06
3	Co 228.616†	19908.8	19226.1	503.96 µg/L	503.96 ppb	07:49:06
3	Cr 267.716†	24457.1	23373.1	498.37 µg/L	498.37 ppb	07:49:06
3	Cu 324.752†	121685.7	111326.0	496.81 µg/L	496.81 ppb	07:49:06
3	Mn 257.610†	328797.1	317030.2	493.24 µg/L	493.24 ppb	07:49:06
3	Mo 202.031†	7240.3	6961.8	496.20 µg/L	496.20 ppb	07:49:26
3	Ni 231.604†	16218.8	15735.7	509.31 µg/L	509.31 ppb	07:49:06
3	P 214.914†	3463.0	3267.1	2457.7 µg/L	2457.7 ppb	07:49:26
3	Pb 220.353†	3190.7	2939.8	503.36 µg/L	503.36 ppb	07:49:26
3	S 181.975 Axial†	657.4	577.7	998.23 µg/L	998.23 ppb	07:49:26
3	Sb 206.836†	1598.7	1474.4	491.91 µg/L	491.91 ppb	07:49:26
3	Se 196.026†	646.0	631.9	499.18 µg/L	499.18 ppb	07:49:26
3	SiO2†	48880.4	43757.4	5349.9 µg/L	5349.9 ppb	07:49:06
3	Si 251.611†	54853.8	52519.2	2484.3 µg/L	2484.3 ppb	07:49:06
3	Sn 189.927†	2273.0	2171.5	500.84 µg/L	500.84 ppb	07:49:26
3	Ti 334.940†	194625.4	187975.1	492.10 µg/L	492.10 ppb	07:49:06
3	Tl 190.801†	1341.2	1334.6	494.02 µg/L	494.02 ppb	07:49:26
3	U 367.007†	2197.8	1759.7	463.7 µg/L	463.7 ppb	07:49:06
3	V 292.402†	50377.7	48834.6	502.88 µg/L	502.88 ppb	07:49:06
3	Zn 213.857†	54036.7	50947.7	497.29 µg/L	497.29 ppb	07:49:06

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	619100.0	102.82	%	0.755				0.73%
Sc RADIAL	19505.4	102	%	1.3				1.28%
Y 371.029	521266.7	101.96	%	0.719				0.71%
Ag 328.068†	74464.6	503.65	µg/L	2.945	503.65	ppb	2.945	0.58%
QC value within limits for Ag 328.068 Recovery = 100.73%								
Al 396.153Radial†	16454.3	4973.9	µg/L	30.65	4973.9	ppb	30.65	0.62%
QC value within limits for Al 396.153Radial Recovery = 99.48%								
As 188.979†	876.0	506.22	µg/L	3.476	506.22	ppb	3.476	0.69%
QC value within limits for As 188.979 Recovery = 101.24%								
B 249.677†	17128.9	493.43	µg/L	2.722	493.43	ppb	2.722	0.55%
QC value within limits for B 249.677 Recovery = 98.69%								
Ba 233.527†	55533.6	500.33	µg/L	2.871	500.33	ppb	2.871	0.57%
QC value within limits for Ba 233.527 Recovery = 100.07%								
Be 313.107†	842786.7	500.94	µg/L	1.146	500.94	ppb	1.146	0.23%
QC value within limits for Be 313.107 Recovery = 100.19%								
Ca 317.933Radial†	10052.7	4922.9	µg/L	64.31	4922.9	ppb	64.31	1.31%
QC value within limits for Ca 317.933Radial Recovery = 98.46%								
Cd 226.502†	32997.1	501.74	µg/L	3.745	501.74	ppb	3.745	0.75%
QC value within limits for Cd 226.502 Recovery = 100.35%								
Co 228.616†	19265.4	504.99	µg/L	3.260	504.99	ppb	3.260	0.65%
QC value within limits for Co 228.616 Recovery = 101.00%								
Cr 267.716†	23456.9	500.15	µg/L	3.193	500.15	ppb	3.193	0.64%
QC value within limits for Cr 267.716 Recovery = 100.03%								
Cu 324.752†	111746.9	498.67	µg/L	2.686	498.67	ppb	2.686	0.54%
QC value within limits for Cu 324.752 Recovery = 99.73%								
Fe 238.204 Radial†	9038.4	5042.0	µg/L	66.50	5042.0	ppb	66.50	1.32%
QC value within limits for Fe 238.204 Radial Recovery = 100.84%								
K 766.490 Radial†	10169.9	4968.3	µg/L	45.39	4968.3	ppb	45.39	0.91%
QC value within limits for K 766.490 Radial Recovery = 99.37%								
Mg 279.077 IEC†	1014.7	5157.8	µg/L	79.49	5157.8	ppb	79.49	1.54%
QC value within limits for Mg 279.077 IEC Recovery = 103.16%								
Mn 257.610†	317914.5	494.61	µg/L	3.236	494.61	ppb	3.236	0.65%
QC value within limits for Mn 257.610 Recovery = 98.92%								
Mo 202.031†	7000.7	498.97	µg/L	5.066	498.97	ppb	5.066	1.02%
QC value within limits for Mo 202.031 Recovery = 99.79%								
Na 589.592 Radial†	5286.4	9763.6	µg/L	143.08	9763.6	ppb	143.08	1.47%

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   QC value within limits for Na 589.592 Radial  Recovery = 97.64%
Ni 231.604†          15768.7      510.38 µg/L         2.980      510.38 ppb          2.980   0.58%
   QC value within limits for Ni 231.604  Recovery = 102.08%
P 214.914†            3289.8      2474.8 µg/L         32.86      2474.8 ppb          32.86   1.33%
   QC value within limits for P 214.914  Recovery = 98.99%
Pb 220.353†           2957.6      506.40 µg/L         7.624      506.40 ppb          7.624   1.51%
   QC value within limits for Pb 220.353  Recovery = 101.28%
S 181.975 Axial†       579.2      1000.9 µg/L          8.03      1000.9 ppb           8.03   0.80%
   QC value within limits for S 181.975 Axial  Recovery = 100.09%
Sb 206.836†           1484.4      495.26 µg/L         7.000      495.26 ppb          7.000   1.41%
   QC value within limits for Sb 206.836  Recovery = 99.05%
Se 196.026†            638.9      504.72 µg/L         6.194      504.72 ppb          6.194   1.23%
   QC value within limits for Se 196.026  Recovery = 100.94%
SiO2†                43803.5      5355.6 µg/L         43.69      5355.6 ppb          43.69   0.82%
   QC value within limits for SiO2  Recovery = 100.15%
Si 251.611†          52528.5      2484.7 µg/L         18.01      2484.7 ppb          18.01   0.72%
   QC value within limits for Si 251.611  Recovery = 99.39%
Sn 189.927†           2183.7      503.63 µg/L         5.407      503.63 ppb          5.407   1.07%
   QC value within limits for Sn 189.927  Recovery = 100.73%
Sr 421.552†         102245.5      492.26 µg/L         2.435      492.26 ppb          2.435   0.49%
   QC value within limits for Sr 421.552  Recovery = 98.45%
Ti 334.940†         188696.2      493.99 µg/L         2.986      493.99 ppb          2.986   0.60%
   QC value within limits for Ti 334.940  Recovery = 98.80%
Tl 190.801†           1348.6      499.17 µg/L         7.202      499.17 ppb          7.202   1.44%
   QC value within limits for Tl 190.801  Recovery = 99.83%
U 367.007†            1761.5       464.5 µg/L          9.67       464.5 ppb           9.67   2.08%
   QC value within limits for U 367.007  Recovery = 92.90%
V 292.402†           49024.5      504.84 µg/L         3.598      504.84 ppb          3.598   0.71%
   QC value within limits for V 292.402  Recovery = 100.97%
Zn 213.857†          51011.3      497.92 µg/L         3.330      497.92 ppb          3.330   0.67%
   QC value within limits for Zn 213.857  Recovery = 99.58%
All analyte(s) passed QC.
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Sequence No.: 2 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/7/2012 7:49:34**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19507.9	19507.9	102	%			07:50:02
1	Al 396.153Radial†	-70.4	-20.2	-6.1599	µg/L	-6.1599	ppb	07:50:02
1	Ca 317.933Radial†	110.0	-11.4	-5.5666	µg/L	-5.5666	ppb	07:50:22
1	Fe 238.204 Radial†	25.3	-4.0	-2.2062	µg/L	-2.2062	ppb	07:50:22
1	K 766.490 Radial†	683.8	5.4	2.6551	µg/L	2.6551	ppb	07:50:02
1	Mg 279.077 IEC†	0.5	-2.7	-13.854	µg/L	-13.854	ppb	07:50:22
1	Na 589.592 Radial†	-192.7	-4.2	-7.7321	µg/L	-7.7321	ppb	07:50:02
1	Sr 421.552†	-1288.3	28.4	0.1368	µg/L	0.1368	ppb	07:50:02
1	Sc 361.383	604589.7	604589.7	100.41	%			07:51:18
1	Y 371.029	513626.4	513626.4	100.46	%			07:51:18
1	Ag 328.068†	-553.6	40.4	0.2688	µg/L	0.2688	ppb	07:51:18
1	As 188.979†	-12.4	-0.9	-0.5440	µg/L	-0.5440	ppb	07:51:38
1	B 249.677†	143.3	56.9	1.6450	µg/L	1.6450	ppb	07:51:38
1	Ba 233.527†	-119.1	-2.0	-0.0187	µg/L	-0.0187	ppb	07:51:38
1	Be 313.107†	-7954.3	36.1	0.0197	µg/L	0.0197	ppb	07:51:18
1	Cd 226.502†	-195.5	21.6	0.3289	µg/L	0.3289	ppb	07:51:38
1	Co 228.616†	-1.6	4.8	0.1274	µg/L	0.1274	ppb	07:51:38
1	Cr 267.716†	241.0	2.5	0.0616	µg/L	0.0616	ppb	07:51:38
1	Cu 324.752†	6286.0	112.7	0.5082	µg/L	0.5082	ppb	07:51:18
1	Mn 257.610†	378.9	-8.7	-0.0133	µg/L	-0.0133	ppb	07:51:38
1	Mo 202.031†	41.6	13.5	0.9652	µg/L	0.9652	ppb	07:51:38
1	Ni 231.604†	-108.8	-30.1	-0.9733	µg/L	-0.9733	ppb	07:51:38
1	P 214.914†	83.6	7.2	5.4482	µg/L	5.4482	ppb	07:51:38
1	Pb 220.353†	136.1	-4.9	-0.8333	µg/L	-0.8333	ppb	07:51:38
1	S 181.975 Axial†	54.0	-3.1	-5.4081	µg/L	-5.4081	ppb	07:51:38
1	Sb 206.836†	95.1	25.7	8.6634	µg/L	8.6634	ppb	07:51:38
1	Se 196.026†	-17.6	-9.3	-7.3207	µg/L	-7.3207	ppb	07:51:38
1	SiO2†	3311.1	-133.4	-16.289	µg/L	-16.289	ppb	07:51:18
1	Si 251.611†	283.9	-153.1	-7.2783	µg/L	-7.2783	ppb	07:51:38
1	Sn 189.927†	24.4	1.6	0.3614	µg/L	0.3614	ppb	07:51:38
1	Ti 334.940†	-60.5	26.1	0.0721	µg/L	0.0721	ppb	07:51:18
1	Tl 190.801†	-37.9	2.1	0.7682	µg/L	0.7682	ppb	07:51:38
1	U 367.007†	333.3	-30.1	-8.334	µg/L	-8.334	ppb	07:51:18
1	V 292.402†	-222.9	-21.4	-0.2133	µg/L	-0.2133	ppb	07:51:18
1	Zn 213.857†	1144.6	-78.6	-0.7677	µg/L	-0.7677	ppb	07:51:38
2	Sc RADIAL	19533.0	19533.0	102	%			07:50:27
2	Al 396.153Radial†	-87.6	-36.9	-11.241	µg/L	-11.241	ppb	07:50:27
2	Ca 317.933Radial†	107.3	-14.1	-6.9034	µg/L	-6.9034	ppb	07:50:47
2	Fe 238.204 Radial†	35.9	6.4	3.5777	µg/L	3.5777	ppb	07:50:47
2	K 766.490 Radial†	764.4	83.5	40.838	µg/L	40.838	ppb	07:50:27
2	Mg 279.077 IEC†	-0.2	-3.4	-17.132	µg/L	-17.132	ppb	07:50:47
2	Na 589.592 Radial†	-200.9	-12.1	-22.281	µg/L	-22.281	ppb	07:50:27
2	Sr 421.552†	-1286.9	31.4	0.1513	µg/L	0.1513	ppb	07:50:27
2	Sc 361.383	608354.4	608354.4	101.03	%			07:51:44
2	Y 371.029	517362.4	517362.4	101.19	%			07:51:44
2	Ag 328.068†	-569.7	27.8	0.1868	µg/L	0.1868	ppb	07:51:44
2	As 188.979†	-11.4	0.2	0.0934	µg/L	0.0934	ppb	07:52:04
2	B 249.677†	119.5	32.5	0.9374	µg/L	0.9374	ppb	07:52:04
2	Ba 233.527†	-113.4	4.3	0.0387	µg/L	0.0387	ppb	07:52:04
2	Be 313.107†	-7955.8	83.6	0.0487	µg/L	0.0487	ppb	07:51:44
2	Cd 226.502†	-212.5	6.0	0.0910	µg/L	0.0910	ppb	07:52:04
2	Co 228.616†	-3.4	3.0	0.0799	µg/L	0.0799	ppb	07:52:04
2	Cr 267.716†	222.0	-17.7	-0.3739	µg/L	-0.3739	ppb	07:52:04
2	Cu 324.752†	6358.5	145.7	0.6526	µg/L	0.6526	ppb	07:51:44
2	Mn 257.610†	388.0	-2.0	-0.0022	µg/L	-0.0022	ppb	07:52:04
2	Mo 202.031†	42.5	14.2	1.0125	µg/L	1.0125	ppb	07:52:04
2	Ni 231.604†	-80.5	-1.4	-0.0442	µg/L	-0.0442	ppb	07:52:04
2	P 214.914†	72.9	-3.8	-2.9458	µg/L	-2.9458	ppb	07:52:04
2	Pb 220.353†	152.8	10.8	1.8572	µg/L	1.8572	ppb	07:52:04

2	S 181.975 Axial†	60.5	2.9	5.0677 µg/L	5.0677 ppb		07:52:04
2	Sb 206.836†	85.5	15.6	5.2775 µg/L	5.2775 ppb		07:52:04
2	Se 196.026†	-7.1	1.2	0.9099 µg/L	0.9099 ppb		07:52:04
2	SiO2†	3303.9	-160.9	-19.616 µg/L	-19.616 ppb		07:51:44
2	Si 251.611†	322.4	-116.8	-5.5624 µg/L	-5.5624 ppb		07:52:04
2	Sn 189.927†	32.9	9.8	2.2567 µg/L	2.2567 ppb		07:52:04
2	Ti 334.940†	-55.0	31.9	0.0854 µg/L	0.0854 ppb		07:51:44
2	Tl 190.801†	-27.6	12.6	4.6454 µg/L	4.6454 ppb		07:52:04
2	U 367.007†	351.0	-14.6	-4.069 µg/L	-4.069 ppb		07:51:44
2	V 292.402†	-213.8	-11.0	-0.1047 µg/L	-0.1047 ppb		07:51:44
2	Zn 213.857†	1149.6	-80.7	-0.7955 µg/L	-0.7955 ppb		07:52:04
3	Sc RADIAL	19387.9	19387.9	101 %			07:50:52
3	Al 396.153Radial†	-71.6	-21.8	-6.6791 µg/L	-6.6791 ppb		07:50:52
3	Ca 317.933Radial†	109.6	-11.0	-5.4094 µg/L	-5.4094 ppb		07:51:12
3	Fe 238.204 Radial†	35.3	6.1	3.3862 µg/L	3.3862 ppb		07:51:12
3	K 766.490 Radial†	717.4	42.8	20.912 µg/L	20.912 ppb		07:50:52
3	Mg 279.077 IEC†	3.8	0.6	3.1660 µg/L	3.1660 ppb		07:51:12
3	Na 589.592 Radial†	-177.5	9.6	17.783 µg/L	17.783 ppb		07:50:52
3	Sr 421.552†	-1277.5	31.3	0.1507 µg/L	0.1507 ppb		07:50:52
3	Sc 361.383	610580.9	610580.9	101.40 %			07:52:09
3	Y 371.029	518728.8	518728.8	101.46 %			07:52:09
3	Ag 328.068†	-568.2	31.4	0.2092 µg/L	0.2092 ppb		07:52:09
3	As 188.979†	-13.8	-2.2	-1.2929 µg/L	-1.2929 ppb		07:52:29
3	B 249.677†	124.6	37.0	1.0702 µg/L	1.0702 ppb		07:52:29
3	Ba 233.527†	-118.5	-0.2	-0.0026 µg/L	-0.0026 ppb		07:52:29
3	Be 313.107†	-8041.7	27.5	0.0156 µg/L	0.0156 ppb		07:52:09
3	Cd 226.502†	-202.9	16.2	0.2459 µg/L	0.2459 ppb		07:52:29
3	Co 228.616†	-7.5	-1.0	-0.0230 µg/L	-0.0230 ppb		07:52:29
3	Cr 267.716†	243.2	2.4	0.0544 µg/L	0.0544 ppb		07:52:29
3	Cu 324.752†	6320.2	85.0	0.3818 µg/L	0.3818 ppb		07:52:09
3	Mn 257.610†	384.8	-6.6	-0.0100 µg/L	-0.0100 ppb		07:52:29
3	Mo 202.031†	53.2	24.6	1.7512 µg/L	1.7512 ppb		07:52:29
3	Ni 231.604†	-103.2	-23.5	-0.7616 µg/L	-0.7616 ppb		07:52:29
3	P 214.914†	72.9	-4.1	-3.1648 µg/L	-3.1648 ppb		07:52:29
3	Pb 220.353†	145.7	3.3	0.5729 µg/L	0.5729 ppb		07:52:29
3	S 181.975 Axial†	62.0	4.2	7.2176 µg/L	7.2176 ppb		07:52:29
3	Sb 206.836†	89.1	18.9	6.3951 µg/L	6.3951 ppb		07:52:29
3	Se 196.026†	-9.2	-0.8	-0.6579 µg/L	-0.6579 ppb		07:52:29
3	SiO2†	3342.5	-134.8	-16.410 µg/L	-16.410 ppb		07:52:09
3	Si 251.611†	322.6	-117.7	-5.6168 µg/L	-5.6168 ppb		07:52:29
3	Sn 189.927†	32.1	8.9	2.0446 µg/L	2.0446 ppb		07:52:29
3	Ti 334.940†	-89.4	-1.8	-0.0032 µg/L	-0.0032 ppb		07:52:09
3	Tl 190.801†	-31.1	9.2	3.3798 µg/L	3.3798 ppb		07:52:29
3	U 367.007†	353.2	-13.7	-3.827 µg/L	-3.827 ppb		07:52:09
3	V 292.402†	-238.3	-34.4	-0.3332 µg/L	-0.3332 ppb		07:52:09
3	Zn 213.857†	1177.5	-57.4	-0.5606 µg/L	-0.5606 ppb		07:52:29

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	607841.7	100.95	%	0.503				0.50%
Sc RADIAL	19476.3	102	%	0.4				0.40%
Y 371.029	516572.5	101.04	%	0.517				0.51%
Ag 328.068†	33.2	0.2216	µg/L	0.04237	0.2216	ppb	0.04237	19.12%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-26.3	-8.0268	µg/L	2.79585	-8.0268	ppb	2.79585	34.83%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.0	-0.5812	µg/L	0.69392	-0.5812	ppb	0.69392	119.40%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	42.2	1.2175	µg/L	0.37612	1.2175	ppb	0.37612	30.89%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	0.7	0.0058	µg/L	0.02961	0.0058	ppb	0.02961	507.77%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	49.1	0.0280	µg/L	0.01805	0.0280	ppb	0.01805	64.47%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-12.2	-5.9598	µg/L	0.82096	-5.9598	ppb	0.82096	13.77%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	14.6	0.2220	µg/L	0.12076	0.2220	ppb	0.12076	54.41%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	2.3	0.0615	µg/L	0.07687	0.0615	ppb	0.07687	125.10%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	-4.3	-0.0860 µg/L	0.24938	-0.0860 ppb	0.24938	290.14%

QC value within limits for Cr 267.716 Recovery = Not calculated

Cu 324.752†	114.5	0.5142 µg/L	0.13550	0.5142 ppb	0.13550	26.35%

QC value within limits for Cu 324.752 Recovery = Not calculated

Fe 238.204 Radial†	2.8	1.5859 µg/L	3.28545	1.5859 ppb	3.28545	207.16%

QC value within limits for Fe 238.204 Radial Recovery = Not calculated

K 766.490 Radial†	43.9	21.468 µg/L	19.0976	21.468 ppb	19.0976	88.96%

QC value within limits for K 766.490 Radial Recovery = Not calculated

Mg 279.077 IEC†	-1.8	-9.2735 µg/L	10.89688	-9.2735 ppb	10.89688	117.51%

QC value within limits for Mg 279.077 IEC Recovery = Not calculated

Mn 257.610†	-5.7	-0.0085 µg/L	0.00568	-0.0085 ppb	0.00568	66.79%

QC value within limits for Mn 257.610 Recovery = Not calculated

Mo 202.031†	17.4	1.2430 µg/L	0.44078	1.2430 ppb	0.44078	35.46%

QC value within limits for Mo 202.031 Recovery = Not calculated

Na 589.592 Radial†	-2.2	-4.0767 µg/L	20.28055	-4.0767 ppb	20.28055	497.47%

QC value within limits for Na 589.592 Radial Recovery = Not calculated

Ni 231.604†	-18.3	-0.5930 µg/L	0.48693	-0.5930 ppb	0.48693	82.11%

QC value within limits for Ni 231.604 Recovery = Not calculated

P 214.914†	-0.3	-0.2208 µg/L	4.91070	-0.2208 ppb	4.91070	>999.9%

QC value within limits for P 214.914 Recovery = Not calculated

Pb 220.353†	3.0	0.5322 µg/L	1.34571	0.5322 ppb	1.34571	252.84%

QC value within limits for Pb 220.353 Recovery = Not calculated

S 181.975 Axial†	1.3	2.2924 µg/L	6.75488	2.2924 ppb	6.75488	294.66%

QC value within limits for S 181.975 Axial Recovery = Not calculated

Sb 206.836†	20.1	6.7787 µg/L	1.72521	6.7787 ppb	1.72521	25.45%

QC value within limits for Sb 206.836 Recovery = Not calculated

Se 196.026†	-3.0	-2.3563 µg/L	4.37025	-2.3563 ppb	4.37025	185.47%

QC value within limits for Se 196.026 Recovery = Not calculated

SiO2†	-143.1	-17.438 µg/L	1.8869	-17.438 ppb	1.8869	10.82%

QC value within limits for SiO2 Recovery = Not calculated

Si 251.611†	-129.2	-6.1525 µg/L	0.97532	-6.1525 ppb	0.97532	15.85%

QC value within limits for Si 251.611 Recovery = Not calculated

Sn 189.927†	6.8	1.5542 µg/L	1.03844	1.5542 ppb	1.03844	66.81%

QC value within limits for Sn 189.927 Recovery = Not calculated

Sr 421.552†	30.4	0.1463 µg/L	0.00822	0.1463 ppb	0.00822	5.62%

QC value within limits for Sr 421.552 Recovery = Not calculated

Ti 334.940†	18.7	0.0514 µg/L	0.04780	0.0514 ppb	0.04780	92.92%

QC value within limits for Ti 334.940 Recovery = Not calculated

Tl 190.801†	8.0	2.9312 µg/L	1.97716	2.9312 ppb	1.97716	67.45%

QC value within limits for Tl 190.801 Recovery = Not calculated

U 367.007†	-19.5	-5.410 µg/L	2.5354	-5.410 ppb	2.5354	46.87%

QC value within limits for U 367.007 Recovery = Not calculated

V 292.402†	-22.3	-0.2171 µg/L	0.11431	-0.2171 ppb	0.11431	52.65%

QC value within limits for V 292.402 Recovery = Not calculated

Zn 213.857†	-72.2	-0.7079 µg/L	0.12838	-0.7079 ppb	0.12838	18.13%

QC value within limits for Zn 213.857 Recovery = Not calculated

All analyte(s) passed QC.

Sequence No.: 4 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 7:56:13**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19481.5	19481.5	102	%			07:56:42
1	Al 396.153Radial†	16729.7	16488.6	4984.2	µg/L	4984.2	ppb	07:56:42
1	Ca 317.933Radial†	10375.6	10076.5	4934.5	µg/L	4934.5	ppb	07:57:02
1	Fe 238.204 Radial†	9311.6	9121.5	5088.3	µg/L	5088.3	ppb	07:57:02
1	K 766.490 Radial†	11025.5	10168.8	4967.7	µg/L	4967.7	ppb	07:56:42
1	Mg 279.077 IEC†	1042.8	1021.6	5193.2	µg/L	5193.2	ppb	07:57:02
1	Na 589.592 Radial†	5103.8	5200.2	9604.4	µg/L	9604.4	ppb	07:56:42
1	Sr 421.552†	102558.5	102073.6	491.43	µg/L	491.43	ppb	07:56:42
1	Sc 361.383	617562.1	617562.1	102.56	%			07:57:59
1	Y 371.029	520017.9	520017.9	101.71	%			07:57:59
1	Ag 328.068†	76520.9	75200.0	508.62	µg/L	508.62	ppb	07:58:05
1	As 188.979†	888.7	877.9	507.33	µg/L	507.33	ppb	07:58:25
1	B 249.677†	17817.6	17286.4	497.97	µg/L	497.97	ppb	07:58:05
1	Ba 233.527†	57302.8	55987.2	504.42	µg/L	504.42	ppb	07:58:05
1	Be 313.107†	855357.0	841935.4	500.43	µg/L	500.43	ppb	07:57:59
1	Cd 226.502†	33956.3	33323.8	506.71	µg/L	506.71	ppb	07:58:05
1	Co 228.616†	19912.3	19421.0	509.06	µg/L	509.06	ppb	07:58:05
1	Cr 267.716†	24535.6	23684.8	505.00	µg/L	505.00	ppb	07:58:05
1	Cu 324.752†	121798.2	112606.1	502.50	µg/L	502.50	ppb	07:58:05
1	Mn 257.610†	329560.2	320936.9	499.31	µg/L	499.31	ppb	07:58:05
1	Mo 202.031†	7238.4	7029.6	501.03	µg/L	501.03	ppb	07:58:25
1	Ni 231.604†	16195.0	15868.5	513.61	µg/L	513.61	ppb	07:58:05
1	P 214.914†	3471.9	3309.1	2489.4	µg/L	2489.4	ppb	07:58:25
1	Pb 220.353†	3190.4	2970.2	508.56	µg/L	508.56	ppb	07:58:25
1	S 181.975 Axial†	652.7	579.4	1001.3	µg/L	1001.3	ppb	07:58:25
1	Sb 206.836†	1599.1	1490.2	497.12	µg/L	497.12	ppb	07:58:25
1	Se 196.026†	649.4	641.4	506.69	µg/L	506.69	ppb	07:58:25
1	SiO2†	48489.2	43846.2	5361.3	µg/L	5361.3	ppb	07:58:05
1	Si 251.611†	54465.6	52668.4	2491.4	µg/L	2491.4	ppb	07:58:05
1	Sn 189.927†	2259.7	2180.4	502.89	µg/L	502.89	ppb	07:58:25
1	Ti 334.940†	195095.8	190305.8	498.19	µg/L	498.19	ppb	07:58:05
1	Tl 190.801†	1356.4	1362.4	504.28	µg/L	504.28	ppb	07:58:25
1	U 367.007†	2237.5	1819.5	480.4	µg/L	480.4	ppb	07:58:05
1	V 292.402†	50503.5	49441.8	509.13	µg/L	509.13	ppb	07:58:05
1	Zn 213.857†	53946.4	51379.4	501.52	µg/L	501.52	ppb	07:58:05
2	Sc RADIAL	19340.4	19340.4	101	%			07:57:07
2	Al 396.153Radial†	16686.6	16566.0	5007.9	µg/L	5007.9	ppb	07:57:07
2	Ca 317.933Radial†	10347.7	10123.2	4957.4	µg/L	4957.4	ppb	07:57:28
2	Fe 238.204 Radial†	9274.0	9151.0	5104.7	µg/L	5104.7	ppb	07:57:28
2	K 766.490 Radial†	10992.2	10214.9	4990.3	µg/L	4990.3	ppb	07:57:07
2	Mg 279.077 IEC†	1036.2	1022.5	5197.7	µg/L	5197.7	ppb	07:57:28
2	Na 589.592 Radial†	5140.4	5273.0	9738.9	µg/L	9738.9	ppb	07:57:07
2	Sr 421.552†	102808.5	103056.3	496.16	µg/L	496.16	ppb	07:57:07
2	Sc 361.383	626058.7	626058.7	103.97	%			07:58:30
2	Y 371.029	526867.4	526867.4	103.05	%			07:58:30
2	Ag 328.068†	76234.3	73911.8	499.94	µg/L	499.94	ppb	07:58:36
2	As 188.979†	894.3	871.6	503.68	µg/L	503.68	ppb	07:58:56
2	B 249.677†	17785.3	17019.6	490.27	µg/L	490.27	ppb	07:58:36
2	Ba 233.527†	57199.2	55129.2	496.69	µg/L	496.69	ppb	07:58:36
2	Be 313.107†	869066.4	843802.4	501.54	µg/L	501.54	ppb	07:58:30
2	Cd 226.502†	33817.0	32740.6	497.82	µg/L	497.82	ppb	07:58:36
2	Co 228.616†	19885.4	19131.6	501.48	µg/L	501.48	ppb	07:58:36
2	Cr 267.716†	24509.1	23334.8	497.56	µg/L	497.56	ppb	07:58:36
2	Cu 324.752†	121533.1	110739.5	494.20	µg/L	494.20	ppb	07:58:36
2	Mn 257.610†	328342.7	315405.1	490.71	µg/L	490.71	ppb	07:58:36
2	Mo 202.031†	7264.7	6959.1	496.01	µg/L	496.01	ppb	07:58:56
2	Ni 231.604†	16225.9	15683.9	507.64	µg/L	507.64	ppb	07:58:36
2	P 214.914†	3460.2	3251.9	2446.3	µg/L	2446.3	ppb	07:58:56
2	Pb 220.353†	3183.3	2921.1	500.15	µg/L	500.15	ppb	07:58:56

2	S 181.975 Axial†	650.7	568.9	983.01 µg/L	983.01 ppb	07:58:56
2	Sb 206.836†	1612.2	1481.6	494.32 µg/L	494.32 ppb	07:58:56
2	Se 196.026†	654.5	637.7	503.74 µg/L	503.74 ppb	07:58:56
2	SiO2†	48430.3	43147.9	5275.8 µg/L	5275.8 ppb	07:58:36
2	Si 251.611†	54406.0	51890.4	2454.5 µg/L	2454.5 ppb	07:58:36
2	Sn 189.927†	2276.8	2167.0	499.81 µg/L	499.81 ppb	07:58:56
2	Ti 334.940†	194825.6	187464.3	490.76 µg/L	490.76 ppb	07:58:36
2	Tl 190.801†	1361.3	1349.2	499.37 µg/L	499.37 ppb	07:58:56
2	U 367.007†	2191.4	1745.6	459.8 µg/L	459.8 ppb	07:58:36
2	V 292.402†	50476.1	48747.1	501.99 µg/L	501.99 ppb	07:58:36
2	Zn 213.857†	53870.2	50592.3	493.81 µg/L	493.81 ppb	07:58:36
3	Sc RADIAL	19399.8	19399.8	101 %		07:57:33
3	Al 396.153Radial†	16775.2	16602.8	5019.1 µg/L	5019.1 ppb	07:57:33
3	Ca 317.933Radial†	10351.4	10095.5	4943.8 µg/L	4943.8 ppb	07:57:53
3	Fe 238.204 Radial†	9257.8	9106.9	5080.1 µg/L	5080.1 ppb	07:57:53
3	K 766.490 Radial†	11080.6	10268.7	5016.6 µg/L	5016.6 ppb	07:57:33
3	Mg 279.077 IEC†	1042.4	1025.5	5212.9 µg/L	5212.9 ppb	07:57:53
3	Na 589.592 Radial†	5212.2	5328.3	9841.1 µg/L	9841.1 ppb	07:57:33
3	Sr 421.552†	102990.3	102923.9	495.52 µg/L	495.52 ppb	07:57:33
3	Sc 361.383	622477.6	622477.6	103.38 %		07:59:01
3	Y 371.029	523972.5	523972.5	102.49 %		07:59:01
3	Ag 328.068†	75868.8	73980.0	500.39 µg/L	500.39 ppb	07:59:06
3	As 188.979†	878.0	860.7	497.40 µg/L	497.40 ppb	07:59:26
3	B 249.677†	17687.6	17023.5	490.38 µg/L	490.38 ppb	07:59:06
3	Ba 233.527†	56945.0	55199.9	497.32 µg/L	497.32 ppb	07:59:06
3	Be 313.107†	864576.8	844268.0	501.82 µg/L	501.82 ppb	07:59:01
3	Cd 226.502†	33634.3	32751.0	497.98 µg/L	497.98 ppb	07:59:06
3	Co 228.616†	19814.2	19172.7	502.56 µg/L	502.56 ppb	07:59:06
3	Cr 267.716†	24355.8	23322.1	497.28 µg/L	497.28 ppb	07:59:06
3	Cu 324.752†	120901.3	110800.8	494.47 µg/L	494.47 ppb	07:59:06
3	Mn 257.610†	326885.3	315812.0	491.34 µg/L	491.34 ppb	07:59:06
3	Mo 202.031†	7199.4	6936.1	494.37 µg/L	494.37 ppb	07:59:26
3	Ni 231.604†	16069.9	15622.7	505.66 µg/L	505.66 ppb	07:59:06
3	P 214.914†	3447.3	3258.5	2451.3 µg/L	2451.3 ppb	07:59:26
3	Pb 220.353†	3154.5	2910.9	498.39 µg/L	498.39 ppb	07:59:26
3	S 181.975 Axial†	648.9	570.7	986.27 µg/L	986.27 ppb	07:59:26
3	Sb 206.836†	1583.2	1462.5	487.88 µg/L	487.88 ppb	07:59:26
3	Se 196.026†	645.4	632.5	499.68 µg/L	499.68 ppb	07:59:26
3	SiO2†	48401.9	43388.4	5305.0 µg/L	5305.0 ppb	07:59:06
3	Si 251.611†	54340.4	52127.9	2465.8 µg/L	2465.8 ppb	07:59:06
3	Sn 189.927†	2250.3	2154.0	496.81 µg/L	496.81 ppb	07:59:26
3	Ti 334.940†	193733.0	187485.4	490.82 µg/L	490.82 ppb	07:59:06
3	Tl 190.801†	1342.8	1338.8	495.54 µg/L	495.54 ppb	07:59:26
3	U 367.007†	2180.9	1747.5	460.4 µg/L	460.4 ppb	07:59:06
3	V 292.402†	50190.9	48750.6	502.00 µg/L	502.00 ppb	07:59:06
3	Zn 213.857†	53576.5	50606.3	493.96 µg/L	493.96 ppb	07:59:06

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	622032.8	103.31	%	0.708				0.69%
Sc RADIAL	19407.3	101	%	0.4				0.37%
Y 371.029	523619.3	102.42	%	0.673				0.66%
Ag 328.068†	74363.9	502.98	µg/L	4.885	502.98	ppb	4.885	0.97%
QC value within limits for Ag 328.068 Recovery = 100.60%								
Al 396.153Radial†	16552.5	5003.7	µg/L	17.81	5003.7	ppb	17.81	0.36%
QC value within limits for Al 396.153Radial Recovery = 100.07%								
As 188.979†	870.1	502.80	µg/L	5.022	502.80	ppb	5.022	1.00%
QC value within limits for As 188.979 Recovery = 100.56%								
B 249.677†	17109.8	492.87	µg/L	4.413	492.87	ppb	4.413	0.90%
QC value within limits for B 249.677 Recovery = 98.57%								
Ba 233.527†	55438.7	499.48	µg/L	4.292	499.48	ppb	4.292	0.86%
QC value within limits for Ba 233.527 Recovery = 99.90%								
Be 313.107†	843335.3	501.26	µg/L	0.732	501.26	ppb	0.732	0.15%
QC value within limits for Be 313.107 Recovery = 100.25%								
Ca 317.933Radial†	10098.4	4945.3	µg/L	11.51	4945.3	ppb	11.51	0.23%
QC value within limits for Ca 317.933Radial Recovery = 98.91%								
Cd 226.502†	32938.5	500.84	µg/L	5.083	500.84	ppb	5.083	1.01%
QC value within limits for Cd 226.502 Recovery = 100.17%								
Co 228.616†	19241.8	504.37	µg/L	4.102	504.37	ppb	4.102	0.81%

```
   QC value within limits for Co 228.616  Recovery = 100.87%
Cr 267.716†          23447.2      499.95 µg/L         4.381      499.95 ppb          4.381   0.88%
   QC value within limits for Cr 267.716  Recovery = 99.99%
Cu 324.752†         111382.2      497.05 µg/L         4.717      497.05 ppb          4.717   0.95%
   QC value within limits for Cu 324.752  Recovery = 99.41%
Fe 238.204 Radial†    9126.4      5091.1 µg/L         12.51      5091.1 ppb          12.51   0.25%
   QC value within limits for Fe 238.204 Radial  Recovery = 101.82%
K 766.490 Radial†    10217.4      4991.6 µg/L         24.50      4991.6 ppb          24.50   0.49%
   QC value within limits for K 766.490 Radial  Recovery = 99.83%
Mg 279.077 IEC†       1023.2      5201.3 µg/L         10.33      5201.3 ppb          10.33   0.20%
   QC value within limits for Mg 279.077 IEC  Recovery = 104.03%
Mn 257.610†         317384.7      493.79 µg/L         4.793      493.79 ppb          4.793   0.97%
   QC value within limits for Mn 257.610  Recovery = 98.76%
Mo 202.031†           6974.9      497.13 µg/L         3.470      497.13 ppb          3.470   0.70%
   QC value within limits for Mo 202.031  Recovery = 99.43%
Na 589.592 Radial†    5267.2      9728.1 µg/L        118.70      9728.1 ppb         118.70   1.22%
   QC value within limits for Na 589.592 Radial  Recovery = 97.28%
Ni 231.604†          15725.0      508.97 µg/L         4.140      508.97 ppb          4.140   0.81%
   QC value within limits for Ni 231.604  Recovery = 101.79%
P 214.914†            3273.2      2462.3 µg/L         23.56      2462.3 ppb          23.56   0.96%
   QC value within limits for P 214.914  Recovery = 98.49%
Pb 220.353†           2934.1      502.37 µg/L         5.438      502.37 ppb          5.438   1.08%
   QC value within limits for Pb 220.353  Recovery = 100.47%
S 181.975 Axial†       573.0      990.18 µg/L         9.740      990.18 ppb          9.740   0.98%
   QC value within limits for S 181.975 Axial  Recovery = 99.02%
Sb 206.836†           1478.1      493.11 µg/L         4.737      493.11 ppb          4.737   0.96%
   QC value within limits for Sb 206.836  Recovery = 98.62%
Se 196.026†            637.2      503.37 µg/L         3.523      503.37 ppb          3.523   0.70%
   QC value within limits for Se 196.026  Recovery = 100.67%
SiO2†                43460.8      5314.0 µg/L         43.45      5314.0 ppb          43.45   0.82%
   QC value within limits for SiO2  Recovery = 99.37%
Si 251.611†          52228.9      2470.6 µg/L         18.88      2470.6 ppb          18.88   0.76%
   QC value within limits for Si 251.611  Recovery = 98.82%
Sn 189.927†           2167.2      499.83 µg/L         3.043      499.83 ppb          3.043   0.61%
   QC value within limits for Sn 189.927  Recovery = 99.97%
Sr 421.552†         102684.6      494.37 µg/L         2.567      494.37 ppb          2.567   0.52%
   QC value within limits for Sr 421.552  Recovery = 98.87%
Ti 334.940†         188418.5      493.26 µg/L         4.275      493.26 ppb          4.275   0.87%
   QC value within limits for Ti 334.940  Recovery = 98.65%
Tl 190.801†           1350.1      499.73 µg/L         4.385      499.73 ppb          4.385   0.88%
   QC value within limits for Tl 190.801  Recovery = 99.95%
U 367.007†            1770.9       466.9 µg/L         11.70       466.9 ppb          11.70   2.51%
   QC value within limits for U 367.007  Recovery = 93.38%
V 292.402†           48979.8      504.37 µg/L         4.119      504.37 ppb          4.119   0.82%
   QC value within limits for V 292.402  Recovery = 100.87%
Zn 213.857†          50859.3      496.43 µg/L         4.407      496.43 ppb          4.407   0.89%
   QC value within limits for Zn 213.857  Recovery = 99.29%
All analyte(s) passed QC.
```

Sequence No.: 5 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/7/2012 7:59:34**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19164.0	19164.0	100	%			08:00:02
1	Al 396.153Radial†	-84.7	-35.7	-10.884	µg/L	-10.884	ppb	08:00:02
1	Ca 317.933Radial†	107.8	-11.6	-5.6868	µg/L	-5.6868	ppb	08:00:22
1	Fe 238.204 Radial†	36.6	7.8	4.3752	µg/L	4.3752	ppb	08:00:22
1	K 766.490 Radial†	719.3	52.9	25.858	µg/L	25.858	ppb	08:00:02
1	Mg 279.077 IEC†	1.5	-1.6	-8.3001	µg/L	-8.3001	ppb	08:00:22
1	Na 589.592 Radial†	-189.5	-4.4	-8.1969	µg/L	-8.1969	ppb	08:00:02
1	Sr 421.552†	-1243.9	50.1	0.2412	µg/L	0.2412	ppb	08:00:02
1	Sc 361.383	604365.4	604365.4	100.37	%			08:01:18
1	Y 371.029	513790.1	513790.1	100.50	%			08:01:18
1	Ag 328.068†	-546.2	47.5	0.3167	µg/L	0.3167	ppb	08:01:18
1	As 188.979†	-10.9	0.6	0.3273	µg/L	0.3273	ppb	08:01:38
1	B 249.677†	130.5	44.2	1.2745	µg/L	1.2745	ppb	08:01:38
1	Ba 233.527†	-117.5	-0.5	-0.0050	µg/L	-0.0050	ppb	08:01:38
1	Be 313.107†	-7809.1	177.7	0.1058	µg/L	0.1058	ppb	08:01:18
1	Cd 226.502†	-211.4	5.7	0.0859	µg/L	0.0859	ppb	08:01:38
1	Co 228.616†	0.2	6.6	0.1754	µg/L	0.1754	ppb	08:01:38
1	Cr 267.716†	219.3	-19.0	-0.4068	µg/L	-0.4068	ppb	08:01:38
1	Cu 324.752†	6182.9	12.2	0.0542	µg/L	0.0542	ppb	08:01:18
1	Mn 257.610†	387.1	-0.4	0.0001	µg/L	0.0001	ppb	08:01:38
1	Mo 202.031†	47.2	19.2	1.3676	µg/L	1.3676	ppb	08:01:38
1	Ni 231.604†	-79.7	-1.1	-0.0368	µg/L	-0.0368	ppb	08:01:38
1	P 214.914†	63.5	-12.7	-9.6663	µg/L	-9.6663	ppb	08:01:38
1	Pb 220.353†	152.8	11.8	2.0310	µg/L	2.0310	ppb	08:01:38
1	S 181.975 Axial†	59.4	2.2	3.8903	µg/L	3.8903	ppb	08:01:38
1	Sb 206.836†	81.0	11.7	3.9712	µg/L	3.9712	ppb	08:01:38
1	Se 196.026†	-13.1	-4.8	-3.7787	µg/L	-3.7787	ppb	08:01:38
1	SiO2†	3272.6	-170.5	-20.714	µg/L	-20.714	ppb	08:01:18
1	Si 251.611†	255.6	-181.2	-8.6259	µg/L	-8.6259	ppb	08:01:38
1	Sn 189.927†	34.9	12.0	2.7508	µg/L	2.7508	ppb	08:01:38
1	Ti 334.940†	-62.7	23.9	0.0619	µg/L	0.0619	ppb	08:01:18
1	Tl 190.801†	-30.1	9.9	3.6530	µg/L	3.6530	ppb	08:01:38
1	U 367.007†	368.7	5.3	1.444	µg/L	1.444	ppb	08:01:18
1	V 292.402†	-246.0	-44.5	-0.4364	µg/L	-0.4364	ppb	08:01:18
1	Zn 213.857†	1156.5	-66.4	-0.6543	µg/L	-0.6543	ppb	08:01:38
2	Sc RADIAL	19283.4	19283.4	101	%			08:00:27
2	Al 396.153Radial†	-29.8	19.4	5.8290	µg/L	5.8290	ppb	08:00:27
2	Ca 317.933Radial†	102.4	-17.6	-8.6279	µg/L	-8.6279	ppb	08:00:47
2	Fe 238.204 Radial†	34.4	5.4	2.9920	µg/L	2.9920	ppb	08:00:47
2	K 766.490 Radial†	718.7	47.9	23.413	µg/L	23.413	ppb	08:00:27
2	Mg 279.077 IEC†	7.1	3.9	19.828	µg/L	19.828	ppb	08:00:47
2	Na 589.592 Radial†	-210.1	-23.7	-43.855	µg/L	-43.855	ppb	08:00:27
2	Sr 421.552†	-1333.8	-31.4	-0.1513	µg/L	-0.1513	ppb	08:00:27
2	Sc 361.383	600819.4	600819.4	99.783	%			08:01:44
2	Y 371.029	509864.8	509864.8	99.728	%			08:01:44
2	Ag 328.068†	-611.1	-20.7	-0.1387	µg/L	-0.1387	ppb	08:01:44
2	As 188.979†	-11.3	0.1	0.0478	µg/L	0.0478	ppb	08:02:04
2	B 249.677†	141.7	56.2	1.6227	µg/L	1.6227	ppb	08:02:04
2	Ba 233.527†	-103.8	12.5	0.1124	µg/L	0.1124	ppb	08:02:04
2	Be 313.107†	-7863.1	77.8	0.0461	µg/L	0.0461	ppb	08:01:44
2	Cd 226.502†	-189.1	26.8	0.4069	µg/L	0.4069	ppb	08:02:04
2	Co 228.616†	0.5	6.9	0.1823	µg/L	0.1823	ppb	08:02:04
2	Cr 267.716†	213.1	-23.9	-0.5094	µg/L	-0.5094	ppb	08:02:04
2	Cu 324.752†	6160.4	26.1	0.1164	µg/L	0.1164	ppb	08:01:44
2	Mn 257.610†	353.7	-31.5	-0.0493	µg/L	-0.0493	ppb	08:02:04
2	Mo 202.031†	44.0	16.2	1.1547	µg/L	1.1547	ppb	08:02:04
2	Ni 231.604†	-100.4	-22.3	-0.7229	µg/L	-0.7229	ppb	08:02:04
2	P 214.914†	70.9	-4.9	-3.7378	µg/L	-3.7378	ppb	08:02:04
2	Pb 220.353†	160.1	20.1	3.4310	µg/L	3.4310	ppb	08:02:04

2	S 181.975 Axial†	60.2	3.4	5.8753 µg/L	5.8753 ppb	08:02:04
2	Sb 206.836†	86.0	17.2	5.8267 µg/L	5.8267 ppb	08:02:04
2	Se 196.026†	-6.8	1.4	1.0868 µg/L	1.0868 ppb	08:02:04
2	SiO2†	3261.4	-162.6	-19.750 µg/L	-19.750 ppb	08:01:44
2	Si 251.611†	251.4	-183.9	-8.7465 µg/L	-8.7465 ppb	08:02:04
2	Sn 189.927†	26.2	3.5	0.8144 µg/L	0.8144 ppb	08:02:04
2	Ti 334.940†	-40.5	45.8	0.1193 µg/L	0.1193 ppb	08:01:44
2	Tl 190.801†	-32.0	7.8	2.8895 µg/L	2.8895 ppb	08:02:04
2	U 367.007†	364.0	2.8	0.754 µg/L	0.754 ppb	08:01:44
2	V 292.402†	-210.9	-10.7	-0.0969 µg/L	-0.0969 ppb	08:01:44
2	Zn 213.857†	1134.6	-81.6	-0.7989 µg/L	-0.7989 ppb	08:02:04
3	Sc RADIAL	19456.0	19456.0	102 %		08:00:52
3	Al 396.153Radial†	-107.7	-57.1	-17.375 µg/L	-17.375 ppb	08:00:52
3	Ca 317.933Radial†	104.9	-16.1	-7.8624 µg/L	-7.8624 ppb	08:01:12
3	Fe 238.204 Radial†	39.9	10.6	5.8789 µg/L	5.8789 ppb	08:01:12
3	K 766.490 Radial†	738.5	61.0	29.818 µg/L	29.818 ppb	08:00:52
3	Mg 279.077 IEC†	6.5	3.2	16.443 µg/L	16.443 ppb	08:01:12
3	Na 589.592 Radial†	-192.7	-4.7	-8.7720 µg/L	-8.7720 ppb	08:00:52
3	Sr 421.552†	-1280.8	32.5	0.1563 µg/L	0.1563 ppb	08:00:52
3	Sc 361.383	603399.0	603399.0	100.21 %		08:02:09
3	Y 371.029	512643.3	512643.3	100.27 %		08:02:09
3	Ag 328.068†	-556.5	36.3	0.2419 µg/L	0.2419 ppb	08:02:09
3	As 188.979†	-17.3	-5.8	-3.3731 µg/L	-3.3731 ppb	08:02:29
3	B 249.677†	147.4	61.3	1.7725 µg/L	1.7725 ppb	08:02:29
3	Ba 233.527†	-112.1	4.8	0.0419 µg/L	0.0419 ppb	08:02:29
3	Be 313.107†	-7893.6	81.0	0.0484 µg/L	0.0484 ppb	08:02:09
3	Cd 226.502†	-219.0	-2.2	-0.0338 µg/L	-0.0338 ppb	08:02:29
3	Co 228.616†	-17.7	-11.3	-0.2949 µg/L	-0.2949 ppb	08:02:29
3	Cr 267.716†	251.9	13.9	0.2953 µg/L	0.2953 ppb	08:02:29
3	Cu 324.752†	6307.0	145.9	0.6485 µg/L	0.6485 ppb	08:02:09
3	Mn 257.610†	383.5	-3.3	-0.0050 µg/L	-0.0050 ppb	08:02:29
3	Mo 202.031†	47.9	19.9	1.4214 µg/L	1.4214 ppb	08:02:29
3	Ni 231.604†	-75.3	3.2	0.1033 µg/L	0.1033 ppb	08:02:29
3	P 214.914†	78.8	2.6	1.9122 µg/L	1.9122 ppb	08:02:29
3	Pb 220.353†	146.8	6.1	1.0498 µg/L	1.0498 ppb	08:02:29
3	S 181.975 Axial†	49.3	-7.8	-13.450 µg/L	-13.450 ppb	08:02:29
3	Sb 206.836†	86.7	17.6	5.9322 µg/L	5.9322 ppb	08:02:29
3	Se 196.026†	-11.1	-2.8	-2.2032 µg/L	-2.2032 ppb	08:02:29
3	SiO2†	3294.8	-143.2	-17.367 µg/L	-17.367 ppb	08:02:09
3	Si 251.611†	266.8	-169.6	-8.0820 µg/L	-8.0820 ppb	08:02:29
3	Sn 189.927†	39.3	16.5	3.7865 µg/L	3.7865 ppb	08:02:29
3	Ti 334.940†	-102.2	-15.6	-0.0422 µg/L	-0.0422 ppb	08:02:09
3	Tl 190.801†	-34.2	5.7	2.1082 µg/L	2.1082 ppb	08:02:29
3	U 367.007†	368.7	5.9	1.612 µg/L	1.612 ppb	08:02:09
3	V 292.402†	-252.2	-51.1	-0.5006 µg/L	-0.5006 ppb	08:02:09
3	Zn 213.857†	1153.2	-67.8	-0.6692 µg/L	-0.6692 ppb	08:02:29

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	602861.3	100.12	%	0.304				0.30%
Sc RADIAL	19301.2	101	%	0.8				0.76%
Y 371.029	512099.4	100.16	%	0.395				0.39%
Ag 328.068†	21.0	0.1400	µg/L	0.24420	0.1400	ppb	0.24420	174.47%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-24.5	-7.4765	µg/L	11.97136	-7.4765	ppb	11.97136	160.12%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.7	-0.9993	µg/L	2.06049	-0.9993	ppb	2.06049	206.18%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	53.9	1.5566	µg/L	0.25547	1.5566	ppb	0.25547	16.41%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	5.6	0.0498	µg/L	0.05909	0.0498	ppb	0.05909	118.64%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	112.2	0.0668	µg/L	0.03378	0.0668	ppb	0.03378	50.57%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-15.1	-7.3923	µg/L	1.52585	-7.3923	ppb	1.52585	20.64%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	10.1	0.1530	µg/L	0.22791	0.1530	ppb	0.22791	148.95%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	0.7	0.0210	µg/L	0.27353	0.0210	ppb	0.27353	>999.9%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†               -9.6     -0.2070 µg/L       0.43801     -0.2070 ppb        0.43801 211.65%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†               61.4      0.2730 µg/L       0.32668      0.2730 ppb        0.32668 119.66%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         7.9      4.4154 µg/L       1.44386      4.4154 ppb        1.44386  32.70%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         53.9      26.363 µg/L        3.2322      26.363 ppb         3.2322  12.26%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            1.8      9.3236 µg/L      15.35609      9.3236 ppb       15.35609 164.70%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -11.7     -0.0181 µg/L       0.02716     -0.0181 ppb        0.02716 150.17%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               18.4      1.3146 µg/L       0.14103      1.3146 ppb        0.14103  10.73%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -11.0     -20.275 µg/L       20.4235     -20.275 ppb        20.4235 100.73%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               -6.8     -0.2188 µg/L       0.44218     -0.2188 ppb        0.44218 202.12%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -5.0     -3.8306 µg/L       5.78981     -3.8306 ppb        5.78981 151.14%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               12.6      2.1706 µg/L       1.19677      2.1706 ppb        1.19677  55.14%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -0.7     -1.2282 µg/L      10.63104     -1.2282 ppb       10.63104 865.58%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               15.5      5.2434 µg/L       1.10300      5.2434 ppb        1.10300  21.04%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -2.1     -1.6317 µg/L       2.48259     -1.6317 ppb        2.48259 152.15%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -158.8     -19.277 µg/L        1.7230     -19.277 ppb         1.7230   8.94%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -178.3     -8.4848 µg/L       0.35403     -8.4848 ppb        0.35403   4.17%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               10.7      2.4505 µg/L       1.50863      2.4505 ppb        1.50863  61.56%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               17.0      0.0821 µg/L       0.20651      0.0821 ppb        0.20651 251.63%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†               18.0      0.0464 µg/L       0.08185      0.0464 ppb        0.08185 176.56%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                7.8      2.8836 µg/L       0.77241      2.8836 ppb        0.77241  26.79%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                 4.7       1.270 µg/L        0.4545       1.270 ppb         0.4545  35.78%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -35.4     -0.3446 µg/L       0.21694     -0.3446 ppb        0.21694  62.95%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -71.9     -0.7075 µg/L       0.07952     -0.7075 ppb        0.07952  11.24%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 10 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 8:32:35**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19531.2	19531.2	102	%			08:33:05
1	Al 396.153Radial†	16797.4	16513.2	4991.9	µg/L	4991.9	ppb	08:33:05
1	Ca 317.933Radial†	10173.1	9852.1	4824.6	µg/L	4824.6	ppb	08:33:25
1	Fe 238.204 Radial†	9085.3	8876.4	4951.7	µg/L	4951.7	ppb	08:33:25
1	K 766.490 Radial†	11039.3	10154.7	4960.8	µg/L	4960.8	ppb	08:33:05
1	Mg 279.077 IEC†	1028.5	1005.0	5108.6	µg/L	5108.6	ppb	08:33:25
1	Na 589.592 Radial†	5235.7	5316.7	9819.6	µg/L	9819.6	ppb	08:33:05
1	Sr 421.552†	102621.3	101879.0	490.49	µg/L	490.49	ppb	08:33:05
1	Sc 361.383	616893.2	616893.2	102.45	%			08:34:22
1	Y 371.029	519108.6	519108.6	101.54	%			08:34:22
1	Ag 328.068†	75790.5	74567.9	504.32	µg/L	504.32	ppb	08:34:28
1	As 188.979†	871.9	862.5	498.43	µg/L	498.43	ppb	08:34:48
1	B 249.677†	17567.0	17060.7	491.47	µg/L	491.47	ppb	08:34:28
1	Ba 233.527†	56763.5	55521.3	500.22	µg/L	500.22	ppb	08:34:28
1	Be 313.107†	850245.7	837850.6	498.00	µg/L	498.00	ppb	08:34:22
1	Cd 226.502†	33483.5	32898.3	500.25	µg/L	500.25	ppb	08:34:28
1	Co 228.616†	19719.9	19254.2	504.69	µg/L	504.69	ppb	08:34:28
1	Cr 267.716†	24238.9	23421.2	499.39	µg/L	499.39	ppb	08:34:28
1	Cu 324.752†	120723.8	111686.2	498.39	µg/L	498.39	ppb	08:34:28
1	Mn 257.610†	325884.1	317697.2	494.27	µg/L	494.27	ppb	08:34:28
1	Mo 202.031†	7161.7	6962.4	496.23	µg/L	496.23	ppb	08:34:48
1	Ni 231.604†	16010.8	15705.8	508.34	µg/L	508.34	ppb	08:34:28
1	P 214.914†	3435.9	3277.6	2465.8	µg/L	2465.8	ppb	08:34:48
1	Pb 220.353†	3142.5	2926.8	501.09	µg/L	501.09	ppb	08:34:48
1	S 181.975 Axial†	644.0	571.7	987.87	µg/L	987.87	ppb	08:34:48
1	Sb 206.836†	1573.2	1466.5	489.22	µg/L	489.22	ppb	08:34:48
1	Se 196.026†	638.6	631.6	498.88	µg/L	498.88	ppb	08:34:48
1	SiO2†	47974.7	43395.3	5306.0	µg/L	5306.0	ppb	08:34:28
1	Si 251.611†	53855.7	52130.7	2465.9	µg/L	2465.9	ppb	08:34:28
1	Sn 189.927†	2226.4	2150.3	495.96	µg/L	495.96	ppb	08:34:48
1	Ti 334.940†	193373.4	188830.8	494.34	µg/L	494.34	ppb	08:34:28
1	Tl 190.801†	1330.2	1338.2	495.33	µg/L	495.33	ppb	08:34:48
1	U 367.007†	2172.9	1758.8	464.2	µg/L	464.2	ppb	08:34:28
1	V 292.402†	50061.3	49063.5	505.21	µg/L	505.21	ppb	08:34:28
1	Zn 213.857†	53376.2	50879.9	496.65	µg/L	496.65	ppb	08:34:28
2	Sc RADIAL	19091.4	19091.4	99.7	%			08:33:30
2	Al 396.153Radial†	16551.7	16646.0	5032.4	µg/L	5032.4	ppb	08:33:30
2	Ca 317.933Radial†	10114.8	10023.3	4908.5	µg/L	4908.5	ppb	08:33:50
2	Fe 238.204 Radial†	9012.9	9008.9	5025.6	µg/L	5025.6	ppb	08:33:50
2	K 766.490 Radial†	10791.7	10155.7	4961.4	µg/L	4961.4	ppb	08:33:30
2	Mg 279.077 IEC†	1017.9	1017.5	5172.4	µg/L	5172.4	ppb	08:33:50
2	Na 589.592 Radial†	5169.4	5368.4	9915.1	µg/L	9915.1	ppb	08:33:30
2	Sr 421.552†	101183.1	102753.7	494.70	µg/L	494.70	ppb	08:33:30
2	Sc 361.383	616335.8	616335.8	102.36	%			08:34:53
2	Y 371.029	518987.1	518987.1	101.51	%			08:34:53
2	Ag 328.068†	75273.3	74129.6	501.38	µg/L	501.38	ppb	08:34:58
2	As 188.979†	869.2	860.6	497.33	µg/L	497.33	ppb	08:35:19
2	B 249.677†	17457.7	16969.4	488.83	µg/L	488.83	ppb	08:34:58
2	Ba 233.527†	56089.9	54913.3	494.75	µg/L	494.75	ppb	08:34:58
2	Be 313.107†	851559.4	839884.6	499.21	µg/L	499.21	ppb	08:34:53
2	Cd 226.502†	33099.6	32552.8	494.98	µg/L	494.98	ppb	08:34:58
2	Co 228.616†	19554.9	19110.5	500.92	µg/L	500.92	ppb	08:34:58
2	Cr 267.716†	24007.9	23216.9	495.03	µg/L	495.03	ppb	08:34:58
2	Cu 324.752†	120014.0	111099.4	495.78	µg/L	495.78	ppb	08:34:58
2	Mn 257.610†	323012.3	315179.3	490.36	µg/L	490.36	ppb	08:34:58
2	Mo 202.031†	7059.2	6868.6	489.56	µg/L	489.56	ppb	08:35:19
2	Ni 231.604†	15950.9	15661.4	506.91	µg/L	506.91	ppb	08:34:58
2	P 214.914†	3382.2	3228.2	2428.3	µg/L	2428.3	ppb	08:35:19
2	Pb 220.353†	3083.4	2871.9	491.67	µg/L	491.67	ppb	08:35:19

2	S 181.975 Axial†	628.1	556.7	961.89 µg/L	961.89 ppb	08:35:19
2	Sb 206.836†	1567.1	1462.0	487.68 µg/L	487.68 ppb	08:35:19
2	Se 196.026†	636.7	630.2	497.90 µg/L	497.90 ppb	08:35:19
2	SiO2†	47827.2	43293.5	5293.4 µg/L	5293.4 ppb	08:34:58
2	Si 251.611†	53553.0	51882.5	2454.2 µg/L	2454.2 ppb	08:34:58
2	Sn 189.927†	2196.4	2123.0	489.69 µg/L	489.69 ppb	08:35:19
2	Ti 334.940†	191708.4	187374.9	490.52 µg/L	490.52 ppb	08:34:58
2	Tl 190.801†	1316.5	1326.0	490.85 µg/L	490.85 ppb	08:35:19
2	U 367.007†	2199.6	1786.9	471.6 µg/L	471.6 ppb	08:34:58
2	V 292.402†	49621.2	48677.8	501.21 µg/L	501.21 ppb	08:34:58
2	Zn 213.857†	53092.7	50650.0	494.39 µg/L	494.39 ppb	08:34:58
3	Sc RADIAL	19236.6	19236.6	100 %		08:33:56
3	Al 396.153Radial†	16550.5	16519.6	4993.7 µg/L	4993.7 ppb	08:33:56
3	Ca 317.933Radial†	10169.9	10001.6	4897.8 µg/L	4897.8 ppb	08:34:16
3	Fe 238.204 Radial†	9070.2	8997.8	5019.3 µg/L	5019.3 ppb	08:34:16
3	K 766.490 Radial†	10903.7	10185.4	4975.9 µg/L	4975.9 ppb	08:33:56
3	Mg 279.077 IEC†	1020.5	1012.4	5146.6 µg/L	5146.6 ppb	08:34:16
3	Na 589.592 Radial†	5157.6	5317.6	9821.3 µg/L	9821.3 ppb	08:33:56
3	Sr 421.552†	101400.0	102203.5	492.05 µg/L	492.05 ppb	08:33:56
3	Sc 361.383	610742.6	610742.6	101.43 %		08:35:24
3	Y 371.029	514065.8	514065.8	100.55 %		08:35:24
3	Ag 328.068†	74811.0	74347.3	502.84 µg/L	502.84 ppb	08:35:29
3	As 188.979†	869.7	868.9	502.11 µg/L	502.11 ppb	08:35:49
3	B 249.677†	17323.7	16993.5	489.52 µg/L	489.52 ppb	08:35:29
3	Ba 233.527†	55806.4	55135.7	496.75 µg/L	496.75 ppb	08:35:29
3	Be 313.107†	839931.7	836039.8	496.93 µg/L	496.93 ppb	08:35:24
3	Cd 226.502†	32907.6	32659.7	496.60 µg/L	496.60 ppb	08:35:29
3	Co 228.616†	19416.8	19149.3	501.95 µg/L	501.95 ppb	08:35:29
3	Cr 267.716†	23862.2	23288.1	496.55 µg/L	496.55 ppb	08:35:29
3	Cu 324.752†	119324.3	111493.1	497.53 µg/L	497.53 ppb	08:35:29
3	Mn 257.610†	321114.7	316198.4	491.94 µg/L	491.94 ppb	08:35:29
3	Mo 202.031†	7123.4	6995.0	498.56 µg/L	498.56 ppb	08:35:49
3	Ni 231.604†	15730.7	15587.1	504.50 µg/L	504.50 ppb	08:35:29
3	P 214.914†	3408.7	3284.6	2471.0 µg/L	2471.0 ppb	08:35:49
3	Pb 220.353†	3103.9	2919.7	499.90 µg/L	499.90 ppb	08:35:49
3	S 181.975 Axial†	638.3	572.4	989.12 µg/L	989.12 ppb	08:35:49
3	Sb 206.836†	1562.3	1471.3	490.94 µg/L	490.94 ppb	08:35:49
3	Se 196.026†	646.6	645.7	510.00 µg/L	510.00 ppb	08:35:49
3	SiO2†	47540.7	43438.9	5311.2 µg/L	5311.2 ppb	08:35:29
3	Si 251.611†	53343.5	52155.1	2467.0 µg/L	2467.0 ppb	08:35:29
3	Sn 189.927†	2219.2	2165.2	499.37 µg/L	499.37 ppb	08:35:49
3	Ti 334.940†	190443.0	187842.5	491.75 µg/L	491.75 ppb	08:35:29
3	Tl 190.801†	1333.7	1354.7	501.42 µg/L	501.42 ppb	08:35:49
3	U 367.007†	2167.6	1775.0	468.4 µg/L	468.4 ppb	08:35:29
3	V 292.402†	49323.1	48827.8	502.84 µg/L	502.84 ppb	08:35:29
3	Zn 213.857†	52617.4	50656.4	494.47 µg/L	494.47 ppb	08:35:29

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	614657.2	102.08	%	0.565				0.55%
Sc RADIAL	19286.4	101	%	1.2				1.16%
Y 371.029	517387.2	101.20	%	0.563				0.56%
Ag 328.068†	74348.2	502.85	µg/L	1.472	502.85	ppb	1.472	0.29%
QC value within limits for Ag 328.068 Recovery = 100.57%								
Al 396.153Radial†	16559.6	5006.0	µg/L	22.90	5006.0	ppb	22.90	0.46%
QC value within limits for Al 396.153Radial Recovery = 100.12%								
As 188.979†	864.0	499.29	µg/L	2.505	499.29	ppb	2.505	0.50%
QC value within limits for As 188.979 Recovery = 99.86%								
B 249.677†	17007.9	489.94	µg/L	1.370	489.94	ppb	1.370	0.28%
QC value within limits for B 249.677 Recovery = 97.99%								
Ba 233.527†	55190.1	497.24	µg/L	2.772	497.24	ppb	2.772	0.56%
QC value within limits for Ba 233.527 Recovery = 99.45%								
Be 313.107†	837925.0	498.05	µg/L	1.143	498.05	ppb	1.143	0.23%
QC value within limits for Be 313.107 Recovery = 99.61%								
Ca 317.933Radial†	9959.0	4877.0	µg/L	45.65	4877.0	ppb	45.65	0.94%
QC value within limits for Ca 317.933Radial Recovery = 97.54%								
Cd 226.502†	32703.6	497.28	µg/L	2.699	497.28	ppb	2.699	0.54%
QC value within limits for Cd 226.502 Recovery = 99.46%								
Co 228.616†	19171.3	502.52	µg/L	1.950	502.52	ppb	1.950	0.39%

QC value within limits for Co 228.616 Recovery = 100.50%

Cr 267.716†	23308.7	496.99 µg/L	2.215	496.99 ppb	2.215	0.45%

QC value within limits for Cr 267.716 Recovery = 99.40%

Cu 324.752†	111426.3	497.23 µg/L	1.333	497.23 ppb	1.333	0.27%

QC value within limits for Cu 324.752 Recovery = 99.45%

Fe 238.204 Radial†	8961.0	4998.9 µg/L	40.94	4998.9 ppb	40.94	0.82%

QC value within limits for Fe 238.204 Radial Recovery = 99.98%

K 766.490 Radial†	10165.3	4966.1 µg/L	8.54	4966.1 ppb	8.54	0.17%

QC value within limits for K 766.490 Radial Recovery = 99.32%

Mg 279.077 IEC†	1011.6	5142.5 µg/L	32.13	5142.5 ppb	32.13	0.62%

QC value within limits for Mg 279.077 IEC Recovery = 102.85%

Mn 257.610†	316358.3	492.19 µg/L	1.966	492.19 ppb	1.966	0.40%

QC value within limits for Mn 257.610 Recovery = 98.44%

Mo 202.031†	6942.0	494.78 µg/L	4.673	494.78 ppb	4.673	0.94%

QC value within limits for Mo 202.031 Recovery = 98.96%

Na 589.592 Radial†	5334.3	9852.0 µg/L	54.66	9852.0 ppb	54.66	0.55%

QC value within limits for Na 589.592 Radial Recovery = 98.52%

Ni 231.604†	15651.4	506.58 µg/L	1.942	506.58 ppb	1.942	0.38%

QC value within limits for Ni 231.604 Recovery = 101.32%

P 214.914†	3263.5	2455.0 µg/L	23.26	2455.0 ppb	23.26	0.95%

QC value within limits for P 214.914 Recovery = 98.20%

Pb 220.353†	2906.1	497.55 µg/L	5.129	497.55 ppb	5.129	1.03%

QC value within limits for Pb 220.353 Recovery = 99.51%

S 181.975 Axial†	566.9	979.63 µg/L	15.373	979.63 ppb	15.373	1.57%

QC value within limits for S 181.975 Axial Recovery = 97.96%

Sb 206.836†	1466.6	489.28 µg/L	1.627	489.28 ppb	1.627	0.33%

QC value within limits for Sb 206.836 Recovery = 97.86%

Se 196.026†	635.8	502.26 µg/L	6.720	502.26 ppb	6.720	1.34%

QC value within limits for Se 196.026 Recovery = 100.45%

SiO2†	43375.9	5303.5 µg/L	9.13	5303.5 ppb	9.13	0.17%

QC value within limits for SiO2 Recovery = 99.18%

Si 251.611†	52056.1	2462.4 µg/L	7.08	2462.4 ppb	7.08	0.29%

QC value within limits for Si 251.611 Recovery = 98.50%

Sn 189.927†	2146.2	495.00 µg/L	4.910	495.00 ppb	4.910	0.99%

QC value within limits for Sn 189.927 Recovery = 99.00%

Sr 421.552†	102278.8	492.42 µg/L	2.129	492.42 ppb	2.129	0.43%

QC value within limits for Sr 421.552 Recovery = 98.48%

Ti 334.940†	188016.1	492.20 µg/L	1.947	492.20 ppb	1.947	0.40%

QC value within limits for Ti 334.940 Recovery = 98.44%

Tl 190.801†	1339.7	495.87 µg/L	5.307	495.87 ppb	5.307	1.07%

QC value within limits for Tl 190.801 Recovery = 99.17%

U 367.007†	1773.6	468.1 µg/L	3.71	468.1 ppb	3.71	0.79%

QC value within limits for U 367.007 Recovery = 93.61%

V 292.402†	48856.4	503.09 µg/L	2.009	503.09 ppb	2.009	0.40%

QC value within limits for V 292.402 Recovery = 100.62%

Zn 213.857†	50728.8	495.17 µg/L	1.285	495.17 ppb	1.285	0.26%

QC value within limits for Zn 213.857 Recovery = 99.03%

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/7/2012 8:35:57**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19217.9	19217.9	100	%			08:36:25
1	Al 396.153Radial†	-94.3	-45.0	-13.696	µg/L	-13.696	ppb	08:36:25
1	Ca 317.933Radial†	95.8	-23.9	-11.702	µg/L	-11.702	ppb	08:36:45
1	Fe 238.204 Radial†	31.1	2.2	1.2377	µg/L	1.2377	ppb	08:36:45
1	K 766.490 Radial†	755.7	87.2	42.623	µg/L	42.623	ppb	08:36:25
1	Mg 279.077 IEC†	3.8	0.6	3.1606	µg/L	3.1606	ppb	08:36:45
1	Na 589.592 Radial†	-189.2	-3.6	-6.6498	µg/L	-6.6498	ppb	08:36:25
1	Sr 421.552†	-1241.7	55.8	0.2688	µg/L	0.2688	ppb	08:36:25
1	Sc 361.383	601505.4	601505.4	99.897	%			08:37:42
1	Y 371.029	511114.4	511114.4	99.972	%			08:37:42
1	Ag 328.068†	-546.7	44.5	0.2969	µg/L	0.2969	ppb	08:37:42
1	As 188.979†	-11.6	-0.2	-0.0998	µg/L	-0.0998	ppb	08:38:02
1	B 249.677†	122.0	36.3	1.0505	µg/L	1.0505	ppb	08:38:02
1	Ba 233.527†	-124.2	-7.8	-0.0702	µg/L	-0.0702	ppb	08:38:02
1	Be 313.107†	-7845.0	104.8	0.0603	µg/L	0.0603	ppb	08:37:42
1	Cd 226.502†	-204.0	12.1	0.1844	µg/L	0.1844	ppb	08:38:02
1	Co 228.616†	-22.3	-15.9	-0.4168	µg/L	-0.4168	ppb	08:38:02
1	Cr 267.716†	229.7	-7.5	-0.1518	µg/L	-0.1518	ppb	08:38:02
1	Cu 324.752†	6141.8	0.5	0.0095	µg/L	0.0095	ppb	08:37:42
1	Mn 257.610†	374.0	-11.6	-0.0181	µg/L	-0.0181	ppb	08:38:02
1	Mo 202.031†	40.3	12.4	0.8869	µg/L	0.8869	ppb	08:38:02
1	Ni 231.604†	-98.0	-19.8	-0.6401	µg/L	-0.6401	ppb	08:38:02
1	P 214.914†	70.0	-5.9	-4.5051	µg/L	-4.5051	ppb	08:38:02
1	Pb 220.353†	156.4	16.1	2.7751	µg/L	2.7751	ppb	08:38:02
1	S 181.975 Axial†	56.9	0.0	0.0691	µg/L	0.0691	ppb	08:38:02
1	Sb 206.836†	86.8	17.9	6.0379	µg/L	6.0379	ppb	08:38:02
1	Se 196.026†	-6.9	1.3	0.9987	µg/L	0.9987	ppb	08:38:02
1	SiO2†	3227.2	-200.5	-24.464	µg/L	-24.464	ppb	08:37:42
1	Si 251.611†	237.7	-198.0	-9.4103	µg/L	-9.4103	ppb	08:38:02
1	Sn 189.927†	28.4	5.7	1.3122	µg/L	1.3122	ppb	08:38:02
1	Ti 334.940†	-49.7	36.5	0.0996	µg/L	0.0996	ppb	08:37:42
1	Tl 190.801†	-35.5	4.3	1.5952	µg/L	1.5952	ppb	08:38:02
1	U 367.007†	328.3	-33.4	-9.260	µg/L	-9.260	ppb	08:37:42
1	V 292.402†	-225.9	-25.5	-0.2571	µg/L	-0.2571	ppb	08:37:42
1	Zn 213.857†	1132.9	-84.5	-0.8282	µg/L	-0.8282	ppb	08:38:02
2	Sc RADIAL	19162.3	19162.3	100	%			08:36:50
2	Al 396.153Radial†	-53.5	-4.6	-1.4326	µg/L	-1.4326	ppb	08:36:50
2	Ca 317.933Radial†	99.2	-20.2	-9.8754	µg/L	-9.8754	ppb	08:37:10
2	Fe 238.204 Radial†	31.3	2.5	1.3929	µg/L	1.3929	ppb	08:37:10
2	K 766.490 Radial†	737.6	71.2	34.839	µg/L	34.839	ppb	08:36:50
2	Mg 279.077 IEC†	7.3	4.1	20.909	µg/L	20.909	ppb	08:37:10
2	Na 589.592 Radial†	-183.6	1.5	2.7365	µg/L	2.7365	ppb	08:36:50
2	Sr 421.552†	-1282.0	11.9	0.0573	µg/L	0.0573	ppb	08:36:50
2	Sc 361.383	606973.7	606973.7	100.81	%			08:38:07
2	Y 371.029	515047.0	515047.0	100.74	%			08:38:07
2	Ag 328.068†	-523.9	71.9	0.4794	µg/L	0.4794	ppb	08:38:07
2	As 188.979†	-0.1	11.3	6.5511	µg/L	6.5511	ppb	08:38:27
2	B 249.677†	117.5	30.7	0.8886	µg/L	0.8886	ppb	08:38:27
2	Ba 233.527†	-118.2	-0.7	-0.0070	µg/L	-0.0070	ppb	08:38:27
2	Be 313.107†	-7993.0	28.7	0.0149	µg/L	0.0149	ppb	08:38:07
2	Cd 226.502†	-210.7	7.3	0.1113	µg/L	0.1113	ppb	08:38:27
2	Co 228.616†	-13.7	-7.2	-0.1877	µg/L	-0.1877	ppb	08:38:27
2	Cr 267.716†	233.9	-5.5	-0.1065	µg/L	-0.1065	ppb	08:38:27
2	Cu 324.752†	6246.3	48.6	0.2252	µg/L	0.2252	ppb	08:38:07
2	Mn 257.610†	369.5	-19.5	-0.0308	µg/L	-0.0308	ppb	08:38:27
2	Mo 202.031†	47.3	19.0	1.3550	µg/L	1.3550	ppb	08:38:27
2	Ni 231.604†	-97.0	-17.9	-0.5809	µg/L	-0.5809	ppb	08:38:27
2	P 214.914†	78.7	2.1	1.5750	µg/L	1.5750	ppb	08:38:27
2	Pb 220.353†	145.5	3.9	0.6838	µg/L	0.6838	ppb	08:38:27

2	S 181.975 Axial†	62.1	4.6	7.9784 µg/L	7.9784 ppb	08:38:27
2	Sb 206.836†	96.3	26.5	8.9396 µg/L	8.9396 ppb	08:38:27
2	Se 196.026†	-13.4	-5.1	-4.0069 µg/L	-4.0069 ppb	08:38:27
2	SiO2†	3244.2	-212.7	-25.962 µg/L	-25.962 ppb	08:38:07
2	Si 251.611†	248.3	-189.6	-9.0193 µg/L	-9.0193 ppb	08:38:27
2	Sn 189.927†	30.4	7.4	1.7031 µg/L	1.7031 ppb	08:38:27
2	Ti 334.940†	-147.9	-60.4	-0.1539 µg/L	-0.1539 ppb	08:38:07
2	Tl 190.801†	-33.3	6.8	2.5044 µg/L	2.5044 ppb	08:38:27
2	U 367.007†	326.3	-38.3	-10.62 µg/L	-10.62 ppb	08:38:07
2	V 292.402†	-256.9	-54.2	-0.5443 µg/L	-0.5443 ppb	08:38:07
2	Zn 213.857†	1149.2	-78.6	-0.7704 µg/L	-0.7704 ppb	08:38:27
3	Sc RADIAL	19028.3	19028.3	99.4 %		08:37:15
3	Al 396.153Radial†	-100.4	-52.1	-15.857 µg/L	-15.857 ppb	08:37:15
3	Ca 317.933Radial†	104.4	-14.2	-6.9770 µg/L	-6.9770 ppb	08:37:35
3	Fe 238.204 Radial†	34.4	5.9	3.2801 µg/L	3.2801 ppb	08:37:35
3	K 766.490 Radial†	707.8	46.5	22.727 µg/L	22.727 ppb	08:37:15
3	Mg 279.077 IEC†	2.4	-0.7	-3.7779 µg/L	-3.7779 ppb	08:37:35
3	Na 589.592 Radial†	-198.4	-14.7	-27.165 µg/L	-27.165 ppb	08:37:15
3	Sr 421.552†	-1230.7	54.5	0.2624 µg/L	0.2624 ppb	08:37:15
3	Sc 361.383	602837.6	602837.6	100.12 %		08:38:32
3	Y 371.029	511629.5	511629.5	100.07 %		08:38:32
3	Ag 328.068†	-519.0	73.3	0.4929 µg/L	0.4929 ppb	08:38:32
3	As 188.979†	-9.5	1.9	1.0957 µg/L	1.0957 ppb	08:38:52
3	B 249.677†	113.2	27.3	0.7871 µg/L	0.7871 ppb	08:38:52
3	Ba 233.527†	-104.1	12.7	0.1139 µg/L	0.1139 ppb	08:38:52
3	Be 313.107†	-7850.6	116.6	0.0685 µg/L	0.0685 ppb	08:38:32
3	Cd 226.502†	-203.6	13.0	0.1965 µg/L	0.1965 ppb	08:38:52
3	Co 228.616†	-11.8	-5.4	-0.1386 µg/L	-0.1386 ppb	08:38:52
3	Cr 267.716†	229.2	-8.6	-0.1790 µg/L	-0.1790 ppb	08:38:52
3	Cu 324.752†	6184.6	29.5	0.1349 µg/L	0.1349 ppb	08:38:32
3	Mn 257.610†	357.0	-29.4	-0.0453 µg/L	-0.0453 ppb	08:38:52
3	Mo 202.031†	46.4	18.4	1.3140 µg/L	1.3140 ppb	08:38:52
3	Ni 231.604†	-93.3	-14.9	-0.4820 µg/L	-0.4820 ppb	08:38:52
3	P 214.914†	65.4	-10.7	-8.0965 µg/L	-8.0965 ppb	08:38:52
3	Pb 220.353†	135.9	-4.7	-0.7827 µg/L	-0.7827 ppb	08:38:52
3	S 181.975 Axial†	57.7	0.7	1.1843 µg/L	1.1843 ppb	08:38:52
3	Sb 206.836†	84.9	15.9	5.3569 µg/L	5.3569 ppb	08:38:52
3	Se 196.026†	-13.5	-5.3	-4.1312 µg/L	-4.1312 ppb	08:38:52
3	SiO2†	3277.7	-157.2	-19.147 µg/L	-19.147 ppb	08:38:32
3	Si 251.611†	238.4	-197.8	-9.4106 µg/L	-9.4106 ppb	08:38:52
3	Sn 189.927†	32.0	9.2	2.1135 µg/L	2.1135 ppb	08:38:52
3	Ti 334.940†	-116.8	-30.3	-0.0779 µg/L	-0.0779 ppb	08:38:32
3	Tl 190.801†	-35.3	4.6	1.6851 µg/L	1.6851 ppb	08:38:52
3	U 367.007†	348.8	-13.7	-3.799 µg/L	-3.799 ppb	08:38:32
3	V 292.402†	-194.8	6.0	0.0719 µg/L	0.0719 ppb	08:38:32
3	Zn 213.857†	1131.9	-88.0	-0.8641 µg/L	-0.8641 ppb	08:38:52

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	603772.2	100.27	%	0.474				0.47%
Sc RADIAL	19136.2	100.0	%	0.51				0.51%
Y 371.029	512596.9	100.26	%	0.418				0.42%
Ag 328.068†	63.2	0.4230	µg/L	0.10948	0.4230	ppb	0.10948	25.88%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-33.9	-10.329	µg/L	7.7797	-10.329	ppb	7.7797	75.32%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	4.4	2.5157	µg/L	3.54553	2.5157	ppb	3.54553	140.94%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	31.4	0.9087	µg/L	0.13285	0.9087	ppb	0.13285	14.62%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	1.4	0.0122	µg/L	0.09353	0.0122	ppb	0.09353	764.53%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	83.4	0.0479	µg/L	0.02885	0.0479	ppb	0.02885	60.27%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-19.4	-9.5180	µg/L	2.38251	-9.5180	ppb	2.38251	25.03%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	10.8	0.1641	µg/L	0.04608	0.1641	ppb	0.04608	28.09%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	-9.5	-0.2477	µg/L	0.14848	-0.2477	ppb	0.14848	59.95%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	-7.2	-0.1457 µg/L	0.03663	-0.1457 ppb	0.03663	25.14%

QC value within limits for Cr 267.716 Recovery = Not calculated

Cu 324.752†	26.2	0.1232 µg/L	0.10832	0.1232 ppb	0.10832	87.93%

QC value within limits for Cu 324.752 Recovery = Not calculated

Fe 238.204 Radial†	3.5	1.9702 µg/L	1.13699	1.9702 ppb	1.13699	57.71%

QC value within limits for Fe 238.204 Radial Recovery = Not calculated

K 766.490 Radial†	68.3	33.396 µg/L	10.0258	33.396 ppb	10.0258	30.02%

QC value within limits for K 766.490 Radial Recovery = Not calculated

Mg 279.077 IEC†	1.3	6.7639 µg/L	12.73181	6.7639 ppb	12.73181	188.23%

QC value within limits for Mg 279.077 IEC Recovery = Not calculated

Mn 257.610†	-20.2	-0.0314 µg/L	0.01364	-0.0314 ppb	0.01364	43.46%

QC value within limits for Mn 257.610 Recovery = Not calculated

Mo 202.031†	16.6	1.1853 µg/L	0.25925	1.1853 ppb	0.25925	21.87%

QC value within limits for Mo 202.031 Recovery = Not calculated

Na 589.592 Radial†	-5.6	-10.359 µg/L	15.2920	-10.359 ppb	15.2920	147.61%

QC value within limits for Na 589.592 Radial Recovery = Not calculated

Ni 231.604†	-17.5	-0.5677 µg/L	0.07984	-0.5677 ppb	0.07984	14.06%

QC value within limits for Ni 231.604 Recovery = Not calculated

P 214.914†	-4.8	-3.6756 µg/L	4.88884	-3.6756 ppb	4.88884	133.01%

QC value within limits for P 214.914 Recovery = Not calculated

Pb 220.353†	5.1	0.8921 µg/L	1.78800	0.8921 ppb	1.78800	200.43%

QC value within limits for Pb 220.353 Recovery = Not calculated

S 181.975 Axial†	1.8	3.0772 µg/L	4.28097	3.0772 ppb	4.28097	139.12%

QC value within limits for S 181.975 Axial Recovery = Not calculated

Sb 206.836†	20.1	6.7781 µg/L	1.90256	6.7781 ppb	1.90256	28.07%

QC value within limits for Sb 206.836 Recovery = Not calculated

Se 196.026†	-3.0	-2.3798 µg/L	2.92656	-2.3798 ppb	2.92656	122.97%

QC value within limits for Se 196.026 Recovery = Not calculated

SiO2†	-190.1	-23.191 µg/L	3.5816	-23.191 ppb	3.5816	15.44%

QC value within limits for SiO2 Recovery = Not calculated

Si 251.611†	-195.1	-9.2801 µg/L	0.22580	-9.2801 ppb	0.22580	2.43%

QC value within limits for Si 251.611 Recovery = Not calculated

Sn 189.927†	7.4	1.7096 µg/L	0.40069	1.7096 ppb	0.40069	23.44%

QC value within limits for Sn 189.927 Recovery = Not calculated

Sr 421.552†	40.7	0.1962 µg/L	0.12027	0.1962 ppb	0.12027	61.31%

QC value within limits for Sr 421.552 Recovery = Not calculated

Ti 334.940†	-18.1	-0.0440 µg/L	0.13010	-0.0440 ppb	0.13010	295.36%

QC value within limits for Ti 334.940 Recovery = Not calculated

Tl 190.801†	5.2	1.9282 µg/L	0.50102	1.9282 ppb	0.50102	25.98%

QC value within limits for Tl 190.801 Recovery = Not calculated

U 367.007†	-28.5	-7.894 µg/L	3.6112	-7.894 ppb	3.6112	45.75%

QC value within limits for U 367.007 Recovery = Not calculated

V 292.402†	-24.6	-0.2432 µg/L	0.30834	-0.2432 ppb	0.30834	126.80%

QC value within limits for V 292.402 Recovery = Not calculated

Zn 213.857†	-83.7	-0.8209 µg/L	0.04724	-0.8209 ppb	0.04724	5.75%

QC value within limits for Zn 213.857 Recovery = Not calculated

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 9:09:18**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20186.8	20186.8	105	%			09:10:08
1	Al 396.153Radial†	17302.8	16457.7	4975.1	µg/L	4975.1	ppb	09:09:48
1	Ca 317.933Radial†	10974.2	10287.9	5038.0	µg/L	5038.0	ppb	09:10:08
1	Fe 238.204 Radial†	9704.5	9174.4	5117.8	µg/L	5117.8	ppb	09:10:08
1	K 766.490 Radial†	11414.2	10158.8	4963.0	µg/L	4963.0	ppb	09:09:48
1	Mg 279.077 IEC†	1085.9	1026.6	5218.4	µg/L	5218.4	ppb	09:10:08
1	Na 589.592 Radial†	5455.2	5358.3	9896.3	µg/L	9896.3	ppb	09:10:08
1	Sr 421.552†	106433.0	102226.6	492.16	µg/L	492.16	ppb	09:09:48
1	Sc 361.383	636861.6	636861.6	105.77	%			09:11:05
1	Y 371.029	535658.3	535658.3	104.77	%			09:11:05
1	Ag 328.068†	77314.4	73689.2	498.44	µg/L	498.44	ppb	09:11:11
1	As 188.979†	908.4	870.3	502.92	µg/L	502.92	ppb	09:11:31
1	B 249.677†	18021.6	16952.8	488.33	µg/L	488.33	ppb	09:11:11
1	Ba 233.527†	58093.1	55041.2	495.89	µg/L	495.89	ppb	09:11:11
1	Be 313.107†	878400.2	838448.8	498.36	µg/L	498.36	ppb	09:11:05
1	Cd 226.502†	34420.3	32759.3	498.11	µg/L	498.11	ppb	09:11:11
1	Co 228.616†	20243.6	19145.8	501.85	µg/L	501.85	ppb	09:11:11
1	Cr 267.716†	24815.1	23224.2	495.21	µg/L	495.21	ppb	09:11:11
1	Cu 324.752†	123447.1	110566.4	493.43	µg/L	493.43	ppb	09:11:11
1	Mn 257.610†	333811.8	315219.1	490.43	µg/L	490.43	ppb	09:11:11
1	Mo 202.031†	7361.4	6932.0	494.08	µg/L	494.08	ppb	09:11:31
1	Ni 231.604†	16472.3	15652.1	506.61	µg/L	506.61	ppb	09:11:11
1	P 214.914†	3528.4	3260.0	2452.4	µg/L	2452.4	ppb	09:11:31
1	Pb 220.353†	3219.4	2903.4	497.14	µg/L	497.14	ppb	09:11:31
1	S 181.975 Axial†	674.7	581.0	1004.0	µg/L	1004.0	ppb	09:11:31
1	Sb 206.836†	1630.2	1472.3	491.21	µg/L	491.21	ppb	09:11:31
1	Se 196.026†	668.7	640.4	505.90	µg/L	505.90	ppb	09:11:31
1	SiO2†	49350.2	43227.5	5285.2	µg/L	5285.2	ppb	09:11:11
1	Si 251.611†	55464.1	52003.1	2459.9	µg/L	2459.9	ppb	09:11:11
1	Sn 189.927†	2302.2	2153.8	496.78	µg/L	496.78	ppb	09:11:31
1	Ti 334.940†	197707.1	187010.1	489.58	µg/L	489.58	ppb	09:11:11
1	Tl 190.801†	1370.9	1336.1	494.53	µg/L	494.53	ppb	09:11:31
1	U 367.007†	2195.2	1713.5	450.8	µg/L	450.8	ppb	09:11:11
1	V 292.402†	51216.5	48623.6	500.70	µg/L	500.70	ppb	09:11:11
1	Zn 213.857†	54711.5	50508.9	492.99	µg/L	492.99	ppb	09:11:11
2	Sc RADIAL	20047.1	20047.1	105	%			09:10:34
2	Al 396.153Radial†	17337.5	16605.2	5019.7	µg/L	5019.7	ppb	09:10:14
2	Ca 317.933Radial†	10913.2	10302.2	5045.1	µg/L	5045.1	ppb	09:10:34
2	Fe 238.204 Radial†	9686.9	9221.7	5144.2	µg/L	5144.2	ppb	09:10:34
2	K 766.490 Radial†	11370.5	10192.5	4979.4	µg/L	4979.4	ppb	09:10:14
2	Mg 279.077 IEC†	1074.4	1022.8	5199.4	µg/L	5199.4	ppb	09:10:34
2	Na 589.592 Radial†	5337.8	5282.1	9755.7	µg/L	9755.7	ppb	09:10:34
2	Sr 421.552†	106207.0	102714.5	494.51	µg/L	494.51	ppb	09:10:14
2	Sc 361.383	630633.6	630633.6	104.73	%			09:11:36
2	Y 371.029	530877.1	530877.1	103.84	%			09:11:36
2	Ag 328.068†	77486.3	74575.3	504.43	µg/L	504.43	ppb	09:11:42
2	As 188.979†	898.4	869.2	502.31	µg/L	502.31	ppb	09:12:02
2	B 249.677†	18036.4	17135.2	493.59	µg/L	493.59	ppb	09:11:42
2	Ba 233.527†	58174.4	55661.2	501.48	µg/L	501.48	ppb	09:11:42
2	Be 313.107†	871877.3	840422.4	499.53	µg/L	499.53	ppb	09:11:36
2	Cd 226.502†	34481.1	33138.7	503.88	µg/L	503.88	ppb	09:11:42
2	Co 228.616†	20220.3	19312.6	506.22	µg/L	506.22	ppb	09:11:42
2	Cr 267.716†	24863.2	23501.9	501.11	µg/L	501.11	ppb	09:11:42
2	Cu 324.752†	123351.8	111628.0	498.16	µg/L	498.16	ppb	09:11:42
2	Mn 257.610†	333908.9	318428.7	495.42	µg/L	495.42	ppb	09:11:42
2	Mo 202.031†	7346.7	6986.7	497.97	µg/L	497.97	ppb	09:12:02
2	Ni 231.604†	16439.3	15774.4	510.57	µg/L	510.57	ppb	09:11:42
2	P 214.914†	3534.2	3298.4	2481.4	µg/L	2481.4	ppb	09:12:02
2	Pb 220.353†	3223.9	2937.7	503.00	µg/L	503.00	ppb	09:12:02

2	S 181.975 Axial†	665.6	578.6	999.80 µg/L	999.80 ppb	09:12:02
2	Sb 206.836†	1630.9	1488.2	496.52 µg/L	496.52 ppb	09:12:02
2	Se 196.026†	662.2	640.4	505.95 µg/L	505.95 ppb	09:12:02
2	SiO2†	49478.0	43810.4	5356.5 µg/L	5356.5 ppb	09:11:42
2	Si 251.611†	55653.8	52702.1	2493.0 µg/L	2493.0 ppb	09:11:42
2	Sn 189.927†	2312.5	2185.2	503.98 µg/L	503.98 ppb	09:12:02
2	Ti 334.940†	197950.4	189088.4	495.01 µg/L	495.01 ppb	09:11:42
2	Tl 190.801†	1391.7	1368.7	506.57 µg/L	506.57 ppb	09:12:02
2	U 367.007†	2234.4	1771.4	466.7 µg/L	466.7 ppb	09:11:42
2	V 292.402†	51335.3	49215.3	506.78 µg/L	506.78 ppb	09:11:42
2	Zn 213.857†	54699.0	51007.8	497.87 µg/L	497.87 ppb	09:11:42
3	Sc RADIAL	19806.3	19806.3	103 %		09:10:59
3	Al 396.153Radial†	17205.5	16679.0	5042.0 µg/L	5042.0 ppb	09:10:39
3	Ca 317.933Radial†	10770.7	10291.2	5039.7 µg/L	5039.7 ppb	09:10:59
3	Fe 238.204 Radial†	9564.5	9215.8	5140.9 µg/L	5140.9 ppb	09:10:59
3	K 766.490 Radial†	11297.4	10253.9	5009.3 µg/L	5009.3 ppb	09:10:39
3	Mg 279.077 IEC†	1068.6	1029.7	5234.3 µg/L	5234.3 ppb	09:10:59
3	Na 589.592 Radial†	5340.3	5346.6	9874.7 µg/L	9874.7 ppb	09:10:59
3	Sr 421.552†	105557.9	103319.9	497.43 µg/L	497.43 ppb	09:10:39
3	Sc 361.383	630362.9	630362.9	104.69 %		09:12:07
3	Y 371.029	530446.6	530446.6	103.75 %		09:12:07
3	Ag 328.068†	77500.4	74620.5	504.74 µg/L	504.74 ppb	09:12:12
3	As 188.979†	910.1	880.8	509.01 µg/L	509.01 ppb	09:12:32
3	B 249.677†	18159.7	17260.4	497.21 µg/L	497.21 ppb	09:12:12
3	Ba 233.527†	58447.1	55945.6	504.04 µg/L	504.04 ppb	09:12:12
3	Be 313.107†	871962.5	840861.3	499.79 µg/L	499.79 ppb	09:12:07
3	Cd 226.502†	34605.6	33271.8	505.91 µg/L	505.91 ppb	09:12:12
3	Co 228.616†	20347.9	19442.8	509.64 µg/L	509.64 ppb	09:12:12
3	Cr 267.716†	25028.9	23670.2	504.71 µg/L	504.71 ppb	09:12:12
3	Cu 324.752†	123634.9	111949.0	499.59 µg/L	499.59 ppb	09:12:12
3	Mn 257.610†	335466.0	320053.0	497.94 µg/L	497.94 ppb	09:12:12
3	Mo 202.031†	7382.1	7023.6	500.60 µg/L	500.60 ppb	09:12:32
3	Ni 231.604†	16555.7	15892.4	514.39 µg/L	514.39 ppb	09:12:12
3	P 214.914†	3538.3	3303.8	2485.4 µg/L	2485.4 ppb	09:12:32
3	Pb 220.353†	3247.6	2961.6	507.09 µg/L	507.09 ppb	09:12:32
3	S 181.975 Axial†	673.0	585.9	1012.5 µg/L	1012.5 ppb	09:12:32
3	Sb 206.836†	1631.6	1489.6	496.92 µg/L	496.92 ppb	09:12:32
3	Se 196.026†	666.8	645.2	509.67 µg/L	509.67 ppb	09:12:32
3	SiO2†	49814.0	44151.6	5398.2 µg/L	5398.2 ppb	09:12:12
3	Si 251.611†	56048.8	53102.3	2511.9 µg/L	2511.9 ppb	09:12:12
3	Sn 189.927†	2313.8	2187.4	504.49 µg/L	504.49 ppb	09:12:32
3	Ti 334.940†	198355.1	189556.2	496.24 µg/L	496.24 ppb	09:12:12
3	Tl 190.801†	1386.3	1364.0	504.87 µg/L	504.87 ppb	09:12:32
3	U 367.007†	2232.2	1770.2	466.4 µg/L	466.4 ppb	09:12:12
3	V 292.402†	51417.9	49315.3	507.83 µg/L	507.83 ppb	09:12:12
3	Zn 213.857†	54963.7	51283.0	500.55 µg/L	500.55 ppb	09:12:12

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	632619.4	105.06	%	0.611				0.58%
Sc RADIAL	20013.4	105	%	1.0				0.96%
Y 371.029	532327.3	104.12	%	0.566				0.54%
Ag 328.068†	74295.0	502.54	µg/L	3.548	502.54	ppb	3.548	0.71%
QC value within limits for Ag 328.068 Recovery = 100.51%								
Al 396.153Radial†	16580.6	5012.3	µg/L	34.07	5012.3	ppb	34.07	0.68%
QC value within limits for Al 396.153Radial Recovery = 100.25%								
As 188.979†	873.4	504.75	µg/L	3.704	504.75	ppb	3.704	0.73%
QC value within limits for As 188.979 Recovery = 100.95%								
B 249.677†	17116.2	493.04	µg/L	4.464	493.04	ppb	4.464	0.91%
QC value within limits for B 249.677 Recovery = 98.61%								
Ba 233.527†	55549.3	500.47	µg/L	4.167	500.47	ppb	4.167	0.83%
QC value within limits for Ba 233.527 Recovery = 100.09%								
Be 313.107†	839910.8	499.23	µg/L	0.765	499.23	ppb	0.765	0.15%
QC value within limits for Be 313.107 Recovery = 99.85%								
Ca 317.933Radial†	10293.8	5040.9	µg/L	3.68	5040.9	ppb	3.68	0.07%
QC value within limits for Ca 317.933Radial Recovery = 100.82%								
Cd 226.502†	33056.6	502.63	µg/L	4.048	502.63	ppb	4.048	0.81%
QC value within limits for Cd 226.502 Recovery = 100.53%								
Co 228.616†	19300.4	505.91	µg/L	3.902	505.91	ppb	3.902	0.77%

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   QC value within limits for Co 228.616  Recovery = 101.18%
Cr 267.716†          23465.4      500.34 µg/L         4.798      500.34 ppb          4.798   0.96%
   QC value within limits for Cr 267.716  Recovery = 100.07%
Cu 324.752†         111381.1      497.06 µg/L         3.223      497.06 ppb          3.223   0.65%
   QC value within limits for Cu 324.752  Recovery = 99.41%
Fe 238.204 Radial†      9203.9      5134.3 µg/L         14.40      5134.3 ppb          14.40   0.28%
   QC value within limits for Fe 238.204 Radial  Recovery = 102.69%
K 766.490 Radial†      10201.7      4983.9 µg/L         23.52      4983.9 ppb          23.52   0.47%
   QC value within limits for K 766.490 Radial  Recovery = 99.68%
Mg 279.077 IEC†         1026.4      5217.3 µg/L         17.48      5217.3 ppb          17.48   0.34%
   QC value within limits for Mg 279.077 IEC  Recovery = 104.35%
Mn 257.610†          317900.3      494.60 µg/L         3.826      494.60 ppb          3.826   0.77%
   QC value within limits for Mn 257.610  Recovery = 98.92%
Mo 202.031†            6980.8      497.55 µg/L         3.282      497.55 ppb          3.282   0.66%
   QC value within limits for Mo 202.031  Recovery = 99.51%
Na 589.592 Radial†      5329.0      9842.3 µg/L         75.71      9842.3 ppb          75.71   0.77%
   QC value within limits for Na 589.592 Radial  Recovery = 98.42%
Ni 231.604†            15773.0      510.52 µg/L         3.889      510.52 ppb          3.889   0.76%
   QC value within limits for Ni 231.604  Recovery = 102.10%
P 214.914†              3287.4      2473.1 µg/L         18.01      2473.1 ppb          18.01   0.73%
   QC value within limits for P 214.914  Recovery = 98.92%
Pb 220.353†             2934.2      502.41 µg/L         5.003      502.41 ppb          5.003   1.00%
   QC value within limits for Pb 220.353  Recovery = 100.48%
S 181.975 Axial†         581.8      1005.4 µg/L          6.46      1005.4 ppb           6.46   0.64%
   QC value within limits for S 181.975 Axial  Recovery = 100.54%
Sb 206.836†             1483.4      494.88 µg/L         3.186      494.88 ppb          3.186   0.64%
   QC value within limits for Sb 206.836  Recovery = 98.98%
Se 196.026†              642.0      507.17 µg/L         2.160      507.17 ppb          2.160   0.43%
   QC value within limits for Se 196.026  Recovery = 101.43%
SiO2†                  43729.8      5346.6 µg/L         57.12      5346.6 ppb          57.12   1.07%
   QC value within limits for SiO2  Recovery = 99.98%
Si 251.611†            52602.5      2488.3 µg/L         26.35      2488.3 ppb          26.35   1.06%
   QC value within limits for Si 251.611  Recovery = 99.53%
Sn 189.927†             2175.5      501.75 µg/L         4.315      501.75 ppb          4.315   0.86%
   QC value within limits for Sn 189.927  Recovery = 100.35%
Sr 421.552†           102753.7      494.70 µg/L         2.637      494.70 ppb          2.637   0.53%
   QC value within limits for Sr 421.552  Recovery = 98.94%
Ti 334.940†           188551.6      493.61 µg/L         3.545      493.61 ppb          3.545   0.72%
   QC value within limits for Ti 334.940  Recovery = 98.72%
Tl 190.801†             1356.3      501.99 µg/L         6.518      501.99 ppb          6.518   1.30%
   QC value within limits for Tl 190.801  Recovery = 100.40%
U 367.007†              1751.7       461.3 µg/L          9.11       461.3 ppb           9.11   1.97%
   QC value within limits for U 367.007  Recovery = 92.27%
V 292.402†             49051.4      505.10 µg/L         3.849      505.10 ppb          3.849   0.76%
   QC value within limits for V 292.402  Recovery = 101.02%
Zn 213.857†            50933.2      497.14 µg/L         3.835      497.14 ppb          3.835   0.77%
   QC value within limits for Zn 213.857  Recovery = 99.43%
All analyte(s) passed QC.
```

Sequence No.: 12 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/7/2012 9:12:40**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19748.0	19748.0	103	%			09:13:09
1	Al 396.153Radial†	630.4	660.0	199.87	µg/L	199.87	ppb	09:13:09
1	Ca 317.933Radial†	558.3	422.0	206.63	µg/L	206.63	ppb	09:13:29
1	Fe 238.204 Radial†	224.7	189.1	105.42	µg/L	105.42	ppb	09:13:29
1	K 766.490 Radial†	1014.1	317.4	155.18	µg/L	155.18	ppb	09:13:09
1	Mg 279.077 IEC†	66.8	61.6	312.96	µg/L	312.96	ppb	09:13:29
1	Na 589.592 Radial†	7.5	192.1	354.79	µg/L	354.79	ppb	09:13:09
1	Sr 421.552†	-184.3	1114.1	5.3630	µg/L	5.3630	ppb	09:13:09
1	Sc 361.383	617979.4	617979.4	102.63	%			09:14:26
1	Y 371.029	524276.4	524276.4	102.55	%			09:14:26
1	Ag 328.068†	220.1	806.1	5.4640	µg/L	5.4640	ppb	09:14:26
1	As 188.979†	39.7	50.1	28.928	µg/L	28.928	ppb	09:14:46
1	B 249.677†	1881.3	1747.2	50.465	µg/L	50.465	ppb	09:14:26
1	Ba 233.527†	471.0	575.5	5.1837	µg/L	5.1837	ppb	09:14:46
1	Be 313.107†	759.6	8698.1	5.1781	µg/L	5.1781	ppb	09:14:26
1	Cd 226.502†	146.2	358.8	5.4471	µg/L	5.4471	ppb	09:14:46
1	Co 228.616†	202.0	203.2	5.3336	µg/L	5.3336	ppb	09:14:46
1	Cr 267.716†	473.0	223.4	4.7338	µg/L	4.7338	ppb	09:14:46
1	Cu 324.752†	8686.7	2316.1	10.301	µg/L	10.301	ppb	09:14:26
1	Mn 257.610†	7256.6	6684.4	10.393	µg/L	10.393	ppb	09:14:26
1	Mo 202.031†	180.8	148.3	10.570	µg/L	10.570	ppb	09:14:46
1	Ni 231.604†	79.5	155.8	5.0425	µg/L	5.0425	ppb	09:14:46
1	P 214.914†	278.7	195.6	147.84	µg/L	147.84	ppb	09:14:46
1	Pb 220.353†	198.2	52.7	8.9698	µg/L	8.9698	ppb	09:14:46
1	S 181.975 Axial†	123.3	63.2	109.11	µg/L	109.11	ppb	09:14:46
1	Sb 206.836†	118.0	46.0	15.529	µg/L	15.529	ppb	09:14:46
1	Se 196.026†	28.8	36.3	28.593	µg/L	28.593	ppb	09:14:46
1	SiO2†	5177.9	1614.0	196.85	µg/L	196.85	ppb	09:14:26
1	Si 251.611†	2412.7	1914.9	90.703	µg/L	90.703	ppb	09:14:46
1	Sn 189.927†	70.7	46.1	10.621	µg/L	10.621	ppb	09:14:46
1	Ti 334.940†	1900.8	1938.3	5.0610	µg/L	5.0610	ppb	09:14:26
1	Tl 190.801†	23.2	62.5	23.064	µg/L	23.064	ppb	09:14:46
1	U 367.007†	516.6	141.3	38.64	µg/L	38.64	ppb	09:14:26
1	V 292.402†	316.5	509.0	5.3288	µg/L	5.3288	ppb	09:14:26
1	Zn 213.857†	2252.5	976.1	9.5553	µg/L	9.5553	ppb	09:14:46
2	Sc RADIAL	19761.1	19761.1	103	%			09:13:34
2	Al 396.153Radial†	607.1	637.1	192.91	µg/L	192.91	ppb	09:13:34
2	Ca 317.933Radial†	553.9	417.3	204.36	µg/L	204.36	ppb	09:13:54
2	Fe 238.204 Radial†	224.5	188.8	105.25	µg/L	105.25	ppb	09:13:54
2	K 766.490 Radial†	1074.1	374.8	183.26	µg/L	183.26	ppb	09:13:34
2	Mg 279.077 IEC†	66.1	60.9	309.29	µg/L	309.29	ppb	09:13:54
2	Na 589.592 Radial†	15.8	200.2	369.68	µg/L	369.68	ppb	09:13:34
2	Sr 421.552†	-240.6	1059.7	5.1010	µg/L	5.1010	ppb	09:13:34
2	Sc 361.383	620073.4	620073.4	102.98	%			09:14:51
2	Y 371.029	526315.2	526315.2	102.95	%			09:14:51
2	Ag 328.068†	253.5	837.8	5.6749	µg/L	5.6749	ppb	09:14:51
2	As 188.979†	48.1	58.2	33.590	µg/L	33.590	ppb	09:15:12
2	B 249.677†	1843.4	1704.3	49.223	µg/L	49.223	ppb	09:14:51
2	Ba 233.527†	461.0	564.2	5.0818	µg/L	5.0818	ppb	09:15:12
2	Be 313.107†	819.6	8753.8	5.2117	µg/L	5.2117	ppb	09:14:51
2	Cd 226.502†	144.3	356.4	5.4114	µg/L	5.4114	ppb	09:15:12
2	Co 228.616†	205.5	205.9	5.4060	µg/L	5.4060	ppb	09:15:12
2	Cr 267.716†	474.9	223.7	4.7365	µg/L	4.7365	ppb	09:15:12
2	Cu 324.752†	8778.9	2377.1	10.570	µg/L	10.570	ppb	09:14:51
2	Mn 257.610†	7253.6	6657.6	10.352	µg/L	10.352	ppb	09:14:51
2	Mo 202.031†	182.1	148.9	10.615	µg/L	10.615	ppb	09:15:12
2	Ni 231.604†	53.4	130.1	4.2121	µg/L	4.2121	ppb	09:15:12
2	P 214.914†	285.4	201.1	152.01	µg/L	152.01	ppb	09:15:12
2	Pb 220.353†	212.1	65.5	11.163	µg/L	11.163	ppb	09:15:12

2	S 181.975 Axial†	119.6	59.2	102.19 µg/L	102.19 ppb	09:15:12
2	Sb 206.836†	127.8	55.1	18.595 µg/L	18.595 ppb	09:15:12
2	Se 196.026†	35.1	42.3	33.262 µg/L	33.262 ppb	09:15:12
2	SiO2†	5196.0	1614.6	196.93 µg/L	196.93 ppb	09:14:51
2	Si 251.611†	2439.9	1933.4	91.575 µg/L	91.575 ppb	09:15:12
2	Sn 189.927†	76.3	51.3	11.817 µg/L	11.817 ppb	09:15:12
2	Ti 334.940†	1891.5	1923.1	5.0200 µg/L	5.0200 ppb	09:14:51
2	Tl 190.801†	19.7	59.0	21.780 µg/L	21.780 ppb	09:15:12
2	U 367.007†	527.2	149.9	41.02 µg/L	41.02 ppb	09:14:51
2	V 292.402†	292.8	485.0	5.0872 µg/L	5.0872 ppb	09:14:51
2	Zn 213.857†	2261.0	977.0	9.5692 µg/L	9.5692 ppb	09:15:12
3	Sc RADIAL	19817.7	19817.7	104 %		09:13:59
3	Al 396.153Radial†	628.9	656.4	198.77 µg/L	198.77 ppb	09:13:59
3	Ca 317.933Radial†	557.0	418.8	205.09 µg/L	205.09 ppb	09:14:19
3	Fe 238.204 Radial†	227.9	191.5	106.74 µg/L	106.74 ppb	09:14:19
3	K 766.490 Radial†	997.2	297.7	145.52 µg/L	145.52 ppb	09:13:59
3	Mg 279.077 IEC†	70.7	65.1	331.14 µg/L	331.14 ppb	09:14:19
3	Na 589.592 Radial†	-18.3	167.2	308.83 µg/L	308.83 ppb	09:13:59
3	Sr 421.552†	-237.4	1063.3	5.1187 µg/L	5.1187 ppb	09:13:59
3	Sc 361.383	621508.6	621508.6	103.22 %		09:15:17
3	Y 371.029	527877.1	527877.1	103.25 %		09:15:17
3	Ag 328.068†	220.0	804.9	5.4526 µg/L	5.4526 ppb	09:15:17
3	As 188.979†	43.9	54.0	31.163 µg/L	31.163 ppb	09:15:37
3	B 249.677†	1914.5	1769.0	51.096 µg/L	51.096 ppb	09:15:17
3	Ba 233.527†	476.3	578.0	5.2052 µg/L	5.2052 ppb	09:15:37
3	Be 313.107†	928.0	8857.0	5.2749 µg/L	5.2749 ppb	09:15:17
3	Cd 226.502†	137.7	349.7	5.3092 µg/L	5.3092 ppb	09:15:37
3	Co 228.616†	192.1	192.5	5.0527 µg/L	5.0527 ppb	09:15:37
3	Cr 267.716†	492.3	239.5	5.0648 µg/L	5.0648 ppb	09:15:37
3	Cu 324.752†	8604.5	2188.5	9.7223 µg/L	9.7223 ppb	09:15:17
3	Mn 257.610†	7317.2	6703.0	10.422 µg/L	10.422 ppb	09:15:17
3	Mo 202.031†	188.4	154.6	11.021 µg/L	11.021 ppb	09:15:37
3	Ni 231.604†	89.5	165.0	5.3412 µg/L	5.3412 ppb	09:15:37
3	P 214.914†	294.0	208.8	157.88 µg/L	157.88 ppb	09:15:37
3	Pb 220.353†	195.9	49.4	8.3968 µg/L	8.3968 ppb	09:15:37
3	S 181.975 Axial†	120.9	60.2	103.95 µg/L	103.95 ppb	09:15:37
3	Sb 206.836†	126.3	53.4	18.042 µg/L	18.042 ppb	09:15:37
3	Se 196.026†	25.0	32.5	25.596 µg/L	25.596 ppb	09:15:37
3	SiO2†	5229.6	1635.5	199.61 µg/L	199.61 ppb	09:15:17
3	Si 251.611†	2475.8	1962.7	92.956 µg/L	92.956 ppb	09:15:37
3	Sn 189.927†	80.4	55.1	12.687 µg/L	12.687 ppb	09:15:37
3	Ti 334.940†	2005.1	2028.9	5.2925 µg/L	5.2925 ppb	09:15:17
3	Tl 190.801†	18.3	57.6	21.259 µg/L	21.259 ppb	09:15:37
3	U 367.007†	564.6	184.9	50.73 µg/L	50.73 ppb	09:15:17
3	V 292.402†	264.4	456.8	4.8139 µg/L	4.8139 ppb	09:15:17
3	Zn 213.857†	2267.1	977.8	9.5701 µg/L	9.5701 ppb	09:15:37

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	619853.8	102.94	%	0.295				0.29%
Sc RADIAL	19775.6	103	%	0.2				0.19%
Y 371.029	526156.2	102.91	%	0.353				0.34%
Ag 328.068†	816.3	5.5305	µg/L	0.12520	5.5305	ppb	0.12520	2.26%
QC value within limits for Ag 328.068 Recovery = 110.61%								
Al 396.153Radial†	651.2	197.18	µg/L	3.739	197.18	ppb	3.739	1.90%
QC value within limits for Al 396.153Radial Recovery = 98.59%								
As 188.979†	54.1	31.227	µg/L	2.3312	31.227	ppb	2.3312	7.47%
QC value within limits for As 188.979 Recovery = 104.09%								
B 249.677†	1740.2	50.261	µg/L	0.9529	50.261	ppb	0.9529	1.90%
QC value within limits for B 249.677 Recovery = 100.52%								
Ba 233.527†	572.6	5.1569	µg/L	0.06596	5.1569	ppb	0.06596	1.28%
QC value within limits for Ba 233.527 Recovery = 103.14%								
Be 313.107†	8769.6	5.2216	µg/L	0.04918	5.2216	ppb	0.04918	0.94%
QC value within limits for Be 313.107 Recovery = 104.43%								
Ca 317.933Radial†	419.4	205.36	µg/L	1.163	205.36	ppb	1.163	0.57%
QC value within limits for Ca 317.933Radial Recovery = 102.68%								
Cd 226.502†	355.0	5.3892	µg/L	0.07158	5.3892	ppb	0.07158	1.33%
QC value within limits for Cd 226.502 Recovery = 107.78%								
Co 228.616†	200.5	5.2641	µg/L	0.18663	5.2641	ppb	0.18663	3.55%

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   QC value within limits for Co 228.616  Recovery = 105.28%
Cr 267.716†              228.9      4.8450 µg/L       0.19035      4.8450 ppb        0.19035   3.93%
   QC value within limits for Cr 267.716  Recovery = 96.90%
Cu 324.752†             2293.9      10.198 µg/L        0.4331      10.198 ppb         0.4331   4.25%
   QC value within limits for Cu 324.752  Recovery = 101.98%
Fe 238.204 Radial†       189.8      105.80 µg/L         0.818      105.80 ppb          0.818   0.77%
   QC value within limits for Fe 238.204 Radial  Recovery = 105.80%
K 766.490 Radial†        330.0      161.32 µg/L        19.606      161.32 ppb         19.606  12.15%
   QC value within limits for K 766.490 Radial  Recovery = 107.55%
Mg 279.077 IEC†           62.5      317.79 µg/L        11.699      317.79 ppb         11.699   3.68%
   QC value within limits for Mg 279.077 IEC  Recovery = 105.93%
Mn 257.610†             6681.7      10.389 µg/L        0.0352      10.389 ppb         0.0352   0.34%
   QC value within limits for Mn 257.610  Recovery = 103.89%
Mo 202.031†              150.6      10.735 µg/L        0.2486      10.735 ppb         0.2486   2.32%
   QC value within limits for Mo 202.031  Recovery = 107.35%
Na 589.592 Radial†       186.5      344.44 µg/L        31.719      344.44 ppb         31.719   9.21%
   QC value within limits for Na 589.592 Radial  Recovery = 114.81%
Ni 231.604†              150.3      4.8653 µg/L       0.58503      4.8653 ppb        0.58503  12.02%
   QC value within limits for Ni 231.604  Recovery = 97.31%
P 214.914†               201.8      152.58 µg/L         5.041      152.58 ppb          5.041   3.30%
   QC value within limits for P 214.914  Recovery = 101.72%
Pb 220.353†               55.8      9.5098 µg/L       1.45988      9.5098 ppb        1.45988  15.35%
   QC value within limits for Pb 220.353  Recovery = 95.10%
S 181.975 Axial†          60.9      105.08 µg/L         3.598      105.08 ppb          3.598   3.42%
   QC value within limits for S 181.975 Axial  Recovery = 105.08%
Sb 206.836†               51.5      17.389 µg/L        1.6345      17.389 ppb         1.6345   9.40%
   QC value greater than the upper limit for Sb 206.836  Recovery = 173.89%
Se 196.026†               37.0      29.151 µg/L        3.8636      29.151 ppb         3.8636  13.25%
   QC value within limits for Se 196.026  Recovery = 97.17%
SiO2†                   1621.3      197.80 µg/L         1.567      197.80 ppb          1.567   0.79%
   QC value within limits for SiO2  Recovery = 92.86%
Si 251.611†             1937.0      91.745 µg/L        1.1361      91.745 ppb         1.1361   1.24%
   QC value within limits for Si 251.611  Recovery = 91.74%
Sn 189.927†               50.9      11.708 µg/L        1.0375      11.708 ppb         1.0375   8.86%
   QC value within limits for Sn 189.927  Recovery = 117.08%
Sr 421.552†             1079.0      5.1942 µg/L       0.14644      5.1942 ppb        0.14644   2.82%
   QC value within limits for Sr 421.552  Recovery = 103.88%
Ti 334.940†             1963.5      5.1245 µg/L       0.14694      5.1245 ppb        0.14694   2.87%
   QC value within limits for Ti 334.940  Recovery = 102.49%
Tl 190.801†               59.7      22.034 µg/L        0.9291      22.034 ppb         0.9291   4.22%
   QC value within limits for Tl 190.801  Recovery = 110.17%
U 367.007†               158.7       43.47 µg/L         6.407       43.47 ppb          6.407  14.74%
   QC value within limits for U 367.007  Recovery = 86.93%
V 292.402†               483.6      5.0766 µg/L       0.25762      5.0766 ppb        0.25762   5.07%
   QC value within limits for V 292.402  Recovery = 101.53%
Zn 213.857†              977.0      9.5649 µg/L       0.00830      9.5649 ppb        0.00830   0.09%
   QC value within limits for Zn 213.857  Recovery = 95.65%
QC Failed.  Continue with analysis.
```

Sequence No.: 13 **Autosampler Location:** 8
Sample ID: CCB **Date Collected:** 6/7/2012 9:15:45
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19524.2	19524.2	102	%			09:16:14
1	Al 396.153Radial†	-80.4	-29.9	-9.0863	µg/L	-9.0863	ppb	09:16:14
1	Ca 317.933Radial†	107.5	-13.9	-6.7841	µg/L	-6.7841	ppb	09:16:34
1	Fe 238.204 Radial†	30.7	1.4	0.7843	µg/L	0.7843	ppb	09:16:34
1	K 766.490 Radial†	774.1	93.3	45.633	µg/L	45.633	ppb	09:16:14
1	Mg 279.077 IEC†	4.3	1.1	5.4124	µg/L	5.4124	ppb	09:16:34
1	Na 589.592 Radial†	-161.0	27.0	49.910	µg/L	49.910	ppb	09:16:14
1	Sr 421.552†	-1318.6	-0.2	-0.0009	µg/L	-0.0009	ppb	09:16:14
1	Sc 361.383	608045.4	608045.4	100.98	%			09:17:30
1	Y 371.029	515677.9	515677.9	100.86	%			09:17:30
1	Ag 328.068†	-635.2	-37.4	-0.2482	µg/L	-0.2482	ppb	09:17:30
1	As 188.979†	-11.3	0.3	0.1457	µg/L	0.1457	ppb	09:17:50
1	B 249.677†	130.4	43.3	1.2510	µg/L	1.2510	ppb	09:17:50
1	Ba 233.527†	-128.7	-10.9	-0.0973	µg/L	-0.0973	ppb	09:17:50
1	Be 313.107†	-8008.0	27.9	0.0166	µg/L	0.0166	ppb	09:17:30
1	Cd 226.502†	-196.2	22.1	0.3356	µg/L	0.3356	ppb	09:17:50
1	Co 228.616†	-2.3	4.1	0.1085	µg/L	0.1085	ppb	09:17:50
1	Cr 267.716†	231.9	-7.8	-0.1666	µg/L	-0.1666	ppb	09:17:50
1	Cu 324.752†	6079.5	-127.4	-0.5670	µg/L	-0.5670	ppb	09:17:30
1	Mn 257.610†	376.0	-13.7	-0.0214	µg/L	-0.0214	ppb	09:17:50
1	Mo 202.031†	36.3	8.1	0.5743	µg/L	0.5743	ppb	09:17:50
1	Ni 231.604†	-100.6	-21.4	-0.6921	µg/L	-0.6921	ppb	09:17:50
1	P 214.914†	62.8	-13.8	-10.481	µg/L	-10.481	ppb	09:17:50
1	Pb 220.353†	148.7	6.8	1.1674	µg/L	1.1674	ppb	09:17:50
1	S 181.975 Axial†	59.7	2.2	3.8393	µg/L	3.8393	ppb	09:17:50
1	Sb 206.836†	78.2	8.4	2.8549	µg/L	2.8549	ppb	09:17:50
1	Se 196.026†	-11.7	-3.3	-2.6235	µg/L	-2.6235	ppb	09:17:50
1	SiO2†	3313.5	-149.8	-18.208	µg/L	-18.208	ppb	09:17:30
1	Si 251.611†	275.0	-163.6	-7.7766	µg/L	-7.7766	ppb	09:17:50
1	Sn 189.927†	31.6	8.5	1.9620	µg/L	1.9620	ppb	09:17:50
1	Ti 334.940†	-162.3	-74.4	-0.1951	µg/L	-0.1951	ppb	09:17:30
1	Tl 190.801†	-45.6	-5.3	-1.9568	µg/L	-1.9568	ppb	09:17:50
1	U 367.007†	366.5	0.8	0.231	µg/L	0.231	ppb	09:17:30
1	V 292.402†	-168.8	33.4	0.3460	µg/L	0.3460	ppb	09:17:30
1	Zn 213.857†	1121.7	-107.8	-1.0570	µg/L	-1.0570	ppb	09:17:50
2	Sc RADIAL	19410.2	19410.2	101	%			09:16:39
2	Al 396.153Radial†	-69.9	-20.0	-6.0736	µg/L	-6.0736	ppb	09:16:39
2	Ca 317.933Radial†	100.7	-19.9	-9.7535	µg/L	-9.7535	ppb	09:16:59
2	Fe 238.204 Radial†	33.0	3.8	2.0967	µg/L	2.0967	ppb	09:16:59
2	K 766.490 Radial†	717.7	42.2	20.625	µg/L	20.625	ppb	09:16:39
2	Mg 279.077 IEC†	2.7	-0.5	-2.5111	µg/L	-2.5111	ppb	09:16:59
2	Na 589.592 Radial†	-153.3	33.7	62.160	µg/L	62.160	ppb	09:16:39
2	Sr 421.552†	-1234.6	75.1	0.3614	µg/L	0.3614	ppb	09:16:39
2	Sc 361.383	608239.2	608239.2	101.02	%			09:17:56
2	Y 371.029	515936.0	515936.0	100.92	%			09:17:56
2	Ag 328.068†	-551.6	45.6	0.3060	µg/L	0.3060	ppb	09:17:56
2	As 188.979†	-8.2	3.3	1.9052	µg/L	1.9052	ppb	09:18:16
2	B 249.677†	117.6	30.6	0.8827	µg/L	0.8827	ppb	09:18:16
2	Ba 233.527†	-122.8	-4.9	-0.0445	µg/L	-0.0445	ppb	09:18:16
2	Be 313.107†	-8018.9	19.6	0.0119	µg/L	0.0119	ppb	09:17:56
2	Cd 226.502†	-201.7	16.7	0.2532	µg/L	0.2532	ppb	09:18:16
2	Co 228.616†	-6.2	0.2	0.0061	µg/L	0.0061	ppb	09:18:16
2	Cr 267.716†	224.4	-15.3	-0.3272	µg/L	-0.3272	ppb	09:18:16
2	Cu 324.752†	6111.8	-97.3	-0.4343	µg/L	-0.4343	ppb	09:17:56
2	Mn 257.610†	369.5	-20.2	-0.0311	µg/L	-0.0311	ppb	09:18:16
2	Mo 202.031†	29.8	1.7	0.1189	µg/L	0.1189	ppb	09:18:16
2	Ni 231.604†	-86.0	-6.8	-0.2204	µg/L	-0.2204	ppb	09:18:16
2	P 214.914†	72.6	-4.2	-3.1645	µg/L	-3.1645	ppb	09:18:16
2	Pb 220.353†	148.6	6.6	1.1345	µg/L	1.1345	ppb	09:18:16

2	S 181.975 Axial†	51.0	-6.4	-11.132 µg/L	-11.132 ppb	09:18:16
2	Sb 206.836†	67.8	-1.8	-0.6073 µg/L	-0.6073 ppb	09:18:16
2	Se 196.026†	-5.9	2.4	1.9040 µg/L	1.9040 ppb	09:18:16
2	SiO2†	3306.8	-157.5	-19.117 µg/L	-19.117 ppb	09:17:56
2	Si 251.611†	290.3	-148.5	-7.0435 µg/L	-7.0435 ppb	09:18:16
2	Sn 189.927†	19.6	-3.3	-0.7623 µg/L	-0.7623 ppb	09:18:16
2	Ti 334.940†	-173.3	-85.2	-0.2242 µg/L	-0.2242 ppb	09:17:56
2	Tl 190.801†	-37.8	2.5	0.9026 µg/L	0.9026 ppb	09:18:16
2	U 367.007†	371.6	5.8	1.591 µg/L	1.591 ppb	09:17:56
2	V 292.402†	-211.2	-8.5	-0.0846 µg/L	-0.0846 ppb	09:17:56
2	Zn 213.857†	1127.0	-102.9	-1.0115 µg/L	-1.0115 ppb	09:18:16
3	Sc RADIAL	19389.9	19389.9	101 %		09:17:04
3	Al 396.153Radial†	-59.0	-9.3	-2.8350 µg/L	-2.8350 ppb	09:17:04
3	Ca 317.933Radial†	107.4	-13.3	-6.4984 µg/L	-6.4984 ppb	09:17:24
3	Fe 238.204 Radial†	32.5	3.4	1.8890 µg/L	1.8890 ppb	09:17:24
3	K 766.490 Radial†	625.2	-48.3	-23.638 µg/L	-23.638 ppb	09:17:04
3	Mg 279.077 IEC†	9.7	6.4	32.614 µg/L	32.614 ppb	09:17:24
3	Na 589.592 Radial†	-180.9	6.2	11.509 µg/L	11.509 ppb	09:17:04
3	Sr 421.552†	-1315.7	-6.3	-0.0301 µg/L	-0.0301 ppb	09:17:04
3	Sc 361.383	607981.0	607981.0	100.97 %		09:18:21
3	Y 371.029	515921.4	515921.4	100.91 %		09:18:21
3	Ag 328.068†	-527.4	69.4	0.4665 µg/L	0.4665 ppb	09:18:21
3	As 188.979†	-12.1	-0.6	-0.3371 µg/L	-0.3371 ppb	09:18:41
3	B 249.677†	102.2	15.4	0.4454 µg/L	0.4454 ppb	09:18:41
3	Ba 233.527†	-113.0	4.7	0.0425 µg/L	0.0425 ppb	09:18:41
3	Be 313.107†	-7977.1	57.6	0.0348 µg/L	0.0348 ppb	09:18:21
3	Cd 226.502†	-203.5	14.8	0.2251 µg/L	0.2251 ppb	09:18:41
3	Co 228.616†	-8.6	-2.1	-0.0547 µg/L	-0.0547 ppb	09:18:41
3	Cr 267.716†	224.0	-15.6	-0.3348 µg/L	-0.3348 ppb	09:18:41
3	Cu 324.752†	6124.2	-82.4	-0.3694 µg/L	-0.3694 ppb	09:18:21
3	Mn 257.610†	372.1	-17.5	-0.0280 µg/L	-0.0280 ppb	09:18:41
3	Mo 202.031†	34.9	6.7	0.4744 µg/L	0.4744 ppb	09:18:41
3	Ni 231.604†	-81.1	-2.0	-0.0651 µg/L	-0.0651 ppb	09:18:41
3	P 214.914†	70.2	-6.5	-4.9535 µg/L	-4.9535 ppb	09:18:41
3	Pb 220.353†	158.3	16.3	2.7866 µg/L	2.7866 ppb	09:18:41
3	S 181.975 Axial†	56.7	-0.8	-1.4300 µg/L	-1.4300 ppb	09:18:41
3	Sb 206.836†	70.3	0.7	0.2397 µg/L	0.2397 ppb	09:18:41
3	Se 196.026†	-13.0	-4.6	-3.6071 µg/L	-3.6071 ppb	09:18:41
3	SiO2†	3348.4	-114.9	-13.927 µg/L	-13.927 ppb	09:18:21
3	Si 251.611†	304.8	-134.0	-6.3649 µg/L	-6.3649 ppb	09:18:41
3	Sn 189.927†	24.3	1.3	0.2978 µg/L	0.2978 ppb	09:18:41
3	Ti 334.940†	-203.7	-115.4	-0.3041 µg/L	-0.3041 ppb	09:18:21
3	Tl 190.801†	-40.3	-0.1	-0.0231 µg/L	-0.0231 ppb	09:18:41
3	U 367.007†	376.5	10.9	3.001 µg/L	3.001 ppb	09:18:21
3	V 292.402†	-190.8	11.7	0.1256 µg/L	0.1256 ppb	09:18:21
3	Zn 213.857†	1128.4	-101.0	-0.9941 µg/L	-0.9941 ppb	09:18:41

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	608088.5	100.99	%	0.022				0.02%
Sc RADIAL	19441.4	102	%	0.4				0.37%
Y 371.029	515845.1	100.90	%	0.028				0.03%
Ag 328.068†	25.9	0.1748	µg/L	0.37501	0.1748	ppb	0.37501	214.58%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-19.7	-5.9983	µg/L	3.12636	-5.9983	ppb	3.12636	52.12%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	1.0	0.5713	µg/L	1.18018	0.5713	ppb	1.18018	206.59%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	29.8	0.8597	µg/L	0.40327	0.8597	ppb	0.40327	46.91%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-3.7	-0.0331	µg/L	0.07058	-0.0331	ppb	0.07058	213.21%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	35.1	0.0211	µg/L	0.01210	0.0211	ppb	0.01210	57.35%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-15.7	-7.6787	µg/L	1.80253	-7.6787	ppb	1.80253	23.47%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	17.8	0.2713	µg/L	0.05741	0.2713	ppb	0.05741	21.16%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	0.7	0.0200	µg/L	0.08248	0.0200	ppb	0.08248	412.88%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	-12.9	-0.2762 µg/L	0.09498	-0.2762 ppb	0.09498	34.39%	
QC value within limits for Cr 267.716 Recovery = Not calculated							
Cu 324.752†	-102.4	-0.4569 µg/L	0.10072	-0.4569 ppb	0.10072	22.04%	
QC value within limits for Cu 324.752 Recovery = Not calculated							
Fe 238.204 Radial†	2.9	1.5900 µg/L	0.70542	1.5900 ppb	0.70542	44.37%	
QC value within limits for Fe 238.204 Radial Recovery = Not calculated							
K 766.490 Radial†	29.0	14.206 µg/L	35.0788	14.206 ppb	35.0788	246.92%	
QC value within limits for K 766.490 Radial Recovery = Not calculated							
Mg 279.077 IEC†	2.3	11.838 µg/L	18.4232	11.838 ppb	18.4232	155.62%	
QC value within limits for Mg 279.077 IEC Recovery = Not calculated							
Mn 257.610†	-17.1	-0.0268 µg/L	0.00497	-0.0268 ppb	0.00497	18.52%	
QC value within limits for Mn 257.610 Recovery = Not calculated							
Mo 202.031†	5.5	0.3892 µg/L	0.23932	0.3892 ppb	0.23932	61.49%	
QC value within limits for Mo 202.031 Recovery = Not calculated							
Na 589.592 Radial†	22.3	41.193 µg/L	26.4266	41.193 ppb	26.4266	64.15%	
QC value within limits for Na 589.592 Radial Recovery = Not calculated							
Ni 231.604†	-10.1	-0.3259 µg/L	0.32654	-0.3259 ppb	0.32654	100.21%	
QC value within limits for Ni 231.604 Recovery = Not calculated							
P 214.914†	-8.2	-6.1995 µg/L	3.81397	-6.1995 ppb	3.81397	61.52%	
QC value within limits for P 214.914 Recovery = Not calculated							
Pb 220.353†	9.9	1.6962 µg/L	0.94450	1.6962 ppb	0.94450	55.68%	
QC value within limits for Pb 220.353 Recovery = Not calculated							
S 181.975 Axial†	-1.7	-2.9076 µg/L	7.59422	-2.9076 ppb	7.59422	261.19%	
QC value within limits for S 181.975 Axial Recovery = Not calculated							
Sb 206.836†	2.4	0.8291 µg/L	1.80475	0.8291 ppb	1.80475	217.68%	
QC value within limits for Sb 206.836 Recovery = Not calculated							
Se 196.026†	-1.8	-1.4422 µg/L	2.93931	-1.4422 ppb	2.93931	203.80%	
QC value within limits for Se 196.026 Recovery = Not calculated							
SiO2†	-140.7	-17.084 µg/L	2.7711	-17.084 ppb	2.7711	16.22%	
QC value within limits for SiO2 Recovery = Not calculated							
Si 251.611†	-148.7	-7.0617 µg/L	0.70604	-7.0617 ppb	0.70604	10.00%	
QC value within limits for Si 251.611 Recovery = Not calculated							
Sn 189.927†	2.2	0.4992 µg/L	1.37328	0.4992 ppb	1.37328	275.11%	
QC value within limits for Sn 189.927 Recovery = Not calculated							
Sr 421.552†	22.9	0.1102 µg/L	0.21810	0.1102 ppb	0.21810	197.99%	
QC value within limits for Sr 421.552 Recovery = Not calculated							
Ti 334.940†	-91.7	-0.2411 µg/L	0.05643	-0.2411 ppb	0.05643	23.40%	
QC value within limits for Ti 334.940 Recovery = Not calculated							
Tl 190.801†	-1.0	-0.3591 µg/L	1.45900	-0.3591 ppb	1.45900	406.27%	
QC value within limits for Tl 190.801 Recovery = Not calculated							
U 367.007†	5.8	1.608 µg/L	1.3849	1.608 ppb	1.3849	86.13%	
QC value within limits for U 367.007 Recovery = Not calculated							
V 292.402†	12.2	0.1290 µg/L	0.21530	0.1290 ppb	0.21530	166.88%	
QC value within limits for V 292.402 Recovery = Not calculated							
Zn 213.857†	-103.9	-1.0209 µg/L	0.03251	-1.0209 ppb	0.03251	3.18%	
QC value within limits for Zn 213.857 Recovery = Not calculated							

All analyte(s) passed QC.

Sequence No.: 23 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 9:45:42**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20362.2	20362.2	106	%			09:46:32
1	Al 396.153Radial†	17498.6	16500.6	4987.9	µg/L	4987.9	ppb	09:46:12
1	Ca 317.933Radial†	11110.5	10326.5	5056.9	µg/L	5056.9	ppb	09:46:32
1	Fe 238.204 Radial†	9848.2	9230.2	5148.9	µg/L	5148.9	ppb	09:46:32
1	K 766.490 Radial†	11470.1	10118.2	4943.0	µg/L	4943.0	ppb	09:46:12
1	Mg 279.077 IEC†	1105.5	1036.2	5267.1	µg/L	5267.1	ppb	09:46:32
1	Na 589.592 Radial†	5469.7	5327.3	9839.2	µg/L	9839.2	ppb	09:46:32
1	Sr 421.552†	107271.6	102145.8	491.77	µg/L	491.77	ppb	09:46:12
1	Sc 361.383	644300.4	644300.4	107.00	%			09:47:29
1	Y 371.029	542270.5	542270.5	106.07	%			09:47:29
1	Ag 328.068†	78659.4	74102.3	501.25	µg/L	501.25	ppb	09:47:34
1	As 188.979†	925.8	876.6	506.57	µg/L	506.57	ppb	09:47:54
1	B 249.677†	18356.7	17069.3	491.69	µg/L	491.69	ppb	09:47:34
1	Ba 233.527†	59180.9	55423.7	499.34	µg/L	499.34	ppb	09:47:34
1	Be 313.107†	895181.9	844543.6	501.98	µg/L	501.98	ppb	09:47:29
1	Cd 226.502†	35164.2	33078.8	502.96	µg/L	502.96	ppb	09:47:34
1	Co 228.616†	20621.6	19278.1	505.33	µg/L	505.33	ppb	09:47:34
1	Cr 267.716†	25334.9	23439.1	499.78	µg/L	499.78	ppb	09:47:34
1	Cu 324.752†	125320.0	110969.2	495.23	µg/L	495.23	ppb	09:47:34
1	Mn 257.610†	339948.8	317310.7	493.68	µg/L	493.68	ppb	09:47:34
1	Mo 202.031†	7536.7	7015.5	500.03	µg/L	500.03	ppb	09:47:54
1	Ni 231.604†	16784.2	15763.8	510.23	µg/L	510.23	ppb	09:47:34
1	P 214.914†	3619.2	3306.3	2487.4	µg/L	2487.4	ppb	09:47:54
1	Pb 220.353†	3283.7	2928.3	501.42	µg/L	501.42	ppb	09:47:54
1	S 181.975 Axial†	680.5	579.0	1000.5	µg/L	1000.5	ppb	09:47:54
1	Sb 206.836†	1649.9	1473.0	491.44	µg/L	491.44	ppb	09:47:54
1	Se 196.026†	672.8	636.9	503.20	µg/L	503.20	ppb	09:47:54
1	SiO2†	50059.5	43351.7	5300.7	µg/L	5300.7	ppb	09:47:34
1	Si 251.611†	56421.5	52292.4	2473.5	µg/L	2473.5	ppb	09:47:34
1	Sn 189.927†	2368.5	2190.7	505.26	µg/L	505.26	ppb	09:47:54
1	Ti 334.940†	201093.7	188016.9	492.21	µg/L	492.21	ppb	09:47:34
1	Tl 190.801†	1413.3	1360.7	503.60	µg/L	503.60	ppb	09:47:54
1	U 367.007†	2264.1	1753.8	461.9	µg/L	461.9	ppb	09:47:34
1	V 292.402†	52242.0	49023.0	504.84	µg/L	504.84	ppb	09:47:34
1	Zn 213.857†	55684.7	50821.1	496.04	µg/L	496.04	ppb	09:47:34
2	Sc RADIAL	20128.2	20128.2	105	%			09:46:57
2	Al 396.153Radial†	17355.3	16555.4	5004.7	µg/L	5004.7	ppb	09:46:37
2	Ca 317.933Radial†	11028.9	10370.2	5078.4	µg/L	5078.4	ppb	09:46:57
2	Fe 238.204 Radial†	9770.1	9263.5	5167.5	µg/L	5167.5	ppb	09:46:57
2	K 766.490 Radial†	11434.2	10209.3	4987.5	µg/L	4987.5	ppb	09:46:37
2	Mg 279.077 IEC†	1090.9	1034.4	5258.0	µg/L	5258.0	ppb	09:46:57
2	Na 589.592 Radial†	5516.3	5431.4	10031	µg/L	10031	ppb	09:46:57
2	Sr 421.552†	106555.8	102637.3	494.14	µg/L	494.14	ppb	09:46:37
2	Sc 361.383	647532.0	647532.0	107.54	%			09:48:00
2	Y 371.029	545238.5	545238.5	106.65	%			09:48:00
2	Ag 328.068†	79862.1	74853.7	506.33	µg/L	506.33	ppb	09:48:05
2	As 188.979†	922.1	868.9	502.14	µg/L	502.14	ppb	09:48:25
2	B 249.677†	18648.7	17255.2	497.04	µg/L	497.04	ppb	09:48:05
2	Ba 233.527†	60205.9	56100.8	505.44	µg/L	505.44	ppb	09:48:05
2	Be 313.107†	906611.3	850996.5	505.82	µg/L	505.82	ppb	09:48:00
2	Cd 226.502†	35875.5	33576.2	510.54	µg/L	510.54	ppb	09:48:05
2	Co 228.616†	21024.0	19556.2	512.61	µg/L	512.61	ppb	09:48:05
2	Cr 267.716†	25752.6	23709.3	505.55	µg/L	505.55	ppb	09:48:05
2	Cu 324.752†	127071.8	112013.6	499.89	µg/L	499.89	ppb	09:48:05
2	Mn 257.610†	345399.8	320793.9	499.10	µg/L	499.10	ppb	09:48:05
2	Mo 202.031†	7522.2	6966.9	496.56	µg/L	496.56	ppb	09:48:25
2	Ni 231.604†	17081.2	15961.7	516.63	µg/L	516.63	ppb	09:48:05
2	P 214.914†	3630.0	3299.4	2482.1	µg/L	2482.1	ppb	09:48:25
2	Pb 220.353†	3279.2	2908.8	498.07	µg/L	498.07	ppb	09:48:25

2	S 181.975 Axial†	681.6	576.8	996.71 µg/L	996.71 ppb	09:48:25
2	Sb 206.836†	1651.4	1466.6	489.13 µg/L	489.13 ppb	09:48:25
2	Se 196.026†	677.2	638.0	504.03 µg/L	504.03 ppb	09:48:25
2	SiO2†	50925.1	43923.2	5370.3 µg/L	5370.3 ppb	09:48:05
2	Si 251.611†	57363.8	52905.5	2502.6 µg/L	2502.6 ppb	09:48:05
2	Sn 189.927†	2377.2	2187.7	504.59 µg/L	504.59 ppb	09:48:25
2	Ti 334.940†	204124.1	189897.0	497.13 µg/L	497.13 ppb	09:48:05
2	Tl 190.801†	1413.3	1354.1	501.20 µg/L	501.20 ppb	09:48:25
2	U 367.007†	2279.0	1757.1	462.7 µg/L	462.7 ppb	09:48:05
2	V 292.402†	53133.8	49608.6	510.76 µg/L	510.76 ppb	09:48:05
2	Zn 213.857†	56670.5	51478.1	502.46 µg/L	502.46 ppb	09:48:05
3	Sc RADIAL	20033.1	20033.1	105 %		09:47:22
3	Al 396.153Radial†	17433.5	16708.6	5050.9 µg/L	5050.9 ppb	09:47:02
3	Ca 317.933Radial†	10959.5	10353.8	5070.3 µg/L	5070.3 ppb	09:47:22
3	Fe 238.204 Radial†	9725.9	9265.4	5168.5 µg/L	5168.5 ppb	09:47:22
3	K 766.490 Radial†	11464.8	10290.2	5027.1 µg/L	5027.1 ppb	09:47:02
3	Mg 279.077 IEC†	1087.8	1036.3	5267.9 µg/L	5267.9 ppb	09:47:22
3	Na 589.592 Radial†	5505.0	5445.5	10057 µg/L	10057 ppb	09:47:22
3	Sr 421.552†	107131.8	103668.8	499.11 µg/L	499.11 ppb	09:47:02
3	Sc 361.383	644713.3	644713.3	107.07 %		09:48:31
3	Y 371.029	542366.8	542366.8	106.09 %		09:48:31
3	Ag 328.068†	79184.4	74545.5	504.25 µg/L	504.25 ppb	09:48:36
3	As 188.979†	941.5	890.7	514.76 µg/L	514.76 ppb	09:48:56
3	B 249.677†	18539.3	17228.8	496.29 µg/L	496.29 ppb	09:48:36
3	Ba 233.527†	59887.5	56048.2	504.97 µg/L	504.97 ppb	09:48:36
3	Be 313.107†	901220.4	849647.4	505.02 µg/L	505.02 ppb	09:48:31
3	Cd 226.502†	35667.1	33527.4	509.79 µg/L	509.79 ppb	09:48:36
3	Co 228.616†	20792.1	19425.0	509.18 µg/L	509.18 ppb	09:48:36
3	Cr 267.716†	25531.6	23607.6	503.37 µg/L	503.37 ppb	09:48:36
3	Cu 324.752†	126134.5	111654.9	498.29 µg/L	498.29 ppb	09:48:36
3	Mn 257.610†	343543.3	320464.2	498.58 µg/L	498.58 ppb	09:48:36
3	Mo 202.031†	7557.8	7030.7	501.11 µg/L	501.11 ppb	09:48:56
3	Ni 231.604†	17017.6	15971.7	516.95 µg/L	516.95 ppb	09:48:36
3	P 214.914†	3638.4	3322.1	2499.3 µg/L	2499.3 ppb	09:48:56
3	Pb 220.353†	3329.5	2969.1	508.38 µg/L	508.38 ppb	09:48:56
3	S 181.975 Axial†	675.8	574.2	992.19 µg/L	992.19 ppb	09:48:56
3	Sb 206.836†	1654.9	1476.7	492.62 µg/L	492.62 ppb	09:48:56
3	Se 196.026†	677.6	641.1	506.46 µg/L	506.46 ppb	09:48:56
3	SiO2†	50810.5	44023.1	5382.5 µg/L	5382.5 ppb	09:48:36
3	Si 251.611†	57111.4	52903.0	2502.5 µg/L	2502.5 ppb	09:48:36
3	Sn 189.927†	2380.0	2200.0	507.40 µg/L	507.40 ppb	09:48:56
3	Ti 334.940†	202722.0	189417.4	495.88 µg/L	495.88 ppb	09:48:36
3	Tl 190.801†	1424.8	1370.5	507.26 µg/L	507.26 ppb	09:48:56
3	U 367.007†	2277.4	1764.9	464.9 µg/L	464.9 ppb	09:48:36
3	V 292.402†	52795.7	49508.9	509.80 µg/L	509.80 ppb	09:48:36
3	Zn 213.857†	56328.1	51388.7	501.58 µg/L	501.58 ppb	09:48:36

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	645515.2	107.21	%	0.292				0.27%
Sc RADIAL	20174.5	105	%	0.9				0.84%
Y 371.029	543291.9	106.27	%	0.330				0.31%
Ag 328.068†	74500.5	503.94	µg/L	2.554	503.94	ppb	2.554	0.51%
QC value within limits for Ag 328.068 Recovery = 100.79%								
Al 396.153Radial†	16588.2	5014.5	µg/L	32.67	5014.5	ppb	32.67	0.65%
QC value within limits for Al 396.153Radial Recovery = 100.29%								
As 188.979†	878.7	507.82	µg/L	6.402	507.82	ppb	6.402	1.26%
QC value within limits for As 188.979 Recovery = 101.56%								
B 249.677†	17184.5	495.01	µg/L	2.899	495.01	ppb	2.899	0.59%
QC value within limits for B 249.677 Recovery = 99.00%								
Ba 233.527†	55857.6	503.25	µg/L	3.394	503.25	ppb	3.394	0.67%
QC value within limits for Ba 233.527 Recovery = 100.65%								
Be 313.107†	848395.8	504.27	µg/L	2.023	504.27	ppb	2.023	0.40%
QC value within limits for Be 313.107 Recovery = 100.85%								
Ca 317.933Radial†	10350.2	5068.5	µg/L	10.82	5068.5	ppb	10.82	0.21%
QC value within limits for Ca 317.933Radial Recovery = 101.37%								
Cd 226.502†	33394.1	507.77	µg/L	4.174	507.77	ppb	4.174	0.82%
QC value within limits for Cd 226.502 Recovery = 101.55%								
Co 228.616†	19419.8	509.04	µg/L	3.641	509.04	ppb	3.641	0.72%

QC value within limits for Co 228.616 Recovery = 101.81%

Cr 267.716†	23585.3	502.90 µg/L	2.911	502.90 ppb	2.911	0.58%

QC value within limits for Cr 267.716 Recovery = 100.58%

Cu 324.752†	111545.9	497.80 µg/L	2.369	497.80 ppb	2.369	0.48%

QC value within limits for Cu 324.752 Recovery = 99.56%

Fe 238.204 Radial†	9253.0	5161.7 µg/L	11.06	5161.7 ppb	11.06	0.21%

QC value within limits for Fe 238.204 Radial Recovery = 103.23%

K 766.490 Radial†	10205.9	4985.9 µg/L	42.06	4985.9 ppb	42.06	0.84%

QC value within limits for K 766.490 Radial Recovery = 99.72%

Mg 279.077 IEC†	1035.6	5264.4 µg/L	5.47	5264.4 ppb	5.47	0.10%

QC value within limits for Mg 279.077 IEC Recovery = 105.29%

Mn 257.610†	319522.9	497.12 µg/L	2.991	497.12 ppb	2.991	0.60%

QC value within limits for Mn 257.610 Recovery = 99.42%

Mo 202.031†	7004.4	499.23 µg/L	2.375	499.23 ppb	2.375	0.48%

QC value within limits for Mo 202.031 Recovery = 99.85%

Na 589.592 Radial†	5401.4	9976.0 µg/L	119.18	9976.0 ppb	119.18	1.19%

QC value within limits for Na 589.592 Radial Recovery = 99.76%

Ni 231.604†	15899.1	514.60 µg/L	3.795	514.60 ppb	3.795	0.74%

QC value within limits for Ni 231.604 Recovery = 102.92%

P 214.914†	3309.3	2489.6 µg/L	8.80	2489.6 ppb	8.80	0.35%

QC value within limits for P 214.914 Recovery = 99.58%

Pb 220.353†	2935.4	502.62 µg/L	5.260	502.62 ppb	5.260	1.05%

QC value within limits for Pb 220.353 Recovery = 100.52%

S 181.975 Axial†	576.6	996.46 µg/L	4.159	996.46 ppb	4.159	0.42%

QC value within limits for S 181.975 Axial Recovery = 99.65%

Sb 206.836†	1472.1	491.06 µg/L	1.778	491.06 ppb	1.778	0.36%

QC value within limits for Sb 206.836 Recovery = 98.21%

Se 196.026†	638.7	504.56 µg/L	1.693	504.56 ppb	1.693	0.34%

QC value within limits for Se 196.026 Recovery = 100.91%

SiO2†	43766.0	5351.2 µg/L	44.13	5351.2 ppb	44.13	0.82%

QC value within limits for SiO2 Recovery = 100.07%

Si 251.611†	52700.3	2492.9 µg/L	16.77	2492.9 ppb	16.77	0.67%

QC value within limits for Si 251.611 Recovery = 99.71%

Sn 189.927†	2192.8	505.75 µg/L	1.469	505.75 ppb	1.469	0.29%

QC value within limits for Sn 189.927 Recovery = 101.15%

Sr 421.552†	102817.3	495.01 µg/L	3.742	495.01 ppb	3.742	0.76%

QC value within limits for Sr 421.552 Recovery = 99.00%

Ti 334.940†	189110.4	495.07 µg/L	2.558	495.07 ppb	2.558	0.52%

QC value within limits for Ti 334.940 Recovery = 99.01%

Tl 190.801†	1361.8	504.02 µg/L	3.052	504.02 ppb	3.052	0.61%

QC value within limits for Tl 190.801 Recovery = 100.80%

U 367.007†	1758.6	463.1 µg/L	1.54	463.1 ppb	1.54	0.33%

QC value within limits for U 367.007 Recovery = 92.63%

V 292.402†	49380.1	508.47 µg/L	3.177	508.47 ppb	3.177	0.62%

QC value within limits for V 292.402 Recovery = 101.69%

Zn 213.857†	51229.3	500.02 µg/L	3.481	500.02 ppb	3.481	0.70%

QC value within limits for Zn 213.857 Recovery = 100.00%

All analyte(s) passed QC.

Sequence No.: 24 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/7/2012 9:49:04**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20448.3	20448.3	107	%			09:49:33
1	Al 396.153Radial†	676.7	682.5	206.68	µg/L	206.68	ppb	09:49:33
1	Ca 317.933Radial†	562.4	407.2	199.41	µg/L	199.41	ppb	09:49:53
1	Fe 238.204 Radial†	229.2	185.9	103.63	µg/L	103.63	ppb	09:49:53
1	K 766.490 Radial†	1055.7	322.7	157.75	µg/L	157.75	ppb	09:49:33
1	Mg 279.077 IEC†	68.8	61.2	311.05	µg/L	311.05	ppb	09:49:53
1	Na 589.592 Radial†	-17.2	168.7	311.62	µg/L	311.62	ppb	09:49:33
1	Sr 421.552†	-207.6	1098.4	5.2873	µg/L	5.2873	ppb	09:49:33
1	Sc 361.383	637605.1	637605.1	105.89	%			09:50:50
1	Y 371.029	542071.7	542071.7	106.03	%			09:50:50
1	Ag 328.068†	192.4	773.4	5.2451	µg/L	5.2451	ppb	09:50:50
1	As 188.979†	43.7	52.7	30.456	µg/L	30.456	ppb	09:51:10
1	B 249.677†	1943.1	1749.2	50.523	µg/L	50.523	ppb	09:50:50
1	Ba 233.527†	495.2	584.2	5.2623	µg/L	5.2623	ppb	09:51:10
1	Be 313.107†	990.2	8893.0	5.2937	µg/L	5.2937	ppb	09:50:50
1	Cd 226.502†	161.3	368.7	5.5981	µg/L	5.5981	ppb	09:51:10
1	Co 228.616†	191.5	187.2	4.9149	µg/L	4.9149	ppb	09:51:10
1	Cr 267.716†	501.6	236.2	5.0076	µg/L	5.0076	ppb	09:51:10
1	Cu 324.752†	8695.7	2064.2	9.1792	µg/L	9.1792	ppb	09:50:50
1	Mn 257.610†	7575.4	6767.8	10.523	µg/L	10.523	ppb	09:50:50
1	Mo 202.031†	192.2	153.6	10.948	µg/L	10.948	ppb	09:51:10
1	Ni 231.604†	89.3	162.6	5.2641	µg/L	5.2641	ppb	09:51:10
1	P 214.914†	291.1	198.9	150.42	µg/L	150.42	ppb	09:51:10
1	Pb 220.353†	220.7	67.9	11.581	µg/L	11.581	ppb	09:51:10
1	S 181.975 Axial†	127.7	63.7	109.94	µg/L	109.94	ppb	09:51:10
1	Sb 206.836†	116.4	41.0	13.842	µg/L	13.842	ppb	09:51:10
1	Se 196.026†	25.2	32.0	25.186	µg/L	25.186	ppb	09:51:10
1	SiO2†	5281.6	1556.6	189.89	µg/L	189.89	ppb	09:50:50
1	Si 251.611†	2421.4	1850.8	87.659	µg/L	87.659	ppb	09:51:10
1	Sn 189.927†	69.9	43.3	9.9675	µg/L	9.9675	ppb	09:51:10
1	Ti 334.940†	1970.5	1947.2	5.0842	µg/L	5.0842	ppb	09:50:50
1	Tl 190.801†	25.2	63.6	23.480	µg/L	23.480	ppb	09:51:10
1	U 367.007†	529.6	138.1	37.76	µg/L	37.76	ppb	09:50:50
1	V 292.402†	346.3	527.7	5.5224	µg/L	5.5224	ppb	09:50:50
1	Zn 213.857†	2263.1	918.6	8.9885	µg/L	8.9885	ppb	09:51:10
2	Sc RADIAL	20467.7	20467.7	107	%			09:49:58
2	Al 396.153Radial†	641.8	649.3	196.58	µg/L	196.58	ppb	09:49:58
2	Ca 317.933Radial†	548.5	393.8	192.83	µg/L	192.83	ppb	09:50:18
2	Fe 238.204 Radial†	234.9	191.0	106.49	µg/L	106.49	ppb	09:50:18
2	K 766.490 Radial†	1094.1	357.7	174.89	µg/L	174.89	ppb	09:49:58
2	Mg 279.077 IEC†	69.7	62.0	315.17	µg/L	315.17	ppb	09:50:18
2	Na 589.592 Radial†	-6.4	178.9	330.33	µg/L	330.33	ppb	09:49:58
2	Sr 421.552†	-202.7	1103.1	5.3102	µg/L	5.3102	ppb	09:49:58
2	Sc 361.383	632433.7	632433.7	105.03	%			09:51:15
2	Y 371.029	536720.0	536720.0	104.98	%			09:51:15
2	Ag 328.068†	223.6	804.6	5.4554	µg/L	5.4554	ppb	09:51:15
2	As 188.979†	42.3	51.7	29.876	µg/L	29.876	ppb	09:51:36
2	B 249.677†	1934.9	1756.3	50.728	µg/L	50.728	ppb	09:51:15
2	Ba 233.527†	483.6	577.1	5.1977	µg/L	5.1977	ppb	09:51:36
2	Be 313.107†	978.1	8889.1	5.2932	µg/L	5.2932	ppb	09:51:15
2	Cd 226.502†	169.3	377.5	5.7319	µg/L	5.7319	ppb	09:51:36
2	Co 228.616†	196.3	193.2	5.0734	µg/L	5.0734	ppb	09:51:36
2	Cr 267.716†	471.8	211.7	4.4749	µg/L	4.4749	ppb	09:51:36
2	Cu 324.752†	8682.0	2118.2	9.4122	µg/L	9.4122	ppb	09:51:15
2	Mn 257.610†	7481.0	6736.5	10.474	µg/L	10.474	ppb	09:51:15
2	Mo 202.031†	194.3	157.1	11.197	µg/L	11.197	ppb	09:51:36
2	Ni 231.604†	73.0	147.8	4.7831	µg/L	4.7831	ppb	09:51:36
2	P 214.914†	298.5	208.2	157.42	µg/L	157.42	ppb	09:51:36
2	Pb 220.353†	217.0	66.2	11.278	µg/L	11.278	ppb	09:51:36

2	S 181.975 Axial†	125.4	62.4	107.75 µg/L	107.75 ppb	09:51:36
2	Sb 206.836†	114.3	39.8	13.480 µg/L	13.480 ppb	09:51:36
2	Se 196.026†	34.3	40.8	32.152 µg/L	32.152 ppb	09:51:36
2	SiO2†	5272.8	1589.1	193.92 µg/L	193.92 ppb	09:51:15
2	Si 251.611†	2416.3	1864.7	88.305 µg/L	88.305 ppb	09:51:36
2	Sn 189.927†	78.3	51.8	11.914 µg/L	11.914 ppb	09:51:36
2	Ti 334.940†	1990.2	1981.1	5.1686 µg/L	5.1686 ppb	09:51:15
2	Tl 190.801†	30.1	68.6	25.308 µg/L	25.308 ppb	09:51:36
2	U 367.007†	563.5	174.4	47.82 µg/L	47.82 ppb	09:51:15
2	V 292.402†	348.4	532.3	5.5793 µg/L	5.5793 ppb	09:51:15
2	Zn 213.857†	2265.6	938.5	9.1869 µg/L	9.1869 ppb	09:51:36
3	Sc RADIAL	20374.2	20374.2	106 %		09:50:23
3	Al 396.153Radial†	578.8	592.8	179.43 µg/L	179.43 ppb	09:50:23
3	Ca 317.933Radial†	565.2	411.8	201.65 µg/L	201.65 ppb	09:50:43
3	Fe 238.204 Radial†	230.0	187.4	104.47 µg/L	104.47 ppb	09:50:43
3	K 766.490 Radial†	1009.0	282.4	138.05 µg/L	138.05 ppb	09:50:23
3	Mg 279.077 IEC†	64.5	57.4	291.94 µg/L	291.94 ppb	09:50:43
3	Na 589.592 Radial†	18.4	202.1	373.33 µg/L	373.33 ppb	09:50:23
3	Sr 421.552†	-192.4	1111.9	5.3526 µg/L	5.3526 ppb	09:50:23
3	Sc 361.383	628296.8	628296.8	104.35 %		09:51:41
3	Y 371.029	533368.3	533368.3	104.32 %		09:51:41
3	Ag 328.068†	240.2	821.9	5.5689 µg/L	5.5689 ppb	09:51:41
3	As 188.979†	44.0	53.6	30.948 µg/L	30.948 ppb	09:52:01
3	B 249.677†	1896.0	1731.2	50.003 µg/L	50.003 ppb	09:51:41
3	Ba 233.527†	476.4	573.2	5.1623 µg/L	5.1623 ppb	09:52:01
3	Be 313.107†	891.9	8812.7	5.2478 µg/L	5.2478 ppb	09:51:41
3	Cd 226.502†	165.5	375.0	5.6938 µg/L	5.6938 ppb	09:52:01
3	Co 228.616†	201.9	199.8	5.2468 µg/L	5.2468 ppb	09:52:01
3	Cr 267.716†	486.5	228.7	4.8385 µg/L	4.8385 ppb	09:52:01
3	Cu 324.752†	8703.4	2193.2	9.7460 µg/L	9.7460 ppb	09:51:41
3	Mn 257.610†	7412.4	6717.7	10.446 µg/L	10.446 ppb	09:51:41
3	Mo 202.031†	199.5	163.4	11.642 µg/L	11.642 ppb	09:52:01
3	Ni 231.604†	96.8	171.1	5.5383 µg/L	5.5383 ppb	09:52:01
3	P 214.914†	293.8	205.5	155.37 µg/L	155.37 ppb	09:52:01
3	Pb 220.353†	214.5	65.1	11.108 µg/L	11.108 ppb	09:52:01
3	S 181.975 Axial†	123.9	61.8	106.72 µg/L	106.72 ppb	09:52:01
3	Sb 206.836†	116.0	42.2	14.261 µg/L	14.261 ppb	09:52:01
3	Se 196.026†	33.0	39.9	31.381 µg/L	31.381 ppb	09:52:01
3	SiO2†	5215.3	1567.1	191.26 µg/L	191.26 ppb	09:51:41
3	Si 251.611†	2449.1	1911.3	90.510 µg/L	90.510 ppb	09:52:01
3	Sn 189.927†	79.9	53.8	12.378 µg/L	12.378 ppb	09:52:01
3	Ti 334.940†	2036.2	2037.7	5.3174 µg/L	5.3174 ppb	09:51:41
3	Tl 190.801†	26.9	65.7	24.249 µg/L	24.249 ppb	09:52:01
3	U 367.007†	557.6	172.4	47.26 µg/L	47.26 ppb	09:51:41
3	V 292.402†	314.3	501.8	5.2746 µg/L	5.2746 ppb	09:51:41
3	Zn 213.857†	2269.6	956.5	9.3592 µg/L	9.3592 ppb	09:52:01

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	632778.5	105.09	%	0.775				0.74%
Sc RADIAL	20430.1	107	%	0.3				0.24%
Y 371.029	537386.6	105.11	%	0.859				0.82%
Ag 328.068†	800.0	5.4231	µg/L	0.16430	5.4231	ppb	0.16430	3.03%
QC value within limits for Ag 328.068 Recovery = 108.46%								
Al 396.153Radial†	641.5	194.23	µg/L	13.777	194.23	ppb	13.777	7.09%
QC value within limits for Al 396.153Radial Recovery = 97.11%								
As 188.979†	52.7	30.426	µg/L	0.5366	30.426	ppb	0.5366	1.76%
QC value within limits for As 188.979 Recovery = 101.42%								
B 249.677†	1745.6	50.418	µg/L	0.3738	50.418	ppb	0.3738	0.74%
QC value within limits for B 249.677 Recovery = 100.84%								
Ba 233.527†	578.1	5.2074	µg/L	0.05073	5.2074	ppb	0.05073	0.97%
QC value within limits for Ba 233.527 Recovery = 104.15%								
Be 313.107†	8865.0	5.2783	µg/L	0.02636	5.2783	ppb	0.02636	0.50%
QC value within limits for Be 313.107 Recovery = 105.57%								
Ca 317.933Radial†	404.2	197.96	µg/L	4.584	197.96	ppb	4.584	2.32%
QC value within limits for Ca 317.933Radial Recovery = 98.98%								
Cd 226.502†	373.7	5.6746	µg/L	0.06894	5.6746	ppb	0.06894	1.21%
QC value within limits for Cd 226.502 Recovery = 113.49%								
Co 228.616†	193.4	5.0784	µg/L	0.16598	5.0784	ppb	0.16598	3.27%

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   QC value within limits for Co 228.616  Recovery = 101.57%
Cr 267.716†              225.5      4.7737 µg/L       0.27224      4.7737 ppb        0.27224   5.70%
   QC value within limits for Cr 267.716  Recovery = 95.47%
Cu 324.752†             2125.2      9.4458 µg/L       0.28490      9.4458 ppb        0.28490   3.02%
   QC value within limits for Cu 324.752  Recovery = 94.46%
Fe 238.204 Radial†       188.1      104.86 µg/L         1.469      104.86 ppb          1.469   1.40%
   QC value within limits for Fe 238.204 Radial  Recovery = 104.86%
K 766.490 Radial†        320.9      156.90 µg/L        18.433      156.90 ppb         18.433  11.75%
   QC value within limits for K 766.490 Radial  Recovery = 104.60%
Mg 279.077 IEC†           60.2      306.05 µg/L        12.397      306.05 ppb         12.397   4.05%
   QC value within limits for Mg 279.077 IEC  Recovery = 102.02%
Mn 257.610†             6740.7      10.481 µg/L        0.0391      10.481 ppb         0.0391   0.37%
   QC value within limits for Mn 257.610  Recovery = 104.81%
Mo 202.031†              158.0      11.262 µg/L        0.3515      11.262 ppb         0.3515   3.12%
   QC value within limits for Mo 202.031  Recovery = 112.62%
Na 589.592 Radial†       183.2      338.43 µg/L        31.640      338.43 ppb         31.640   9.35%
   QC value within limits for Na 589.592 Radial  Recovery = 112.81%
Ni 231.604†              160.5      5.1952 µg/L       0.38233      5.1952 ppb        0.38233   7.36%
   QC value within limits for Ni 231.604  Recovery = 103.90%
P 214.914†               204.2      154.40 µg/L         3.601      154.40 ppb          3.601   2.33%
   QC value within limits for P 214.914  Recovery = 102.93%
Pb 220.353†               66.4      11.323 µg/L        0.2396      11.323 ppb         0.2396   2.12%
   QC value within limits for Pb 220.353  Recovery = 113.23%
S 181.975 Axial†          62.6      108.14 µg/L         1.643      108.14 ppb          1.643   1.52%
   QC value within limits for S 181.975 Axial  Recovery = 108.14%
Sb 206.836†               41.0      13.861 µg/L        0.3906      13.861 ppb         0.3906   2.82%
   QC value greater than the upper limit for Sb 206.836  Recovery = 138.61%
Se 196.026†               37.6      29.573 µg/L        3.8188      29.573 ppb         3.8188  12.91%
   QC value within limits for Se 196.026  Recovery = 98.58%
SiO2†                   1570.9      191.69 µg/L         2.045      191.69 ppb          2.045   1.07%
   QC value within limits for SiO2  Recovery = 89.99%
Si 251.611†             1875.6      88.825 µg/L        1.4945      88.825 ppb         1.4945   1.68%
   QC value within limits for Si 251.611  Recovery = 88.82%
Sn 189.927†               49.6      11.420 µg/L        1.2790      11.420 ppb         1.2790  11.20%
   QC value within limits for Sn 189.927  Recovery = 114.20%
Sr 421.552†             1104.5      5.3167 µg/L       0.03313      5.3167 ppb        0.03313   0.62%
   QC value within limits for Sr 421.552  Recovery = 106.33%
Ti 334.940†             1988.7      5.1901 µg/L       0.11806      5.1901 ppb        0.11806   2.27%
   QC value within limits for Ti 334.940  Recovery = 103.80%
Tl 190.801†               66.0      24.345 µg/L        0.9178      24.345 ppb         0.9178   3.77%
   QC value within limits for Tl 190.801  Recovery = 121.73%
U 367.007†               161.6       44.28 µg/L         5.658       44.28 ppb          5.658  12.78%
   QC value within limits for U 367.007  Recovery = 88.56%
V 292.402†               520.6      5.4588 µg/L       0.16203      5.4588 ppb        0.16203   2.97%
   QC value within limits for V 292.402  Recovery = 109.18%
Zn 213.857†              937.8      9.1782 µg/L       0.18551      9.1782 ppb        0.18551   2.02%
   QC value within limits for Zn 213.857  Recovery = 91.78%
QC Failed.  Continue with analysis.
```

Sequence No.: 25 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/7/2012 9:52:09**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20237.0	20237.0	106	%			09:52:38
1	Al 396.153Radial†	-113.1	-58.0	-17.621	µg/L	-17.621	ppb	09:52:38
1	Ca 317.933Radial†	99.1	-25.5	-12.490	µg/L	-12.490	ppb	09:52:58
1	Fe 238.204 Radial†	34.7	4.0	2.2550	µg/L	2.2550	ppb	09:52:58
1	K 766.490 Radial†	769.3	62.1	30.380	µg/L	30.380	ppb	09:52:38
1	Mg 279.077 IEC†	6.4	2.9	14.517	µg/L	14.517	ppb	09:52:58
1	Na 589.592 Radial†	-148.3	44.5	82.277	µg/L	82.277	ppb	09:52:38
1	Sr 421.552†	-1306.7	56.6	0.2727	µg/L	0.2727	ppb	09:52:38
1	Sc 361.383	626911.0	626911.0	104.12	%			09:53:54
1	Y 371.029	531637.6	531637.6	103.99	%			09:53:54
1	Ag 328.068†	-622.4	-6.1	-0.0432	µg/L	-0.0432	ppb	09:53:54
1	As 188.979†	-11.2	0.7	0.3938	µg/L	0.3938	ppb	09:54:14
1	B 249.677†	119.2	28.6	0.8265	µg/L	0.8265	ppb	09:54:14
1	Ba 233.527†	-113.5	7.5	0.0673	µg/L	0.0673	ppb	09:54:14
1	Be 313.107†	-8187.7	93.9	0.0551	µg/L	0.0551	ppb	09:53:54
1	Cd 226.502†	-205.2	19.2	0.2925	µg/L	0.2925	ppb	09:54:14
1	Co 228.616†	2.5	8.8	0.2318	µg/L	0.2318	ppb	09:54:14
1	Cr 267.716†	240.4	-6.5	-0.1368	µg/L	-0.1368	ppb	09:54:14
1	Cu 324.752†	6249.9	-144.9	-0.6419	µg/L	-0.6419	ppb	09:53:54
1	Mn 257.610†	412.3	10.0	0.0153	µg/L	0.0153	ppb	09:54:14
1	Mo 202.031†	35.8	6.6	0.4672	µg/L	0.4672	ppb	09:54:14
1	Ni 231.604†	-92.5	-10.6	-0.3433	µg/L	-0.3433	ppb	09:54:14
1	P 214.914†	68.4	-10.3	-7.8280	µg/L	-7.8280	ppb	09:54:14
1	Pb 220.353†	153.9	7.3	1.2657	µg/L	1.2657	ppb	09:54:14
1	S 181.975 Axial†	56.2	-3.0	-5.0929	µg/L	-5.0929	ppb	09:54:14
1	Sb 206.836†	66.0	-5.5	-1.8507	µg/L	-1.8507	ppb	09:54:14
1	Se 196.026†	-8.8	-0.2	-0.1728	µg/L	-0.1728	ppb	09:54:14
1	SiO2†	3319.5	-242.7	-29.527	µg/L	-29.527	ppb	09:53:54
1	Si 251.611†	249.5	-196.2	-9.3239	µg/L	-9.3239	ppb	09:54:14
1	Sn 189.927†	30.5	6.5	1.4968	µg/L	1.4968	ppb	09:54:14
1	Ti 334.940†	-85.3	4.4	0.0124	µg/L	0.0124	ppb	09:53:54
1	Tl 190.801†	-40.2	1.3	0.4776	µg/L	0.4776	ppb	09:54:14
1	U 367.007†	366.8	-9.7	-2.711	µg/L	-2.711	ppb	09:53:54
1	V 292.402†	-256.5	-45.8	-0.4623	µg/L	-0.4623	ppb	09:53:54
1	Zn 213.857†	1138.4	-125.2	-1.2306	µg/L	-1.2306	ppb	09:54:14
2	Sc RADIAL	19939.3	19939.3	104	%			09:53:03
2	Al 396.153Radial†	-106.0	-52.9	-16.054	µg/L	-16.054	ppb	09:53:03
2	Ca 317.933Radial†	111.0	-12.7	-6.2362	µg/L	-6.2362	ppb	09:53:23
2	Fe 238.204 Radial†	30.3	0.3	0.1801	µg/L	0.1801	ppb	09:53:23
2	K 766.490 Radial†	709.1	15.1	7.4035	µg/L	7.4035	ppb	09:53:03
2	Mg 279.077 IEC†	0.0	-3.1	-15.961	µg/L	-15.961	ppb	09:53:23
2	Na 589.592 Radial†	-163.2	28.2	52.034	µg/L	52.034	ppb	09:53:03
2	Sr 421.552†	-1278.4	65.3	0.3144	µg/L	0.3144	ppb	09:53:03
2	Sc 361.383	626573.4	626573.4	104.06	%			09:54:20
2	Y 371.029	532274.5	532274.5	104.11	%			09:54:20
2	Ag 328.068†	-592.5	22.3	0.1506	µg/L	0.1506	ppb	09:54:20
2	As 188.979†	-18.2	-6.0	-3.4864	µg/L	-3.4864	ppb	09:54:40
2	B 249.677†	100.4	10.6	0.3068	µg/L	0.3068	ppb	09:54:40
2	Ba 233.527†	-129.3	-7.6	-0.0683	µg/L	-0.0683	ppb	09:54:40
2	Be 313.107†	-8173.0	103.9	0.0614	µg/L	0.0614	ppb	09:54:20
2	Cd 226.502†	-197.3	26.7	0.4071	µg/L	0.4071	ppb	09:54:40
2	Co 228.616†	-10.8	-3.9	-0.1030	µg/L	-0.1030	ppb	09:54:40
2	Cr 267.716†	234.2	-12.4	-0.2629	µg/L	-0.2629	ppb	09:54:40
2	Cu 324.752†	6204.1	-185.7	-0.8254	µg/L	-0.8254	ppb	09:54:20
2	Mn 257.610†	380.4	-20.4	-0.0313	µg/L	-0.0313	ppb	09:54:40
2	Mo 202.031†	34.2	5.0	0.3560	µg/L	0.3560	ppb	09:54:40
2	Ni 231.604†	-74.9	6.3	0.2044	µg/L	0.2044	ppb	09:54:40
2	P 214.914†	77.1	-1.9	-1.4405	µg/L	-1.4405	ppb	09:54:40
2	Pb 220.353†	165.5	18.6	3.1876	µg/L	3.1876	ppb	09:54:40

2	S 181.975 Axial†	57.3	-1.9	-3.1936 µg/L	-3.1936 ppb		09:54:40
2	Sb 206.836†	67.5	-4.1	-1.3637 µg/L	-1.3637 ppb		09:54:40
2	Se 196.026†	-10.8	-2.1	-1.6568 µg/L	-1.6568 ppb		09:54:40
2	SiO2†	3326.9	-233.9	-28.450 µg/L	-28.450 ppb		09:54:20
2	Si 251.611†	273.7	-172.9	-8.2171 µg/L	-8.2171 ppb		09:54:40
2	Sn 189.927†	34.9	10.8	2.4802 µg/L	2.4802 ppb		09:54:40
2	Ti 334.940†	-92.0	-2.1	-0.0049 µg/L	-0.0049 ppb		09:54:20
2	Tl 190.801†	-40.9	0.6	0.2093 µg/L	0.2093 ppb		09:54:40
2	U 367.007†	372.7	-3.8	-1.066 µg/L	-1.066 ppb		09:54:20
2	V 292.402†	-187.9	20.0	0.2058 µg/L	0.2058 ppb		09:54:20
2	Zn 213.857†	1149.4	-114.0	-1.1232 µg/L	-1.1232 ppb		09:54:40
3	Sc RADIAL	20014.6	20014.6	105 %			09:53:28
3	Al 396.153Radial†	-64.5	-12.8	-3.8576 µg/L	-3.8576 ppb		09:53:28
3	Ca 317.933Radial†	117.0	-7.3	-3.5857 µg/L	-3.5857 ppb		09:53:48
3	Fe 238.204 Radial†	33.8	3.6	2.0141 µg/L	2.0141 ppb		09:53:48
3	K 766.490 Radial†	703.5	7.3	3.5506 µg/L	3.5506 ppb		09:53:28
3	Mg 279.077 IEC†	4.7	1.3	6.4900 µg/L	6.4900 ppb		09:53:48
3	Na 589.592 Radial†	-180.2	12.5	23.155 µg/L	23.155 ppb		09:53:28
3	Sr 421.552†	-1311.3	38.5	0.1852 µg/L	0.1852 ppb		09:53:28
3	Sc 361.383	626179.5	626179.5	103.99 %			09:54:45
3	Y 371.029	531008.7	531008.7	103.86 %			09:54:45
3	Ag 328.068†	-617.4	-2.0	-0.0108 µg/L	-0.0108 ppb		09:54:45
3	As 188.979†	-11.1	0.8	0.4643 µg/L	0.4643 ppb		09:55:05
3	B 249.677†	113.5	23.3	0.6731 µg/L	0.6731 ppb		09:55:05
3	Ba 233.527†	-135.0	-13.2	-0.1186 µg/L	-0.1186 ppb		09:55:05
3	Be 313.107†	-8150.4	120.6	0.0708 µg/L	0.0708 ppb		09:54:45
3	Cd 226.502†	-231.6	-6.4	-0.0983 µg/L	-0.0983 ppb		09:55:05
3	Co 228.616†	-4.8	1.8	0.0459 µg/L	0.0459 ppb		09:55:05
3	Cr 267.716†	240.7	-6.0	-0.1230 µg/L	-0.1230 ppb		09:55:05
3	Cu 324.752†	6197.6	-188.2	-0.8336 µg/L	-0.8336 ppb		09:54:45
3	Mn 257.610†	382.8	-17.9	-0.0278 µg/L	-0.0278 ppb		09:55:05
3	Mo 202.031†	21.3	-7.4	-0.5261 µg/L	-0.5261 ppb		09:55:05
3	Ni 231.604†	-96.8	-14.8	-0.4800 µg/L	-0.4800 ppb		09:55:05
3	P 214.914†	77.7	-1.3	-0.9957 µg/L	-0.9957 ppb		09:55:05
3	Pb 220.353†	143.9	-2.1	-0.3553 µg/L	-0.3553 ppb		09:55:05
3	S 181.975 Axial†	62.2	2.9	4.9963 µg/L	4.9963 ppb		09:55:05
3	Sb 206.836†	78.4	6.5	2.1653 µg/L	2.1653 ppb		09:55:05
3	Se 196.026†	-14.0	-5.2	-4.1159 µg/L	-4.1159 ppb		09:55:05
3	SiO2†	3333.0	-226.1	-27.525 µg/L	-27.525 ppb		09:54:45
3	Si 251.611†	268.2	-177.9	-8.4390 µg/L	-8.4390 ppb		09:55:05
3	Sn 189.927†	24.4	0.7	0.1572 µg/L	0.1572 ppb		09:55:05
3	Ti 334.940†	-165.0	-72.3	-0.1877 µg/L	-0.1877 ppb		09:54:45
3	Tl 190.801†	-36.6	4.7	1.7254 µg/L	1.7254 ppb		09:55:05
3	U 367.007†	360.9	-15.0	-4.176 µg/L	-4.176 ppb		09:54:45
3	V 292.402†	-178.6	28.8	0.2835 µg/L	0.2835 ppb		09:54:45
3	Zn 213.857†	1150.7	-112.1	-1.1006 µg/L	-1.1006 ppb		09:55:05

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	626554.6	104.06	%	0.061				0.06%
Sc RADIAL	20063.7	105	%	0.8				0.77%
Y 371.029	531640.3	103.99	%	0.124				0.12%
Ag 328.068†	4.7	0.0322	µg/L	0.10379	0.0322	ppb	0.10379	322.44%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-41.2	-12.511	µg/L	7.5350	-12.511	ppb	7.5350	60.23%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.5	-0.8761	µg/L	2.26085	-0.8761	ppb	2.26085	258.06%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	20.9	0.6021	µg/L	0.26704	0.6021	ppb	0.26704	44.35%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-4.4	-0.0399	µg/L	0.09613	-0.0399	ppb	0.09613	241.02%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	106.1	0.0625	µg/L	0.00790	0.0625	ppb	0.00790	12.65%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-15.2	-7.4374	µg/L	4.57223	-7.4374	ppb	4.57223	61.48%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	13.2	0.2004	µg/L	0.26493	0.2004	ppb	0.26493	132.19%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	2.2	0.0582	µg/L	0.16771	0.0582	ppb	0.16771	287.97%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†               -8.3     -0.1742 µg/L       0.07709     -0.1742 ppb        0.07709  44.25%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -172.9     -0.7670 µg/L       0.10836     -0.7670 ppb        0.10836  14.13%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         2.7      1.4830 µg/L       1.13481      1.4830 ppb        1.13481  76.52%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         28.2      13.778 µg/L       14.5060      13.778 ppb        14.5060 105.28%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            0.3      1.6819 µg/L      15.79778      1.6819 ppb       15.79778 939.26%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               -9.4     -0.0146 µg/L       0.02595     -0.0146 ppb        0.02595 177.91%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†                1.4      0.0991 µg/L       0.54422      0.0991 ppb        0.54422 549.37%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        28.4      52.489 µg/L       29.5635      52.489 ppb        29.5635  56.32%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               -6.4     -0.2063 µg/L       0.36217     -0.2063 ppb        0.36217 175.53%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -4.5     -3.4214 µg/L       3.82269     -3.4214 ppb        3.82269 111.73%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                7.9      1.3660 µg/L       1.77361      1.3660 ppb        1.77361 129.84%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -0.6     -1.0967 µg/L       5.36147     -1.0967 ppb        5.36147 488.86%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               -1.1     -0.3497 µg/L       2.19159     -0.3497 ppb        2.19159 626.69%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -2.5     -1.9818 µg/L       1.99153     -1.9818 ppb        1.99153 100.49%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -234.2     -28.501 µg/L        1.0021     -28.501 ppb         1.0021   3.52%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -182.3     -8.6600 µg/L       0.58558     -8.6600 ppb        0.58558   6.76%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                6.0      1.3781 µg/L       1.16602      1.3781 ppb        1.16602  84.61%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               53.5      0.2575 µg/L       0.06595      0.2575 ppb        0.06595  25.62%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              -23.3     -0.0601 µg/L       0.11089     -0.0601 ppb        0.11089 184.58%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                2.2      0.8041 µg/L       0.80907      0.8041 ppb        0.80907 100.61%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                -9.5      -2.651 µg/L        1.5558      -2.651 ppb         1.5558  58.68%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                 1.0      0.0090 µg/L       0.41000      0.0090 ppb        0.41000 >999.9%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             -117.1     -1.1515 µg/L       0.06942     -1.1515 ppb        0.06942   6.03%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 27 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 9:58:17**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20189.3	20189.3	105	%			09:59:06
1	Al 396.153Radial†	17513.1	16655.2	5034.8	µg/L	5034.8	ppb	09:58:46
1	Ca 317.933Radial†	11047.8	10356.5	5071.6	µg/L	5071.6	ppb	09:59:06
1	Fe 238.204 Radial†	9807.5	9270.9	5171.6	µg/L	5171.6	ppb	09:59:06
1	K 766.490 Radial†	11559.9	10295.6	5029.8	µg/L	5029.8	ppb	09:58:46
1	Mg 279.077 IEC†	1090.6	1031.0	5240.7	µg/L	5240.7	ppb	09:59:06
1	Na 589.592 Radial†	5485.8	5386.7	9948.8	µg/L	9948.8	ppb	09:59:06
1	Sr 421.552†	108220.3	103909.1	500.26	µg/L	500.26	ppb	09:58:46
1	Sc 361.383	641443.0	641443.0	106.53	%			10:00:03
1	Y 371.029	539739.7	539739.7	105.57	%			10:00:03
1	Ag 328.068†	78736.8	74502.4	503.95	µg/L	503.95	ppb	10:00:08
1	As 188.979†	920.7	875.7	506.04	µg/L	506.04	ppb	10:00:28
1	B 249.677†	18304.4	17096.6	492.47	µg/L	492.47	ppb	10:00:08
1	Ba 233.527†	59427.5	55901.5	503.64	µg/L	503.64	ppb	10:00:08
1	Be 313.107†	893124.8	846339.2	503.05	µg/L	503.05	ppb	10:00:03
1	Cd 226.502†	35275.2	33329.3	506.78	µg/L	506.78	ppb	10:00:08
1	Co 228.616†	20608.8	19352.0	507.26	µg/L	507.26	ppb	10:00:08
1	Cr 267.716†	25388.7	23595.0	503.11	µg/L	503.11	ppb	10:00:08
1	Cu 324.752†	125425.2	111589.7	498.00	µg/L	498.00	ppb	10:00:08
1	Mn 257.610†	340482.2	319226.5	496.66	µg/L	496.66	ppb	10:00:08
1	Mo 202.031†	7518.3	7029.6	501.03	µg/L	501.03	ppb	10:00:28
1	Ni 231.604†	16851.3	15896.7	514.53	µg/L	514.53	ppb	10:00:08
1	P 214.914†	3606.8	3309.7	2489.9	µg/L	2489.9	ppb	10:00:28
1	Pb 220.353†	3287.7	2945.8	504.40	µg/L	504.40	ppb	10:00:28
1	S 181.975 Axial†	682.0	583.3	1007.9	µg/L	1007.9	ppb	10:00:28
1	Sb 206.836†	1657.6	1487.0	496.10	µg/L	496.10	ppb	10:00:28
1	Se 196.026†	687.3	653.4	516.11	µg/L	516.11	ppb	10:00:28
1	SiO2†	50007.3	43511.1	5320.2	µg/L	5320.2	ppb	10:00:08
1	Si 251.611†	56177.4	52298.1	2473.8	µg/L	2473.8	ppb	10:00:08
1	Sn 189.927†	2364.6	2196.9	506.70	µg/L	506.70	ppb	10:00:28
1	Ti 334.940†	201474.3	189211.4	495.34	µg/L	495.34	ppb	10:00:08
1	Tl 190.801†	1408.4	1362.0	504.10	µg/L	504.10	ppb	10:00:28
1	U 367.007†	2235.9	1736.8	457.0	µg/L	457.0	ppb	10:00:08
1	V 292.402†	52337.0	49329.6	507.97	µg/L	507.97	ppb	10:00:08
1	Zn 213.857†	55749.8	51114.1	498.89	µg/L	498.89	ppb	10:00:08
2	Sc RADIAL	20014.2	20014.2	105	%			09:59:31
2	Al 396.153Radial†	17345.3	16640.0	5030.2	µg/L	5030.2	ppb	09:59:11
2	Ca 317.933Radial†	10971.8	10375.4	5080.9	µg/L	5080.9	ppb	09:59:31
2	Fe 238.204 Radial†	9735.0	9282.9	5178.3	µg/L	5178.3	ppb	09:59:31
2	K 766.490 Radial†	11393.5	10232.4	4998.8	µg/L	4998.8	ppb	09:59:11
2	Mg 279.077 IEC†	1087.1	1036.6	5269.4	µg/L	5269.4	ppb	09:59:31
2	Na 589.592 Radial†	5387.5	5338.1	9859.1	µg/L	9859.1	ppb	09:59:31
2	Sr 421.552†	106976.7	103617.5	498.86	µg/L	498.86	ppb	09:59:11
2	Sc 361.383	642745.7	642745.7	106.75	%			10:00:34
2	Y 371.029	540402.9	540402.9	105.70	%			10:00:34
2	Ag 328.068†	79115.8	74707.6	505.34	µg/L	505.34	ppb	10:00:39
2	As 188.979†	922.3	875.5	505.94	µg/L	505.94	ppb	10:00:59
2	B 249.677†	18487.3	17233.1	496.41	µg/L	496.41	ppb	10:00:39
2	Ba 233.527†	59778.9	56117.7	505.59	µg/L	505.59	ppb	10:00:39
2	Be 313.107†	894041.4	845498.7	502.55	µg/L	502.55	ppb	10:00:34
2	Cd 226.502†	35588.1	33555.4	510.22	µg/L	510.22	ppb	10:00:39
2	Co 228.616†	20772.1	19465.8	510.24	µg/L	510.24	ppb	10:00:39
2	Cr 267.716†	25481.1	23633.3	503.92	µg/L	503.92	ppb	10:00:39
2	Cu 324.752†	126188.5	112066.0	500.12	µg/L	500.12	ppb	10:00:39
2	Mn 257.610†	342981.1	320919.8	499.29	µg/L	499.29	ppb	10:00:39
2	Mo 202.031†	7505.0	7002.9	499.13	µg/L	499.13	ppb	10:00:59
2	Ni 231.604†	16919.4	15928.4	515.55	µg/L	515.55	ppb	10:00:39
2	P 214.914†	3608.6	3304.6	2486.0	µg/L	2486.0	ppb	10:00:59
2	Pb 220.353†	3262.1	2915.5	499.20	µg/L	499.20	ppb	10:00:59

2	S 181.975 Axial†	674.9	575.3	994.05 µg/L	994.05 ppb	10:00:59
2	Sb 206.836†	1645.8	1472.8	491.29 µg/L	491.29 ppb	10:00:59
2	Se 196.026†	683.3	648.3	512.15 µg/L	512.15 ppb	10:00:59
2	SiO2†	50430.2	43812.1	5356.9 µg/L	5356.9 ppb	10:00:39
2	Si 251.611†	56805.4	52779.6	2496.6 µg/L	2496.6 ppb	10:00:39
2	Sn 189.927†	2358.9	2187.1	504.43 µg/L	504.43 ppb	10:00:59
2	Ti 334.940†	202718.8	189994.0	497.39 µg/L	497.39 ppb	10:00:39
2	Tl 190.801†	1410.1	1360.9	503.72 µg/L	503.72 ppb	10:00:59
2	U 367.007†	2274.1	1768.3	465.7 µg/L	465.7 ppb	10:00:39
2	V 292.402†	52632.9	49507.3	509.76 µg/L	509.76 ppb	10:00:39
2	Zn 213.857†	56174.8	51406.1	501.75 µg/L	501.75 ppb	10:00:39
3	Sc RADIAL	20102.7	20102.7	105 %		09:59:56
3	Al 396.153Radial†	17382.0	16601.8	5018.5 µg/L	5018.5 ppb	09:59:36
3	Ca 317.933Radial†	11054.2	10407.6	5096.7 µg/L	5096.7 ppb	09:59:56
3	Fe 238.204 Radial†	9796.8	9300.8	5188.3 µg/L	5188.3 ppb	09:59:56
3	K 766.490 Radial†	11340.1	10133.6	4950.5 µg/L	4950.5 ppb	09:59:36
3	Mg 279.077 IEC†	1095.8	1040.3	5288.2 µg/L	5288.2 ppb	09:59:56
3	Na 589.592 Radial†	5519.4	5441.0	10049 µg/L	10049 ppb	09:59:56
3	Sr 421.552†	106498.8	102711.7	494.50 µg/L	494.50 ppb	09:59:36
3	Sc 361.383	642275.6	642275.6	106.67 %		10:01:05
3	Y 371.029	540767.2	540767.2	105.77 %		10:01:05
3	Ag 328.068†	79184.6	74826.4	506.14 µg/L	506.14 ppb	10:01:10
3	As 188.979†	924.1	877.8	507.28 µg/L	507.28 ppb	10:01:30
3	B 249.677†	18496.8	17254.7	497.03 µg/L	497.03 ppb	10:01:10
3	Ba 233.527†	59702.2	56086.8	505.31 µg/L	505.31 ppb	10:01:10
3	Be 313.107†	895508.2	847486.9	503.73 µg/L	503.73 ppb	10:01:05
3	Cd 226.502†	35586.2	33578.0	510.56 µg/L	510.56 ppb	10:01:10
3	Co 228.616†	20800.1	19506.3	511.31 µg/L	511.31 ppb	10:01:10
3	Cr 267.716†	25526.6	23693.5	505.20 µg/L	505.20 ppb	10:01:10
3	Cu 324.752†	125613.2	111613.2	498.11 µg/L	498.11 ppb	10:01:10
3	Mn 257.610†	342327.0	320541.7	498.71 µg/L	498.71 ppb	10:01:10
3	Mo 202.031†	7549.8	7050.0	502.48 µg/L	502.48 ppb	10:01:30
3	Ni 231.604†	16966.8	15984.5	517.37 µg/L	517.37 ppb	10:01:10
3	P 214.914†	3648.8	3344.7	2516.4 µg/L	2516.4 ppb	10:01:30
3	Pb 220.353†	3322.8	2974.6	509.34 µg/L	509.34 ppb	10:01:30
3	S 181.975 Axial†	692.0	591.8	1022.6 µg/L	1022.6 ppb	10:01:30
3	Sb 206.836†	1666.0	1492.9	498.06 µg/L	498.06 ppb	10:01:30
3	Se 196.026†	680.8	646.5	510.73 µg/L	510.73 ppb	10:01:30
3	SiO2†	50534.6	43944.5	5373.1 µg/L	5373.1 ppb	10:01:10
3	Si 251.611†	56715.9	52734.7	2494.4 µg/L	2494.4 ppb	10:01:10
3	Sn 189.927†	2384.7	2212.9	510.35 µg/L	510.35 ppb	10:01:30
3	Ti 334.940†	202214.7	189660.4	496.51 µg/L	496.51 ppb	10:01:10
3	Tl 190.801†	1422.1	1373.0	508.19 µg/L	508.19 ppb	10:01:30
3	U 367.007†	2285.5	1780.6	469.1 µg/L	469.1 ppb	10:01:10
3	V 292.402†	52594.9	49507.7	509.81 µg/L	509.81 ppb	10:01:10
3	Zn 213.857†	56118.2	51391.6	501.60 µg/L	501.60 ppb	10:01:10

Mean Data: CCV

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	642154.7	106.65	%	0.110				0.10%
Sc RADIAL	20102.0	105	%	0.5				0.44%
Y 371.029	540303.3	105.68	%	0.102				0.10%
Ag 328.068†	74678.8	505.15	µg/L	1.107	505.15	ppb	1.107	0.22%
QC value within limits for Ag 328.068 Recovery = 101.03%								
Al 396.153Radial†	16632.3	5027.8	µg/L	8.38	5027.8	ppb	8.38	0.17%
QC value within limits for Al 396.153Radial Recovery = 100.56%								
As 188.979†	876.3	506.42	µg/L	0.745	506.42	ppb	0.745	0.15%
QC value within limits for As 188.979 Recovery = 101.28%								
B 249.677†	17194.8	495.30	µg/L	2.470	495.30	ppb	2.470	0.50%
QC value within limits for B 249.677 Recovery = 99.06%								
Ba 233.527†	56035.3	504.85	µg/L	1.053	504.85	ppb	1.053	0.21%
QC value within limits for Ba 233.527 Recovery = 100.97%								
Be 313.107†	846441.6	503.11	µg/L	0.594	503.11	ppb	0.594	0.12%
QC value within limits for Be 313.107 Recovery = 100.62%								
Ca 317.933Radial†	10379.8	5083.1	µg/L	12.67	5083.1	ppb	12.67	0.25%
QC value within limits for Ca 317.933Radial Recovery = 101.66%								
Cd 226.502†	33487.6	509.19	µg/L	2.093	509.19	ppb	2.093	0.41%
QC value within limits for Cd 226.502 Recovery = 101.84%								
Co 228.616†	19441.3	509.60	µg/L	2.097	509.60	ppb	2.097	0.41%

QC value within limits for Co 228.616 Recovery = 101.92%
Cr 267.716† 23640.6 504.08 µg/L 1.053 504.08 ppb 1.053 0.21%
QC value within limits for Cr 267.716 Recovery = 100.82%
Cu 324.752† 111756.3 498.74 µg/L 1.195 498.74 ppb 1.195 0.24%
QC value within limits for Cu 324.752 Recovery = 99.75%
Fe 238.204 Radial† 9284.9 5179.4 µg/L 8.40 5179.4 ppb 8.40 0.16%
QC value within limits for Fe 238.204 Radial Recovery = 103.59%
K 766.490 Radial† 10220.5 4993.0 µg/L 39.95 4993.0 ppb 39.95 0.80%
QC value within limits for K 766.490 Radial Recovery = 99.86%
Mg 279.077 IEC† 1036.0 5266.1 µg/L 23.94 5266.1 ppb 23.94 0.45%
QC value within limits for Mg 279.077 IEC Recovery = 105.32%
Mn 257.610† 320229.3 498.22 µg/L 1.382 498.22 ppb 1.382 0.28%
QC value within limits for Mn 257.610 Recovery = 99.64%
Mo 202.031† 7027.5 500.88 µg/L 1.683 500.88 ppb 1.683 0.34%
QC value within limits for Mo 202.031 Recovery = 100.18%
Na 589.592 Radial† 5388.6 9952.4 µg/L 95.09 9952.4 ppb 95.09 0.96%
QC value within limits for Na 589.592 Radial Recovery = 99.52%
Ni 231.604† 15936.5 515.81 µg/L 1.438 515.81 ppb 1.438 0.28%
QC value within limits for Ni 231.604 Recovery = 103.16%
P 214.914† 3319.7 2497.4 µg/L 16.55 2497.4 ppb 16.55 0.66%
QC value within limits for P 214.914 Recovery = 99.90%
Pb 220.353† 2945.3 504.31 µg/L 5.070 504.31 ppb 5.070 1.01%
QC value within limits for Pb 220.353 Recovery = 100.86%
S 181.975 Axial† 583.4 1008.2 µg/L 14.30 1008.2 ppb 14.30 1.42%
QC value within limits for S 181.975 Axial Recovery = 100.82%
Sb 206.836† 1484.2 495.15 µg/L 3.485 495.15 ppb 3.485 0.70%
QC value within limits for Sb 206.836 Recovery = 99.03%
Se 196.026† 649.4 512.99 µg/L 2.788 512.99 ppb 2.788 0.54%
QC value within limits for Se 196.026 Recovery = 102.60%
SiO2† 43755.9 5350.0 µg/L 27.10 5350.0 ppb 27.10 0.51%
QC value within limits for SiO2 Recovery = 100.05%
Si 251.611† 52604.1 2488.3 µg/L 12.62 2488.3 ppb 12.62 0.51%
QC value within limits for Si 251.611 Recovery = 99.53%
Sn 189.927† 2199.0 507.16 µg/L 2.988 507.16 ppb 2.988 0.59%
QC value within limits for Sn 189.927 Recovery = 101.43%
Sr 421.552† 103412.8 497.87 µg/L 3.006 497.87 ppb 3.006 0.60%
QC value within limits for Sr 421.552 Recovery = 99.57%
Ti 334.940† 189621.9 496.41 µg/L 1.026 496.41 ppb 1.026 0.21%
QC value within limits for Ti 334.940 Recovery = 99.28%
Tl 190.801† 1365.3 505.34 µg/L 2.479 505.34 ppb 2.479 0.49%
QC value within limits for Tl 190.801 Recovery = 101.07%
U 367.007† 1761.9 464.0 µg/L 6.22 464.0 ppb 6.22 1.34%
QC value within limits for U 367.007 Recovery = 92.79%
V 292.402† 49448.2 509.18 µg/L 1.048 509.18 ppb 1.048 0.21%
QC value within limits for V 292.402 Recovery = 101.84%
Zn 213.857† 51304.0 500.75 µg/L 1.612 500.75 ppb 1.612 0.32%
QC value within limits for Zn 213.857 Recovery = 100.15%
All analyte(s) passed QC.

Sequence No.: 28 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/7/2012 10:01:38**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20163.8	20163.8	105	%			10:02:06
1	Al 396.153Radial†	-107.3	-52.9	-16.086	µg/L	-16.086	ppb	10:02:06
1	Ca 317.933Radial†	109.4	-15.4	-7.5570	µg/L	-7.5570	ppb	10:02:26
1	Fe 238.204 Radial†	29.5	-0.7	-0.3839	µg/L	-0.3839	ppb	10:02:26
1	K 766.490 Radial†	791.3	85.7	41.885	µg/L	41.885	ppb	10:02:06
1	Mg 279.077 IEC†	12.6	8.8	44.551	µg/L	44.551	ppb	10:02:26
1	Na 589.592 Radial†	-170.0	23.5	43.437	µg/L	43.437	ppb	10:02:06
1	Sr 421.552†	-1298.8	59.6	0.2872	µg/L	0.2872	ppb	10:02:06
1	Sc 361.383	634513.8	634513.8	105.38	%			10:03:22
1	Y 371.029	538323.2	538323.2	105.29	%			10:03:22
1	Ag 328.068†	-579.7	41.5	0.2774	µg/L	0.2774	ppb	10:03:22
1	As 188.979†	-9.9	2.0	1.1734	µg/L	1.1734	ppb	10:03:42
1	B 249.677†	124.1	32.0	0.9227	µg/L	0.9227	ppb	10:03:42
1	Ba 233.527†	-114.3	8.1	0.0730	µg/L	0.0730	ppb	10:03:42
1	Be 313.107†	-8262.4	117.2	0.0668	µg/L	0.0668	ppb	10:03:22
1	Cd 226.502†	-217.1	10.3	0.1570	µg/L	0.1570	ppb	10:03:42
1	Co 228.616†	-4.4	2.2	0.0588	µg/L	0.0588	ppb	10:03:42
1	Cr 267.716†	236.4	-13.2	-0.2666	µg/L	-0.2666	ppb	10:03:42
1	Cu 324.752†	6215.7	-249.3	-1.0976	µg/L	-1.0976	ppb	10:03:22
1	Mn 257.610†	390.5	-15.4	-0.0254	µg/L	-0.0254	ppb	10:03:42
1	Mo 202.031†	42.9	12.8	0.9127	µg/L	0.9127	ppb	10:03:42
1	Ni 231.604†	-69.0	12.8	0.4131	µg/L	0.4131	ppb	10:03:42
1	P 214.914†	69.7	-9.9	-7.4578	µg/L	-7.4578	ppb	10:03:42
1	Pb 220.353†	148.9	0.8	0.1596	µg/L	0.1596	ppb	10:03:42
1	S 181.975 Axial†	62.1	2.0	3.4162	µg/L	3.4162	ppb	10:03:42
1	Sb 206.836†	88.7	15.2	5.1347	µg/L	5.1347	ppb	10:03:42
1	Se 196.026†	-9.8	-1.1	-0.8738	µg/L	-0.8738	ppb	10:03:42
1	SiO2†	3382.8	-220.9	-27.019	µg/L	-27.019	ppb	10:03:22
1	Si 251.611†	236.8	-211.2	-10.042	µg/L	-10.042	ppb	10:03:42
1	Sn 189.927†	35.0	10.5	2.4096	µg/L	2.4096	ppb	10:03:42
1	Ti 334.940†	-77.4	12.9	0.0397	µg/L	0.0397	ppb	10:03:22
1	Tl 190.801†	-36.5	5.2	1.9127	µg/L	1.9127	ppb	10:03:42
1	U 367.007†	328.2	-50.6	-14.02	µg/L	-14.02	ppb	10:03:22
1	V 292.402†	-230.1	-17.7	-0.1823	µg/L	-0.1823	ppb	10:03:22
1	Zn 213.857†	1143.7	-133.2	-1.3136	µg/L	-1.3136	ppb	10:03:42
2	Sc RADIAL	20200.2	20200.2	106	%			10:02:31
2	Al 396.153Radial†	-98.5	-44.4	-13.512	µg/L	-13.512	ppb	10:02:31
2	Ca 317.933Radial†	105.4	-19.4	-9.4920	µg/L	-9.4920	ppb	10:02:51
2	Fe 238.204 Radial†	33.2	2.8	1.5391	µg/L	1.5391	ppb	10:02:51
2	K 766.490 Radial†	702.3	-0.1	-0.0282	µg/L	-0.0282	ppb	10:02:31
2	Mg 279.077 IEC†	1.3	-1.9	-9.6608	µg/L	-9.6608	ppb	10:02:51
2	Na 589.592 Radial†	-167.9	25.8	47.597	µg/L	47.597	ppb	10:02:31
2	Sr 421.552†	-1325.6	36.4	0.1755	µg/L	0.1755	ppb	10:02:31
2	Sc 361.383	629371.6	629371.6	104.52	%			10:03:48
2	Y 371.029	533715.0	533715.0	104.39	%			10:03:48
2	Ag 328.068†	-486.4	126.4	0.8457	µg/L	0.8457	ppb	10:03:48
2	As 188.979†	-9.0	2.9	1.6495	µg/L	1.6495	ppb	10:04:08
2	B 249.677†	116.1	25.3	0.7289	µg/L	0.7289	ppb	10:04:08
2	Ba 233.527†	-123.1	-1.2	-0.0112	µg/L	-0.0112	ppb	10:04:08
2	Be 313.107†	-8147.6	163.0	0.0947	µg/L	0.0947	ppb	10:03:48
2	Cd 226.502†	-219.5	6.4	0.0966	µg/L	0.0966	ppb	10:04:08
2	Co 228.616†	1.1	7.4	0.1959	µg/L	0.1959	ppb	10:04:08
2	Cr 267.716†	230.3	-17.1	-0.3547	µg/L	-0.3547	ppb	10:04:08
2	Cu 324.752†	6176.1	-239.0	-1.0543	µg/L	-1.0543	ppb	10:03:48
2	Mn 257.610†	393.0	-10.0	-0.0151	µg/L	-0.0151	ppb	10:04:08
2	Mo 202.031†	39.2	9.6	0.6840	µg/L	0.6840	ppb	10:04:08
2	Ni 231.604†	-69.2	12.1	0.3906	µg/L	0.3906	ppb	10:04:08
2	P 214.914†	78.1	-1.3	-0.9503	µg/L	-0.9503	ppb	10:04:08
2	Pb 220.353†	147.2	0.3	0.0739	µg/L	0.0739	ppb	10:04:08

2	S 181.975 Axial†	50.3	-8.8	-15.259 µg/L	-15.259 ppb	10:04:08
2	Sb 206.836†	83.3	10.8	3.6399 µg/L	3.6399 ppb	10:04:08
2	Se 196.026†	-10.9	-2.2	-1.7249 µg/L	-1.7249 ppb	10:04:08
2	SiO2†	3346.1	-229.8	-28.057 µg/L	-28.057 ppb	10:03:48
2	Si 251.611†	251.5	-195.2	-9.2792 µg/L	-9.2792 ppb	10:04:08
2	Sn 189.927†	30.1	6.0	1.3910 µg/L	1.3910 ppb	10:04:08
2	Ti 334.940†	-152.3	-59.4	-0.1509 µg/L	-0.1509 ppb	10:03:48
2	Tl 190.801†	-33.1	8.2	3.0210 µg/L	3.0210 ppb	10:04:08
2	U 367.007†	339.3	-37.4	-10.38 µg/L	-10.38 ppb	10:03:48
2	V 292.402†	-245.3	-34.1	-0.3482 µg/L	-0.3482 ppb	10:03:48
2	Zn 213.857†	1128.9	-138.6	-1.3664 µg/L	-1.3664 ppb	10:04:08
3	Sc RADIAL	20150.2	20150.2	105 %		10:02:56
3	Al 396.153Radial†	-70.9	-18.4	-5.6232 µg/L	-5.6232 ppb	10:02:56
3	Ca 317.933Radial†	117.5	-7.7	-3.7542 µg/L	-3.7542 ppb	10:03:16
3	Fe 238.204 Radial†	34.7	4.2	2.3351 µg/L	2.3351 ppb	10:03:16
3	K 766.490 Radial†	741.5	38.8	18.984 µg/L	18.984 ppb	10:02:56
3	Mg 279.077 IEC†	6.3	2.8	14.224 µg/L	14.224 ppb	10:03:16
3	Na 589.592 Radial†	-170.9	22.5	41.600 µg/L	41.600 ppb	10:02:56
3	Sr 421.552†	-1309.5	48.6	0.2341 µg/L	0.2341 ppb	10:02:56
3	Sc 361.383	626658.7	626658.7	104.07 %		10:04:13
3	Y 371.029	531551.7	531551.7	103.97 %		10:04:13
3	Ag 328.068†	-614.1	1.6	0.0105 µg/L	0.0105 ppb	10:04:13
3	As 188.979†	-12.9	-0.9	-0.5418 µg/L	-0.5418 ppb	10:04:33
3	B 249.677†	110.6	20.5	0.5921 µg/L	0.5921 ppb	10:04:33
3	Ba 233.527†	-109.4	11.5	0.1033 µg/L	0.1033 ppb	10:04:33
3	Be 313.107†	-8127.0	149.1	0.0874 µg/L	0.0874 ppb	10:04:13
3	Cd 226.502†	-230.2	-4.9	-0.0751 µg/L	-0.0751 ppb	10:04:33
3	Co 228.616†	-15.8	-8.8	-0.2285 µg/L	-0.2285 ppb	10:04:33
3	Cr 267.716†	225.8	-20.5	-0.4322 µg/L	-0.4322 ppb	10:04:33
3	Cu 324.752†	6196.3	-194.0	-0.8587 µg/L	-0.8587 ppb	10:04:13
3	Mn 257.610†	388.4	-12.8	-0.0201 µg/L	-0.0201 ppb	10:04:33
3	Mo 202.031†	43.4	13.9	0.9887 µg/L	0.9887 ppb	10:04:33
3	Ni 231.604†	-94.1	-12.1	-0.3930 µg/L	-0.3930 ppb	10:04:33
3	P 214.914†	65.1	-13.5	-10.228 µg/L	-10.228 ppb	10:04:33
3	Pb 220.353†	139.2	-6.6	-1.1273 µg/L	-1.1273 ppb	10:04:33
3	S 181.975 Axial†	56.3	-2.9	-4.9213 µg/L	-4.9213 ppb	10:04:33
3	Sb 206.836†	86.7	14.3	4.8406 µg/L	4.8406 ppb	10:04:33
3	Se 196.026†	-6.8	1.7	1.2867 µg/L	1.2867 ppb	10:04:33
3	SiO2†	3291.0	-268.8	-32.743 µg/L	-32.743 ppb	10:04:13
3	Si 251.611†	270.5	-176.0	-8.3707 µg/L	-8.3707 ppb	10:04:33
3	Sn 189.927†	31.8	7.8	1.7945 µg/L	1.7945 ppb	10:04:33
3	Ti 334.940†	-186.5	-92.8	-0.2406 µg/L	-0.2406 ppb	10:04:13
3	Tl 190.801†	-37.1	4.2	1.5460 µg/L	1.5460 ppb	10:04:33
3	U 367.007†	354.8	-21.1	-5.854 µg/L	-5.854 ppb	10:04:13
3	V 292.402†	-223.3	-13.9	-0.1361 µg/L	-0.1361 ppb	10:04:13
3	Zn 213.857†	1132.1	-130.8	-1.2855 µg/L	-1.2855 ppb	10:04:33

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	630181.4	104.66	%	0.663				0.63%
Sc RADIAL	20171.4	105	%	0.1				0.13%
Y 371.029	534530.0	104.55	%	0.676				0.65%
Ag 328.068†	56.5	0.3779	µg/L	0.42654	0.3779	ppb	0.42654	112.88%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-38.6	-11.740	µg/L	5.4518	-11.740	ppb	5.4518	46.44%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	1.3	0.7604	µg/L	1.15259	0.7604	ppb	1.15259	151.59%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	25.9	0.7479	µg/L	0.16615	0.7479	ppb	0.16615	22.21%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	6.2	0.0550	µg/L	0.05928	0.0550	ppb	0.05928	107.75%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	143.1	0.0829	µg/L	0.01449	0.0829	ppb	0.01449	17.47%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-14.2	-6.9344	µg/L	2.91913	-6.9344	ppb	2.91913	42.10%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	3.9	0.0595	µg/L	0.12040	0.0595	ppb	0.12040	202.41%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	0.3	0.0087	µg/L	0.21660	0.0087	ppb	0.21660	>999.9%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -16.9     -0.3511 µg/L       0.08285     -0.3511 ppb        0.08285  23.59%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -227.4     -1.0035 µg/L       0.12727     -1.0035 ppb        0.12727  12.68%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         2.1      1.1634 µg/L       1.39792      1.1634 ppb        1.39792 120.15%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         41.5      20.280 µg/L       20.9869      20.280 ppb        20.9869 103.48%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            3.2      16.371 µg/L       27.1698      16.371 ppb        27.1698 165.96%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -12.7     -0.0202 µg/L       0.00514     -0.0202 ppb        0.00514  25.49%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               12.1      0.8618 µg/L       0.15858      0.8618 ppb        0.15858  18.40%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        23.9      44.211 µg/L        3.0726      44.211 ppb         3.0726   6.95%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†                4.2      0.1369 µg/L       0.45905      0.1369 ppb        0.45905 335.33%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -8.2     -6.2121 µg/L       4.76264     -6.2121 ppb        4.76264  76.67%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               -1.8     -0.2979 µg/L       0.71952     -0.2979 ppb        0.71952 241.51%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -3.2     -5.5881 µg/L       9.35554     -5.5881 ppb        9.35554 167.42%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               13.4      4.5384 µg/L       0.79190      4.5384 ppb        0.79190  17.45%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -0.5     -0.4373 µg/L       1.55248     -0.4373 ppb        1.55248 354.99%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -239.9     -29.273 µg/L        3.0496     -29.273 ppb         3.0496  10.42%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -194.1     -9.2308 µg/L       0.83692     -9.2308 ppb        0.83692   9.07%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                8.1      1.8650 µg/L       0.51298      1.8650 ppb        0.51298  27.50%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               48.2      0.2323 µg/L       0.05588      0.2323 ppb        0.05588  24.06%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              -46.4     -0.1172 µg/L       0.14312     -0.1172 ppb        0.14312 122.07%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                5.9      2.1599 µg/L       0.76790      2.1599 ppb        0.76790  35.55%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -36.4      -10.09 µg/L         4.092      -10.09 ppb          4.092  40.57%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -21.9     -0.2222 µg/L       0.11155     -0.2222 ppb        0.11155  50.20%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             -134.2     -1.3218 µg/L       0.04111     -1.3218 ppb        0.04111   3.11%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 7 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 10:25:03**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20429.6	20429.6	107	%			10:25:33
1	Al 396.153Radial†	17320.6	16279.5	4920.7	µg/L	4920.7	ppb	10:25:33
1	Ca 317.933Radial†	11038.4	10224.5	5007.0	µg/L	5007.0	ppb	10:25:53
1	Fe 238.204 Radial†	9753.7	9111.1	5082.6	µg/L	5082.6	ppb	10:25:53
1	K 766.490 Radial†	11391.3	10008.7	4889.4	µg/L	4889.4	ppb	10:25:33
1	Mg 279.077 IEC†	1110.5	1037.5	5273.7	µg/L	5273.7	ppb	10:25:53
1	Na 589.592 Radial†	5316.3	5166.6	9542.4	µg/L	9542.4	ppb	10:25:33
1	Sr 421.552†	106816.5	101386.8	488.12	µg/L	488.12	ppb	10:25:33
1	Sc 361.383	645697.9	645697.9	107.24	%			10:26:50
1	Y 371.029	543098.3	543098.3	106.23	%			10:26:50
1	Ag 328.068†	79403.5	74637.1	504.85	µg/L	504.85	ppb	10:26:55
1	As 188.979†	940.5	888.5	513.43	µg/L	513.43	ppb	10:27:15
1	B 249.677†	18591.9	17251.5	496.94	µg/L	496.94	ppb	10:26:55
1	Ba 233.527†	60206.9	56260.7	506.88	µg/L	506.88	ppb	10:26:55
1	Be 313.107†	898715.0	846027.6	502.86	µg/L	502.86	ppb	10:26:50
1	Cd 226.502†	35851.4	33648.4	511.65	µg/L	511.65	ppb	10:26:55
1	Co 228.616†	20986.1	19576.3	513.14	µg/L	513.14	ppb	10:26:55
1	Cr 267.716†	25649.2	23681.0	504.94	µg/L	504.94	ppb	10:26:55
1	Cu 324.752†	126619.2	111927.2	499.50	µg/L	499.50	ppb	10:26:55
1	Mn 257.610†	345273.2	321588.1	500.32	µg/L	500.32	ppb	10:26:55
1	Mo 202.031†	7600.2	7059.5	503.16	µg/L	503.16	ppb	10:27:15
1	Ni 231.604†	17076.6	16002.6	517.95	µg/L	517.95	ppb	10:26:55
1	P 214.914†	3655.8	3333.1	2507.6	µg/L	2507.6	ppb	10:27:15
1	Pb 220.353†	3342.6	2976.6	509.71	µg/L	509.71	ppb	10:27:15
1	S 181.975 Axial†	688.6	585.2	1011.3	µg/L	1011.3	ppb	10:27:15
1	Sb 206.836†	1674.3	1492.4	497.90	µg/L	497.90	ppb	10:27:15
1	Se 196.026†	690.2	651.8	514.82	µg/L	514.82	ppb	10:27:15
1	SiO2†	50676.7	43826.0	5358.6	µg/L	5358.6	ppb	10:26:55
1	Si 251.611†	57035.0	52750.4	2495.2	µg/L	2495.2	ppb	10:26:55
1	Sn 189.927†	2390.7	2206.6	508.91	µg/L	508.91	ppb	10:27:15
1	Ti 334.940†	203817.9	190150.6	497.80	µg/L	497.80	ppb	10:26:55
1	Tl 190.801†	1429.0	1372.5	507.98	µg/L	507.98	ppb	10:27:15
1	U 367.007†	2264.9	1750.0	461.1	µg/L	461.1	ppb	10:26:55
1	V 292.402†	52901.2	49532.0	510.05	µg/L	510.05	ppb	10:26:55
1	Zn 213.857†	56611.4	51572.7	503.39	µg/L	503.39	ppb	10:26:55
2	Sc RADIAL	20429.1	20429.1	107	%			10:25:58
2	Al 396.153Radial†	17349.8	16307.2	4929.1	µg/L	4929.1	ppb	10:25:58
2	Ca 317.933Radial†	11036.8	10223.2	5006.4	µg/L	5006.4	ppb	10:26:18
2	Fe 238.204 Radial†	9774.8	9131.1	5093.8	µg/L	5093.8	ppb	10:26:18
2	K 766.490 Radial†	11452.6	10066.4	4917.6	µg/L	4917.6	ppb	10:25:58
2	Mg 279.077 IEC†	1098.6	1026.3	5217.0	µg/L	5217.0	ppb	10:26:18
2	Na 589.592 Radial†	5375.6	5222.3	9645.2	µg/L	9645.2	ppb	10:25:58
2	Sr 421.552†	106812.4	101385.2	488.11	µg/L	488.11	ppb	10:25:58
2	Sc 361.383	647699.5	647699.5	107.57	%			10:27:21
2	Y 371.029	544383.1	544383.1	106.48	%			10:27:21
2	Ag 328.068†	79570.6	74563.5	504.35	µg/L	504.35	ppb	10:27:26
2	As 188.979†	938.0	883.5	510.55	µg/L	510.55	ppb	10:27:46
2	B 249.677†	18714.4	17311.8	498.68	µg/L	498.68	ppb	10:27:26
2	Ba 233.527†	60486.9	56347.6	507.66	µg/L	507.66	ppb	10:27:26
2	Be 313.107†	903021.1	847440.8	503.70	µg/L	503.70	ppb	10:27:21
2	Cd 226.502†	36049.1	33729.0	512.88	µg/L	512.88	ppb	10:27:26
2	Co 228.616†	21110.3	19631.3	514.58	µg/L	514.58	ppb	10:27:26
2	Cr 267.716†	25754.8	23705.2	505.46	µg/L	505.46	ppb	10:27:26
2	Cu 324.752†	126859.1	111785.4	498.87	µg/L	498.87	ppb	10:27:26
2	Mn 257.610†	346255.3	321506.1	500.20	µg/L	500.20	ppb	10:27:26
2	Mo 202.031†	7617.6	7053.7	502.75	µg/L	502.75	ppb	10:27:46
2	Ni 231.604†	17241.5	16106.7	521.32	µg/L	521.32	ppb	10:27:26
2	P 214.914†	3688.8	3353.2	2522.8	µg/L	2522.8	ppb	10:27:46
2	Pb 220.353†	3344.5	2968.7	508.35	µg/L	508.35	ppb	10:27:46

2	S 181.975 Axial†	689.1	583.7	1008.7 µg/L	1008.7 ppb	10:27:46
2	Sb 206.836†	1664.3	1478.2	493.12 µg/L	493.12 ppb	10:27:46
2	Se 196.026†	680.1	640.5	505.94 µg/L	505.94 ppb	10:27:46
2	SiO2†	50932.8	43918.1	5369.8 µg/L	5369.8 ppb	10:27:26
2	Si 251.611†	57362.7	52890.7	2501.9 µg/L	2501.9 ppb	10:27:26
2	Sn 189.927†	2405.4	2213.4	510.48 µg/L	510.48 ppb	10:27:46
2	Ti 334.940†	204265.2	189979.1	497.35 µg/L	497.35 ppb	10:27:26
2	Tl 190.801†	1422.3	1362.1	504.15 µg/L	504.15 ppb	10:27:46
2	U 367.007†	2275.0	1752.9	461.9 µg/L	461.9 ppb	10:27:26
2	V 292.402†	53000.9	49472.3	509.45 µg/L	509.45 ppb	10:27:26
2	Zn 213.857†	56862.0	51642.5	504.06 µg/L	504.06 ppb	10:27:26
3	Sc RADIAL	20671.3	20671.3	108 %		10:26:23
3	Al 396.153Radial†	17527.2	16281.0	4921.2 µg/L	4921.2 ppb	10:26:23
3	Ca 317.933Radial†	11021.3	10087.7	4940.0 µg/L	4940.0 ppb	10:26:43
3	Fe 238.204 Radial†	9758.4	9008.6	5025.4 µg/L	5025.4 ppb	10:26:43
3	K 766.490 Radial†	11561.2	10041.2	4905.3 µg/L	4905.3 ppb	10:26:23
3	Mg 279.077 IEC†	1104.4	1019.7	5183.2 µg/L	5183.2 ppb	10:26:43
3	Na 589.592 Radial†	5457.6	5239.2	9676.5 µg/L	9676.5 ppb	10:26:23
3	Sr 421.552†	108097.6	101402.8	488.20 µg/L	488.20 ppb	10:26:23
3	Sc 361.383	647742.9	647742.9	107.58 %		10:27:52
3	Y 371.029	544723.3	544723.3	106.55 %		10:27:52
3	Ag 328.068†	79425.2	74423.5	503.39 µg/L	503.39 ppb	10:27:57
3	As 188.979†	939.3	884.6	511.19 µg/L	511.19 ppb	10:28:17
3	B 249.677†	18668.7	17268.2	497.44 µg/L	497.44 ppb	10:27:57
3	Ba 233.527†	60229.4	56104.4	505.48 µg/L	505.48 ppb	10:27:57
3	Be 313.107†	903060.0	847420.7	503.69 µg/L	503.69 ppb	10:27:52
3	Cd 226.502†	36003.0	33683.8	512.20 µg/L	512.20 ppb	10:27:57
3	Co 228.616†	20982.1	19510.8	511.43 µg/L	511.43 ppb	10:27:57
3	Cr 267.716†	25744.6	23694.1	505.22 µg/L	505.22 ppb	10:27:57
3	Cu 324.752†	126510.1	111453.0	497.38 µg/L	497.38 ppb	10:27:57
3	Mn 257.610†	345567.0	320844.7	499.16 µg/L	499.16 ppb	10:27:57
3	Mo 202.031†	7607.8	7044.2	502.06 µg/L	502.06 ppb	10:28:17
3	Ni 231.604†	17120.4	15993.0	517.64 µg/L	517.64 ppb	10:27:57
3	P 214.914†	3674.6	3339.8	2512.8 µg/L	2512.8 ppb	10:28:17
3	Pb 220.353†	3356.7	2979.8	510.24 µg/L	510.24 ppb	10:28:17
3	S 181.975 Axial†	688.3	582.9	1007.3 µg/L	1007.3 ppb	10:28:17
3	Sb 206.836†	1679.7	1492.4	497.90 µg/L	497.90 ppb	10:28:17
3	Se 196.026†	684.4	644.4	508.98 µg/L	508.98 ppb	10:28:17
3	SiO2†	51032.2	44007.2	5380.5 µg/L	5380.5 ppb	10:27:57
3	Si 251.611†	57323.0	52850.2	2499.9 µg/L	2499.9 ppb	10:27:57
3	Sn 189.927†	2412.3	2219.7	511.90 µg/L	511.90 ppb	10:28:17
3	Ti 334.940†	203807.3	189540.7	496.20 µg/L	496.20 ppb	10:27:57
3	Tl 190.801†	1437.8	1376.4	509.43 µg/L	509.43 ppb	10:28:17
3	U 367.007†	2267.0	1745.3	460.1 µg/L	460.1 ppb	10:27:57
3	V 292.402†	52974.6	49444.5	509.15 µg/L	509.15 ppb	10:27:57
3	Zn 213.857†	56729.1	51515.4	502.84 µg/L	502.84 ppb	10:27:57

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	647046.8	107.46	%	0.194				0.18%
Sc RADIAL	20510.0	107	%	0.7				0.68%
Y 371.029	544068.2	106.42	%	0.168				0.16%
Ag 328.068†	74541.4	504.20	µg/L	0.738	504.20	ppb	0.738	0.15%
QC value within limits for Ag 328.068 Recovery = 100.84%								
Al 396.153Radial†	16289.2	4923.7	µg/L	4.73	4923.7	ppb	4.73	0.10%
QC value within limits for Al 396.153Radial Recovery = 98.47%								
As 188.979†	885.5	511.72	µg/L	1.513	511.72	ppb	1.513	0.30%
QC value within limits for As 188.979 Recovery = 102.34%								
B 249.677†	17277.2	497.69	µg/L	0.895	497.69	ppb	0.895	0.18%
QC value within limits for B 249.677 Recovery = 99.54%								
Ba 233.527†	56237.5	506.67	µg/L	1.108	506.67	ppb	1.108	0.22%
QC value within limits for Ba 233.527 Recovery = 101.33%								
Be 313.107†	846963.0	503.42	µg/L	0.481	503.42	ppb	0.481	0.10%
QC value within limits for Be 313.107 Recovery = 100.68%								
Ca 317.933Radial†	10178.4	4984.5	µg/L	38.50	4984.5	ppb	38.50	0.77%
QC value within limits for Ca 317.933Radial Recovery = 99.69%								
Cd 226.502†	33687.1	512.24	µg/L	0.614	512.24	ppb	0.614	0.12%
QC value within limits for Cd 226.502 Recovery = 102.45%								
Co 228.616†	19572.8	513.05	µg/L	1.581	513.05	ppb	1.581	0.31%

QC value within limits for Co 228.616 Recovery = 102.61%

Cr 267.716†	23693.4	505.21 µg/L	0.258	505.21 ppb	0.258	0.05%

QC value within limits for Cr 267.716 Recovery = 101.04%

Cu 324.752†	111721.9	498.58 µg/L	1.089	498.58 ppb	1.089	0.22%

QC value within limits for Cu 324.752 Recovery = 99.72%

Fe 238.204 Radial†	9083.6	5067.3 µg/L	36.65	5067.3 ppb	36.65	0.72%

QC value within limits for Fe 238.204 Radial Recovery = 101.35%

K 766.490 Radial†	10038.8	4904.1 µg/L	14.14	4904.1 ppb	14.14	0.29%

QC value within limits for K 766.490 Radial Recovery = 98.08%

Mg 279.077 IEC†	1027.8	5224.6 µg/L	45.72	5224.6 ppb	45.72	0.88%

QC value within limits for Mg 279.077 IEC Recovery = 104.49%

Mn 257.610†	321313.0	499.90 µg/L	0.636	499.90 ppb	0.636	0.13%

QC value within limits for Mn 257.610 Recovery = 99.98%

Mo 202.031†	7052.5	502.66 µg/L	0.553	502.66 ppb	0.553	0.11%

QC value within limits for Mo 202.031 Recovery = 100.53%

Na 589.592 Radial†	5209.4	9621.3 µg/L	70.16	9621.3 ppb	70.16	0.73%

QC value within limits for Na 589.592 Radial Recovery = 96.21%

Ni 231.604†	16034.1	518.97 µg/L	2.042	518.97 ppb	2.042	0.39%

QC value within limits for Ni 231.604 Recovery = 103.79%

P 214.914†	3342.0	2514.4 µg/L	7.76	2514.4 ppb	7.76	0.31%

QC value within limits for P 214.914 Recovery = 100.58%

Pb 220.353†	2975.1	509.44 µg/L	0.974	509.44 ppb	0.974	0.19%

QC value within limits for Pb 220.353 Recovery = 101.89%

S 181.975 Axial†	583.9	1009.1 µg/L	2.01	1009.1 ppb	2.01	0.20%

QC value within limits for S 181.975 Axial Recovery = 100.91%

Sb 206.836†	1487.7	496.31 µg/L	2.760	496.31 ppb	2.760	0.56%

QC value within limits for Sb 206.836 Recovery = 99.26%

Se 196.026†	645.6	509.92 µg/L	4.514	509.92 ppb	4.514	0.89%

QC value within limits for Se 196.026 Recovery = 101.98%

SiO2†	43917.1	5369.6 µg/L	10.98	5369.6 ppb	10.98	0.20%

QC value within limits for SiO2 Recovery = 100.41%

Si 251.611†	52830.4	2499.0 µg/L	3.43	2499.0 ppb	3.43	0.14%

QC value within limits for Si 251.611 Recovery = 99.96%

Sn 189.927†	2213.3	510.43 µg/L	1.497	510.43 ppb	1.497	0.29%

QC value within limits for Sn 189.927 Recovery = 102.09%

Sr 421.552†	101391.6	488.14 µg/L	0.047	488.14 ppb	0.047	0.01%

QC value within limits for Sr 421.552 Recovery = 97.63%

Ti 334.940†	189890.1	497.11 µg/L	0.824	497.11 ppb	0.824	0.17%

QC value within limits for Ti 334.940 Recovery = 99.42%

Tl 190.801†	1370.3	507.19 µg/L	2.725	507.19 ppb	2.725	0.54%

QC value within limits for Tl 190.801 Recovery = 101.44%

U 367.007†	1749.4	461.0 µg/L	0.89	461.0 ppb	0.89	0.19%

QC value within limits for U 367.007 Recovery = 92.21%

V 292.402†	49482.9	509.55 µg/L	0.459	509.55 ppb	0.459	0.09%

QC value within limits for V 292.402 Recovery = 101.91%

Zn 213.857†	51576.9	503.43 µg/L	0.609	503.43 ppb	0.609	0.12%

QC value within limits for Zn 213.857 Recovery = 100.69%

All analyte(s) passed QC.

Sequence No.: 8 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/7/2012 10:28:25**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20444.3	20444.3	107	%			10:28:54
1	Al 396.153Radial†	629.3	638.2	193.21	µg/L	193.21	ppb	10:28:54
1	Ca 317.933Radial†	583.3	426.9	209.06	µg/L	209.06	ppb	10:29:14
1	Fe 238.204 Radial†	237.0	193.2	107.71	µg/L	107.71	ppb	10:29:14
1	K 766.490 Radial†	1046.6	314.4	153.70	µg/L	153.70	ppb	10:28:54
1	Mg 279.077 IEC†	73.1	65.3	331.83	µg/L	331.83	ppb	10:29:14
1	Na 589.592 Radial†	-32.8	154.1	284.68	µg/L	284.68	ppb	10:28:54
1	Sr 421.552†	-184.6	1119.9	5.3910	µg/L	5.3910	ppb	10:28:54
1	Sc 361.383	638752.5	638752.5	106.08	%			10:30:11
1	Y 371.029	542095.1	542095.1	106.03	%			10:30:11
1	Ag 328.068†	235.2	813.4	5.5129	µg/L	5.5129	ppb	10:30:11
1	As 188.979†	37.9	47.2	27.228	µg/L	27.228	ppb	10:30:31
1	B 249.677†	1953.1	1755.3	50.697	µg/L	50.697	ppb	10:30:11
1	Ba 233.527†	483.7	572.6	5.1571	µg/L	5.1571	ppb	10:30:31
1	Be 313.107†	914.8	8820.3	5.2530	µg/L	5.2530	ppb	10:30:11
1	Cd 226.502†	173.9	380.3	5.7740	µg/L	5.7740	ppb	10:30:31
1	Co 228.616†	208.6	203.0	5.3296	µg/L	5.3296	ppb	10:30:31
1	Cr 267.716†	473.1	208.5	4.4038	µg/L	4.4038	ppb	10:30:31
1	Cu 324.752†	8697.7	2051.3	9.1126	µg/L	9.1126	ppb	10:30:11
1	Mn 257.610†	7549.4	6730.5	10.465	µg/L	10.465	ppb	10:30:11
1	Mo 202.031†	199.4	160.1	11.410	µg/L	11.410	ppb	10:30:31
1	Ni 231.604†	81.3	154.9	5.0143	µg/L	5.0143	ppb	10:30:31
1	P 214.914†	303.9	210.4	159.11	µg/L	159.11	ppb	10:30:31
1	Pb 220.353†	208.8	56.4	9.6053	µg/L	9.6053	ppb	10:30:31
1	S 181.975 Axial†	123.5	59.4	102.64	µg/L	102.64	ppb	10:30:31
1	Sb 206.836†	117.2	41.5	14.047	µg/L	14.047	ppb	10:30:31
1	Se 196.026†	36.9	43.0	33.873	µg/L	33.873	ppb	10:30:31
1	SiO2†	5197.3	1468.2	179.27	µg/L	179.27	ppb	10:30:11
1	Si 251.611†	2432.0	1856.6	87.922	µg/L	87.922	ppb	10:30:31
1	Sn 189.927†	79.3	52.0	11.960	µg/L	11.960	ppb	10:30:31
1	Ti 334.940†	2026.2	1996.4	5.2077	µg/L	5.2077	ppb	10:30:11
1	Tl 190.801†	22.8	61.4	22.655	µg/L	22.655	ppb	10:30:31
1	U 367.007†	579.0	183.7	50.39	µg/L	50.39	ppb	10:30:11
1	V 292.402†	317.8	500.1	5.2569	µg/L	5.2569	ppb	10:30:11
1	Zn 213.857†	2325.6	973.7	9.5323	µg/L	9.5323	ppb	10:30:31
2	Sc RADIAL	20552.2	20552.2	107	%			10:29:19
2	Al 396.153Radial†	594.3	602.5	182.40	µg/L	182.40	ppb	10:29:19
2	Ca 317.933Radial†	581.1	422.0	206.65	µg/L	206.65	ppb	10:29:39
2	Fe 238.204 Radial†	230.0	185.5	103.41	µg/L	103.41	ppb	10:29:39
2	K 766.490 Radial†	1043.3	306.2	149.69	µg/L	149.69	ppb	10:29:19
2	Mg 279.077 IEC†	71.1	63.1	320.53	µg/L	320.53	ppb	10:29:39
2	Na 589.592 Radial†	12.5	196.5	362.94	µg/L	362.94	ppb	10:29:19
2	Sr 421.552†	-232.2	1076.4	5.1815	µg/L	5.1815	ppb	10:29:19
2	Sc 361.383	636779.3	636779.3	105.76	%			10:30:37
2	Y 371.029	540421.1	540421.1	105.70	%			10:30:37
2	Ag 328.068†	270.0	847.0	5.7350	µg/L	5.7350	ppb	10:30:37
2	As 188.979†	38.5	47.9	27.639	µg/L	27.639	ppb	10:30:57
2	B 249.677†	1985.5	1791.6	51.748	µg/L	51.748	ppb	10:30:37
2	Ba 233.527†	495.2	584.8	5.2667	µg/L	5.2667	ppb	10:30:57
2	Be 313.107†	908.4	8816.9	5.2510	µg/L	5.2510	ppb	10:30:37
2	Cd 226.502†	161.6	369.1	5.6050	µg/L	5.6050	ppb	10:30:57
2	Co 228.616†	204.3	199.5	5.2384	µg/L	5.2384	ppb	10:30:57
2	Cr 267.716†	498.7	234.1	4.9504	µg/L	4.9504	ppb	10:30:57
2	Cu 324.752†	8699.5	2078.4	9.2326	µg/L	9.2326	ppb	10:30:37
2	Mn 257.610†	7511.3	6716.5	10.443	µg/L	10.443	ppb	10:30:37
2	Mo 202.031†	193.5	155.1	11.053	µg/L	11.053	ppb	10:30:57
2	Ni 231.604†	111.2	183.5	5.9391	µg/L	5.9391	ppb	10:30:57
2	P 214.914†	299.2	206.9	156.45	µg/L	156.45	ppb	10:30:57
2	Pb 220.353†	218.0	65.7	11.195	µg/L	11.195	ppb	10:30:57

2	S 181.975 Axial†	127.2	63.3	109.39 µg/L	109.39 ppb	10:30:57
2	Sb 206.836†	121.9	46.3	15.655 µg/L	15.655 ppb	10:30:57
2	Se 196.026†	30.0	36.6	28.793 µg/L	28.793 ppb	10:30:57
2	SiO2†	5310.7	1590.6	194.14 µg/L	194.14 ppb	10:30:37
2	Si 251.611†	2438.4	1869.8	88.544 µg/L	88.544 ppb	10:30:57
2	Sn 189.927†	86.3	58.8	13.530 µg/L	13.530 ppb	10:30:57
2	Ti 334.940†	1983.8	1962.2	5.1180 µg/L	5.1180 ppb	10:30:37
2	Tl 190.801†	21.7	60.4	22.302 µg/L	22.302 ppb	10:30:57
2	U 367.007†	576.4	183.0	50.22 µg/L	50.22 ppb	10:30:37
2	V 292.402†	284.9	470.0	4.9482 µg/L	4.9482 ppb	10:30:37
2	Zn 213.857†	2327.4	982.1	9.6098 µg/L	9.6098 ppb	10:30:57
3	Sc RADIAL	20413.4	20413.4	107 %		10:29:44
3	Al 396.153Radial†	673.6	680.7	206.10 µg/L	206.10 ppb	10:29:44
3	Ca 317.933Radial†	588.4	432.6	211.83 µg/L	211.83 ppb	10:30:04
3	Fe 238.204 Radial†	230.4	187.3	104.46 µg/L	104.46 ppb	10:30:04
3	K 766.490 Radial†	1036.4	306.3	149.75 µg/L	149.75 ppb	10:29:44
3	Mg 279.077 IEC†	77.3	69.3	352.45 µg/L	352.45 ppb	10:30:04
3	Na 589.592 Radial†	-1.1	183.8	339.47 µg/L	339.47 ppb	10:29:44
3	Sr 421.552†	-238.9	1068.6	5.1442 µg/L	5.1442 ppb	10:29:44
3	Sc 361.383	640514.6	640514.6	106.38 %		10:31:02
3	Y 371.029	543288.8	543288.8	106.27 %		10:31:02
3	Ag 328.068†	259.7	835.8	5.6631 µg/L	5.6631 ppb	10:31:02
3	As 188.979†	44.4	53.2	30.697 µg/L	30.697 ppb	10:31:22
3	B 249.677†	1967.4	1763.6	50.941 µg/L	50.941 ppb	10:31:02
3	Ba 233.527†	501.9	588.5	5.3001 µg/L	5.3001 ppb	10:31:22
3	Be 313.107†	988.7	8887.4	5.2939 µg/L	5.2939 ppb	10:31:02
3	Cd 226.502†	152.0	359.2	5.4544 µg/L	5.4544 ppb	10:31:22
3	Co 228.616†	199.6	194.1	5.0951 µg/L	5.0951 ppb	10:31:22
3	Cr 267.716†	504.7	237.0	5.0068 µg/L	5.0068 ppb	10:31:22
3	Cu 324.752†	8802.3	2127.0	9.4450 µg/L	9.4450 ppb	10:31:02
3	Mn 257.610†	7581.6	6741.2	10.480 µg/L	10.480 ppb	10:31:02
3	Mo 202.031†	201.2	161.3	11.494 µg/L	11.494 ppb	10:31:22
3	Ni 231.604†	90.1	163.0	5.2767 µg/L	5.2767 ppb	10:31:22
3	P 214.914†	297.6	203.8	154.08 µg/L	154.08 ppb	10:31:22
3	Pb 220.353†	237.7	83.0	14.155 µg/L	14.155 ppb	10:31:22
3	S 181.975 Axial†	121.6	57.3	99.004 µg/L	99.004 ppb	10:31:22
3	Sb 206.836†	120.2	44.1	14.900 µg/L	14.900 ppb	10:31:22
3	Se 196.026†	36.3	42.3	33.308 µg/L	33.308 ppb	10:31:22
3	SiO2†	5302.5	1553.6	189.73 µg/L	189.73 ppb	10:31:02
3	Si 251.611†	2468.3	1884.5	89.244 µg/L	89.244 ppb	10:31:22
3	Sn 189.927†	78.1	50.6	11.653 µg/L	11.653 ppb	10:31:22
3	Ti 334.940†	2091.5	2052.5	5.3522 µg/L	5.3522 ppb	10:31:02
3	Tl 190.801†	27.0	65.2	24.079 µg/L	24.079 ppb	10:31:22
3	U 367.007†	599.1	201.2	55.24 µg/L	55.24 ppb	10:31:02
3	V 292.402†	335.2	515.7	5.4211 µg/L	5.4211 ppb	10:31:02
3	Zn 213.857†	2354.6	994.9	9.7396 µg/L	9.7396 ppb	10:31:22

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	638682.1	106.07	%	0.310				0.29%
Sc RADIAL	20470.0	107	%	0.4				0.36%
Y 371.029	541935.0	106.00	%	0.282				0.27%
Ag 328.068†	832.1	5.6370	µg/L	0.11336	5.6370	ppb	0.11336	2.01%
QC value within limits for Ag 328.068 Recovery = 112.74%								
Al 396.153Radial†	640.4	193.90	µg/L	11.864	193.90	ppb	11.864	6.12%
QC value within limits for Al 396.153Radial Recovery = 96.95%								
As 188.979†	49.4	28.521	µg/L	1.8949	28.521	ppb	1.8949	6.64%
QC value within limits for As 188.979 Recovery = 95.07%								
B 249.677†	1770.2	51.129	µg/L	0.5502	51.129	ppb	0.5502	1.08%
QC value within limits for B 249.677 Recovery = 102.26%								
Ba 233.527†	582.0	5.2413	µg/L	0.07482	5.2413	ppb	0.07482	1.43%
QC value within limits for Ba 233.527 Recovery = 104.83%								
Be 313.107†	8841.6	5.2660	µg/L	0.02422	5.2660	ppb	0.02422	0.46%
QC value within limits for Be 313.107 Recovery = 105.32%								
Ca 317.933Radial†	427.2	209.18	µg/L	2.590	209.18	ppb	2.590	1.24%
QC value within limits for Ca 317.933Radial Recovery = 104.59%								
Cd 226.502†	369.5	5.6111	µg/L	0.15985	5.6111	ppb	0.15985	2.85%
QC value within limits for Cd 226.502 Recovery = 112.22%								
Co 228.616†	198.9	5.2210	µg/L	0.11823	5.2210	ppb	0.11823	2.26%

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   QC value within limits for Co 228.616  Recovery = 104.42%
Cr 267.716†              226.5      4.7870 µg/L       0.33305      4.7870 ppb        0.33305   6.96%
   QC value within limits for Cr 267.716  Recovery = 95.74%
Cu 324.752†             2085.6      9.2634 µg/L       0.16828      9.2634 ppb        0.16828   1.82%
   QC value within limits for Cu 324.752  Recovery = 92.63%
Fe 238.204 Radial†       188.7      105.19 µg/L         2.242      105.19 ppb          2.242   2.13%
   QC value within limits for Fe 238.204 Radial  Recovery = 105.19%
K 766.490 Radial†        309.0      151.05 µg/L         2.298      151.05 ppb          2.298   1.52%
   QC value within limits for K 766.490 Radial  Recovery = 100.70%
Mg 279.077 IEC†           65.9      334.94 µg/L        16.185      334.94 ppb         16.185   4.83%
   QC value within limits for Mg 279.077 IEC  Recovery = 111.65%
Mn 257.610†             6729.4      10.463 µg/L        0.0188      10.463 ppb         0.0188   0.18%
   QC value within limits for Mn 257.610  Recovery = 104.63%
Mo 202.031†              158.8      11.319 µg/L        0.2341      11.319 ppb         0.2341   2.07%
   QC value within limits for Mo 202.031  Recovery = 113.19%
Na 589.592 Radial†       178.1      329.03 µg/L        40.163      329.03 ppb         40.163  12.21%
   QC value within limits for Na 589.592 Radial  Recovery = 109.68%
Ni 231.604†              167.1      5.4100 µg/L       0.47661      5.4100 ppb        0.47661   8.81%
   QC value within limits for Ni 231.604  Recovery = 108.20%
P 214.914†               207.0      156.55 µg/L         2.519      156.55 ppb          2.519   1.61%
   QC value within limits for P 214.914  Recovery = 104.36%
Pb 220.353†               68.4      11.652 µg/L        2.3088      11.652 ppb         2.3088  19.81%
   QC value within limits for Pb 220.353  Recovery = 116.52%
S 181.975 Axial†          60.0      103.68 µg/L         5.268      103.68 ppb          5.268   5.08%
   QC value within limits for S 181.975 Axial  Recovery = 103.68%
Sb 206.836†               44.0      14.867 µg/L        0.8048      14.867 ppb         0.8048   5.41%
   QC value greater than the upper limit for Sb 206.836  Recovery = 148.67%
Se 196.026†               40.6      31.991 µg/L        2.7839      31.991 ppb         2.7839   8.70%
   QC value within limits for Se 196.026  Recovery = 106.64%
SiO2†                   1537.5      187.72 µg/L         7.639      187.72 ppb          7.639   4.07%
   QC value within limits for SiO2  Recovery = 88.13%
Si 251.611†             1870.3      88.570 µg/L        0.6616      88.570 ppb         0.6616   0.75%
   QC value within limits for Si 251.611  Recovery = 88.57%
Sn 189.927†               53.8      12.381 µg/L        1.0065      12.381 ppb         1.0065   8.13%
   QC value within limits for Sn 189.927  Recovery = 123.81%
Sr 421.552†             1088.3      5.2389 µg/L       0.13302      5.2389 ppb        0.13302   2.54%
   QC value within limits for Sr 421.552  Recovery = 104.78%
Ti 334.940†             2003.7      5.2260 µg/L       0.11816      5.2260 ppb        0.11816   2.26%
   QC value within limits for Ti 334.940  Recovery = 104.52%
Tl 190.801†               62.4      23.012 µg/L        0.9406      23.012 ppb         0.9406   4.09%
   QC value within limits for Tl 190.801  Recovery = 115.06%
U 367.007†               189.3       51.95 µg/L         2.850       51.95 ppb          2.850   5.49%
   QC value within limits for U 367.007  Recovery = 103.90%
V 292.402†               495.3      5.2087 µg/L       0.24009      5.2087 ppb        0.24009   4.61%
   QC value within limits for V 292.402  Recovery = 104.17%
Zn 213.857†              983.6      9.6273 µg/L       0.10472      9.6273 ppb        0.10472   1.09%
   QC value within limits for Zn 213.857  Recovery = 96.27%
QC Failed.  Continue with analysis.
```

Sequence No.: 9 **Autosampler Location:** 8
Sample ID: CCB **Date Collected:** 6/7/2012 10:31:30
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20495.5	20495.5	107	%			10:31:59
1	Al 396.153Radial†	-83.7	-29.2	-8.8981	µg/L	-8.8981	ppb	10:31:59
1	Ca 317.933Radial†	106.5	-19.8	-9.6846	µg/L	-9.6846	ppb	10:32:19
1	Fe 238.204 Radial†	29.9	-0.8	-0.4585	µg/L	-0.4585	ppb	10:32:19
1	K 766.490 Radial†	748.2	33.2	16.257	µg/L	16.257	ppb	10:31:59
1	Mg 279.077 IEC†	2.8	-0.6	-2.9026	µg/L	-2.9026	ppb	10:32:19
1	Na 589.592 Radial†	-191.0	6.5	12.012	µg/L	12.012	ppb	10:31:59
1	Sr 421.552†	-1318.5	61.1	0.2943	µg/L	0.2943	ppb	10:31:59
1	Sc 361.383	631001.6	631001.6	104.80	%			10:33:15
1	Y 371.029	535047.5	535047.5	104.65	%			10:33:15
1	Ag 328.068†	-541.1	75.4	0.5031	µg/L	0.5031	ppb	10:33:15
1	As 188.979†	-1.8	9.7	5.6208	µg/L	5.6208	ppb	10:33:36
1	B 249.677†	121.4	30.0	0.8658	µg/L	0.8658	ppb	10:33:36
1	Ba 233.527†	-121.6	0.5	0.0044	µg/L	0.0044	ppb	10:33:36
1	Be 313.107†	-8304.1	33.9	0.0190	µg/L	0.0190	ppb	10:33:15
1	Cd 226.502†	-200.4	25.1	0.3819	µg/L	0.3819	ppb	10:33:36
1	Co 228.616†	1.7	8.0	0.2124	µg/L	0.2124	ppb	10:33:36
1	Cr 267.716†	230.2	-17.8	-0.3744	µg/L	-0.3744	ppb	10:33:36
1	Cu 324.752†	6357.9	-80.8	-0.3549	µg/L	-0.3549	ppb	10:33:15
1	Mn 257.610†	404.9	0.4	0.0007	µg/L	0.0007	ppb	10:33:36
1	Mo 202.031†	40.6	10.9	0.7780	µg/L	0.7780	ppb	10:33:36
1	Ni 231.604†	-100.7	-17.8	-0.5779	µg/L	-0.5779	ppb	10:33:36
1	P 214.914†	71.2	-8.1	-6.1212	µg/L	-6.1212	ppb	10:33:36
1	Pb 220.353†	134.4	-12.2	-2.0834	µg/L	-2.0834	ppb	10:33:36
1	S 181.975 Axial†	64.7	4.8	8.3297	µg/L	8.3297	ppb	10:33:36
1	Sb 206.836†	76.6	4.2	1.4124	µg/L	1.4124	ppb	10:33:36
1	Se 196.026†	-11.7	-3.0	-2.3214	µg/L	-2.3214	ppb	10:33:36
1	SiO2†	3430.2	-157.8	-19.228	µg/L	-19.228	ppb	10:33:15
1	Si 251.611†	250.5	-196.8	-9.3426	µg/L	-9.3426	ppb	10:33:36
1	Sn 189.927†	16.7	-6.8	-1.5597	µg/L	-1.5597	ppb	10:33:36
1	Ti 334.940†	-245.4	-147.9	-0.3850	µg/L	-0.3850	ppb	10:33:15
1	Tl 190.801†	-39.1	2.6	0.9531	µg/L	0.9531	ppb	10:33:36
1	U 367.007†	358.8	-19.7	-5.457	µg/L	-5.457	ppb	10:33:15
1	V 292.402†	-248.4	-36.4	-0.3666	µg/L	-0.3666	ppb	10:33:15
1	Zn 213.857†	1142.4	-128.5	-1.2609	µg/L	-1.2609	ppb	10:33:36
2	Sc RADIAL	20459.1	20459.1	107	%			10:32:24
2	Al 396.153Radial†	-74.9	-21.2	-6.4037	µg/L	-6.4037	ppb	10:32:24
2	Ca 317.933Radial†	110.0	-16.3	-7.9960	µg/L	-7.9960	ppb	10:32:44
2	Fe 238.204 Radial†	33.3	2.4	1.3242	µg/L	1.3242	ppb	10:32:44
2	K 766.490 Radial†	695.8	-14.6	-7.1411	µg/L	-7.1411	ppb	10:32:24
2	Mg 279.077 IEC†	13.3	9.3	47.119	µg/L	47.119	ppb	10:32:44
2	Na 589.592 Radial†	-178.1	18.2	33.612	µg/L	33.612	ppb	10:32:24
2	Sr 421.552†	-1333.4	45.0	0.2167	µg/L	0.2167	ppb	10:32:24
2	Sc 361.383	635155.6	635155.6	105.49	%			10:33:41
2	Y 371.029	538092.8	538092.8	105.25	%			10:33:41
2	Ag 328.068†	-561.7	59.2	0.3942	µg/L	0.3942	ppb	10:33:41
2	As 188.979†	-11.3	0.7	0.4206	µg/L	0.4206	ppb	10:34:01
2	B 249.677†	117.7	25.8	0.7440	µg/L	0.7440	ppb	10:34:01
2	Ba 233.527†	-113.5	9.0	0.0802	µg/L	0.0802	ppb	10:34:01
2	Be 313.107†	-8427.1	-30.9	-0.0196	µg/L	-0.0196	ppb	10:33:41
2	Cd 226.502†	-212.3	15.1	0.2290	µg/L	0.2290	ppb	10:34:01
2	Co 228.616†	0.9	7.3	0.1902	µg/L	0.1902	ppb	10:34:01
2	Cr 267.716†	229.8	-19.6	-0.4122	µg/L	-0.4122	ppb	10:34:01
2	Cu 324.752†	6397.2	-83.2	-0.3653	µg/L	-0.3653	ppb	10:33:41
2	Mn 257.610†	378.3	-27.4	-0.0439	µg/L	-0.0439	ppb	10:34:01
2	Mo 202.031†	23.6	-5.4	-0.3880	µg/L	-0.3880	ppb	10:34:01
2	Ni 231.604†	-99.4	-15.9	-0.5160	µg/L	-0.5160	ppb	10:34:01
2	P 214.914†	79.9	-0.3	-0.1975	µg/L	-0.1975	ppb	10:34:01
2	Pb 220.353†	162.9	14.0	2.4031	µg/L	2.4031	ppb	10:34:01

2	S 181.975 Axial†	61.0	0.9	1.5807 µg/L	1.5807 ppb	10:34:01
2	Sb 206.836†	72.7	-0.0	0.0049 µg/L	0.0049 ppb	10:34:01
2	Se 196.026†	-11.1	-2.3	-1.8477 µg/L	-1.8477 ppb	10:34:01
2	SiO2†	3435.6	-174.1	-21.249 µg/L	-21.249 ppb	10:33:41
2	Si 251.611†	241.5	-207.0	-9.8215 µg/L	-9.8215 ppb	10:34:01
2	Sn 189.927†	28.9	4.6	1.0680 µg/L	1.0680 ppb	10:34:01
2	Ti 334.940†	-164.1	-69.2	-0.1793 µg/L	-0.1793 ppb	10:33:41
2	Tl 190.801†	-39.8	2.2	0.8028 µg/L	0.8028 ppb	10:34:01
2	U 367.007†	361.0	-19.8	-5.500 µg/L	-5.500 ppb	10:33:41
2	V 292.402†	-267.1	-52.6	-0.5439 µg/L	-0.5439 ppb	10:33:41
2	Zn 213.857†	1159.9	-119.0	-1.1685 µg/L	-1.1685 ppb	10:34:01
3	Sc RADIAL	20092.2	20092.2	105 %		10:32:49
3	Al 396.153Radial†	3.7	52.5	15.941 µg/L	15.941 ppb	10:32:49
3	Ca 317.933Radial†	109.4	-15.0	-7.3578 µg/L	-7.3578 ppb	10:33:09
3	Fe 238.204 Radial†	37.3	6.8	3.7661 µg/L	3.7661 ppb	10:33:09
3	K 766.490 Radial†	771.3	69.3	33.879 µg/L	33.879 ppb	10:32:49
3	Mg 279.077 IEC†	3.6	0.3	1.4840 µg/L	1.4840 ppb	10:33:09
3	Na 589.592 Radial†	-208.5	-13.8	-25.442 µg/L	-25.442 ppb	10:32:49
3	Sr 421.552†	-1352.5	4.1	0.0197 µg/L	0.0197 ppb	10:32:49
3	Sc 361.383	632780.0	632780.0	105.09 %		10:34:06
3	Y 371.029	536773.9	536773.9	104.99 %		10:34:06
3	Ag 328.068†	-578.1	41.6	0.2754 µg/L	0.2754 ppb	10:34:06
3	As 188.979†	-12.8	-0.7	-0.4279 µg/L	-0.4279 ppb	10:34:26
3	B 249.677†	120.3	28.7	0.8271 µg/L	0.8271 ppb	10:34:26
3	Ba 233.527†	-122.9	-0.3	-0.0041 µg/L	-0.0041 ppb	10:34:26
3	Be 313.107†	-8351.1	11.4	0.0056 µg/L	0.0056 ppb	10:34:06
3	Cd 226.502†	-211.6	15.0	0.2276 µg/L	0.2276 ppb	10:34:26
3	Co 228.616†	-1.2	5.3	0.1380 µg/L	0.1380 ppb	10:34:26
3	Cr 267.716†	236.7	-12.2	-0.2552 µg/L	-0.2552 ppb	10:34:26
3	Cu 324.752†	6348.5	-106.7	-0.4696 µg/L	-0.4696 ppb	10:34:06
3	Mn 257.610†	392.6	-12.4	-0.0190 µg/L	-0.0190 ppb	10:34:26
3	Mo 202.031†	21.9	-7.0	-0.4991 µg/L	-0.4991 ppb	10:34:26
3	Ni 231.604†	-82.1	0.2	0.0062 µg/L	0.0062 ppb	10:34:26
3	P 214.914†	83.1	3.0	2.3158 µg/L	2.3158 ppb	10:34:26
3	Pb 220.353†	171.5	22.8	3.8925 µg/L	3.8925 ppb	10:34:26
3	S 181.975 Axial†	66.4	6.3	10.789 µg/L	10.789 ppb	10:34:26
3	Sb 206.836†	76.3	3.7	1.2362 µg/L	1.2362 ppb	10:34:26
3	Se 196.026†	-6.8	1.7	1.3297 µg/L	1.3297 ppb	10:34:26
3	SiO2†	3439.1	-158.6	-19.346 µg/L	-19.346 ppb	10:34:06
3	Si 251.611†	256.3	-192.0	-9.1057 µg/L	-9.1057 ppb	10:34:26
3	Sn 189.927†	25.2	1.3	0.2912 µg/L	0.2912 ppb	10:34:26
3	Ti 334.940†	-75.8	14.2	0.0395 µg/L	0.0395 ppb	10:34:06
3	Tl 190.801†	-45.2	-3.1	-1.1518 µg/L	-1.1518 ppb	10:34:26
3	U 367.007†	360.4	-19.1	-5.322 µg/L	-5.322 ppb	10:34:06
3	V 292.402†	-289.3	-74.7	-0.7693 µg/L	-0.7693 ppb	10:34:06
3	Zn 213.857†	1163.2	-111.7	-1.1004 µg/L	-1.1004 ppb	10:34:26

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	632979.1	105.12	%	0.346				0.33%
Sc RADIAL	20348.9	106	%	1.2				1.10%
Y 371.029	536638.0	104.96	%	0.299				0.28%
Ag 328.068†	58.7	0.3909	µg/L	0.11390	0.3909	ppb	0.11390	29.14%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	0.7	0.2129	µg/L	13.67760	0.2129	ppb	13.67760	>999.9%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	3.2	1.8711	µg/L	3.27486	1.8711	ppb	3.27486	175.02%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	28.2	0.8123	µg/L	0.06220	0.8123	ppb	0.06220	7.66%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	3.1	0.0268	µg/L	0.04641	0.0268	ppb	0.04641	173.19%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	4.8	0.0017	µg/L	0.01957	0.0017	ppb	0.01957	>999.9%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-17.0	-8.3461	µg/L	1.20227	-8.3461	ppb	1.20227	14.41%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	18.4	0.2795	µg/L	0.08865	0.2795	ppb	0.08865	31.72%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	6.9	0.1802	µg/L	0.03821	0.1802	ppb	0.03821	21.20%

```
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -16.5     -0.3473 µg/L       0.08192     -0.3473 ppb        0.08192  23.59%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              -90.2     -0.3966 µg/L       0.06343     -0.3966 ppb        0.06343  15.99%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         2.8      1.5440 µg/L       2.12085      1.5440 ppb        2.12085 137.36%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         29.3      14.332 µg/L       20.5779      14.332 ppb        20.5779 143.58%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            3.0      15.233 µg/L       27.7005      15.233 ppb        27.7005 181.84%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -13.2     -0.0208 µg/L       0.02232     -0.0208 ppb        0.02232 107.52%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               -0.5     -0.0363 µg/L       0.70741     -0.0363 ppb        0.70741 >999.9%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†         3.6      6.7273 µg/L      29.87972      6.7273 ppb       29.87972 444.16%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -11.2     -0.3626 µg/L       0.32088     -0.3626 ppb        0.32088  88.50%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -1.8     -1.3343 µg/L       4.33185     -1.3343 ppb        4.33185 324.65%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                8.2      1.4041 µg/L       3.11073      1.4041 ppb        3.11073 221.55%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†           4.0      6.8998 µg/L       4.76784      6.8998 ppb        4.76784  69.10%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†                2.6      0.8845 µg/L       0.76686      0.8845 ppb        0.76686  86.70%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -1.2     -0.9465 µg/L       1.98541     -0.9465 ppb        1.98541 209.77%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -163.5     -19.941 µg/L        1.1344     -19.941 ppb         1.1344   5.69%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -198.6     -9.4232 µg/L       0.36468     -9.4232 ppb        0.36468   3.87%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               -0.3     -0.0668 µg/L       1.34991     -0.0668 ppb        1.34991 >999.9%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               36.7      0.1769 µg/L       0.14157      0.1769 ppb        0.14157  80.03%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              -67.6     -0.1749 µg/L       0.21227     -0.1749 ppb        0.21227 121.34%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                0.6      0.2014 µg/L       1.17428      0.2014 ppb        1.17428 583.15%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -19.6      -5.426 µg/L        0.0930      -5.426 ppb         0.0930   1.71%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -54.6     -0.5599 µg/L       0.20187     -0.5599 ppb        0.20187  36.05%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             -119.7     -1.1766 µg/L       0.08054     -1.1766 ppb        0.08054   6.85%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 16 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 10:53:16**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20686.6	20686.6	108	%			10:54:05
1	Al 396.153Radial†	17460.0	16206.8	4899.1	µg/L	4899.1	ppb	10:53:45
1	Ca 317.933Radial†	11199.5	10245.0	5017.0	µg/L	5017.0	ppb	10:54:05
1	Fe 238.204 Radial†	9900.4	9133.3	5094.9	µg/L	5094.9	ppb	10:54:05
1	K 766.490 Radial†	11528.7	10003.2	4886.8	µg/L	4886.8	ppb	10:53:45
1	Mg 279.077 IEC†	1110.0	1024.1	5205.4	µg/L	5205.4	ppb	10:54:05
1	Na 589.592 Radial†	5560.0	5330.2	9844.5	µg/L	9844.5	ppb	10:54:05
1	Sr 421.552†	108119.4	101348.8	487.94	µg/L	487.94	ppb	10:53:45
1	Sc 361.383	660345.2	660345.2	109.67	%			10:55:02
1	Y 371.029	555138.9	555138.9	108.58	%			10:55:02
1	Ag 328.068†	79761.1	73320.7	495.96	µg/L	495.96	ppb	10:55:08
1	As 188.979†	936.9	865.7	500.31	µg/L	500.31	ppb	10:55:28
1	B 249.677†	18697.9	16963.6	488.64	µg/L	488.64	ppb	10:55:08
1	Ba 233.527†	60435.8	55224.1	497.54	µg/L	497.54	ppb	10:55:08
1	Be 313.107†	910672.0	838341.0	498.29	µg/L	498.29	ppb	10:55:02
1	Cd 226.502†	36015.1	33056.2	502.63	µg/L	502.63	ppb	10:55:08
1	Co 228.616†	21040.8	19192.2	503.07	µg/L	503.07	ppb	10:55:08
1	Cr 267.716†	25804.7	23292.2	496.65	µg/L	496.65	ppb	10:55:08
1	Cu 324.752†	126757.6	109434.3	488.39	µg/L	488.39	ppb	10:55:08
1	Mn 257.610†	346364.0	315441.0	490.77	µg/L	490.77	ppb	10:55:08
1	Mo 202.031†	7574.3	6878.7	490.28	µg/L	490.28	ppb	10:55:28
1	Ni 231.604†	17158.4	15723.9	508.93	µg/L	508.93	ppb	10:55:08
1	P 214.914†	3640.1	3243.2	2439.8	µg/L	2439.8	ppb	10:55:28
1	Pb 220.353†	3332.8	2898.5	496.32	µg/L	496.32	ppb	10:55:28
1	S 181.975 Axial†	682.3	565.2	976.74	µg/L	976.74	ppb	10:55:28
1	Sb 206.836†	1664.9	1449.2	483.38	µg/L	483.38	ppb	10:55:28
1	Se 196.026†	692.0	639.2	504.89	µg/L	504.89	ppb	10:55:28
1	SiO2†	50654.2	42757.2	5228.1	µg/L	5228.1	ppb	10:55:08
1	Si 251.611†	57129.1	51656.5	2443.5	µg/L	2443.5	ppb	10:55:08
1	Sn 189.927†	2400.9	2166.4	499.66	µg/L	499.66	ppb	10:55:28
1	Ti 334.940†	204342.8	186413.4	488.01	µg/L	488.01	ppb	10:55:08
1	Tl 190.801†	1429.8	1343.7	497.32	µg/L	497.32	ppb	10:55:28
1	U 367.007†	2279.0	1716.1	451.7	µg/L	451.7	ppb	10:55:08
1	V 292.402†	53063.1	48585.4	500.27	µg/L	500.27	ppb	10:55:08
1	Zn 213.857†	56836.1	50606.6	493.94	µg/L	493.94	ppb	10:55:08
2	Sc RADIAL	20627.3	20627.3	108	%			10:54:30
2	Al 396.153Radial†	17409.7	16206.5	4899.2	µg/L	4899.2	ppb	10:54:10
2	Ca 317.933Radial†	11131.8	10211.9	5000.9	µg/L	5000.9	ppb	10:54:30
2	Fe 238.204 Radial†	9871.9	9133.2	5094.7	µg/L	5094.7	ppb	10:54:30
2	K 766.490 Radial†	11479.3	9988.0	4879.5	µg/L	4879.5	ppb	10:54:10
2	Mg 279.077 IEC†	1101.8	1019.4	5181.9	µg/L	5181.9	ppb	10:54:30
2	Na 589.592 Radial†	5541.3	5327.6	9839.7	µg/L	9839.7	ppb	10:54:30
2	Sr 421.552†	107449.1	101014.2	486.33	µg/L	486.33	ppb	10:54:10
2	Sc 361.383	665187.5	665187.5	110.47	%			10:55:33
2	Y 371.029	558616.6	558616.6	109.26	%			10:55:33
2	Ag 328.068†	79191.4	72275.6	488.91	µg/L	488.91	ppb	10:55:38
2	As 188.979†	932.8	855.8	494.56	µg/L	494.56	ppb	10:55:59
2	B 249.677†	18626.9	16775.2	483.20	µg/L	483.20	ppb	10:55:38
2	Ba 233.527†	60175.7	54587.5	491.80	µg/L	491.80	ppb	10:55:38
2	Be 313.107†	913352.7	834722.6	496.14	µg/L	496.14	ppb	10:55:33
2	Cd 226.502†	35804.9	32626.8	496.09	µg/L	496.09	ppb	10:55:38
2	Co 228.616†	20972.8	18990.9	497.80	µg/L	497.80	ppb	10:55:38
2	Cr 267.716†	25593.7	22929.9	488.93	µg/L	488.93	ppb	10:55:38
2	Cu 324.752†	126113.0	108009.4	482.05	µg/L	482.05	ppb	10:55:38
2	Mn 257.610†	344406.9	311370.3	484.44	µg/L	484.44	ppb	10:55:38
2	Mo 202.031†	7575.5	6829.5	486.77	µg/L	486.77	ppb	10:55:59
2	Ni 231.604†	17047.4	15509.5	501.99	µg/L	501.99	ppb	10:55:38
2	P 214.914†	3646.1	3224.4	2425.7	µg/L	2425.7	ppb	10:55:59
2	Pb 220.353†	3311.6	2857.2	489.24	µg/L	489.24	ppb	10:55:59

2	S 181.975 Axial†	691.0	568.6	982.50 µg/L	982.50 ppb	10:55:59
2	Sb 206.836†	1674.9	1447.2	482.82 µg/L	482.82 ppb	10:55:59
2	Se 196.026†	681.8	625.4	494.06 µg/L	494.06 ppb	10:55:59
2	SiO2†	50655.3	42422.0	5186.9 µg/L	5186.9 ppb	10:55:38
2	Si 251.611†	56990.8	51152.1	2419.6 µg/L	2419.6 ppb	10:55:38
2	Sn 189.927†	2401.2	2150.8	496.05 µg/L	496.05 ppb	10:55:59
2	Ti 334.940†	203021.8	183861.2	481.33 µg/L	481.33 ppb	10:55:38
2	Tl 190.801†	1426.8	1331.4	492.77 µg/L	492.77 ppb	10:55:59
2	U 367.007†	2276.4	1698.6	446.8 µg/L	446.8 ppb	10:55:38
2	V 292.402†	52673.0	47880.0	493.05 µg/L	493.05 ppb	10:55:38
2	Zn 213.857†	56488.1	49914.3	487.18 µg/L	487.18 ppb	10:55:38
3	Sc RADIAL	20603.2	20603.2	108 %		10:54:56
3	Al 396.153Radial†	17499.9	16309.3	4930.4 µg/L	4930.4 ppb	10:54:36
3	Ca 317.933Radial†	11165.3	10255.2	5022.0 µg/L	5022.0 ppb	10:54:56
3	Fe 238.204 Radial†	9907.7	9177.2	5119.3 µg/L	5119.3 ppb	10:54:56
3	K 766.490 Radial†	11527.9	10045.8	4907.7 µg/L	4907.7 ppb	10:54:36
3	Mg 279.077 IEC†	1101.9	1020.7	5188.5 µg/L	5188.5 ppb	10:54:56
3	Na 589.592 Radial†	5452.2	5250.9	9698.0 µg/L	9698.0 ppb	10:54:56
3	Sr 421.552†	108214.0	101842.0	490.31 µg/L	490.31 ppb	10:54:36
3	Sc 361.383	661493.4	661493.4	109.86 %		10:56:04
3	Y 371.029	556250.0	556250.0	108.80 %		10:56:04
3	Ag 328.068†	79240.7	72720.8	491.92 µg/L	491.92 ppb	10:56:09
3	As 188.979†	932.8	860.5	497.33 µg/L	497.33 ppb	10:56:29
3	B 249.677†	18589.6	16835.4	484.94 µg/L	484.94 ppb	10:56:09
3	Ba 233.527†	60021.7	54751.5	493.28 µg/L	493.28 ppb	10:56:09
3	Be 313.107†	908550.8	834968.8	496.29 µg/L	496.29 ppb	10:56:04
3	Cd 226.502†	35814.9	32817.0	498.98 µg/L	498.98 ppb	10:56:09
3	Co 228.616†	20874.7	19007.7	498.23 µg/L	498.23 ppb	10:56:09
3	Cr 267.716†	25614.9	23078.6	492.09 µg/L	492.09 ppb	10:56:09
3	Cu 324.752†	126206.5	108732.1	485.26 µg/L	485.26 ppb	10:56:09
3	Mn 257.610†	344302.0	313015.9	487.00 µg/L	487.00 ppb	10:56:09
3	Mo 202.031†	7518.0	6815.4	485.77 µg/L	485.77 ppb	10:56:29
3	Ni 231.604†	17010.7	15562.4	503.70 µg/L	503.70 ppb	10:56:09
3	P 214.914†	3614.9	3214.5	2418.2 µg/L	2418.2 ppb	10:56:29
3	Pb 220.353†	3300.9	2864.2	490.42 µg/L	490.42 ppb	10:56:29
3	S 181.975 Axial†	684.0	565.7	977.42 µg/L	977.42 ppb	10:56:29
3	Sb 206.836†	1655.2	1437.6	479.53 µg/L	479.53 ppb	10:56:29
3	Se 196.026†	675.4	623.0	492.23 µg/L	492.23 ppb	10:56:29
3	SiO2†	50705.9	42724.1	5223.9 µg/L	5223.9 ppb	10:56:09
3	Si 251.611†	57058.6	51501.9	2436.2 µg/L	2436.2 ppb	10:56:09
3	Sn 189.927†	2375.1	2139.1	493.38 µg/L	493.38 ppb	10:56:29
3	Ti 334.940†	203043.7	184907.5	484.07 µg/L	484.07 ppb	10:56:09
3	Tl 190.801†	1414.0	1327.0	491.17 µg/L	491.17 ppb	10:56:29
3	U 367.007†	2305.0	1736.1	457.1 µg/L	457.1 ppb	10:56:09
3	V 292.402†	52758.4	48224.1	496.55 µg/L	496.55 ppb	10:56:09
3	Zn 213.857†	56408.6	50127.5	489.26 µg/L	489.26 ppb	10:56:09

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	662342.0	110.00	%	0.420				0.38%
Sc RADIAL	20639.0	108	%	0.2				0.21%
Y 371.029	556668.5	108.88	%	0.347				0.32%
Ag 328.068†	72772.4	492.27	µg/L	3.538	492.27	ppb	3.538	0.72%
QC value within limits for Ag 328.068 Recovery = 98.45%								
Al 396.153Radial†	16240.9	4909.6	µg/L	18.05	4909.6	ppb	18.05	0.37%
QC value within limits for Al 396.153Radial Recovery = 98.19%								
As 188.979†	860.7	497.40	µg/L	2.873	497.40	ppb	2.873	0.58%
QC value within limits for As 188.979 Recovery = 99.48%								
B 249.677†	16858.1	485.60	µg/L	2.779	485.60	ppb	2.779	0.57%
QC value within limits for B 249.677 Recovery = 97.12%								
Ba 233.527†	54854.4	494.21	µg/L	2.980	494.21	ppb	2.980	0.60%
QC value within limits for Ba 233.527 Recovery = 98.84%								
Be 313.107†	836010.8	496.91	µg/L	1.201	496.91	ppb	1.201	0.24%
QC value within limits for Be 313.107 Recovery = 99.38%								
Ca 317.933Radial†	10237.4	5013.3	µg/L	11.07	5013.3	ppb	11.07	0.22%
QC value within limits for Ca 317.933Radial Recovery = 100.27%								
Cd 226.502†	32833.3	499.23	µg/L	3.277	499.23	ppb	3.277	0.66%
QC value within limits for Cd 226.502 Recovery = 99.85%								
Co 228.616†	19063.6	499.70	µg/L	2.926	499.70	ppb	2.926	0.59%

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   QC value within limits for Co 228.616  Recovery = 99.94%
Cr 267.716†           23100.2      492.56 µg/L          3.883      492.56 ppb          3.883   0.79%
   QC value within limits for Cr 267.716  Recovery = 98.51%
Cu 324.752†          108725.3      485.23 µg/L          3.174      485.23 ppb          3.174   0.65%
   QC value within limits for Cu 324.752  Recovery = 97.05%
Fe 238.204 Radial†      9147.9      5103.0 µg/L          14.14      5103.0 ppb          14.14   0.28%
   QC value within limits for Fe 238.204 Radial  Recovery = 102.06%
K 766.490 Radial†      10012.3      4891.3 µg/L          14.64      4891.3 ppb          14.64   0.30%
   QC value within limits for K 766.490 Radial  Recovery = 97.83%
Mg 279.077 IEC†         1021.4      5191.9 µg/L          12.12      5191.9 ppb          12.12   0.23%
   QC value within limits for Mg 279.077 IEC  Recovery = 103.84%
Mn 257.610†           313275.7      487.40 µg/L          3.183      487.40 ppb          3.183   0.65%
   QC value within limits for Mn 257.610  Recovery = 97.48%
Mo 202.031†             6841.2      487.61 µg/L          2.367      487.61 ppb          2.367   0.49%
   QC value within limits for Mo 202.031  Recovery = 97.52%
Na 589.592 Radial†      5302.9      9794.1 µg/L          83.20      9794.1 ppb          83.20   0.85%
   QC value within limits for Na 589.592 Radial  Recovery = 97.94%
Ni 231.604†            15598.6      504.88 µg/L          3.615      504.88 ppb          3.615   0.72%
   QC value within limits for Ni 231.604  Recovery = 100.98%
P 214.914†              3227.3      2427.9 µg/L          10.99      2427.9 ppb          10.99   0.45%
   QC value within limits for P 214.914  Recovery = 97.12%
Pb 220.353†             2873.3      491.99 µg/L          3.792      491.99 ppb          3.792   0.77%
   QC value within limits for Pb 220.353  Recovery = 98.40%
S 181.975 Axial†         566.5      978.89 µg/L          3.150      978.89 ppb          3.150   0.32%
   QC value within limits for S 181.975 Axial  Recovery = 97.89%
Sb 206.836†             1444.7      481.91 µg/L          2.080      481.91 ppb          2.080   0.43%
   QC value within limits for Sb 206.836  Recovery = 96.38%
Se 196.026†              629.2      497.06 µg/L          6.845      497.06 ppb          6.845   1.38%
   QC value within limits for Se 196.026  Recovery = 99.41%
SiO2†                  42634.5      5213.0 µg/L          22.66      5213.0 ppb          22.66   0.43%
   QC value within limits for SiO2  Recovery = 97.48%
Si 251.611†            51436.8      2433.1 µg/L          12.24      2433.1 ppb          12.24   0.50%
   QC value within limits for Si 251.611  Recovery = 97.32%
Sn 189.927†             2152.1      496.36 µg/L          3.150      496.36 ppb          3.150   0.63%
   QC value within limits for Sn 189.927  Recovery = 99.27%
Sr 421.552†           101401.7      488.19 µg/L          2.005      488.19 ppb          2.005   0.41%
   QC value within limits for Sr 421.552  Recovery = 97.64%
Ti 334.940†           185060.7      484.47 µg/L          3.359      484.47 ppb          3.359   0.69%
   QC value within limits for Ti 334.940  Recovery = 96.89%
Tl 190.801†             1334.0      493.76 µg/L          3.191      493.76 ppb          3.191   0.65%
   QC value within limits for Tl 190.801  Recovery = 98.75%
U 367.007†              1716.9       451.8 µg/L           5.14       451.8 ppb           5.14   1.14%
   QC value within limits for U 367.007  Recovery = 90.37%
V 292.402†             48229.9      496.62 µg/L          3.612      496.62 ppb          3.612   0.73%
   QC value within limits for V 292.402  Recovery = 99.32%
Zn 213.857†            50216.1      490.13 µg/L          3.466      490.13 ppb          3.466   0.71%
   QC value within limits for Zn 213.857  Recovery = 98.03%
All analyte(s) passed QC.
```

Sequence No.: 17 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/7/2012 10:56:37**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20909.0	20909.0	109	%			10:57:06
1	Al 396.153Radial†	603.7	601.6	182.15	µg/L	182.15	ppb	10:57:06
1	Ca 317.933Radial†	582.9	414.4	202.93	µg/L	202.93	ppb	10:57:26
1	Fe 238.204 Radial†	235.9	187.2	104.40	µg/L	104.40	ppb	10:57:26
1	K 766.490 Radial†	1069.3	313.4	153.20	µg/L	153.20	ppb	10:57:06
1	Mg 279.077 IEC†	71.2	62.0	315.37	µg/L	315.37	ppb	10:57:26
1	Na 589.592 Radial†	-4.1	181.1	334.53	µg/L	334.53	ppb	10:57:06
1	Sr 421.552†	-137.2	1167.1	5.6182	µg/L	5.6182	ppb	10:57:06
1	Sc 361.383	651195.4	651195.4	108.15	%			10:58:23
1	Y 371.029	552580.2	552580.2	108.08	%			10:58:23
1	Ag 328.068†	218.6	793.9	5.3804	µg/L	5.3804	ppb	10:58:23
1	As 188.979†	48.7	56.5	32.607	µg/L	32.607	ppb	10:58:43
1	B 249.677†	1954.6	1721.5	49.724	µg/L	49.724	ppb	10:58:23
1	Ba 233.527†	501.7	580.5	5.2281	µg/L	5.2281	ppb	10:58:43
1	Be 313.107†	1033.1	8913.2	5.3084	µg/L	5.3084	ppb	10:58:23
1	Cd 226.502†	166.5	370.3	5.6234	µg/L	5.6234	ppb	10:58:43
1	Co 228.616†	191.4	183.4	4.8136	µg/L	4.8136	ppb	10:58:43
1	Cr 267.716†	499.8	224.7	4.7482	µg/L	4.7482	ppb	10:58:43
1	Cu 324.752†	8926.9	2106.5	9.3562	µg/L	9.3562	ppb	10:58:23
1	Mn 257.610†	7622.9	6662.5	10.359	µg/L	10.359	ppb	10:58:23
1	Mo 202.031†	192.8	150.4	10.719	µg/L	10.719	ppb	10:58:43
1	Ni 231.604†	106.5	176.8	5.7222	µg/L	5.7222	ppb	10:58:43
1	P 214.914†	302.2	203.5	153.84	µg/L	153.84	ppb	10:58:43
1	Pb 220.353†	200.1	44.6	7.5858	µg/L	7.5858	ppb	10:58:43
1	S 181.975 Axial†	128.0	61.4	106.01	µg/L	106.01	ppb	10:58:43
1	Sb 206.836†	114.1	36.6	12.372	µg/L	12.372	ppb	10:58:43
1	Se 196.026†	37.8	43.2	34.002	µg/L	34.002	ppb	10:58:43
1	SiO2†	5242.3	1416.2	172.98	µg/L	172.98	ppb	10:58:23
1	Si 251.611†	2428.4	1809.5	85.698	µg/L	85.698	ppb	10:58:43
1	Sn 189.927†	75.6	47.1	10.849	µg/L	10.849	ppb	10:58:43
1	Ti 334.940†	2038.8	1971.5	5.1419	µg/L	5.1419	ppb	10:58:23
1	Tl 190.801†	19.5	58.0	21.396	µg/L	21.396	ppb	10:58:43
1	U 367.007†	594.4	187.6	51.48	µg/L	51.48	ppb	10:58:23
1	V 292.402†	316.3	493.0	5.1789	µg/L	5.1789	ppb	10:58:23
1	Zn 213.857†	2345.6	950.3	9.2972	µg/L	9.2972	ppb	10:58:43
2	Sc RADIAL	20728.9	20728.9	108	%			10:57:31
2	Al 396.153Radial†	640.5	640.4	193.91	µg/L	193.91	ppb	10:57:31
2	Ca 317.933Radial†	586.2	422.1	206.73	µg/L	206.73	ppb	10:57:51
2	Fe 238.204 Radial†	235.6	188.8	105.27	µg/L	105.27	ppb	10:57:51
2	K 766.490 Radial†	1065.9	318.8	155.83	µg/L	155.83	ppb	10:57:31
2	Mg 279.077 IEC†	65.6	57.4	291.75	µg/L	291.75	ppb	10:57:51
2	Na 589.592 Radial†	2.1	186.8	344.98	µg/L	344.98	ppb	10:57:31
2	Sr 421.552†	-261.9	1050.8	5.0583	µg/L	5.0583	ppb	10:57:31
2	Sc 361.383	650050.5	650050.5	107.96	%			10:58:48
2	Y 371.029	551487.6	551487.6	107.87	%			10:58:48
2	Ag 328.068†	261.1	833.5	5.6465	µg/L	5.6465	ppb	10:58:48
2	As 188.979†	40.9	49.3	28.491	µg/L	28.491	ppb	10:59:08
2	B 249.677†	1977.9	1746.2	50.437	µg/L	50.437	ppb	10:58:48
2	Ba 233.527†	488.7	569.3	5.1274	µg/L	5.1274	ppb	10:59:08
2	Be 313.107†	1050.1	8930.6	5.3172	µg/L	5.3172	ppb	10:58:48
2	Cd 226.502†	156.3	361.1	5.4821	µg/L	5.4821	ppb	10:59:08
2	Co 228.616†	200.5	192.1	5.0427	µg/L	5.0427	ppb	10:59:08
2	Cr 267.716†	482.0	209.0	4.4221	µg/L	4.4221	ppb	10:59:08
2	Cu 324.752†	8704.4	1914.9	8.5105	µg/L	8.5105	ppb	10:58:48
2	Mn 257.610†	7586.2	6640.9	10.326	µg/L	10.326	ppb	10:58:48
2	Mo 202.031†	193.8	151.6	10.807	µg/L	10.807	ppb	10:59:08
2	Ni 231.604†	93.8	165.2	5.3467	µg/L	5.3467	ppb	10:59:08
2	P 214.914†	301.5	203.2	153.68	µg/L	153.68	ppb	10:59:08
2	Pb 220.353†	226.8	69.7	11.878	µg/L	11.878	ppb	10:59:08

2	S 181.975 Axial†	124.4	58.2	100.57 µg/L	100.57 ppb	10:59:08
2	Sb 206.836†	117.4	39.8	13.453 µg/L	13.453 ppb	10:59:08
2	Se 196.026†	32.3	38.1	29.990 µg/L	29.990 ppb	10:59:08
2	SiO2†	5326.0	1502.3	183.31 µg/L	183.31 ppb	10:58:48
2	Si 251.611†	2430.3	1815.3	85.966 µg/L	85.966 ppb	10:59:08
2	Sn 189.927†	81.7	52.9	12.176 µg/L	12.176 ppb	10:59:08
2	Ti 334.940†	1958.1	1900.1	4.9587 µg/L	4.9587 ppb	10:58:48
2	Tl 190.801†	26.6	64.5	23.815 µg/L	23.815 ppb	10:59:08
2	U 367.007†	563.0	159.5	43.69 µg/L	43.69 ppb	10:58:48
2	V 292.402†	315.8	493.1	5.1732 µg/L	5.1732 ppb	10:58:48
2	Zn 213.857†	2323.8	933.9	9.1392 µg/L	9.1392 ppb	10:59:08
3	Sc RADIAL	20662.4	20662.4	108 %		10:57:56
3	Al 396.153Radial†	666.6	666.5	201.81 µg/L	201.81 ppb	10:57:56
3	Ca 317.933Radial†	583.1	421.0	206.15 µg/L	206.15 ppb	10:58:16
3	Fe 238.204 Radial†	235.4	189.3	105.55 µg/L	105.55 ppb	10:58:16
3	K 766.490 Radial†	1067.7	323.6	158.18 µg/L	158.18 ppb	10:57:56
3	Mg 279.077 IEC†	63.5	55.7	282.88 µg/L	282.88 ppb	10:58:16
3	Na 589.592 Radial†	7.9	192.2	354.99 µg/L	354.99 ppb	10:57:56
3	Sr 421.552†	-189.4	1117.2	5.3780 µg/L	5.3780 ppb	10:57:56
3	Sc 361.383	646955.9	646955.9	107.45 %		10:59:14
3	Y 371.029	549025.8	549025.8	107.39 %		10:59:14
3	Ag 328.068†	185.8	764.6	5.1818 µg/L	5.1818 ppb	10:59:14
3	As 188.979†	48.0	56.1	32.394 µg/L	32.394 ppb	10:59:34
3	B 249.677†	1934.0	1714.2	49.512 µg/L	49.512 ppb	10:59:14
3	Ba 233.527†	483.8	566.9	5.1051 µg/L	5.1051 ppb	10:59:34
3	Be 313.107†	877.7	8774.8	5.2240 µg/L	5.2240 ppb	10:59:14
3	Cd 226.502†	164.4	369.3	5.6080 µg/L	5.6080 ppb	10:59:34
3	Co 228.616†	197.9	190.5	5.0032 µg/L	5.0032 ppb	10:59:34
3	Cr 267.716†	491.6	220.1	4.6609 µg/L	4.6609 ppb	10:59:34
3	Cu 324.752†	8730.6	1977.9	8.7938 µg/L	8.7938 ppb	10:59:14
3	Mn 257.610†	7516.0	6609.2	10.277 µg/L	10.277 ppb	10:59:14
3	Mo 202.031†	204.2	162.2	11.557 µg/L	11.557 ppb	10:59:34
3	Ni 231.604†	88.7	160.8	5.2066 µg/L	5.2066 ppb	10:59:34
3	P 214.914†	296.7	200.2	151.36 µg/L	151.36 ppb	10:59:34
3	Pb 220.353†	205.7	51.0	8.6922 µg/L	8.6922 ppb	10:59:34
3	S 181.975 Axial†	121.4	56.0	96.741 µg/L	96.741 ppb	10:59:34
3	Sb 206.836†	120.4	43.1	14.574 µg/L	14.574 ppb	10:59:34
3	Se 196.026†	36.4	42.1	33.090 µg/L	33.090 ppb	10:59:34
3	SiO2†	5288.4	1490.9	181.93 µg/L	181.93 ppb	10:59:14
3	Si 251.611†	2446.5	1841.1	87.187 µg/L	87.187 ppb	10:59:34
3	Sn 189.927†	75.0	47.1	10.842 µg/L	10.842 ppb	10:59:34
3	Ti 334.940†	1984.9	1933.7	5.0484 µg/L	5.0484 ppb	10:59:14
3	Tl 190.801†	34.2	71.7	26.448 µg/L	26.448 ppb	10:59:34
3	U 367.007†	547.0	147.1	40.25 µg/L	40.25 ppb	10:59:14
3	V 292.402†	268.9	450.8	4.7503 µg/L	4.7503 ppb	10:59:14
3	Zn 213.857†	2319.2	939.9	9.1989 µg/L	9.1989 ppb	10:59:34

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	649400.6	107.85	%	0.364				0.34%
Sc RADIAL	20766.8	108	%	0.7				0.61%
Y 371.029	551031.2	107.78	%	0.356				0.33%
Ag 328.068†	797.3	5.4029	µg/L	0.23317	5.4029	ppb	0.23317	4.32%
QC value within limits for Ag 328.068 Recovery = 108.06%								
Al 396.153Radial†	636.2	192.62	µg/L	9.893	192.62	ppb	9.893	5.14%
QC value within limits for Al 396.153Radial Recovery = 96.31%								
As 188.979†	54.0	31.164	µg/L	2.3174	31.164	ppb	2.3174	7.44%
QC value within limits for As 188.979 Recovery = 103.88%								
B 249.677†	1727.3	49.891	µg/L	0.4844	49.891	ppb	0.4844	0.97%
QC value within limits for B 249.677 Recovery = 99.78%								
Ba 233.527†	572.2	5.1535	µg/L	0.06554	5.1535	ppb	0.06554	1.27%
QC value within limits for Ba 233.527 Recovery = 103.07%								
Be 313.107†	8872.9	5.2832	µg/L	0.05149	5.2832	ppb	0.05149	0.97%
QC value within limits for Be 313.107 Recovery = 105.66%								
Ca 317.933Radial†	419.2	205.27	µg/L	2.044	205.27	ppb	2.044	1.00%
QC value within limits for Ca 317.933Radial Recovery = 102.64%								
Cd 226.502†	366.9	5.5712	µg/L	0.07751	5.5712	ppb	0.07751	1.39%
QC value within limits for Cd 226.502 Recovery = 111.42%								
Co 228.616†	188.7	4.9532	µg/L	0.12247	4.9532	ppb	0.12247	2.47%

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   QC value within limits for Co 228.616  Recovery = 99.06%
Cr 267.716†              217.9      4.6104 µg/L       0.16885      4.6104 ppb        0.16885   3.66%
   QC value within limits for Cr 267.716  Recovery = 92.21%
Cu 324.752†             1999.8      8.8868 µg/L       0.43047      8.8868 ppb        0.43047   4.84%
   QC value within limits for Cu 324.752  Recovery = 88.87%
Fe 238.204 Radial†       188.5      105.07 µg/L         0.602      105.07 ppb          0.602   0.57%
   QC value within limits for Fe 238.204 Radial  Recovery = 105.07%
K 766.490 Radial†        318.6      155.74 µg/L         2.492      155.74 ppb          2.492   1.60%
   QC value within limits for K 766.490 Radial  Recovery = 103.83%
Mg 279.077 IEC†           58.4      296.67 µg/L        16.791      296.67 ppb         16.791   5.66%
   QC value within limits for Mg 279.077 IEC  Recovery = 98.89%
Mn 257.610†             6637.5      10.321 µg/L        0.0412      10.321 ppb         0.0412   0.40%
   QC value within limits for Mn 257.610  Recovery = 103.21%
Mo 202.031†              154.7      11.028 µg/L        0.4603      11.028 ppb         0.4603   4.17%
   QC value within limits for Mo 202.031  Recovery = 110.28%
Na 589.592 Radial†       186.7      344.83 µg/L        10.231      344.83 ppb         10.231   2.97%
   QC value within limits for Na 589.592 Radial  Recovery = 114.94%
Ni 231.604†              167.6      5.4252 µg/L       0.26662      5.4252 ppb        0.26662   4.91%
   QC value within limits for Ni 231.604  Recovery = 108.50%
P 214.914†               202.3      152.96 µg/L         1.388      152.96 ppb          1.388   0.91%
   QC value within limits for P 214.914  Recovery = 101.97%
Pb 220.353†               55.1      9.3855 µg/L       2.22870      9.3855 ppb        2.22870  23.75%
   QC value within limits for Pb 220.353  Recovery = 93.85%
S 181.975 Axial†          58.6      101.11 µg/L         4.656      101.11 ppb          4.656   4.61%
   QC value within limits for S 181.975 Axial  Recovery = 101.11%
Sb 206.836†               39.8      13.467 µg/L        1.1010      13.467 ppb         1.1010   8.18%
   QC value greater than the upper limit for Sb 206.836  Recovery = 134.67%
Se 196.026†               41.1      32.361 µg/L        2.1031      32.361 ppb         2.1031   6.50%
   QC value within limits for Se 196.026  Recovery = 107.87%
SiO2†                   1469.8      179.41 µg/L         5.610      179.41 ppb          5.610   3.13%
   QC value within limits for SiO2  Recovery = 84.23%
Si 251.611†             1822.0      86.284 µg/L        0.7936      86.284 ppb         0.7936   0.92%
   QC value within limits for Si 251.611  Recovery = 86.28%
Sn 189.927†               49.0      11.289 µg/L        0.7680      11.289 ppb         0.7680   6.80%
   QC value within limits for Sn 189.927  Recovery = 112.89%
Sr 421.552†             1111.7      5.3515 µg/L       0.28088      5.3515 ppb        0.28088   5.25%
   QC value within limits for Sr 421.552  Recovery = 107.03%
Ti 334.940†             1935.1      5.0497 µg/L       0.09161      5.0497 ppb        0.09161   1.81%
   QC value within limits for Ti 334.940  Recovery = 100.99%
Tl 190.801†               64.7      23.886 µg/L        2.5269      23.886 ppb         2.5269  10.58%
   QC value within limits for Tl 190.801  Recovery = 119.43%
U 367.007†               164.7       45.14 µg/L         5.750       45.14 ppb          5.750  12.74%
   QC value within limits for U 367.007  Recovery = 90.28%
V 292.402†               479.0      5.0341 µg/L       0.24584      5.0341 ppb        0.24584   4.88%
   QC value within limits for V 292.402  Recovery = 100.68%
Zn 213.857†              941.4      9.2118 µg/L       0.07979      9.2118 ppb        0.07979   0.87%
   QC value within limits for Zn 213.857  Recovery = 92.12%
QC Failed.  Continue with analysis.
```

Sequence No.: 18 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/7/2012 10:59:42**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20749.4	20749.4	108	%			11:00:11
1	Al 396.153Radial†	-92.0	-35.9	-10.934	µg/L	-10.934	ppb	11:00:11
1	Ca 317.933Radial†	119.9	-8.7	-4.2476	µg/L	-4.2476	ppb	11:00:31
1	Fe 238.204 Radial†	32.1	0.9	0.4875	µg/L	0.4875	ppb	11:00:31
1	K 766.490 Radial†	683.7	-34.8	-17.029	µg/L	-17.029	ppb	11:00:11
1	Mg 279.077 IEC†	7.9	4.1	20.923	µg/L	20.923	ppb	11:00:31
1	Na 589.592 Radial†	-192.5	7.3	13.494	µg/L	13.494	ppb	11:00:11
1	Sr 421.552†	-1345.4	51.4	0.2477	µg/L	0.2477	ppb	11:00:11
1	Sc 361.383	646246.8	646246.8	107.33	%			11:01:28
1	Y 371.029	548218.6	548218.6	107.23	%			11:01:28
1	Ag 328.068†	-564.8	65.5	0.4377	µg/L	0.4377	ppb	11:01:28
1	As 188.979†	-10.9	1.3	0.7405	µg/L	0.7405	ppb	11:01:48
1	B 249.677†	104.6	11.7	0.3385	µg/L	0.3385	ppb	11:01:48
1	Ba 233.527†	-144.3	-17.8	-0.1606	µg/L	-0.1606	ppb	11:01:48
1	Be 313.107†	-8293.6	230.5	0.1351	µg/L	0.1351	ppb	11:01:28
1	Cd 226.502†	-217.0	14.2	0.2156	µg/L	0.2156	ppb	11:01:48
1	Co 228.616†	-29.1	-20.7	-0.5418	µg/L	-0.5418	ppb	11:01:48
1	Cr 267.716†	225.0	-27.8	-0.5846	µg/L	-0.5846	ppb	11:01:48
1	Cu 324.752†	6348.0	-233.1	-1.0306	µg/L	-1.0306	ppb	11:01:28
1	Mn 257.610†	386.8	-25.6	-0.0404	µg/L	-0.0404	ppb	11:01:48
1	Mo 202.031†	43.9	13.0	0.9280	µg/L	0.9280	ppb	11:01:48
1	Ni 231.604†	-81.2	2.6	0.0842	µg/L	0.0842	ppb	11:01:48
1	P 214.914†	60.8	-19.4	-14.688	µg/L	-14.688	ppb	11:01:48
1	Pb 220.353†	140.4	-9.7	-1.6386	µg/L	-1.6386	ppb	11:01:48
1	S 181.975 Axial†	62.1	0.9	1.5495	µg/L	1.5495	ppb	11:01:48
1	Sb 206.836†	70.5	-3.3	-1.0842	µg/L	-1.0842	ppb	11:01:48
1	Se 196.026†	-12.8	-3.7	-2.9322	µg/L	-2.9322	ppb	11:01:48
1	SiO2†	3368.3	-292.7	-35.677	µg/L	-35.677	ppb	11:01:28
1	Si 251.611†	235.9	-216.1	-10.269	µg/L	-10.269	ppb	11:01:48
1	Sn 189.927†	27.8	3.2	0.7301	µg/L	0.7301	ppb	11:01:48
1	Ti 334.940†	-184.3	-85.4	-0.2197	µg/L	-0.2197	ppb	11:01:28
1	Tl 190.801†	-49.2	-5.9	-2.1851	µg/L	-2.1851	ppb	11:01:48
1	U 367.007†	353.0	-33.1	-9.173	µg/L	-9.173	ppb	11:01:28
1	V 292.402†	-243.1	-25.9	-0.2616	µg/L	-0.2616	ppb	11:01:28
1	Zn 213.857†	1176.1	-122.8	-1.2091	µg/L	-1.2091	ppb	11:01:48
2	Sc RADIAL	20661.5	20661.5	108	%			11:00:36
2	Al 396.153Radial†	-84.0	-28.9	-8.7837	µg/L	-8.7837	ppb	11:00:36
2	Ca 317.933Radial†	110.4	-17.0	-8.3178	µg/L	-8.3178	ppb	11:00:56
2	Fe 238.204 Radial†	27.6	-3.2	-1.7858	µg/L	-1.7858	ppb	11:00:56
2	K 766.490 Radial†	739.2	19.2	9.4038	µg/L	9.4038	ppb	11:00:36
2	Mg 279.077 IEC†	1.0	-2.2	-11.336	µg/L	-11.336	ppb	11:00:56
2	Na 589.592 Radial†	-180.4	17.7	32.728	µg/L	32.728	ppb	11:00:36
2	Sr 421.552†	-1307.3	81.4	0.3921	µg/L	0.3921	ppb	11:00:36
2	Sc 361.383	638810.0	638810.0	106.09	%			11:01:53
2	Y 371.029	541701.9	541701.9	105.95	%			11:01:53
2	Ag 328.068†	-588.6	36.9	0.2481	µg/L	0.2481	ppb	11:01:53
2	As 188.979†	-15.2	-2.9	-1.6784	µg/L	-1.6784	ppb	11:02:13
2	B 249.677†	129.2	36.0	1.0386	µg/L	1.0386	ppb	11:02:13
2	Ba 233.527†	-119.0	4.5	0.0404	µg/L	0.0404	ppb	11:02:13
2	Be 313.107†	-8238.1	192.9	0.1140	µg/L	0.1140	ppb	11:01:53
2	Cd 226.502†	-215.0	13.7	0.2081	µg/L	0.2081	ppb	11:02:13
2	Co 228.616†	-3.3	3.3	0.0875	µg/L	0.0875	ppb	11:02:13
2	Cr 267.716†	225.8	-24.6	-0.5227	µg/L	-0.5227	ppb	11:02:13
2	Cu 324.752†	6210.4	-294.0	-1.3061	µg/L	-1.3061	ppb	11:01:53
2	Mn 257.610†	379.3	-28.5	-0.0442	µg/L	-0.0442	ppb	11:02:13
2	Mo 202.031†	31.2	1.5	0.1070	µg/L	0.1070	ppb	11:02:13
2	Ni 231.604†	-109.7	-25.1	-0.8141	µg/L	-0.8141	ppb	11:02:13
2	P 214.914†	78.4	-2.2	-1.6032	µg/L	-1.6032	ppb	11:02:13
2	Pb 220.353†	137.1	-11.2	-1.9150	µg/L	-1.9150	ppb	11:02:13

2	S 181.975 Axial†	57.2	-3.0	-5.2025 µg/L	-5.2025 ppb	11:02:13
2	Sb 206.836†	71.7	-1.4	-0.4512 µg/L	-0.4512 ppb	11:02:13
2	Se 196.026†	-7.1	1.5	1.1864 µg/L	1.1864 ppb	11:02:13
2	SiO2†	3367.6	-256.8	-31.259 µg/L	-31.259 ppb	11:01:53
2	Si 251.611†	256.2	-194.4	-9.2313 µg/L	-9.2313 ppb	11:02:13
2	Sn 189.927†	28.1	3.7	0.8503 µg/L	0.8503 ppb	11:02:13
2	Ti 334.940†	-141.3	-46.8	-0.1213 µg/L	-0.1213 ppb	11:01:53
2	Tl 190.801†	-42.8	-0.4	-0.1563 µg/L	-0.1563 ppb	11:02:13
2	U 367.007†	373.9	-9.6	-2.653 µg/L	-2.653 ppb	11:01:53
2	V 292.402†	-197.1	14.8	0.1482 µg/L	0.1482 ppb	11:01:53
2	Zn 213.857†	1146.3	-138.1	-1.3533 µg/L	-1.3533 ppb	11:02:13
3	Sc RADIAL	20727.1	20727.1	108 %		11:01:01
3	Al 396.153Radial†	-106.5	-49.4	-15.017 µg/L	-15.017 ppb	11:01:01
3	Ca 317.933Radial†	113.6	-14.4	-7.0440 µg/L	-7.0440 ppb	11:01:21
3	Fe 238.204 Radial†	32.6	1.4	0.7823 µg/L	0.7823 ppb	11:01:21
3	K 766.490 Radial†	723.3	2.4	1.1710 µg/L	1.1710 ppb	11:01:01
3	Mg 279.077 IEC†	7.2	3.5	17.797 µg/L	17.797 ppb	11:01:21
3	Na 589.592 Radial†	-191.3	8.1	15.047 µg/L	15.047 ppb	11:01:01
3	Sr 421.552†	-1316.5	76.8	0.3696 µg/L	0.3696 ppb	11:01:01
3	Sc 361.383	641891.1	641891.1	106.60 %		11:02:18
3	Y 371.029	544394.4	544394.4	106.48 %		11:02:18
3	Ag 328.068†	-550.2	75.6	0.5046 µg/L	0.5046 ppb	11:02:18
3	As 188.979†	-1.8	9.8	5.6336 µg/L	5.6336 ppb	11:02:38
3	B 249.677†	104.7	12.4	0.3566 µg/L	0.3566 ppb	11:02:38
3	Ba 233.527†	-119.9	4.2	0.0368 µg/L	0.0368 ppb	11:02:38
3	Be 313.107†	-8232.2	235.7	0.1389 µg/L	0.1389 ppb	11:02:18
3	Cd 226.502†	-203.0	25.9	0.3946 µg/L	0.3946 ppb	11:02:38
3	Co 228.616†	-14.7	-7.4	-0.1936 µg/L	-0.1936 ppb	11:02:38
3	Cr 267.716†	221.9	-29.3	-0.6187 µg/L	-0.6187 ppb	11:02:38
3	Cu 324.752†	6229.9	-303.7	-1.3473 µg/L	-1.3473 ppb	11:02:18
3	Mn 257.610†	389.3	-20.9	-0.0329 µg/L	-0.0329 ppb	11:02:38
3	Mo 202.031†	36.0	5.9	0.4190 µg/L	0.4190 ppb	11:02:38
3	Ni 231.604†	-67.9	14.5	0.4712 µg/L	0.4712 ppb	11:02:38
3	P 214.914†	68.0	-12.3	-9.2611 µg/L	-9.2611 ppb	11:02:38
3	Pb 220.353†	158.9	8.6	1.4784 µg/L	1.4784 ppb	11:02:38
3	S 181.975 Axial†	58.2	-2.3	-3.9845 µg/L	-3.9845 ppb	11:02:38
3	Sb 206.836†	72.7	-0.7	-0.2335 µg/L	-0.2335 ppb	11:02:38
3	Se 196.026†	-3.4	5.0	3.9464 µg/L	3.9464 ppb	11:02:38
3	SiO2†	3408.3	-233.9	-28.501 µg/L	-28.501 ppb	11:02:18
3	Si 251.611†	255.7	-196.1	-9.3091 µg/L	-9.3091 ppb	11:02:38
3	Sn 189.927†	24.4	0.1	0.0198 µg/L	0.0198 ppb	11:02:38
3	Ti 334.940†	-170.5	-73.6	-0.1906 µg/L	-0.1906 ppb	11:02:18
3	Tl 190.801†	-40.1	2.3	0.8460 µg/L	0.8460 ppb	11:02:38
3	U 367.007†	365.0	-19.6	-5.443 µg/L	-5.443 ppb	11:02:18
3	V 292.402†	-256.1	-39.6	-0.4038 µg/L	-0.4038 ppb	11:02:18
3	Zn 213.857†	1136.9	-152.1	-1.5001 µg/L	-1.5001 ppb	11:02:38

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	642315.9	106.67	%	0.621				0.58%
Sc RADIAL	20712.7	108	%	0.2				0.22%
Y 371.029	544771.6	106.56	%	0.641				0.60%
Ag 328.068†	59.3	0.3968	µg/L	0.13302	0.3968	ppb	0.13302	33.52%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-38.1	-11.578	µg/L	3.1660	-11.578	ppb	3.1660	27.35%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	2.7	1.5653	µg/L	3.72510	1.5653	ppb	3.72510	237.99%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	20.0	0.5779	µg/L	0.39908	0.5779	ppb	0.39908	69.06%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-3.1	-0.0278	µg/L	0.11506	-0.0278	ppb	0.11506	413.90%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	219.7	0.1293	µg/L	0.01342	0.1293	ppb	0.01342	10.38%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-13.3	-6.5365	µg/L	2.08201	-6.5365	ppb	2.08201	31.85%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	17.9	0.2728	µg/L	0.10559	0.2728	ppb	0.10559	38.71%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	-8.3	-0.2160	µg/L	0.31523	-0.2160	ppb	0.31523	145.97%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -27.2     -0.5753 µg/L       0.04865     -0.5753 ppb        0.04865   8.46%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -276.9     -1.2280 µg/L       0.17217     -1.2280 ppb        0.17217  14.02%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        -0.3     -0.1720 µg/L       1.40536     -0.1720 ppb        1.40536 817.03%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         -4.4     -2.1514 µg/L      13.52595     -2.1514 ppb       13.52595 628.70%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            1.8      9.1279 µg/L      17.79104      9.1279 ppb       17.79104 194.91%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -25.0     -0.0392 µg/L       0.00573     -0.0392 ppb        0.00573  14.63%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               6.8      0.4846 µg/L       0.41440      0.4846 ppb        0.41440  85.51%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        11.1      20.423 µg/L       10.6846      20.423 ppb        10.6846  52.32%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               -2.7     -0.0862 µg/L       0.65936     -0.0862 ppb        0.65936 764.52%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -11.3     -8.5176 µg/L       6.57425     -8.5176 ppb        6.57425  77.18%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               -4.1     -0.6918 µg/L       1.88447     -0.6918 ppb        1.88447 272.42%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -1.5     -2.5458 µg/L       3.59858     -2.5458 ppb        3.59858 141.35%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               -1.8     -0.5896 µg/L       0.44191     -0.5896 ppb        0.44191  74.95%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                0.9      0.7335 µg/L       3.46156      0.7335 ppb        3.46156 471.90%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    -261.1     -31.812 µg/L        3.6202     -31.812 ppb         3.6202  11.38%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              -202.2     -9.6030 µg/L       0.57778     -9.6030 ppb        0.57778   6.02%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                2.3      0.5334 µg/L       0.44881      0.5334 ppb        0.44881  84.14%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               69.9      0.3365 µg/L       0.07770      0.3365 ppb        0.07770  23.09%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              -68.6     -0.1772 µg/L       0.05052     -0.1772 ppb        0.05052  28.51%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               -1.3     -0.4985 µg/L       1.54427     -0.4985 ppb        1.54427 309.80%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -20.8      -5.756 µg/L        3.2711      -5.756 ppb         3.2711  56.83%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -16.9     -0.1724 µg/L       0.28660     -0.1724 ppb        0.28660 166.23%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -137.7     -1.3542 µg/L       0.14549     -1.3542 ppb        0.14549  10.74%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 20 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 11:05:50**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20646.6	20646.6	108	%			11:06:39
1	Al 396.153Radial†	17378.6	16162.6	4885.6	µg/L	4885.6	ppb	11:06:19
1	Ca 317.933Radial†	11277.6	10337.5	5062.4	µg/L	5062.4	ppb	11:06:39
1	Fe 238.204 Radial†	9973.6	9219.0	5142.7	µg/L	5142.7	ppb	11:06:39
1	K 766.490 Radial†	11444.6	9946.0	4858.8	µg/L	4858.8	ppb	11:06:19
1	Mg 279.077 IEC†	1115.6	1031.2	5241.9	µg/L	5241.9	ppb	11:06:39
1	Na 589.592 Radial†	5496.5	5281.3	9754.2	µg/L	9754.2	ppb	11:06:39
1	Sr 421.552†	107249.2	100736.0	484.99	µg/L	484.99	ppb	11:06:19
1	Sc 361.383	659199.7	659199.7	109.48	%			11:07:36
1	Y 371.029	554729.6	554729.6	108.50	%			11:07:36
1	Ag 328.068†	80190.3	73839.1	499.48	µg/L	499.48	ppb	11:07:41
1	As 188.979†	943.8	873.5	504.85	µg/L	504.85	ppb	11:08:01
1	B 249.677†	18896.2	17174.4	494.71	µg/L	494.71	ppb	11:07:41
1	Ba 233.527†	60918.7	55761.0	502.38	µg/L	502.38	ppb	11:07:41
1	Be 313.107†	914520.6	843299.4	501.24	µg/L	501.24	ppb	11:07:36
1	Cd 226.502†	36363.3	33431.3	508.33	µg/L	508.33	ppb	11:07:41
1	Co 228.616†	21274.4	19438.8	509.53	µg/L	509.53	ppb	11:07:41
1	Cr 267.716†	26032.1	23540.8	501.96	µg/L	501.96	ppb	11:07:41
1	Cu 324.752†	127554.2	110362.8	492.55	µg/L	492.55	ppb	11:07:41
1	Mn 257.610†	348816.7	318230.2	495.11	µg/L	495.11	ppb	11:07:41
1	Mo 202.031†	7622.8	6934.9	494.29	µg/L	494.29	ppb	11:08:01
1	Ni 231.604†	17301.6	15881.9	514.05	µg/L	514.05	ppb	11:07:41
1	P 214.914†	3690.8	3295.3	2479.1	µg/L	2479.1	ppb	11:08:01
1	Pb 220.353†	3329.8	2901.1	496.79	µg/L	496.79	ppb	11:08:01
1	S 181.975 Axial†	693.2	576.2	995.68	µg/L	995.68	ppb	11:08:01
1	Sb 206.836†	1684.9	1470.1	490.35	µg/L	490.35	ppb	11:08:01
1	Se 196.026†	684.7	633.6	500.58	µg/L	500.58	ppb	11:08:01
1	SiO2†	51141.1	43282.3	5292.1	µg/L	5292.1	ppb	11:07:41
1	Si 251.611†	57465.7	52054.4	2462.3	µg/L	2462.3	ppb	11:07:41
1	Sn 189.927†	2418.3	2186.2	504.21	µg/L	504.21	ppb	11:08:01
1	Ti 334.940†	205746.4	188019.2	492.22	µg/L	492.22	ppb	11:07:41
1	Tl 190.801†	1442.9	1357.9	502.58	µg/L	502.58	ppb	11:08:01
1	U 367.007†	2263.3	1705.3	448.4	µg/L	448.4	ppb	11:07:41
1	V 292.402†	53401.1	48978.3	504.32	µg/L	504.32	ppb	11:07:41
1	Zn 213.857†	57274.6	51097.1	498.73	µg/L	498.73	ppb	11:07:41
2	Sc RADIAL	20600.4	20600.4	108	%			11:07:04
2	Al 396.153Radial†	17617.5	16420.8	4963.9	µg/L	4963.9	ppb	11:06:44
2	Ca 317.933Radial†	11248.5	10333.9	5060.6	µg/L	5060.6	ppb	11:07:04
2	Fe 238.204 Radial†	9975.6	9241.6	5155.2	µg/L	5155.2	ppb	11:07:04
2	K 766.490 Radial†	11675.8	10184.6	4975.6	µg/L	4975.6	ppb	11:06:44
2	Mg 279.077 IEC†	1116.2	1034.1	5256.5	µg/L	5256.5	ppb	11:07:04
2	Na 589.592 Radial†	5555.0	5347.1	9875.7	µg/L	9875.7	ppb	11:07:04
2	Sr 421.552†	109119.2	102696.9	494.43	µg/L	494.43	ppb	11:06:44
2	Sc 361.383	660458.2	660458.2	109.69	%			11:08:07
2	Y 371.029	555684.1	555684.1	108.69	%			11:08:07
2	Ag 328.068†	79688.1	73241.7	495.45	µg/L	495.45	ppb	11:08:12
2	As 188.979†	946.4	874.3	505.24	µg/L	505.24	ppb	11:08:32
2	B 249.677†	18781.1	17036.5	490.74	µg/L	490.74	ppb	11:08:12
2	Ba 233.527†	60580.7	55346.8	498.64	µg/L	498.64	ppb	11:08:12
2	Be 313.107†	915694.8	842778.0	500.93	µg/L	500.93	ppb	11:08:07
2	Cd 226.502†	36087.0	33116.1	503.53	µg/L	503.53	ppb	11:08:12
2	Co 228.616†	21101.3	19244.0	504.43	µg/L	504.43	ppb	11:08:12
2	Cr 267.716†	25838.6	23319.0	497.23	µg/L	497.23	ppb	11:08:12
2	Cu 324.752†	126720.1	109380.4	488.16	µg/L	488.16	ppb	11:08:12
2	Mn 257.610†	346626.2	315626.0	491.06	µg/L	491.06	ppb	11:08:12
2	Mo 202.031†	7631.2	6929.3	493.89	µg/L	493.89	ppb	11:08:32
2	Ni 231.604†	17221.9	15779.2	510.72	µg/L	510.72	ppb	11:08:12
2	P 214.914†	3720.1	3315.5	2494.6	µg/L	2494.6	ppb	11:08:32
2	Pb 220.353†	3355.6	2918.8	499.79	µg/L	499.79	ppb	11:08:32

2	S 181.975 Axial†	699.0	580.3	1002.8 µg/L	1002.8 ppb	11:08:32
2	Sb 206.836†	1695.5	1476.8	492.69 µg/L	492.69 ppb	11:08:32
2	Se 196.026†	697.4	644.0	508.73 µg/L	508.73 ppb	11:08:32
2	SiO2†	50963.6	43031.4	5261.5 µg/L	5261.5 ppb	11:08:12
2	Si 251.611†	57324.6	51825.8	2451.5 µg/L	2451.5 ppb	11:08:12
2	Sn 189.927†	2412.4	2176.5	501.99 µg/L	501.99 ppb	11:08:32
2	Ti 334.940†	204341.9	186380.6	487.93 µg/L	487.93 ppb	11:08:12
2	Tl 190.801†	1437.7	1350.6	499.89 µg/L	499.89 ppb	11:08:32
2	U 367.007†	2293.1	1728.5	454.8 µg/L	454.8 ppb	11:08:12
2	V 292.402†	53166.3	48671.2	501.19 µg/L	501.19 ppb	11:08:12
2	Zn 213.857†	56935.5	50688.3	494.73 µg/L	494.73 ppb	11:08:12
3	Sc RADIAL	20503.5	20503.5	107 %		11:07:29
3	Al 396.153Radial†	17446.7	16338.7	4938.9 µg/L	4938.9 ppb	11:07:09
3	Ca 317.933Radial†	11225.1	10361.4	5074.1 µg/L	5074.1 ppb	11:07:29
3	Fe 238.204 Radial†	9933.0	9245.6	5157.5 µg/L	5157.5 ppb	11:07:29
3	K 766.490 Radial†	11452.9	10027.8	4898.8 µg/L	4898.8 ppb	11:07:09
3	Mg 279.077 IEC†	1101.0	1024.8	5209.1 µg/L	5209.1 ppb	11:07:29
3	Na 589.592 Radial†	5437.4	5261.7	9718.0 µg/L	9718.0 ppb	11:07:29
3	Sr 421.552†	107511.3	101674.5	489.51 µg/L	489.51 ppb	11:07:09
3	Sc 361.383	657823.4	657823.4	109.25 %		11:08:38
3	Y 371.029	553130.8	553130.8	108.19 %		11:08:38
3	Ag 328.068†	79919.4	73744.4	498.84 µg/L	498.84 ppb	11:08:43
3	As 188.979†	941.3	873.0	504.52 µg/L	504.52 ppb	11:09:03
3	B 249.677†	18792.9	17115.9	493.03 µg/L	493.03 ppb	11:08:43
3	Ba 233.527†	60711.7	55687.9	501.72 µg/L	501.72 ppb	11:08:43
3	Be 313.107†	911814.5	842570.0	500.81 µg/L	500.81 ppb	11:08:38
3	Cd 226.502†	36263.5	33409.5	508.00 µg/L	508.00 ppb	11:08:43
3	Co 228.616†	21144.2	19360.3	507.48 µg/L	507.48 ppb	11:08:43
3	Cr 267.716†	25909.8	23478.5	500.63 µg/L	500.63 ppb	11:08:43
3	Cu 324.752†	127138.7	110226.3	491.94 µg/L	491.94 ppb	11:08:43
3	Mn 257.610†	347593.8	317777.4	494.41 µg/L	494.41 ppb	11:08:43
3	Mo 202.031†	7622.1	6948.9	495.28 µg/L	495.28 ppb	11:09:03
3	Ni 231.604†	17216.7	15837.2	512.60 µg/L	512.60 ppb	11:08:43
3	P 214.914†	3682.9	3295.0	2479.0 µg/L	2479.0 ppb	11:09:03
3	Pb 220.353†	3350.2	2926.1	501.06 µg/L	501.06 ppb	11:09:03
3	S 181.975 Axial†	692.6	577.0	997.08 µg/L	997.08 ppb	11:09:03
3	Sb 206.836†	1671.6	1461.1	487.36 µg/L	487.36 ppb	11:09:03
3	Se 196.026†	693.3	642.8	507.81 µg/L	507.81 ppb	11:09:03
3	SiO2†	51109.4	43351.0	5300.5 µg/L	5300.5 ppb	11:08:43
3	Si 251.611†	57558.6	52249.3	2471.5 µg/L	2471.5 ppb	11:08:43
3	Sn 189.927†	2408.1	2181.4	503.12 µg/L	503.12 ppb	11:09:03
3	Ti 334.940†	204894.1	187632.2	491.21 µg/L	491.21 ppb	11:08:43
3	Tl 190.801†	1432.9	1351.5	500.23 µg/L	500.23 ppb	11:09:03
3	U 367.007†	2273.6	1719.1	452.2 µg/L	452.2 ppb	11:08:43
3	V 292.402†	53239.0	48932.0	503.86 µg/L	503.86 ppb	11:08:43
3	Zn 213.857†	57063.9	51013.7	497.92 µg/L	497.92 ppb	11:08:43

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	659160.4	109.47	%	0.219				0.20%
Sc RADIAL	20583.5	108	%	0.4				0.35%
Y 371.029	554514.8	108.46	%	0.252				0.23%
Ag 328.068†	73608.4	497.92	µg/L	2.162	497.92	ppb	2.162	0.43%
QC value within limits for Ag 328.068 Recovery = 99.58%								
Al 396.153Radial†	16307.4	4929.5	µg/L	40.02	4929.5	ppb	40.02	0.81%
QC value within limits for Al 396.153Radial Recovery = 98.59%								
As 188.979†	873.6	504.87	µg/L	0.360	504.87	ppb	0.360	0.07%
QC value within limits for As 188.979 Recovery = 100.97%								
B 249.677†	17108.9	492.83	µg/L	1.996	492.83	ppb	1.996	0.40%
QC value within limits for B 249.677 Recovery = 98.57%								
Ba 233.527†	55598.5	500.91	µg/L	1.992	500.91	ppb	1.992	0.40%
QC value within limits for Ba 233.527 Recovery = 100.18%								
Be 313.107†	842882.5	500.99	µg/L	0.223	500.99	ppb	0.223	0.04%
QC value within limits for Be 313.107 Recovery = 100.20%								
Ca 317.933Radial†	10344.3	5065.7	µg/L	7.32	5065.7	ppb	7.32	0.14%
QC value within limits for Ca 317.933Radial Recovery = 101.31%								
Cd 226.502†	33318.9	506.62	µg/L	2.680	506.62	ppb	2.680	0.53%
QC value within limits for Cd 226.502 Recovery = 101.32%								
Co 228.616†	19347.7	507.15	µg/L	2.566	507.15	ppb	2.566	0.51%

QC value within limits for Co 228.616 Recovery = 101.43%

Cr 267.716†	23446.1	499.94 µg/L	2.442	499.94 ppb	2.442	0.49%
QC value within limits for Cr 267.716 Recovery = 99.99%						
Cu 324.752†	109989.8	490.88 µg/L	2.375	490.88 ppb	2.375	0.48%
QC value within limits for Cu 324.752 Recovery = 98.18%						
Fe 238.204 Radial†	9235.4	5151.8 µg/L	7.98	5151.8 ppb	7.98	0.15%
QC value within limits for Fe 238.204 Radial Recovery = 103.04%						
K 766.490 Radial†	10052.8	4911.1 µg/L	59.33	4911.1 ppb	59.33	1.21%
QC value within limits for K 766.490 Radial Recovery = 98.22%						
Mg 279.077 IEC†	1030.1	5235.8 µg/L	24.27	5235.8 ppb	24.27	0.46%
QC value within limits for Mg 279.077 IEC Recovery = 104.72%						
Mn 257.610†	317211.2	493.53 µg/L	2.163	493.53 ppb	2.163	0.44%
QC value within limits for Mn 257.610 Recovery = 98.71%						
Mo 202.031†	6937.7	494.48 µg/L	0.719	494.48 ppb	0.719	0.15%
QC value within limits for Mo 202.031 Recovery = 98.90%						
Na 589.592 Radial†	5296.7	9782.6 µg/L	82.60	9782.6 ppb	82.60	0.84%
QC value within limits for Na 589.592 Radial Recovery = 97.83%						
Ni 231.604†	15832.8	512.46 µg/L	1.667	512.46 ppb	1.667	0.33%
QC value within limits for Ni 231.604 Recovery = 102.49%						
P 214.914†	3301.9	2484.2 µg/L	8.97	2484.2 ppb	8.97	0.36%
QC value within limits for P 214.914 Recovery = 99.37%						
Pb 220.353†	2915.3	499.21 µg/L	2.193	499.21 ppb	2.193	0.44%
QC value within limits for Pb 220.353 Recovery = 99.84%						
S 181.975 Axial†	577.9	998.53 µg/L	3.795	998.53 ppb	3.795	0.38%
QC value within limits for S 181.975 Axial Recovery = 99.85%						
Sb 206.836†	1469.3	490.13 µg/L	2.668	490.13 ppb	2.668	0.54%
QC value within limits for Sb 206.836 Recovery = 98.03%						
Se 196.026†	640.2	505.71 µg/L	4.463	505.71 ppb	4.463	0.88%
QC value within limits for Se 196.026 Recovery = 101.14%						
SiO2†	43221.5	5284.7 µg/L	20.52	5284.7 ppb	20.52	0.39%
QC value within limits for SiO2 Recovery = 98.83%						
Si 251.611†	52043.2	2461.8 µg/L	10.05	2461.8 ppb	10.05	0.41%
QC value within limits for Si 251.611 Recovery = 98.47%						
Sn 189.927†	2181.4	503.11 µg/L	1.113	503.11 ppb	1.113	0.22%
QC value within limits for Sn 189.927 Recovery = 100.62%						
Sr 421.552†	101702.4	489.64 µg/L	4.722	489.64 ppb	4.722	0.96%
QC value within limits for Sr 421.552 Recovery = 97.93%						
Ti 334.940†	187344.0	490.45 µg/L	2.244	490.45 ppb	2.244	0.46%
QC value within limits for Ti 334.940 Recovery = 98.09%						
Tl 190.801†	1353.3	500.90 µg/L	1.463	500.90 ppb	1.463	0.29%
QC value within limits for Tl 190.801 Recovery = 100.18%						
U 367.007†	1717.6	451.8 µg/L	3.20	451.8 ppb	3.20	0.71%
QC value within limits for U 367.007 Recovery = 90.36%						
V 292.402†	48860.5	503.12 µg/L	1.688	503.12 ppb	1.688	0.34%
QC value within limits for V 292.402 Recovery = 100.62%						
Zn 213.857†	50933.1	497.13 µg/L	2.116	497.13 ppb	2.116	0.43%
QC value within limits for Zn 213.857 Recovery = 99.43%						

All analyte(s) passed QC.

Sequence No.: 21 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/7/2012 11:09:11**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20842.2	20842.2	109	%			11:09:39
1	Al 396.153Radial†	-86.7	-30.7	-9.3741	µg/L	-9.3741	ppb	11:09:39
1	Ca 317.933Radial†	115.5	-13.2	-6.4751	µg/L	-6.4751	ppb	11:09:59
1	Fe 238.204 Radial†	31.4	0.1	0.0507	µg/L	0.0507	ppb	11:09:59
1	K 766.490 Radial†	696.1	-26.2	-12.835	µg/L	-12.835	ppb	11:09:39
1	Mg 279.077 IEC†	4.2	0.7	3.7818	µg/L	3.7818	ppb	11:09:59
1	Na 589.592 Radial†	-210.8	-8.7	-16.087	µg/L	-16.087	ppb	11:09:39
1	Sr 421.552†	-1287.7	109.9	0.5291	µg/L	0.5291	ppb	11:09:39
1	Sc 361.383	647502.2	647502.2	107.54	%			11:10:55
1	Y 371.029	549100.4	549100.4	107.40	%			11:10:55
1	Ag 328.068†	-598.4	35.3	0.2349	µg/L	0.2349	ppb	11:10:55
1	As 188.979†	-5.5	6.3	3.6357	µg/L	3.6357	ppb	11:11:15
1	B 249.677†	145.5	49.4	1.4288	µg/L	1.4288	ppb	11:11:15
1	Ba 233.527†	-124.6	0.7	0.0063	µg/L	0.0063	ppb	11:11:15
1	Be 313.107†	-8289.3	249.6	0.1487	µg/L	0.1487	ppb	11:10:55
1	Cd 226.502†	-213.7	17.6	0.2681	µg/L	0.2681	ppb	11:11:15
1	Co 228.616†	-13.5	-6.2	-0.1598	µg/L	-0.1598	ppb	11:11:15
1	Cr 267.716†	238.2	-16.0	-0.3434	µg/L	-0.3434	ppb	11:11:15
1	Cu 324.752†	6361.1	-232.4	-1.0369	µg/L	-1.0369	ppb	11:10:55
1	Mn 257.610†	404.6	-9.8	-0.0153	µg/L	-0.0153	ppb	11:11:15
1	Mo 202.031†	51.4	19.9	1.4188	µg/L	1.4188	ppb	11:11:15
1	Ni 231.604†	-79.2	4.6	0.1491	µg/L	0.1491	ppb	11:11:15
1	P 214.914†	70.4	-10.6	-7.9893	µg/L	-7.9893	ppb	11:11:15
1	Pb 220.353†	153.0	1.8	0.3173	µg/L	0.3173	ppb	11:11:15
1	S 181.975 Axial†	57.6	-3.4	-5.9068	µg/L	-5.9068	ppb	11:11:15
1	Sb 206.836†	80.5	5.9	2.0031	µg/L	2.0031	ppb	11:11:15
1	Se 196.026†	-1.5	6.8	5.3393	µg/L	5.3393	ppb	11:11:15
1	SiO2†	3405.5	-264.2	-32.064	µg/L	-32.064	ppb	11:10:55
1	Si 251.611†	240.5	-212.2	-10.094	µg/L	-10.094	ppb	11:11:15
1	Sn 189.927†	31.1	6.1	1.4100	µg/L	1.4100	ppb	11:11:15
1	Ti 334.940†	-123.5	-28.5	-0.0760	µg/L	-0.0760	ppb	11:10:55
1	Tl 190.801†	-32.5	9.7	3.5619	µg/L	3.5619	ppb	11:11:15
1	U 367.007†	400.1	10.0	2.769	µg/L	2.769	ppb	11:10:55
1	V 292.402†	-242.5	-24.9	-0.2352	µg/L	-0.2352	ppb	11:10:55
1	Zn 213.857†	1171.9	-128.8	-1.2682	µg/L	-1.2682	ppb	11:11:15
2	Sc RADIAL	20820.9	20820.9	109	%			11:10:04
2	Al 396.153Radial†	-79.6	-24.3	-7.4200	µg/L	-7.4200	ppb	11:10:04
2	Ca 317.933Radial†	107.0	-20.9	-10.249	µg/L	-10.249	ppb	11:10:24
2	Fe 238.204 Radial†	30.6	-0.6	-0.3388	µg/L	-0.3388	ppb	11:10:24
2	K 766.490 Radial†	736.5	11.5	5.6279	µg/L	5.6279	ppb	11:10:04
2	Mg 279.077 IEC†	6.0	2.4	12.051	µg/L	12.051	ppb	11:10:24
2	Na 589.592 Radial†	-192.8	7.6	13.959	µg/L	13.959	ppb	11:10:04
2	Sr 421.552†	-1324.6	74.8	0.3601	µg/L	0.3601	ppb	11:10:04
2	Sc 361.383	641101.8	641101.8	106.47	%			11:11:21
2	Y 371.029	543465.5	543465.5	106.30	%			11:11:21
2	Ag 328.068†	-555.5	70.0	0.4663	µg/L	0.4663	ppb	11:11:21
2	As 188.979†	-7.9	4.0	2.2932	µg/L	2.2932	ppb	11:11:41
2	B 249.677†	115.2	22.4	0.6457	µg/L	0.6457	ppb	11:11:41
2	Ba 233.527†	-115.1	8.5	0.0755	µg/L	0.0755	ppb	11:11:41
2	Be 313.107†	-8319.1	144.6	0.0839	µg/L	0.0839	ppb	11:11:21
2	Cd 226.502†	-207.2	21.7	0.3301	µg/L	0.3301	ppb	11:11:41
2	Co 228.616†	-10.6	-3.6	-0.0918	µg/L	-0.0918	ppb	11:11:41
2	Cr 267.716†	216.6	-34.1	-0.7179	µg/L	-0.7179	ppb	11:11:41
2	Cu 324.752†	6366.3	-168.4	-0.7422	µg/L	-0.7422	ppb	11:11:21
2	Mn 257.610†	386.6	-22.9	-0.0360	µg/L	-0.0360	ppb	11:11:41
2	Mo 202.031†	48.3	17.5	1.2469	µg/L	1.2469	ppb	11:11:41
2	Ni 231.604†	-97.9	-13.7	-0.4420	µg/L	-0.4420	ppb	11:11:41
2	P 214.914†	79.1	-1.7	-1.3044	µg/L	-1.3044	ppb	11:11:41
2	Pb 220.353†	165.8	15.3	2.6267	µg/L	2.6267	ppb	11:11:41

2	S 181.975 Axial†	58.8	-1.7	-3.0061 µg/L	-3.0061 ppb	11:11:41
2	Sb 206.836†	96.9	22.0	7.4393 µg/L	7.4393 ppb	11:11:41
2	Se 196.026†	-3.2	5.2	4.0937 µg/L	4.0937 ppb	11:11:41
2	SiO2†	3401.6	-236.3	-28.833 µg/L	-28.833 ppb	11:11:21
2	Si 251.611†	241.0	-209.5	-9.9651 µg/L	-9.9651 ppb	11:11:41
2	Sn 189.927†	31.1	6.5	1.4934 µg/L	1.4934 ppb	11:11:41
2	Ti 334.940†	-136.8	-42.1	-0.1064 µg/L	-0.1064 ppb	11:11:21
2	Tl 190.801†	-42.2	0.3	0.0904 µg/L	0.0904 ppb	11:11:41
2	U 367.007†	351.1	-32.3	-8.950 µg/L	-8.950 ppb	11:11:21
2	V 292.402†	-261.2	-44.7	-0.4493 µg/L	-0.4493 ppb	11:11:21
2	Zn 213.857†	1165.1	-124.4	-1.2210 µg/L	-1.2210 ppb	11:11:41
3	Sc RADIAL	20695.8	20695.8	108 %		11:10:29
3	Al 396.153Radial†	-103.2	-46.5	-14.139 µg/L	-14.139 ppb	11:10:29
3	Ca 317.933Radial†	108.9	-18.5	-9.0639 µg/L	-9.0639 ppb	11:10:49
3	Fe 238.204 Radial†	31.9	0.8	0.4363 µg/L	0.4363 ppb	11:10:49
3	K 766.490 Radial†	736.3	15.4	7.5312 µg/L	7.5312 ppb	11:10:29
3	Mg 279.077 IEC†	3.3	-0.1	-0.4902 µg/L	-0.4902 ppb	11:10:49
3	Na 589.592 Radial†	-166.0	31.3	57.839 µg/L	57.839 ppb	11:10:29
3	Sr 421.552†	-1359.1	35.5	0.1710 µg/L	0.1710 ppb	11:10:29
3	Sc 361.383	641843.8	641843.8	106.60 %		11:11:46
3	Y 371.029	544492.3	544492.3	106.50 %		11:11:46
3	Ag 328.068†	-594.7	33.8	0.2260 µg/L	0.2260 ppb	11:11:46
3	As 188.979†	-11.6	0.6	0.3381 µg/L	0.3381 ppb	11:12:06
3	B 249.677†	118.9	25.7	0.7429 µg/L	0.7429 ppb	11:12:06
3	Ba 233.527†	-119.4	4.6	0.0408 µg/L	0.0408 ppb	11:12:06
3	Be 313.107†	-8291.7	179.4	0.1054 µg/L	0.1054 ppb	11:11:46
3	Cd 226.502†	-216.4	13.4	0.2031 µg/L	0.2031 ppb	11:12:06
3	Co 228.616†	-13.2	-6.0	-0.1563 µg/L	-0.1563 ppb	11:12:06
3	Cr 267.716†	250.6	-2.4	-0.0456 µg/L	-0.0456 ppb	11:12:06
3	Cu 324.752†	6220.1	-312.5	-1.3862 µg/L	-1.3862 ppb	11:11:46
3	Mn 257.610†	389.2	-20.8	-0.0324 µg/L	-0.0324 ppb	11:12:06
3	Mo 202.031†	40.9	10.5	0.7486 µg/L	0.7486 ppb	11:12:06
3	Ni 231.604†	-100.0	-15.5	-0.5029 µg/L	-0.5029 ppb	11:12:06
3	P 214.914†	81.2	0.1	0.1149 µg/L	0.1149 ppb	11:12:06
3	Pb 220.353†	138.6	-10.5	-1.7778 µg/L	-1.7778 ppb	11:12:06
3	S 181.975 Axial†	60.8	0.1	0.1698 µg/L	0.1698 ppb	11:12:06
3	Sb 206.836†	86.0	11.7	3.9452 µg/L	3.9452 ppb	11:12:06
3	Se 196.026†	4.5	12.4	9.7101 µg/L	9.7101 ppb	11:12:06
3	SiO2†	3393.3	-247.7	-30.155 µg/L	-30.155 ppb	11:11:46
3	Si 251.611†	261.1	-190.9	-9.0714 µg/L	-9.0714 ppb	11:12:06
3	Sn 189.927†	28.0	3.5	0.7972 µg/L	0.7972 ppb	11:12:06
3	Ti 334.940†	-129.0	-34.7	-0.0885 µg/L	-0.0885 ppb	11:11:46
3	Tl 190.801†	-47.4	-4.5	-1.6768 µg/L	-1.6768 ppb	11:12:06
3	U 367.007†	364.3	-20.3	-5.631 µg/L	-5.631 ppb	11:11:46
3	V 292.402†	-229.5	-14.7	-0.1453 µg/L	-0.1453 ppb	11:11:46
3	Zn 213.857†	1161.3	-129.1	-1.2675 µg/L	-1.2675 ppb	11:12:06

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	643482.6	106.87	%	0.581				0.54%
Sc RADIAL	20786.3	109	%	0.4				0.38%
Y 371.029	545686.0	106.73	%	0.587				0.55%
Ag 328.068†	46.4	0.3091	µg/L	0.13622	0.3091	ppb	0.13622	44.07%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-33.8	-10.311	µg/L	3.4563	-10.311	ppb	3.4563	33.52%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	3.6	2.0890	µg/L	1.65827	2.0890	ppb	1.65827	79.38%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	32.5	0.9391	µg/L	0.42681	0.9391	ppb	0.42681	45.45%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	4.6	0.0409	µg/L	0.03458	0.0409	ppb	0.03458	84.59%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	191.2	0.1127	µg/L	0.03301	0.1127	ppb	0.03301	29.29%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-17.6	-8.5960	µg/L	1.92989	-8.5960	ppb	1.92989	22.45%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	17.6	0.2671	µg/L	0.06352	0.2671	ppb	0.06352	23.78%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	-5.3	-0.1360	µg/L	0.03824	-0.1360	ppb	0.03824	28.13%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -17.5     -0.3690 µg/L       0.33685     -0.3690 ppb        0.33685  91.30%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -237.8     -1.0551 µg/L       0.32235     -1.0551 ppb        0.32235  30.55%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         0.1      0.0494 µg/L       0.38758      0.0494 ppb        0.38758 784.85%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†          0.2      0.1082 µg/L      11.24912      0.1082 ppb       11.24912 >999.9%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            1.0      5.1143 µg/L       6.37599      5.1143 ppb        6.37599 124.67%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -17.8     -0.0279 µg/L       0.01103     -0.0279 ppb        0.01103  39.57%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               16.0      1.1381 µg/L       0.34810      1.1381 ppb        0.34810  30.59%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        10.1      18.570 µg/L       37.1780      18.570 ppb        37.1780 200.20%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               -8.2     -0.2653 µg/L       0.36013     -0.2653 ppb        0.36013 135.76%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -4.1     -3.0596 µg/L       4.32785     -3.0596 ppb        4.32785 141.45%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                2.2      0.3887 µg/L       2.20312      0.3887 ppb        2.20312 566.75%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -1.7     -2.9144 µg/L       3.03933     -2.9144 ppb        3.03933 104.29%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               13.2      4.4625 µg/L       2.75478      4.4625 ppb        2.75478  61.73%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                8.2      6.3811 µg/L       2.94955      6.3811 ppb        2.94955  46.22%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    -249.4     -30.351 µg/L        1.6243     -30.351 ppb         1.6243   5.35%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              -204.2     -9.7102 µg/L       0.55693     -9.7102 ppb        0.55693   5.74%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                5.4      1.2336 µg/L       0.38016      1.2336 ppb        0.38016  30.82%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               73.4      0.3534 µg/L       0.17915      0.3534 ppb        0.17915  50.69%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              -35.1     -0.0903 µg/L       0.01528     -0.0903 ppb        0.01528  16.92%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                1.8      0.6585 µg/L       2.66519      0.6585 ppb        2.66519 404.74%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -14.2      -3.937 µg/L        6.0399      -3.937 ppb         6.0399 153.41%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -28.1     -0.2766 µg/L       0.15618     -0.2766 ppb        0.15618  56.46%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -127.4     -1.2522 µg/L       0.02705     -1.2522 ppb        0.02705   2.16%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

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Analysis Begun

Start Time: 6/7/2012 11:17:27 **Plasma On Time: 6/6/2012 9:59:41**
Logged In Analyst: optima3 **Technique: ICP Continuous**
Spectrometer Model: Optima 5300 DV, S/N 077C7090601Autosampler Model: AS-93plus

Sample Information File: C:\pe\Optima3\Sample Information\060712.sif
Batch ID:
Results Data Set: 060712
Results Library: C:\pe\Optima3\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 301**
Sample ID: 1202672496|1218790|1 **Date Collected: 6/7/2012 11:17:28**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202672496|1218790|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19955.6	19955.6	104	%			11:17:58
1	Al 396.153Radial†	-98.7	-45.8	-13.903	µg/L	-13.903	ppb	11:17:58
1	Ca 317.933Radial†	157.4	31.7	15.533	µg/L	15.533	ppb	11:18:18
1	Fe 238.204 Radial†	106.1	73.1	40.731	µg/L	40.731	ppb	11:18:18
1	K 766.490 Radial†	704.1	9.8	4.7918	µg/L	4.7918	ppb	11:17:58
1	Mg 279.077 IEC†	5.2	1.8	9.2348	µg/L	9.2348	ppb	11:18:18
1	Na 589.592 Radial†	-160.7	30.7	56.673	µg/L	56.673	ppb	11:17:58
1	Sr 421.552†	-1358.4	-10.5	-0.0504	µg/L	-0.0504	ppb	11:17:58
1	Sc 361.383	631108.8	631108.8	104.81	%			11:19:15
1	Y 371.029	534263.2	534263.2	104.50	%			11:19:15
1	Ag 328.068†	-468.3	144.9	0.9798	µg/L	0.9798	ppb	11:19:15
1	As 188.979†	-7.4	4.3	2.5047	µg/L	2.5047	ppb	11:19:35
1	B 249.677†	146.6	54.1	1.5573	µg/L	1.5573	ppb	11:19:35
1	Ba 233.527†	-104.1	17.3	0.1537	µg/L	0.1537	ppb	11:19:35
1	Be 313.107†	-8270.7	67.0	0.0394	µg/L	0.0394	ppb	11:19:15
1	Cd 226.502†	-199.2	26.3	0.3944	µg/L	0.3944	ppb	11:19:35
1	Co 228.616†	-7.6	-0.9	-0.0233	µg/L	-0.0233	ppb	11:19:35
1	Cr 267.716†	251.8	2.8	0.0636	µg/L	0.0636	ppb	11:19:35
1	Cu 324.752†	6359.7	-80.1	-0.3476	µg/L	-0.3476	ppb	11:19:15
1	Mn 257.610†	1183.5	743.1	1.1590	µg/L	1.1590	ppb	11:19:35
1	Mo 202.031†	34.4	5.0	0.3575	µg/L	0.3575	ppb	11:19:35
1	Ni 231.604†	-65.1	16.1	0.5234	µg/L	0.5234	ppb	11:19:35
1	P 214.914†	75.3	-4.2	-3.2048	µg/L	-3.2048	ppb	11:19:35
1	Pb 220.353†	154.0	6.5	1.1237	µg/L	1.1237	ppb	11:19:35
1	S 181.975 Axial†	68.5	8.4	14.536	µg/L	14.536	ppb	11:19:35
1	Sb 206.836†	68.3	-3.8	-1.2461	µg/L	-1.2461	ppb	11:19:35
1	Se 196.026†	-13.5	-4.6	-3.6273	µg/L	-3.6273	ppb	11:19:35
1	SiO2†	3571.9	-23.2	-2.9371	µg/L	-2.9371	ppb	11:19:15
1	Si 251.611†	519.3	59.6	2.7725	µg/L	2.7725	ppb	11:19:35
1	Sn 189.927†	80.3	53.9	12.383	µg/L	12.383	ppb	11:19:35
1	Ti 334.940†	-110.7	-19.2	-0.0487	µg/L	-0.0487	ppb	11:19:15
1	Tl 190.801†	-49.4	-7.2	-2.6509	µg/L	-2.6509	ppb	11:19:35
1	U 367.007†	367.4	-11.5	-3.387	µg/L	-3.387	ppb	11:19:15
1	V 292.402†	-247.4	-35.5	-0.3586	µg/L	-0.3586	ppb	11:19:15
1	Zn 213.857†	1389.2	106.8	1.0429	µg/L	1.0429	ppb	11:19:35
2	Sc RADIAL	20066.3	20066.3	105	%			11:18:23
2	Al 396.153Radial†	-68.3	-16.2	-4.9145	µg/L	-4.9145	ppb	11:18:23
2	Ca 317.933Radial†	149.8	23.6	11.559	µg/L	11.559	ppb	11:18:43
2	Fe 238.204 Radial†	110.2	76.4	42.591	µg/L	42.591	ppb	11:18:43
2	K 766.490 Radial†	750.6	50.4	24.680	µg/L	24.680	ppb	11:18:23
2	Mg 279.077 IEC†	2.6	-0.7	-3.4115	µg/L	-3.4115	ppb	11:18:43
2	Na 589.592 Radial†	-176.6	16.4	30.306	µg/L	30.306	ppb	11:18:23
2	Sr 421.552†	-1341.6	12.7	0.0613	µg/L	0.0613	ppb	11:18:23
2	Sc 361.383	625894.2	625894.2	103.95	%			11:19:40
2	Y 371.029	529858.6	529858.6	103.64	%			11:19:40
2	Ag 328.068†	-502.9	107.9	0.7337	µg/L	0.7337	ppb	11:19:40
2	As 188.979†	-12.1	-0.2	-0.1129	µg/L	-0.1129	ppb	11:20:00

2	B 249.677†	156.4	64.7	1.8617 µg/L	1.8617 ppb	11:20:00
2	Ba 233.527†	-126.9	-5.4	-0.0504 µg/L	-0.0504 ppb	11:20:00
2	Be 313.107†	-8215.5	54.4	0.0323 µg/L	0.0323 ppb	11:19:40
2	Cd 226.502†	-219.5	5.2	0.0720 µg/L	0.0720 ppb	11:20:00
2	Co 228.616†	-6.5	0.1	0.0022 µg/L	0.0022 ppb	11:20:00
2	Cr 267.716†	235.1	-11.3	-0.2399 µg/L	-0.2399 ppb	11:20:00
2	Cu 324.752†	6305.9	-81.2	-0.3546 µg/L	-0.3546 ppb	11:19:40
2	Mn 257.610†	1156.4	726.5	1.1336 µg/L	1.1336 ppb	11:20:00
2	Mo 202.031†	29.9	0.9	0.0641 µg/L	0.0641 ppb	11:20:00
2	Ni 231.604†	-71.3	9.7	0.3157 µg/L	0.3157 ppb	11:20:00
2	P 214.914†	73.4	-5.4	-4.0953 µg/L	-4.0953 ppb	11:20:00
2	Pb 220.353†	156.3	9.9	1.7046 µg/L	1.7046 ppb	11:20:00
2	S 181.975 Axial†	69.0	9.4	16.315 µg/L	16.315 ppb	11:20:00
2	Sb 206.836†	74.7	2.9	1.0111 µg/L	1.0111 ppb	11:20:00
2	Se 196.026†	-20.3	-11.3	-8.8291 µg/L	-8.8291 ppb	11:20:00
2	SiO2†	3566.6	0.1	-0.1027 µg/L	-0.1027 ppb	11:19:40
2	Si 251.611†	557.4	100.4	4.7065 µg/L	4.7065 ppb	11:20:00
2	Sn 189.927†	87.1	61.1	14.030 µg/L	14.030 ppb	11:20:00
2	Ti 334.940†	-68.9	20.1	0.0534 µg/L	0.0534 ppb	11:19:40
2	Tl 190.801†	-44.1	-2.5	-0.9201 µg/L	-0.9201 ppb	11:20:00
2	U 367.007†	373.8	-2.4	-0.881 µg/L	-0.881 ppb	11:19:40
2	V 292.402†	-220.4	-11.4	-0.1167 µg/L	-0.1167 ppb	11:19:40
2	Zn 213.857†	1361.4	91.2	0.8900 µg/L	0.8900 ppb	11:20:00
3	Sc RADIAL	20110.4	20110.4	105 %		11:18:48
3	Al 396.153Radial†	-68.8	-16.6	-5.0530 µg/L	-5.0530 ppb	11:18:48
3	Ca 317.933Radial†	144.6	18.3	8.9828 µg/L	8.9828 ppb	11:19:08
3	Fe 238.204 Radial†	114.2	80.0	44.571 µg/L	44.571 ppb	11:19:08
3	K 766.490 Radial†	712.7	12.8	6.2542 µg/L	6.2542 ppb	11:18:48
3	Mg 279.077 IEC†	5.8	2.3	11.871 µg/L	11.871 ppb	11:19:08
3	Na 589.592 Radial†	-195.5	-1.2	-2.2890 µg/L	-2.2890 ppb	11:18:48
3	Sr 421.552†	-1372.7	-14.1	-0.0678 µg/L	-0.0678 ppb	11:18:48
3	Sc 361.383	626230.5	626230.5	104.00 %		11:20:06
3	Y 371.029	530211.9	530211.9	103.71 %		11:20:06
3	Ag 328.068†	-435.2	173.2	1.1719 µg/L	1.1719 ppb	11:20:06
3	As 188.979†	-14.8	-2.8	-1.6013 µg/L	-1.6013 ppb	11:20:26
3	B 249.677†	152.2	60.5	1.7427 µg/L	1.7427 ppb	11:20:26
3	Ba 233.527†	-114.4	6.6	0.0580 µg/L	0.0580 ppb	11:20:26
3	Be 313.107†	-8171.2	101.3	0.0603 µg/L	0.0603 ppb	11:20:06
3	Cd 226.502†	-208.0	16.4	0.2416 µg/L	0.2416 ppb	11:20:26
3	Co 228.616†	-4.1	2.4	0.0643 µg/L	0.0643 ppb	11:20:26
3	Cr 267.716†	240.0	-6.7	-0.1430 µg/L	-0.1430 ppb	11:20:26
3	Cu 324.752†	6287.2	-102.5	-0.4496 µg/L	-0.4496 ppb	11:20:06
3	Mn 257.610†	1168.2	737.3	1.1501 µg/L	1.1501 ppb	11:20:26
3	Mo 202.031†	36.1	6.9	0.4932 µg/L	0.4932 ppb	11:20:26
3	Ni 231.604†	-98.7	-16.7	-0.5388 µg/L	-0.5388 ppb	11:20:26
3	P 214.914†	74.5	-4.4	-3.3685 µg/L	-3.3685 ppb	11:20:26
3	Pb 220.353†	156.4	9.9	1.7077 µg/L	1.7077 ppb	11:20:26
3	S 181.975 Axial†	71.8	12.1	20.815 µg/L	20.815 ppb	11:20:26
3	Sb 206.836†	78.5	6.6	2.2458 µg/L	2.2458 ppb	11:20:26
3	Se 196.026†	-6.5	2.0	1.5985 µg/L	1.5985 ppb	11:20:26
3	SiO2†	3607.2	37.3	4.4611 µg/L	4.4611 ppb	11:20:06
3	Si 251.611†	563.5	106.0	4.9794 µg/L	4.9794 ppb	11:20:26
3	Sn 189.927†	72.2	46.7	10.723 µg/L	10.723 ppb	11:20:26
3	Ti 334.940†	-69.5	19.5	0.0510 µg/L	0.0510 ppb	11:20:06
3	Tl 190.801†	-45.8	-4.2	-1.5269 µg/L	-1.5269 ppb	11:20:26
3	U 367.007†	377.6	1.1	0.081 µg/L	0.081 ppb	11:20:06
3	V 292.402†	-224.0	-14.8	-0.1447 µg/L	-0.1447 ppb	11:20:06
3	Zn 213.857†	1377.6	106.0	1.0418 µg/L	1.0418 ppb	11:20:26

Mean Data: 1202672496|1218790|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	627744.5	104.25	%	0.485				0.46%
Sc RADIAL	20044.1	105	%	0.4				0.40%
Y 371.029	531444.6	103.95	%	0.479				0.46%
Ag 328.068†	142.0	0.9618	µg/L	0.21963	0.9618	ppb	0.21963	22.84%
Al 396.153Radial†	-26.2	-7.9567	µg/L	5.14971	-7.9567	ppb	5.14971	64.72%
As 188.979†	0.5	0.2635	µg/L	2.07871	0.2635	ppb	2.07871	788.92%
B 249.677†	59.8	1.7206	µg/L	0.15340	1.7206	ppb	0.15340	8.92%
Ba 233.527†	6.1	0.0538	µg/L	0.10211	0.0538	ppb	0.10211	189.93%

Be 313.107†	74.3	0.0440 µg/L	0.01458	0.0440 ppb	0.01458	33.15%
Ca 317.933Radial†	24.6	12.025 µg/L	3.2998	12.025 ppb	3.2998	27.44%
Cd 226.502†	15.9	0.2360 µg/L	0.16129	0.2360 ppb	0.16129	68.34%
Co 228.616†	0.5	0.0144 µg/L	0.04503	0.0144 ppb	0.04503	312.78%
Cr 267.716†	-5.1	-0.1065 µg/L	0.15501	-0.1065 ppb	0.15501	145.60%
Cu 324.752†	-87.9	-0.3839 µg/L	0.05697	-0.3839 ppb	0.05697	14.84%
Fe 238.204 Radial†	76.5	42.631 µg/L	1.9204	42.631 ppb	1.9204	4.50%
K 766.490 Radial†	24.3	11.909 µg/L	11.0842	11.909 ppb	11.0842	93.08%
Mg 279.077 IEC†	1.2	5.8980 µg/L	8.16926	5.8980 ppb	8.16926	138.51%
Mn 257.610†	735.6	1.1476 µg/L	0.01287	1.1476 ppb	0.01287	1.12%
Mo 202.031†	4.3	0.3049 µg/L	0.21933	0.3049 ppb	0.21933	71.93%
Na 589.592 Radial†	15.3	28.230 µg/L	29.5359	28.230 ppb	29.5359	104.63%
Ni 231.604†	3.1	0.1001 µg/L	0.56294	0.1001 ppb	0.56294	562.28%
P 214.914†	-4.7	-3.5562 µg/L	0.47399	-3.5562 ppb	0.47399	13.33%
Pb 220.353†	8.8	1.5120 µg/L	0.33631	1.5120 ppb	0.33631	22.24%
S 181.975 Axial†	10.0	17.222 µg/L	3.2363	17.222 ppb	3.2363	18.79%
Sb 206.836†	1.9	0.6703 µg/L	1.77071	0.6703 ppb	1.77071	264.18%
Se 196.026†	-4.6	-3.6193 µg/L	5.21380	-3.6193 ppb	5.21380	144.06%
SiO2†	4.8	0.4738 µg/L	3.73265	0.4738 ppb	3.73265	787.83%
Si 251.611†	88.6	4.1528 µg/L	1.20317	4.1528 ppb	1.20317	28.97%
Sn 189.927†	53.9	12.379 µg/L	1.6538	12.379 ppb	1.6538	13.36%
Sr 421.552†	-3.9	-0.0190 µg/L	0.07005	-0.0190 ppb	0.07005	369.22%
Ti 334.940†	6.8	0.0186 µg/L	0.05825	0.0186 ppb	0.05825	313.42%
Tl 190.801†	-4.6	-1.6993 µg/L	0.87819	-1.6993 ppb	0.87819	51.68%
U 367.007†	-4.3	-1.395 µg/L	1.7902	-1.395 ppb	1.7902	128.29%
V 292.402†	-20.6	-0.2067 µg/L	0.13233	-0.2067 ppb	0.13233	64.02%
Zn 213.857†	101.3	0.9916 µg/L	0.08796	0.9916 ppb	0.08796	8.87%

Sequence No.: 2 **Autosampler Location: 302**
Sample ID: 1202672497|1218790|1 **Date Collected: 6/7/2012 11:20:33**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202672497|1218790|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20047.7	20047.7	105	%			11:21:01
1	Al 396.153Radial†	16396.2	15705.9	4747.3	µg/L	4747.3	ppb	11:21:01
1	Ca 317.933Radial†	11097.8	10478.2	5131.2	µg/L	5131.2	ppb	11:21:21
1	Fe 238.204 Radial†	9571.9	9111.6	5082.8	µg/L	5082.8	ppb	11:21:21
1	K 766.490 Radial†	10886.8	9730.3	4753.3	µg/L	4753.3	ppb	11:21:01
1	Mg 279.077 IEC†	1064.1	1013.0	5149.0	µg/L	5149.0	ppb	11:21:21
1	Na 589.592 Radial†	2582.0	2650.5	4895.3	µg/L	4895.3	ppb	11:21:21
1	Sr 421.552†	102759.5	99419.2	478.65	µg/L	478.65	ppb	11:21:01
1	Sc 361.383	638082.6	638082.6	105.97	%			11:22:19
1	Y 371.029	536984.3	536984.3	105.03	%			11:22:19
1	Ag 328.068†	76512.5	72792.7	492.44	µg/L	492.44	ppb	11:22:24
1	As 188.979†	893.0	854.1	493.62	µg/L	493.62	ppb	11:22:44
1	B 249.677†	18173.0	17063.1	491.53	µg/L	491.53	ppb	11:22:24
1	Ba 233.527†	58685.6	55495.2	499.98	µg/L	499.98	ppb	11:22:24
1	Be 313.107†	899849.9	857100.6	509.44	µg/L	509.44	ppb	11:22:19
1	Cd 226.502†	35034.2	33276.3	505.98	µg/L	505.98	ppb	11:22:24
1	Co 228.616†	20263.9	19128.4	501.39	µg/L	501.39	ppb	11:22:24
1	Cr 267.716†	25129.9	23476.4	500.58	µg/L	500.58	ppb	11:22:24
1	Cu 324.752†	124108.1	110966.8	495.21	µg/L	495.21	ppb	11:22:24
1	Mn 257.610†	335630.2	316331.2	492.15	µg/L	492.15	ppb	11:22:24
1	Mo 202.031†	7251.8	6815.3	485.76	µg/L	485.76	ppb	11:22:44
1	Ni 231.604†	16266.5	15428.2	499.36	µg/L	499.36	ppb	11:22:24
1	P 214.914†	793.0	672.3	491.55	µg/L	491.55	ppb	11:22:44
1	Pb 220.353†	3243.0	2919.8	500.03	µg/L	500.03	ppb	11:22:44
1	S 181.975 Axial†	3103.1	2871.3	4959.2	µg/L	4959.2	ppb	11:22:44
1	Sb 206.836†	1612.0	1452.2	484.29	µg/L	484.29	ppb	11:22:44
1	Se 196.026†	639.6	611.8	483.42	µg/L	483.42	ppb	11:22:44
1	SiO2†	94512.4	85755.6	10451	µg/L	10451	ppb	11:22:24
1	Si 251.611†	109164.0	102576.7	4859.9	µg/L	4859.9	ppb	11:22:24
1	Sn 189.927†	2381.9	2224.9	513.09	µg/L	513.09	ppb	11:22:44
1	Ti 334.940†	198400.1	187306.4	490.35	µg/L	490.35	ppb	11:22:24
1	Tl 190.801†	1379.6	1341.8	496.63	µg/L	496.63	ppb	11:22:44
1	U 367.007†	2219.5	1732.3	456.2	µg/L	456.2	ppb	11:22:24
1	V 292.402†	51620.8	48912.5	503.56	µg/L	503.56	ppb	11:22:24
1	Zn 213.857†	53732.3	49485.9	482.97	µg/L	482.97	ppb	11:22:24
2	Sc RADIAL	20490.9	20490.9	107	%			11:21:27
2	Al 396.153Radial†	16928.2	15864.3	4795.6	µg/L	4795.6	ppb	11:21:27
2	Ca 317.933Radial†	11076.3	10228.8	5009.1	µg/L	5009.1	ppb	11:21:47
2	Fe 238.204 Radial†	9543.9	8887.8	4958.0	µg/L	4958.0	ppb	11:21:47
2	K 766.490 Radial†	11287.7	9880.0	4826.5	µg/L	4826.5	ppb	11:21:27
2	Mg 279.077 IEC†	1058.6	985.8	5011.1	µg/L	5011.1	ppb	11:21:47
2	Na 589.592 Radial†	2593.4	2607.8	4816.3	µg/L	4816.3	ppb	11:21:47
2	Sr 421.552†	106415.3	100712.4	484.87	µg/L	484.87	ppb	11:21:27
2	Sc 361.383	644706.6	644706.6	107.07	%			11:22:49
2	Y 371.029	542728.5	542728.5	106.16	%			11:22:49
2	Ag 328.068†	76613.8	72145.5	488.04	µg/L	488.04	ppb	11:22:55
2	As 188.979†	903.4	855.2	494.27	µg/L	494.27	ppb	11:23:15
2	B 249.677†	18195.1	16907.5	487.07	µg/L	487.07	ppb	11:22:55
2	Ba 233.527†	58954.8	55177.6	497.12	µg/L	497.12	ppb	11:22:55
2	Be 313.107†	911347.8	859114.7	510.64	µg/L	510.64	ppb	11:22:49
2	Cd 226.502†	35090.6	32989.3	501.63	µg/L	501.63	ppb	11:22:55
2	Co 228.616†	20243.5	18912.9	495.73	µg/L	495.73	ppb	11:22:55
2	Cr 267.716†	25135.2	23237.7	495.49	µg/L	495.49	ppb	11:22:55
2	Cu 324.752†	123925.5	109592.9	489.07	µg/L	489.07	ppb	11:22:55
2	Mn 257.610†	336537.3	313924.2	488.40	µg/L	488.40	ppb	11:22:55
2	Mo 202.031†	7226.5	6721.4	479.06	µg/L	479.06	ppb	11:23:15
2	Ni 231.604†	16405.1	15399.9	498.44	µg/L	498.44	ppb	11:22:55
2	P 214.914†	796.7	668.1	488.69	µg/L	488.69	ppb	11:23:15
2	Pb 220.353†	3243.9	2889.2	494.73	µg/L	494.73	ppb	11:23:15

2	S 181.975 Axial†	3089.3	2828.3	4884.9 µg/L	4884.9 ppb	11:23:15
2	Sb 206.836†	1606.7	1431.6	477.38 µg/L	477.38 ppb	11:23:15
2	Se 196.026†	635.1	601.4	475.22 µg/L	475.22 ppb	11:23:15
2	SiO2†	94900.0	85201.2	10383 µg/L	10383 ppb	11:22:55
2	Si 251.611†	109594.7	101920.5	4828.9 µg/L	4828.9 ppb	11:22:55
2	Sn 189.927†	2381.2	2201.1	507.61 µg/L	507.61 ppb	11:23:15
2	Ti 334.940†	198748.7	185708.4	486.17 µg/L	486.17 ppb	11:22:55
2	Tl 190.801†	1372.2	1321.5	489.14 µg/L	489.14 ppb	11:23:15
2	U 367.007†	2201.7	1694.2	446.3 µg/L	446.3 ppb	11:22:55
2	V 292.402†	51662.1	48450.6	498.77 µg/L	498.77 ppb	11:22:55
2	Zn 213.857†	53805.7	49033.5	478.54 µg/L	478.54 ppb	11:22:55
3	Sc RADIAL	20230.0	20230.0	106 %		11:21:52
3	Al 396.153Radial†	16770.6	15919.1	4812.2 µg/L	4812.2 ppb	11:21:52
3	Ca 317.933Radial†	11082.2	10367.9	5077.2 µg/L	5077.2 ppb	11:22:12
3	Fe 238.204 Radial†	9549.7	9008.2	5025.1 µg/L	5025.1 ppb	11:22:12
3	K 766.490 Radial†	11127.9	9864.8	4819.1 µg/L	4819.1 ppb	11:21:52
3	Mg 279.077 IEC†	1063.6	1003.4	5100.3 µg/L	5100.3 ppb	11:22:12
3	Na 589.592 Radial†	2557.9	2605.4	4812.0 µg/L	4812.0 ppb	11:22:12
3	Sr 421.552†	104740.3	100409.4	483.41 µg/L	483.41 ppb	11:21:52
3	Sc 361.383	643772.8	643772.8	106.92 %		11:23:20
3	Y 371.029	542039.5	542039.5	106.02 %		11:23:20
3	Ag 328.068†	76793.6	72417.4	489.88 µg/L	489.88 ppb	11:23:25
3	As 188.979†	900.7	853.9	493.51 µg/L	493.51 ppb	11:23:45
3	B 249.677†	18197.7	16934.7	487.83 µg/L	487.83 ppb	11:23:25
3	Ba 233.527†	58845.5	55155.2	496.92 µg/L	496.92 ppb	11:23:25
3	Be 313.107†	905749.9	855113.4	508.26 µg/L	508.26 ppb	11:23:20
3	Cd 226.502†	34993.3	32945.8	500.95 µg/L	500.95 ppb	11:23:25
3	Co 228.616†	20261.7	18957.3	496.90 µg/L	496.90 ppb	11:23:25
3	Cr 267.716†	25049.9	23192.0	494.51 µg/L	494.51 ppb	11:23:25
3	Cu 324.752†	124496.7	110295.1	492.20 µg/L	492.20 ppb	11:23:25
3	Mn 257.610†	336297.8	314156.1	488.77 µg/L	488.77 ppb	11:23:25
3	Mo 202.031†	7252.6	6755.6	481.50 µg/L	481.50 ppb	11:23:45
3	Ni 231.604†	16286.2	15310.9	495.56 µg/L	495.56 ppb	11:23:25
3	P 214.914†	807.3	679.1	496.86 µg/L	496.86 ppb	11:23:45
3	Pb 220.353†	3277.8	2925.3	500.90 µg/L	500.90 ppb	11:23:45
3	S 181.975 Axial†	3112.1	2853.8	4929.0 µg/L	4929.0 ppb	11:23:45
3	Sb 206.836†	1613.9	1440.6	480.45 µg/L	480.45 ppb	11:23:45
3	Se 196.026†	634.3	601.5	475.33 µg/L	475.33 ppb	11:23:45
3	SiO2†	95176.5	85588.3	10430 µg/L	10430 ppb	11:23:25
3	Si 251.611†	109991.1	102439.7	4853.5 µg/L	4853.5 ppb	11:23:25
3	Sn 189.927†	2383.8	2206.8	508.92 µg/L	508.92 ppb	11:23:45
3	Ti 334.940†	199038.3	186248.5	487.59 µg/L	487.59 ppb	11:23:25
3	Tl 190.801†	1371.2	1322.4	489.49 µg/L	489.49 ppb	11:23:45
3	U 367.007†	2227.3	1721.2	453.4 µg/L	453.4 ppb	11:23:25
3	V 292.402†	51555.7	48421.1	498.50 µg/L	498.50 ppb	11:23:25
3	Zn 213.857†	53774.5	49077.1	478.98 µg/L	478.98 ppb	11:23:25

Mean Data: 1202672497|1218790|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	642187.3	106.65	%	0.595				0.56%
Sc RADIAL	20256.2	106	%	1.2				1.10%
Y 371.029	540584.1	105.74	%	0.613				0.58%
Ag 328.068†	72451.9	490.12	µg/L	2.210	490.12	ppb	2.210	0.45%
Al 396.153Radial†	15829.8	4785.0	µg/L	33.70	4785.0	ppb	33.70	0.70%
As 188.979†	854.4	493.80	µg/L	0.410	493.80	ppb	0.410	0.08%
B 249.677†	16968.4	488.81	µg/L	2.388	488.81	ppb	2.388	0.49%
Ba 233.527†	55276.0	498.01	µg/L	1.713	498.01	ppb	1.713	0.34%
Be 313.107†	857109.6	509.45	µg/L	1.188	509.45	ppb	1.188	0.23%
Ca 317.933Radial†	10358.3	5072.5	µg/L	61.19	5072.5	ppb	61.19	1.21%
Cd 226.502†	33070.5	502.85	µg/L	2.727	502.85	ppb	2.727	0.54%
Co 228.616†	18999.5	498.01	µg/L	2.984	498.01	ppb	2.984	0.60%
Cr 267.716†	23302.0	496.86	µg/L	3.256	496.86	ppb	3.256	0.66%
Cu 324.752†	110285.0	492.16	µg/L	3.067	492.16	ppb	3.067	0.62%
Fe 238.204 Radial†	9002.5	5022.0	µg/L	62.47	5022.0	ppb	62.47	1.24%
K 766.490 Radial†	9825.0	4799.7	µg/L	40.29	4799.7	ppb	40.29	0.84%
Mg 279.077 IEC†	1000.7	5086.8	µg/L	69.96	5086.8	ppb	69.96	1.38%
Mn 257.610†	314803.8	489.77	µg/L	2.068	489.77	ppb	2.068	0.42%
Mo 202.031†	6764.1	482.11	µg/L	3.388	482.11	ppb	3.388	0.70%
Na 589.592 Radial†	2621.2	4841.2	µg/L	46.86	4841.2	ppb	46.86	0.97%

Ni 231.604†	15379.7	497.79 µg/L	1.980	497.79 ppb	1.980	0.40%
P 214.914†	673.2	492.37 µg/L	4.148	492.37 ppb	4.148	0.84%
Pb 220.353†	2911.5	498.55 µg/L	3.343	498.55 ppb	3.343	0.67%
S 181.975 Axial†	2851.2	4924.4 µg/L	37.36	4924.4 ppb	37.36	0.76%
Sb 206.836†	1441.5	480.71 µg/L	3.459	480.71 ppb	3.459	0.72%
Se 196.026†	604.9	477.99 µg/L	4.702	477.99 ppb	4.702	0.98%
SiO2†	85515.0	10421 µg/L	34.7	10421 ppb	34.7	0.33%
Si 251.611†	102312.3	4847.4 µg/L	16.38	4847.4 ppb	16.38	0.34%
Sn 189.927†	2210.9	509.87 µg/L	2.864	509.87 ppb	2.864	0.56%
Sr 421.552†	100180.3	482.31 µg/L	3.256	482.31 ppb	3.256	0.68%
Ti 334.940†	186421.1	488.04 µg/L	2.127	488.04 ppb	2.127	0.44%
Tl 190.801†	1328.6	491.76 µg/L	4.229	491.76 ppb	4.229	0.86%
U 367.007†	1715.9	452.0 µg/L	5.13	452.0 ppb	5.13	1.14%
V 292.402†	48594.7	500.28 µg/L	2.844	500.28 ppb	2.844	0.57%
Zn 213.857†	49198.8	480.16 µg/L	2.439	480.16 ppb	2.439	0.51%

Sequence No.: 3 **Autosampler Location: 303**
Sample ID: 305539001|1218790|1 **Date Collected: 6/7/2012 11:23:53**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305539001|1218790|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21144.5	21144.5	110	%			11:24:27
1	Al 396.153Radial†	217040.8	196553.7	59642	µg/L	59642	ppb	11:24:22
1	Ca 317.933Radial†	200804.8	181685.8	88973	µg/L	88973	ppb	11:24:22
1	Fe 238.204 Radial†	593385.4	537211.7	299380	µg/L	299380	ppb	11:24:22
1	K 766.490 Radial†	27362.5	24107.8	11902	µg/L	11902	ppb	11:24:27
1	Mg 279.077 IEC†	9493.8	8592.4	43627	µg/L	43627	ppb	11:24:27
1	Na 589.592 Radial†	412.4	558.2	1031.0	µg/L	1031.0	ppb	11:24:27
1	Sr 421.552†	111142.8	101919.4	490.30	µg/L	490.30	ppb	11:24:22
1	Sc 361.383	659980.8	659980.8	109.61	%			11:24:55
1	Y 371.029	621044.0	621044.0	121.47	%			11:24:55
1	Ag 328.068†	-12073.2	-10423.2	11.943	µg/L	11.943	ppb	11:25:01
1	As 188.979†	37.3	45.4	37.331	µg/L	37.331	ppb	11:25:21
1	B 249.677†	2137.1	1863.9	11.091	µg/L	11.091	ppb	11:25:01
1	Ba 233.527†	138085.6	126097.4	1127.2	µg/L	1127.2	ppb	11:25:01
1	Be 313.107†	6545.9	13930.0	6.7826	µg/L	6.7826	ppb	11:25:01
1	Cd 226.502†	3145.9	3086.4	-0.3528	µg/L	-0.3528	ppb	11:25:01
1	Co 228.616†	5093.9	4653.7	102.00	µg/L	102.00	ppb	11:25:21
1	Cr 267.716†	26175.3	23643.3	508.66	µg/L	508.66	ppb	11:25:01
1	Cu 324.752†	48162.8	37793.1	219.55	µg/L	219.55	ppb	11:25:01
1	Mn 257.610†	3850669.4	3512729.3	5488.6	µg/L	5488.6	ppb	11:24:55
1	Mo 202.031†	-50.2	-73.6	6.9893	µg/L	6.9893	ppb	11:25:21
1	Ni 231.604†	7840.7	7231.6	239.08	µg/L	239.08	ppb	11:25:21
1	P 214.914†	9909.9	8965.1	6594.2	µg/L	6594.2	ppb	11:25:21
1	Pb 220.353†	2273.5	1933.7	352.96	µg/L	352.96	ppb	11:25:21
1	S 181.975 Axial†	493.9	393.7	640.32	µg/L	640.32	ppb	11:25:21
1	Sb 206.836†	101.8	23.9	-5.7630	µg/L	-5.7630	ppb	11:25:21
1	Se 196.026†	-175.1	-151.5	32.585	µg/L	32.585	ppb	11:25:21
1	SiO2†	137321.1	121852.4	14878	µg/L	14878	ppb	11:25:01
1	Si 251.611†	159522.1	145102.3	6882.6	µg/L	6882.6	ppb	11:25:01
1	Sn 189.927†	-267.2	-266.6	1.5470	µg/L	1.5470	ppb	11:25:21
1	Ti 334.940†	4085645.2	3727579.2	9765.8	µg/L	9765.8	ppb	11:24:55
1	Tl 190.801†	-182.6	-126.7	13.478	µg/L	13.478	ppb	11:25:01
1	U 367.007†	5393.1	4558.3	-193.8	µg/L	-193.8	ppb	11:25:01
1	V 292.402†	94003.2	85963.4	867.64	µg/L	867.64	ppb	11:25:01
1	Zn 213.857†	69440.7	62134.8	568.67	µg/L	568.67	ppb	11:25:01
2	Sc RADIAL	21364.7	21364.7	112	%			11:24:37
2	Al 396.153Radial†	220326.5	197472.3	59920	µg/L	59920	ppb	11:24:32
2	Ca 317.933Radial†	203182.1	181941.9	89098	µg/L	89098	ppb	11:24:32
2	Fe 238.204 Radial†	599966.0	537570.2	299580	µg/L	299580	ppb	11:24:32
2	K 766.490 Radial†	27768.2	24216.1	11955	µg/L	11955	ppb	11:24:37
2	Mg 279.077 IEC†	9559.4	8562.5	43476	µg/L	43476	ppb	11:24:37
2	Na 589.592 Radial†	424.9	565.6	1044.6	µg/L	1044.6	ppb	11:24:37
2	Sr 421.552†	112876.1	102435.2	492.79	µg/L	492.79	ppb	11:24:32
2	Sc 361.383	655959.2	655959.2	108.94	%			11:25:27
2	Y 371.029	617651.9	617651.9	120.81	%			11:25:27
2	Ag 328.068†	-12367.5	-10760.8	9.8167	µg/L	9.8167	ppb	11:25:32
2	As 188.979†	38.3	46.6	38.062	µg/L	38.062	ppb	11:25:52
2	B 249.677†	2069.5	1813.9	9.6215	µg/L	9.6215	ppb	11:25:32
2	Ba 233.527†	138938.5	127652.8	1141.2	µg/L	1141.2	ppb	11:25:32
2	Be 313.107†	6474.3	13900.9	6.7560	µg/L	6.7560	ppb	11:25:32
2	Cd 226.502†	3192.2	3146.5	0.5325	µg/L	0.5325	ppb	11:25:32
2	Co 228.616†	5137.9	4722.6	103.69	µg/L	103.69	ppb	11:25:52
2	Cr 267.716†	26344.1	23944.6	515.08	µg/L	515.08	ppb	11:25:32
2	Cu 324.752†	48425.9	38304.0	221.89	µg/L	221.89	ppb	11:25:32
2	Mn 257.610†	3846887.8	3530796.8	5516.7	µg/L	5516.7	ppb	11:25:27
2	Mo 202.031†	-52.3	-75.9	6.8398	µg/L	6.8398	ppb	11:25:52
2	Ni 231.604†	7966.1	7390.6	244.23	µg/L	244.23	ppb	11:25:52
2	P 214.914†	9997.3	9100.9	6696.9	µg/L	6696.9	ppb	11:25:52
2	Pb 220.353†	2290.7	1962.3	357.75	µg/L	357.75	ppb	11:25:52

2	S 181.975 Axial†	496.3	398.6	648.67 µg/L	648.67 ppb	11:25:52
2	Sb 206.836†	114.3	36.0	-1.8455 µg/L	-1.8455 ppb	11:25:52
2	Se 196.026†	-181.5	-158.4	27.316 µg/L	27.316 ppb	11:25:52
2	SiO2†	137439.6	122729.2	14985 µg/L	14985 ppb	11:25:32
2	Si 251.611†	159520.1	145992.8	6924.8 µg/L	6924.8 ppb	11:25:32
2	Sn 189.927†	-263.3	-264.5	2.2174 µg/L	2.2174 ppb	11:25:52
2	Ti 334.940†	4085584.3	3750376.4	9825.5 µg/L	9825.5 ppb	11:25:27
2	Tl 190.801†	-186.5	-131.3	12.067 µg/L	12.067 ppb	11:25:32
2	U 367.007†	5448.5	4639.3	-172.2 µg/L	-172.2 ppb	11:25:32
2	V 292.402†	94932.7	87342.4	881.63 µg/L	881.63 ppb	11:25:32
2	Zn 213.857†	69953.0	62993.5	577.06 µg/L	577.06 ppb	11:25:32
3	Sc RADIAL	21396.3	21396.3	112 %		11:24:48
3	Al 396.153Radial†	218708.3	195733.1	59393 µg/L	59393 ppb	11:24:43
3	Ca 317.933Radial†	200709.9	179461.3	87883 µg/L	87883 ppb	11:24:43
3	Fe 238.204 Radial†	592739.6	530311.3	295530 µg/L	295530 ppb	11:24:43
3	K 766.490 Radial†	27681.7	24101.9	11898 µg/L	11898 ppb	11:24:48
3	Mg 279.077 IEC†	9579.2	8567.6	43501 µg/L	43501 ppb	11:24:48
3	Na 589.592 Radial†	422.5	562.9	1039.7 µg/L	1039.7 ppb	11:24:48
3	Sr 421.552†	112047.9	101545.0	488.51 µg/L	488.51 ppb	11:24:43
3	Sc 361.383	659859.9	659859.9	109.59 %		11:25:59
3	Y 371.029	621049.6	621049.6	121.48 %		11:25:59
3	Ag 328.068†	-12459.6	-10777.8	8.6542 µg/L	8.6542 ppb	11:26:04
3	As 188.979†	25.3	34.5	30.949 µg/L	30.949 ppb	11:26:24
3	B 249.677†	2060.7	1794.6	9.6481 µg/L	9.6481 ppb	11:26:04
3	Ba 233.527†	139595.4	127498.2	1139.9 µg/L	1139.9 ppb	11:26:04
3	Be 313.107†	6563.4	13947.1	6.7711 µg/L	6.7711 ppb	11:26:04
3	Cd 226.502†	3150.1	3090.8	0.3249 µg/L	0.3249 ppb	11:26:04
3	Co 228.616†	5137.0	4693.9	102.92 µg/L	102.92 ppb	11:26:24
3	Cr 267.716†	26411.6	23863.3	513.27 µg/L	513.27 ppb	11:26:04
3	Cu 324.752†	48520.4	38127.5	220.50 µg/L	220.50 ppb	11:26:04
3	Mn 257.610†	3880064.2	3540196.4	5530.9 µg/L	5530.9 ppb	11:25:59
3	Mo 202.031†	-41.7	-65.9	7.3844 µg/L	7.3844 ppb	11:26:24
3	Ni 231.604†	7951.2	7333.8	242.32 µg/L	242.32 ppb	11:26:24
3	P 214.914†	10021.6	9068.7	6675.3 µg/L	6675.3 ppb	11:26:24
3	Pb 220.353†	2305.7	1963.5	357.51 µg/L	357.51 ppb	11:26:24
3	S 181.975 Axial†	492.2	392.2	637.52 µg/L	637.52 ppb	11:26:24
3	Sb 206.836†	103.7	25.7	-5.2360 µg/L	-5.2360 ppb	11:26:24
3	Se 196.026†	-178.8	-154.9	28.055 µg/L	28.055 ppb	11:26:24
3	SiO2†	138049.5	122540.0	14962 µg/L	14962 ppb	11:26:04
3	Si 251.611†	160312.9	145850.6	6918.1 µg/L	6918.1 ppb	11:26:04
3	Sn 189.927†	-253.9	-254.5	4.0765 µg/L	4.0765 ppb	11:26:24
3	Ti 334.940†	4114453.8	3754550.7	9836.4 µg/L	9836.4 ppb	11:25:59
3	Tl 190.801†	-174.8	-119.6	16.157 µg/L	16.157 ppb	11:26:04
3	U 367.007†	5514.8	4670.2	-143.9 µg/L	-143.9 ppb	11:26:04
3	V 292.402†	95226.6	87095.5	879.12 µg/L	879.12 ppb	11:26:04
3	Zn 213.857†	70303.1	62933.4	577.04 µg/L	577.04 ppb	11:26:04

Mean Data: 305539001|1218790|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	658600.0	109.38	%	0.380				0.35%
Sc RADIAL	21301.8	111	%	0.7				0.64%
Y 371.029	619915.2	121.25	%	0.383				0.32%
Ag 328.068†	-10653.9	10.138	µg/L	1.6679	10.138	ppb	1.6679	16.45%
Al 396.153Radial†	196586.4	59652	µg/L	264.0	59652	ppb	264.0	0.44%
As 188.979†	42.2	35.448	µg/L	3.9127	35.448	ppb	3.9127	11.04%
B 249.677†	1824.1	10.120	µg/L	0.8406	10.120	ppb	0.8406	8.31%
Ba 233.527†	127082.8	1136.1	µg/L	7.75	1136.1	ppb	7.75	0.68%
Be 313.107†	13926.0	6.7699	µg/L	0.01333	6.7699	ppb	0.01333	0.20%
Ca 317.933Radial†	181029.7	88652	µg/L	668.1	88652	ppb	668.1	0.75%
Cd 226.502†	3107.9	0.1682	µg/L	0.46297	0.1682	ppb	0.46297	275.23%
Co 228.616†	4690.1	102.87	µg/L	0.846	102.87	ppb	0.846	0.82%
Cr 267.716†	23817.1	512.34	µg/L	3.308	512.34	ppb	3.308	0.65%
Cu 324.752†	38074.9	220.65	µg/L	1.174	220.65	ppb	1.174	0.53%
Fe 238.204 Radial†	535031.1	298170	µg/L	2280.0	298170	ppb	2280.0	0.76%
K 766.490 Radial†	24141.9	11918	µg/L	31.9	11918	ppb	31.9	0.27%
Mg 279.077 IEC†	8574.2	43535	µg/L	81.1	43535	ppb	81.1	0.19%
Mn 257.610†	3527907.5	5512.0	µg/L	21.55	5512.0	ppb	21.55	0.39%
Mo 202.031†	-71.8	7.0712	µg/L	0.28136	7.0712	ppb	0.28136	3.98%
Na 589.592 Radial†	562.2	1038.4	µg/L	6.86	1038.4	ppb	6.86	0.66%

Ni 231.604†	7318.7	241.88 µg/L	2.603	241.88 ppb	2.603	1.08%
P 214.914†	9044.9	6655.5 µg/L	54.17	6655.5 ppb	54.17	0.81%
Pb 220.353†	1953.2	356.07 µg/L	2.702	356.07 ppb	2.702	0.76%
S 181.975 Axial†	394.8	642.17 µg/L	5.804	642.17 ppb	5.804	0.90%
Sb 206.836†	28.5	-4.2815 µg/L	2.12603	-4.2815 ppb	2.12603	49.66%
Se 196.026†	-154.9	29.319 µg/L	2.8527	29.319 ppb	2.8527	9.73%
SiO2†	122373.9	14942 µg/L	56.3	14942 ppb	56.3	0.38%
Si 251.611†	145648.6	6908.5 µg/L	22.71	6908.5 ppb	22.71	0.33%
Sn 189.927†	-261.8	2.6136 µg/L	1.31049	2.6136 ppb	1.31049	50.14%
Sr 421.552†	101966.5	490.53 µg/L	2.150	490.53 ppb	2.150	0.44%
Ti 334.940†	3744168.7	9809.2 µg/L	38.01	9809.2 ppb	38.01	0.39%
Tl 190.801†	-125.9	13.901 µg/L	2.0778	13.901 ppb	2.0778	14.95%
U 367.007†	4622.6	-170.0 µg/L	25.00	-170.0 ppb	25.00	14.71%
V 292.402†	86800.4	876.13 µg/L	7.457	876.13 ppb	7.457	0.85%
Zn 213.857†	62687.3	574.26 µg/L	4.840	574.26 ppb	4.840	0.84%

Sequence No.: 4 **Autosampler Location: 304**
Sample ID: 305539002|1218790|1 **Date Collected: 6/7/2012 11:26:32**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305539002|1218790|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20965.2	20965.2	110	%			11:27:06
1	Al 396.153Radial†	239963.3	219165.8	66503	µg/L	66503	ppb	11:27:01
1	Ca 317.933Radial†	228764.9	208772.0	102240	µg/L	102240	ppb	11:27:01
1	Fe 238.204 Radial†	645011.9	588948.7	328210	µg/L	328210	ppb	11:27:01
1	K 766.490 Radial†	28312.5	25187.2	12442	µg/L	12442	ppb	11:27:06
1	Mg 279.077 IEC†	10231.7	9339.7	47422	µg/L	47422	ppb	11:27:06
1	Na 589.592 Radial†	428.3	575.9	1063.7	µg/L	1063.7	ppb	11:27:06
1	Sr 421.552†	131879.4	121715.3	585.55	µg/L	585.55	ppb	11:27:01
1	Sc 361.383	662698.6	662698.6	110.06	%			11:27:33
1	Y 371.029	612277.5	612277.5	119.76	%			11:27:39
1	Ag 328.068†	-13602.8	-11767.8	10.935	µg/L	10.935	ppb	11:27:39
1	As 188.979†	28.7	37.5	33.893	µg/L	33.893	ppb	11:27:59
1	B 249.677†	2243.8	1952.9	9.5850	µg/L	9.5850	ppb	11:27:39
1	Ba 233.527†	136313.7	123970.9	1107.3	µg/L	1107.3	ppb	11:27:39
1	Be 313.107†	8262.8	15465.5	7.3635	µg/L	7.3635	ppb	11:27:39
1	Cd 226.502†	3511.9	3407.2	-0.0199	µg/L	-0.0199	ppb	11:27:59
1	Co 228.616†	5515.8	5018.0	107.68	µg/L	107.68	ppb	11:27:59
1	Cr 267.716†	29778.6	26819.3	576.80	µg/L	576.80	ppb	11:27:59
1	Cu 324.752†	55558.1	44332.2	254.26	µg/L	254.26	ppb	11:27:39
1	Mn 257.610†	3899676.4	3542849.3	5538.0	µg/L	5538.0	ppb	11:27:33
1	Mo 202.031†	-55.5	-78.3	7.8394	µg/L	7.8394	ppb	11:27:59
1	Ni 231.604†	9327.3	8553.1	282.34	µg/L	282.34	ppb	11:27:59
1	P 214.914†	11578.2	10443.9	7695.6	µg/L	7695.6	ppb	11:27:59
1	Pb 220.353†	1648.6	1357.5	256.49	µg/L	256.49	ppb	11:27:59
1	S 181.975 Axial†	583.9	473.6	775.95	µg/L	775.95	ppb	11:27:59
1	Sb 206.836†	102.5	24.2	-7.4701	µg/L	-7.4701	ppb	11:27:59
1	Se 196.026†	-206.9	-179.7	25.083	µg/L	25.083	ppb	11:27:59
1	SiO2†	195923.2	174584.2	21292	µg/L	21292	ppb	11:27:39
1	Si 251.611†	229242.7	207853.4	9860.1	µg/L	9860.1	ppb	11:27:39
1	Sn 189.927†	-304.0	-298.9	2.8728	µg/L	2.8728	ppb	11:27:59
1	Ti 334.940†	4870137.7	4425080.2	11593	µg/L	11593	ppb	11:27:33
1	Tl 190.801†	-211.7	-152.5	13.428	µg/L	13.428	ppb	11:27:59
1	U 367.007†	6022.2	5109.7	-181.8	µg/L	-181.8	ppb	11:27:39
1	V 292.402†	105722.0	96259.3	971.00	µg/L	971.00	ppb	11:27:39
1	Zn 213.857†	71696.5	63924.6	581.95	µg/L	581.95	ppb	11:27:39
2	Sc RADIAL	21294.8	21294.8	111	%			11:27:16
2	Al 396.153Radial†	246970.1	222072.9	67385	µg/L	67385	ppb	11:27:11
2	Ca 317.933Radial†	235657.6	211734.8	103690	µg/L	103690	ppb	11:27:11
2	Fe 238.204 Radial†	663336.7	596305.0	332310	µg/L	332310	ppb	11:27:11
2	K 766.490 Radial†	28660.2	25099.6	12401	µg/L	12401	ppb	11:27:16
2	Mg 279.077 IEC†	10431.1	9374.3	47598	µg/L	47598	ppb	11:27:16
2	Na 589.592 Radial†	426.0	567.9	1048.8	µg/L	1048.8	ppb	11:27:16
2	Sr 421.552†	135889.8	123456.5	593.93	µg/L	593.93	ppb	11:27:11
2	Sc 361.383	656012.8	656012.8	108.95	%			11:28:05
2	Y 371.029	613894.1	613894.1	120.08	%			11:28:11
2	Ag 328.068†	-13498.1	-11797.7	11.850	µg/L	11.850	ppb	11:28:11
2	As 188.979†	31.7	40.5	35.827	µg/L	35.827	ppb	11:28:31
2	B 249.677†	2348.0	2069.3	12.367	µg/L	12.367	ppb	11:28:11
2	Ba 233.527†	136696.5	125584.5	1121.7	µg/L	1121.7	ppb	11:28:11
2	Be 313.107†	8286.1	15563.4	7.4274	µg/L	7.4274	ppb	11:28:11
2	Cd 226.502†	3530.7	3457.0	0.0901	µg/L	0.0901	ppb	11:28:31
2	Co 228.616†	5539.2	5090.6	109.49	µg/L	109.49	ppb	11:28:31
2	Cr 267.716†	29938.6	27241.9	585.87	µg/L	585.87	ppb	11:28:31
2	Cu 324.752†	55784.7	45054.7	258.11	µg/L	258.11	ppb	11:28:11
2	Mn 257.610†	3873413.2	3554854.7	5557.0	µg/L	5557.0	ppb	11:28:05
2	Mo 202.031†	-60.2	-83.1	7.6586	µg/L	7.6586	ppb	11:28:31
2	Ni 231.604†	9382.8	8690.4	286.86	µg/L	286.86	ppb	11:28:31
2	P 214.914†	11610.1	10580.4	7796.3	µg/L	7796.3	ppb	11:28:31
2	Pb 220.353†	1650.9	1374.8	259.76	µg/L	259.76	ppb	11:28:31

2	S 181.975 Axial†	584.3	479.3	785.56 µg/L	785.56 ppb	11:28:31
2	Sb 206.836†	100.5	23.2	-8.0169 µg/L	-8.0169 ppb	11:28:31
2	Se 196.026†	-211.5	-185.9	22.341 µg/L	22.341 ppb	11:28:31
2	SiO2†	196029.9	176496.5	21525 µg/L	21525 ppb	11:28:11
2	Si 251.611†	229156.2	209896.8	9957.1 µg/L	9957.1 ppb	11:28:11
2	Sn 189.927†	-290.0	-289.0	5.7796 µg/L	5.7796 ppb	11:28:31
2	Ti 334.940†	4839636.3	4442182.0	11638 µg/L	11638 ppb	11:28:05
2	Tl 190.801†	-206.5	-149.6	14.948 µg/L	14.948 ppb	11:28:31
2	U 367.007†	6024.3	5167.4	-185.8 µg/L	-185.8 ppb	11:28:11
2	V 292.402†	105859.1	97364.2	982.23 µg/L	982.23 ppb	11:28:11
2	Zn 213.857†	71619.8	64518.2	587.19 µg/L	587.19 ppb	11:28:11
3	Sc RADIAL	21297.7	21297.7	111 %		11:27:26
3	Al 396.153Radial†	246736.5	221833.2	67312 µg/L	67312 ppb	11:27:21
3	Ca 317.933Radial†	235129.5	211231.8	103440 µg/L	103440 ppb	11:27:21
3	Fe 238.204 Radial†	662445.9	595424.6	331820 µg/L	331820 ppb	11:27:21
3	K 766.490 Radial†	28724.4	25153.9	12428 µg/L	12428 ppb	11:27:26
3	Mg 279.077 IEC†	10437.5	9378.8	47620 µg/L	47620 ppb	11:27:26
3	Na 589.592 Radial†	450.5	589.8	1089.3 µg/L	1089.3 ppb	11:27:26
3	Sr 421.552†	135753.2	123317.3	593.26 µg/L	593.26 ppb	11:27:21
3	Sc 361.383	662895.0	662895.0	110.09 %		11:28:37
3	Y 371.029	613136.3	613136.3	119.93 %		11:28:42
3	Ag 328.068†	-13448.3	-11623.8	12.819 µg/L	12.819 ppb	11:28:42
3	As 188.979†	30.4	39.0	34.895 µg/L	34.895 ppb	11:29:02
3	B 249.677†	2230.3	1940.0	8.6977 µg/L	8.6977 ppb	11:28:42
3	Ba 233.527†	136627.0	124218.7	1109.4 µg/L	1109.4 ppb	11:28:42
3	Be 313.107†	8137.7	15349.6	7.3000 µg/L	7.3000 ppb	11:28:42
3	Cd 226.502†	3529.5	3422.3	-0.3626 µg/L	-0.3626 ppb	11:29:02
3	Co 228.616†	5515.0	5015.8	107.58 µg/L	107.58 ppb	11:29:02
3	Cr 267.716†	29931.9	26950.5	579.66 µg/L	579.66 ppb	11:29:02
3	Cu 324.752†	55476.6	44243.3	254.42 µg/L	254.42 ppb	11:28:42
3	Mn 257.610†	3906913.7	3548373.4	5546.9 µg/L	5546.9 ppb	11:28:37
3	Mo 202.031†	-56.0	-78.7	7.9520 µg/L	7.9520 ppb	11:29:02
3	Ni 231.604†	9364.6	8584.4	283.42 µg/L	283.42 ppb	11:29:02
3	P 214.914†	11606.8	10466.8	7710.6 µg/L	7710.6 ppb	11:29:02
3	Pb 220.353†	1619.7	1330.8	252.17 µg/L	252.17 ppb	11:29:02
3	S 181.975 Axial†	578.2	468.3	766.56 µg/L	766.56 ppb	11:29:02
3	Sb 206.836†	113.9	34.5	-4.0896 µg/L	-4.0896 ppb	11:29:02
3	Se 196.026†	-208.9	-181.6	25.442 µg/L	25.442 ppb	11:29:02
3	SiO2†	194459.4	173201.9	21125 µg/L	21125 ppb	11:28:42
3	Si 251.611†	227531.0	206237.0	9783.4 µg/L	9783.4 ppb	11:28:42
3	Sn 189.927†	-298.5	-293.9	4.5178 µg/L	4.5178 ppb	11:29:02
3	Ti 334.940†	4878947.4	4431771.3	11611 µg/L	11611 ppb	11:28:37
3	Tl 190.801†	-210.9	-151.7	14.035 µg/L	14.035 ppb	11:29:02
3	U 367.007†	6002.1	5089.9	-204.9 µg/L	-204.9 ppb	11:28:42
3	V 292.402†	105710.4	96220.3	970.60 µg/L	970.60 ppb	11:28:42
3	Zn 213.857†	71561.2	63782.4	580.04 µg/L	580.04 ppb	11:28:42

Mean Data: 305539002|1218790|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	660535.5	109.70	%	0.651				0.59%
Sc RADIAL	21185.9	111	%	1.0				0.90%
Y 371.029	613102.6	119.92	%	0.158				0.13%
Ag 328.068†	-11729.7	11.868	µg/L	0.9425	11.868	ppb	0.9425	7.94%
Al 396.153Radial†	221023.9	67067	µg/L	489.7	67067	ppb	489.7	0.73%
As 188.979†	39.0	34.872	µg/L	0.9669	34.872	ppb	0.9669	2.77%
B 249.677†	1987.4	10.216	µg/L	1.9143	10.216	ppb	1.9143	18.74%
Ba 233.527†	124591.4	1112.8	µg/L	7.78	1112.8	ppb	7.78	0.70%
Be 313.107†	15459.5	7.3636	µg/L	0.06369	7.3636	ppb	0.06369	0.86%
Ca 317.933Radial†	210579.5	103120	µg/L	776.4	103120	ppb	776.4	0.75%
Cd 226.502†	3428.8	-0.0975	µg/L	0.23611	-0.0975	ppb	0.23611	242.21%
Co 228.616†	5041.4	108.25	µg/L	1.075	108.25	ppb	1.075	0.99%
Cr 267.716†	27003.9	580.78	µg/L	4.637	580.78	ppb	4.637	0.80%
Cu 324.752†	44543.4	255.60	µg/L	2.178	255.60	ppb	2.178	0.85%
Fe 238.204 Radial†	593559.4	330780	µg/L	2238.7	330780	ppb	2238.7	0.68%
K 766.490 Radial†	25146.9	12424	µg/L	20.9	12424	ppb	20.9	0.17%
Mg 279.077 IEC†	9364.3	47547	µg/L	108.6	47547	ppb	108.6	0.23%
Mn 257.610†	3548692.5	5547.3	µg/L	9.53	5547.3	ppb	9.53	0.17%
Mo 202.031†	-80.0	7.8167	µg/L	0.14804	7.8167	ppb	0.14804	1.89%
Na 589.592 Radial†	577.9	1067.3	µg/L	20.46	1067.3	ppb	20.46	1.92%

Ni 231.604†	8609.3	284.21 µg/L	2.358	284.21 ppb	2.358	0.83%
P 214.914†	10497.0	7734.2 µg/L	54.32	7734.2 ppb	54.32	0.70%
Pb 220.353†	1354.4	256.14 µg/L	3.804	256.14 ppb	3.804	1.49%
S 181.975 Axial†	473.7	776.03 µg/L	9.501	776.03 ppb	9.501	1.22%
Sb 206.836†	27.3	-6.5255 µg/L	2.12719	-6.5255 ppb	2.12719	32.60%
Se 196.026†	-182.4	24.289 µg/L	1.6965	24.289 ppb	1.6965	6.98%
SiO2†	174760.9	21314 µg/L	201.3	21314 ppb	201.3	0.94%
Si 251.611†	207995.7	9866.9 µg/L	87.03	9866.9 ppb	87.03	0.88%
Sn 189.927†	-293.9	4.3901 µg/L	1.45760	4.3901 ppb	1.45760	33.20%
Sr 421.552†	122829.7	590.92 µg/L	4.655	590.92 ppb	4.655	0.79%
Ti 334.940†	4433011.2	11614 µg/L	22.6	11614 ppb	22.6	0.19%
Tl 190.801†	-151.3	14.137 µg/L	0.7650	14.137 ppb	0.7650	5.41%
U 367.007†	5122.3	-190.9 µg/L	12.35	-190.9 ppb	12.35	6.47%
V 292.402†	96614.6	974.61 µg/L	6.600	974.61 ppb	6.600	0.68%
Zn 213.857†	64075.1	583.06 µg/L	3.703	583.06 ppb	3.703	0.64%

Sequence No.: 5 **Autosampler Location: 305**
Sample ID: 305539003|1218790|1 **Date Collected: 6/7/2012 11:29:10**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305539003|1218790|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21658.9	21658.9	113	%			11:29:44
1	Al 396.153Radial†	523071.2	462380.2	140300	µg/L	140300	ppb	11:29:39
1	Ca 317.933Radial†	330118.5	291665.3	142830	µg/L	142830	ppb	11:29:39
1	Fe 238.204 Radial†	553332.5	489049.8	272540	µg/L	272540	ppb	11:29:39
1	K 766.490 Radial†	77896.9	68185.7	33439	µg/L	33439	ppb	11:29:39
1	Mg 279.077 IEC†	12621.2	11152.5	56624	µg/L	56624	ppb	11:29:44
1	Na 589.592 Radial†	823.8	913.0	1686.2	µg/L	1686.2	ppb	11:29:44
1	Sr 421.552†	136393.2	121847.7	586.01	µg/L	586.01	ppb	11:29:39
1	Sc 361.383	665564.5	665564.5	110.54	%			11:30:19
1	Y 371.029	667351.8	667351.8	130.53	%			11:30:19
1	Ag 328.068†	-1975.0	-1195.1	63.892	µg/L	63.892	ppb	11:30:19
1	As 188.979†	945.6	866.9	508.99	µg/L	508.99	ppb	11:30:40
1	B 249.677†	5465.5	4858.8	100.88	µg/L	100.88	ppb	11:30:19
1	Ba 233.527†	146241.1	132418.7	1184.2	µg/L	1184.2	ppb	11:30:19
1	Be 313.107†	14645.4	21207.4	12.614	µg/L	12.614	ppb	11:30:19
1	Cd 226.502†	22484.8	20558.0	269.84	µg/L	269.84	ppb	11:30:40
1	Co 228.616†	4921.4	4458.7	105.87	µg/L	105.87	ppb	11:30:40
1	Cr 267.716†	7916.1	6924.1	151.61	µg/L	151.61	ppb	11:30:40
1	Cu 324.752†	2450918.5	2211161.4	9883.5	µg/L	9883.5	ppb	11:30:19
1	Mn 257.610†	11206351.6	10137831.7	15786	µg/L	15786	ppb	11:30:12
1	Mo 202.031†	2530.8	2261.7	172.27	µg/L	172.27	ppb	11:30:40
1	Ni 231.604†	4821.2	4439.9	148.24	µg/L	148.24	ppb	11:30:40
1	P 214.914†	11648.9	10462.6	7542.5	µg/L	7542.5	ppb	11:30:40
1	Pb 220.353†	475650.1	430173.1	73579	µg/L	73579	ppb	11:30:19
1	S 181.975 Axial†	57048.9	51554.4	88916	µg/L	88916	ppb	11:30:19
1	Sb 206.836†	275.6	180.3	54.177	µg/L	54.177	ppb	11:30:40
1	Se 196.026†	-67.8	-53.1	96.208	µg/L	96.208	ppb	11:30:40
1	SiO2†	206790.9	183649.6	22365	µg/L	22365	ppb	11:30:19
1	Si 251.611†	242238.3	218713.5	10374	µg/L	10374	ppb	11:30:19
1	Sn 189.927†	-195.0	-199.2	7.2435	µg/L	7.2435	ppb	11:30:40
1	Ti 334.940†	2373752.0	2147584.1	5628.4	µg/L	5628.4	ppb	11:30:19
1	Tl 190.801†	-182.4	-125.1	-4.6580	µg/L	-4.6580	ppb	11:30:40
1	U 367.007†	5111.8	4262.5	-141.9	µg/L	-141.9	ppb	11:30:19
1	V 292.402†	40391.4	36742.1	372.07	µg/L	372.07	ppb	11:30:19
1	Zn 213.857†	6718071.3	6076519.5	59789	µg/L	59789	ppb	11:30:12
2	Sc RADIAL	21592.4	21592.4	113	%			11:29:54
2	Al 396.153Radial†	535196.4	474553.9	143990	µg/L	143990	ppb	11:29:49
2	Ca 317.933Radial†	336210.4	297964.7	145920	µg/L	145920	ppb	11:29:49
2	Fe 238.204 Radial†	563211.5	499314.4	278260	µg/L	278260	ppb	11:29:49
2	K 766.490 Radial†	79437.4	69763.5	34213	µg/L	34213	ppb	11:29:49
2	Mg 279.077 IEC†	12632.1	11196.4	56847	µg/L	56847	ppb	11:29:54
2	Na 589.592 Radial†	810.7	903.6	1669.0	µg/L	1669.0	ppb	11:29:54
2	Sr 421.552†	139225.5	124730.0	599.87	µg/L	599.87	ppb	11:29:49
2	Sc 361.383	664502.9	664502.9	110.36	%			11:30:53
2	Y 371.029	666609.0	666609.0	130.39	%			11:30:53
2	Ag 328.068†	-2046.1	-1262.3	64.909	µg/L	64.909	ppb	11:30:53
2	As 188.979†	941.0	864.1	507.57	µg/L	507.57	ppb	11:31:13
2	B 249.677†	5540.2	4934.3	102.23	µg/L	102.23	ppb	11:30:53
2	Ba 233.527†	146524.4	132886.8	1188.2	µg/L	1188.2	ppb	11:30:53
2	Be 313.107†	14805.5	21373.7	12.736	µg/L	12.736	ppb	11:30:53
2	Cd 226.502†	22556.1	20655.1	270.41	µg/L	270.41	ppb	11:31:13
2	Co 228.616†	4941.3	4483.9	106.49	µg/L	106.49	ppb	11:31:13
2	Cr 267.716†	7956.2	6971.9	152.73	µg/L	152.73	ppb	11:31:13
2	Cu 324.752†	2450214.3	2214065.4	9897.3	µg/L	9897.3	ppb	11:30:53
2	Mn 257.610†	11243603.7	10187782.6	15864	µg/L	15864	ppb	11:30:46
2	Mo 202.031†	2545.4	2278.6	173.71	µg/L	173.71	ppb	11:31:13
2	Ni 231.604†	4879.6	4499.8	150.27	µg/L	150.27	ppb	11:31:13
2	P 214.914†	11750.5	10571.5	7621.8	µg/L	7621.8	ppb	11:31:13
2	Pb 220.353†	477244.7	432305.4	73943	µg/L	73943	ppb	11:30:53

2	S 181.975 Axial†	57175.2	51751.2	89255 µg/L	89255 ppb	11:30:53
2	Sb 206.836†	274.8	180.0	53.909 µg/L	53.909 ppb	11:31:13
2	Se 196.026†	-79.1	-63.4	90.970 µg/L	90.970 ppb	11:31:13
2	SiO2†	200412.8	178169.1	21700 µg/L	21700 ppb	11:30:53
2	Si 251.611†	234612.9	212154.0	10063 µg/L	10063 ppb	11:30:53
2	Sn 189.927†	-192.6	-197.3	8.5466 µg/L	8.5466 ppb	11:31:13
2	Ti 334.940†	2376597.6	2153593.1	5644.2 µg/L	5644.2 ppb	11:30:53
2	Tl 190.801†	-176.0	-119.6	-2.1723 µg/L	-2.1723 ppb	11:31:13
2	U 367.007†	5103.2	4262.2	-169.9 µg/L	-169.9 ppb	11:30:53
2	V 292.402†	40442.6	36846.9	373.14 µg/L	373.14 ppb	11:30:53
2	Zn 213.857†	6750576.7	6115682.7	60174 µg/L	60174 ppb	11:30:46
3	Sc RADIAL	21750.3	21750.3	114 %		11:30:04
3	Al 396.153Radial†	539863.7	475218.4	144190 µg/L	144190 ppb	11:29:59
3	Ca 317.933Radial†	338583.0	297889.9	145880 µg/L	145880 ppb	11:29:59
3	Fe 238.204 Radial†	566870.8	498911.4	278040 µg/L	278040 ppb	11:29:59
3	K 766.490 Radial†	80068.5	69807.9	34235 µg/L	34235 ppb	11:29:59
3	Mg 279.077 IEC†	12694.3	11170.0	56713 µg/L	56713 ppb	11:30:04
3	Na 589.592 Radial†	804.2	892.7	1648.7 µg/L	1648.7 ppb	11:30:04
3	Sr 421.552†	140443.1	124905.9	600.72 µg/L	600.72 ppb	11:29:59
3	Sc 361.383	667033.5	667033.5	110.78 %		11:31:27
3	Y 371.029	668906.8	668906.8	130.84 %		11:31:27
3	Ag 328.068†	-1887.5	-1112.2	65.848 µg/L	65.848 ppb	11:31:27
3	As 188.979†	942.2	862.0	506.31 µg/L	506.31 ppb	11:31:47
3	B 249.677†	5562.7	4935.6	102.30 µg/L	102.30 ppb	11:31:27
3	Ba 233.527†	146350.8	132226.4	1182.3 µg/L	1182.3 ppb	11:31:27
3	Be 313.107†	14882.2	21392.0	12.752 µg/L	12.752 ppb	11:31:27
3	Cd 226.502†	22465.9	20496.2	268.03 µg/L	268.03 ppb	11:31:47
3	Co 228.616†	4916.2	4444.2	105.49 µg/L	105.49 ppb	11:31:47
3	Cr 267.716†	7946.3	6935.6	151.95 µg/L	151.95 ppb	11:31:47
3	Cu 324.752†	2457785.1	2212476.4	9890.2 µg/L	9890.2 ppb	11:31:27
3	Mn 257.610†	11239202.0	10145157.2	15798 µg/L	15798 ppb	11:31:20
3	Mo 202.031†	2549.2	2273.3	173.32 µg/L	173.32 ppb	11:31:47
3	Ni 231.604†	4819.9	4429.2	147.98 µg/L	147.98 ppb	11:31:47
3	P 214.914†	11663.8	10452.8	7532.2 µg/L	7532.2 ppb	11:31:47
3	Pb 220.353†	475992.2	429534.1	73469 µg/L	73469 ppb	11:31:27
3	S 181.975 Axial†	57141.4	51524.2	88863 µg/L	88863 ppb	11:31:27
3	Sb 206.836†	271.4	176.1	52.583 µg/L	52.583 ppb	11:31:47
3	Se 196.026†	-95.0	-77.6	79.766 µg/L	79.766 ppb	11:31:47
3	SiO2†	195296.3	172861.4	21055 µg/L	21055 ppb	11:31:27
3	Si 251.611†	228739.1	206045.2	9772.8 µg/L	9772.8 ppb	11:31:27
3	Sn 189.927†	-194.9	-198.7	8.1426 µg/L	8.1426 ppb	11:31:47
3	Ti 334.940†	2375860.2	2144757.5	5621.1 µg/L	5621.1 ppb	11:31:27
3	Tl 190.801†	-178.5	-121.2	-2.8970 µg/L	-2.8970 ppb	11:31:47
3	U 367.007†	5107.9	4248.9	-172.5 µg/L	-172.5 ppb	11:31:27
3	V 292.402†	40416.6	36684.4	371.50 µg/L	371.50 ppb	11:31:27
3	Zn 213.857†	6736941.4	6080167.8	59824 µg/L	59824 ppb	11:31:20

Mean Data: 305539003|1218790|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	665700.3	110.56	%	0.211				0.19%
Sc RADIAL	21667.2	113	%	0.4				0.37%
Y 371.029	667622.5	130.58	%	0.229				0.18%
Ag 328.068†	-1189.9	64.883	µg/L	0.9783	64.883	ppb	0.9783	1.51%
Al 396.153Radial†	470717.5	142830	µg/L	2193.2	142830	ppb	2193.2	1.54%
As 188.979†	864.3	507.62	µg/L	1.340	507.62	ppb	1.340	0.26%
B 249.677†	4909.6	101.81	µg/L	0.805	101.81	ppb	0.805	0.79%
Ba 233.527†	132510.6	1184.9	µg/L	3.03	1184.9	ppb	3.03	0.26%
Be 313.107†	21324.4	12.701	µg/L	0.0755	12.701	ppb	0.0755	0.59%
Ca 317.933Radial†	295840.0	144870	µg/L	1770.6	144870	ppb	1770.6	1.22%
Cd 226.502†	20569.8	269.43	µg/L	1.245	269.43	ppb	1.245	0.46%
Co 228.616†	4462.3	105.95	µg/L	0.504	105.95	ppb	0.504	0.48%
Cr 267.716†	6943.9	152.10	µg/L	0.571	152.10	ppb	0.571	0.38%
Cu 324.752†	2212567.7	9890.3	µg/L	6.90	9890.3	ppb	6.90	0.07%
Fe 238.204 Radial†	495758.5	276280	µg/L	3239.7	276280	ppb	3239.7	1.17%
K 766.490 Radial†	69252.4	33962	µg/L	453.2	33962	ppb	453.2	1.33%
Mg 279.077 IEC†	11173.0	56728	µg/L	112.3	56728	ppb	112.3	0.20%
Mn 257.610†	10156923.8	15816	µg/L	42.1	15816	ppb	42.1	0.27%
Mo 202.031†	2271.2	173.10	µg/L	0.745	173.10	ppb	0.745	0.43%
Na 589.592 Radial†	903.1	1668.0	µg/L	18.77	1668.0	ppb	18.77	1.13%

Ni 231.604†	4456.3	148.83 µg/L	1.255	148.83 ppb	1.255	0.84%
P 214.914†	10495.6	7565.5 µg/L	49.01	7565.5 ppb	49.01	0.65%
Pb 220.353†	430670.9	73664 µg/L	248.2	73664 ppb	248.2	0.34%
S 181.975 Axial†	51609.9	89012 µg/L	212.6	89012 ppb	212.6	0.24%
Sb 206.836†	178.8	53.556 µg/L	0.8534	53.556 ppb	0.8534	1.59%
Se 196.026†	-64.7	88.981 µg/L	8.3992	88.981 ppb	8.3992	9.44%
SiO2†	178226.7	21707 µg/L	654.9	21707 ppb	654.9	3.02%
Si 251.611†	212304.2	10070 µg/L	300.7	10070 ppb	300.7	2.99%
Sn 189.927†	-198.4	7.9775 µg/L	0.66704	7.9775 ppb	0.66704	8.36%
Sr 421.552†	123827.9	595.53 µg/L	8.260	595.53 ppb	8.260	1.39%
Ti 334.940†	2148644.9	5631.2 µg/L	11.83	5631.2 ppb	11.83	0.21%
Tl 190.801†	-122.0	-3.2424 µg/L	1.27832	-3.2424 ppb	1.27832	39.42%
U 367.007†	4257.8	-161.4 µg/L	17.01	-161.4 ppb	17.01	10.53%
V 292.402†	36757.8	372.24 µg/L	0.834	372.24 ppb	0.834	0.22%
Zn 213.857†	6090790.0	59929 µg/L	212.8	59929 ppb	212.8	0.36%

Sequence No.: 6 **Autosampler Location: 306**
Sample ID: 305539003|1218790|10 **Date Collected: 6/7/2012 11:31:55**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305539003|1218790|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21066.9	21066.9	110	%			11:32:44
1	Al 396.153Radial†	51351.8	46713.2	14174	µg/L	14174	ppb	11:32:24
1	Ca 317.933Radial†	32197.2	29138.9	14270	µg/L	14270	ppb	11:32:44
1	Fe 238.204 Radial†	56314.5	51145.2	28502	µg/L	28502	ppb	11:32:24
1	K 766.490 Radial†	8381.6	6950.9	3409.2	µg/L	3409.2	ppb	11:32:24
1	Mg 279.077 IEC†	1237.8	1121.6	5694.7	µg/L	5694.7	ppb	11:32:44
1	Na 589.592 Radial†	-102.6	91.6	169.25	µg/L	169.25	ppb	11:32:44
1	Sr 421.552†	12065.0	12256.3	58.945	µg/L	58.945	ppb	11:32:24
1	Sc 361.383	666932.4	666932.4	110.76	%			11:33:41
1	Y 371.029	573038.4	573038.4	112.08	%			11:33:41
1	Ag 328.068†	-822.8	-151.1	6.4842	µg/L	6.4842	ppb	11:33:41
1	As 188.979†	82.6	86.0	50.523	µg/L	50.523	ppb	11:34:01
1	B 249.677†	649.6	500.6	10.334	µg/L	10.334	ppb	11:33:41
1	Ba 233.527†	14690.0	13379.1	119.61	µg/L	119.61	ppb	11:33:41
1	Be 313.107†	-6056.2	2490.2	1.4790	µg/L	1.4790	ppb	11:33:41
1	Cd 226.502†	2140.3	2148.7	28.201	µg/L	28.201	ppb	11:34:01
1	Co 228.616†	488.7	447.6	10.624	µg/L	10.624	ppb	11:34:01
1	Cr 267.716†	1037.6	699.3	15.331	µg/L	15.331	ppb	11:34:01
1	Cu 324.752†	232132.9	203428.7	909.84	µg/L	909.84	ppb	11:33:41
1	Mn 257.610†	1186602.8	1070913.9	1667.6	µg/L	1667.6	ppb	11:33:41
1	Mo 202.031†	287.2	231.4	17.653	µg/L	17.653	ppb	11:34:01
1	Ni 231.604†	436.4	472.3	15.761	µg/L	15.761	ppb	11:34:01
1	P 214.914†	1215.0	1020.9	736.08	µg/L	736.08	ppb	11:34:01
1	Pb 220.353†	49280.1	44351.1	7586.2	µg/L	7586.2	ppb	11:33:41
1	S 181.975 Axial†	5638.9	5034.0	8681.5	µg/L	8681.5	ppb	11:34:01
1	Sb 206.836†	98.7	20.2	6.1081	µg/L	6.1081	ppb	11:34:01
1	Se 196.026†	-19.1	-9.0	7.3430	µg/L	7.3430	ppb	11:34:01
1	SiO2†	27543.2	21435.8	2609.7	µg/L	2609.7	ppb	11:33:41
1	Si 251.611†	28929.4	25682.4	1218.3	µg/L	1218.3	ppb	11:33:41
1	Sn 189.927†	-36.4	-55.6	-7.3306	µg/L	-7.3306	ppb	11:34:01
1	Ti 334.940†	239308.9	216141.5	566.46	µg/L	566.46	ppb	11:33:41
1	Tl 190.801†	-59.3	-13.6	-0.7793	µg/L	-0.7793	ppb	11:34:01
1	U 367.007†	855.7	410.5	-24.57	µg/L	-24.57	ppb	11:33:41
1	V 292.402†	3637.4	3484.6	35.281	µg/L	35.281	ppb	11:34:01
1	Zn 213.857†	954427.0	860466.1	8468.3	µg/L	8468.3	ppb	11:33:41
2	Sc RADIAL	20975.3	20975.3	110	%			11:33:09
2	Al 396.153Radial†	51993.4	47502.5	14413	µg/L	14413	ppb	11:32:49
2	Ca 317.933Radial†	32125.3	29201.0	14300	µg/L	14300	ppb	11:33:09
2	Fe 238.204 Radial†	57317.7	52284.3	29137	µg/L	29137	ppb	11:32:49
2	K 766.490 Radial†	8595.7	7179.5	3521.2	µg/L	3521.2	ppb	11:32:49
2	Mg 279.077 IEC†	1234.5	1123.5	5704.3	µg/L	5704.3	ppb	11:33:09
2	Na 589.592 Radial†	-93.5	99.6	183.90	µg/L	183.90	ppb	11:33:09
2	Sr 421.552†	12294.7	12513.9	60.185	µg/L	60.185	ppb	11:32:49
2	Sc 361.383	665499.1	665499.1	110.52	%			11:34:07
2	Y 371.029	571739.3	571739.3	111.83	%			11:34:07
2	Ag 328.068†	-741.0	-78.8	7.1338	µg/L	7.1338	ppb	11:34:07
2	As 188.979†	76.3	80.5	47.381	µg/L	47.381	ppb	11:34:27
2	B 249.677†	701.3	548.7	11.629	µg/L	11.629	ppb	11:34:07
2	Ba 233.527†	14743.2	13455.8	120.28	µg/L	120.28	ppb	11:34:07
2	Be 313.107†	-5948.9	2575.5	1.5283	µg/L	1.5283	ppb	11:34:07
2	Cd 226.502†	2134.9	2147.9	28.088	µg/L	28.088	ppb	11:34:27
2	Co 228.616†	486.2	446.2	10.581	µg/L	10.581	ppb	11:34:27
2	Cr 267.716†	998.6	666.1	14.636	µg/L	14.636	ppb	11:34:27
2	Cu 324.752†	232996.1	204661.1	915.42	µg/L	915.42	ppb	11:34:07
2	Mn 257.610†	1191514.3	1077664.9	1678.1	µg/L	1678.1	ppb	11:34:07
2	Mo 202.031†	284.4	229.4	17.536	µg/L	17.536	ppb	11:34:27
2	Ni 231.604†	397.7	438.1	14.666	µg/L	14.666	ppb	11:34:27
2	P 214.914†	1220.1	1027.9	740.83	µg/L	740.83	ppb	11:34:27
2	Pb 220.353†	49562.7	44702.6	7646.3	µg/L	7646.3	ppb	11:34:07

2	S 181.975 Axial†	5611.7	5020.4	8657.9 µg/L	8657.9 ppb	11:34:27
2	Sb 206.836†	83.4	6.5	1.5034 µg/L	1.5034 ppb	11:34:27
2	Se 196.026†	-12.6	-3.1	12.250 µg/L	12.250 ppb	11:34:27
2	SiO2†	27416.4	21374.6	2602.3 µg/L	2602.3 ppb	11:34:07
2	Si 251.611†	28722.3	25551.3	1212.1 µg/L	1212.1 ppb	11:34:07
2	Sn 189.927†	-34.4	-53.9	-6.8517 µg/L	-6.8517 ppb	11:34:27
2	Ti 334.940†	240230.7	217440.8	569.87 µg/L	569.87 ppb	11:34:07
2	Tl 190.801†	-62.0	-16.2	-1.6879 µg/L	-1.6879 ppb	11:34:27
2	U 367.007†	840.6	398.5	-30.98 µg/L	-30.98 ppb	11:34:07
2	V 292.402†	3670.3	3521.4	35.648 µg/L	35.648 ppb	11:34:27
2	Zn 213.857†	959066.3	866519.5	8527.8 µg/L	8527.8 ppb	11:34:07
3	Sc RADIAL	21076.9	21076.9	110 %		11:33:34
3	Al 396.153Radial†	51783.2	47082.8	14286 µg/L	14286 ppb	11:33:14
3	Ca 317.933Radial†	32236.6	29160.7	14280 µg/L	14280 ppb	11:33:34
3	Fe 238.204 Radial†	56875.7	51630.6	28773 µg/L	28773 ppb	11:33:14
3	K 766.490 Radial†	8467.9	7025.6	3445.8 µg/L	3445.8 ppb	11:33:14
3	Mg 279.077 IEC†	1235.8	1119.3	5682.8 µg/L	5682.8 ppb	11:33:34
3	Na 589.592 Radial†	-82.9	109.6	202.40 µg/L	202.40 ppb	11:33:34
3	Sr 421.552†	12185.8	12360.8	59.448 µg/L	59.448 ppb	11:33:14
3	Sc 361.383	663749.6	663749.6	110.23 %		11:34:33
3	Y 371.029	569854.5	569854.5	111.46 %		11:34:33
3	Ag 328.068†	-687.2	-31.7	7.3522 µg/L	7.3522 ppb	11:34:33
3	As 188.979†	78.3	82.5	48.504 µg/L	48.504 ppb	11:34:53
3	B 249.677†	651.0	504.7	10.411 µg/L	10.411 ppb	11:34:33
3	Ba 233.527†	14695.0	13447.3	120.22 µg/L	120.22 ppb	11:34:33
3	Be 313.107†	-5957.4	2553.7	1.5158 µg/L	1.5158 ppb	11:34:33
3	Cd 226.502†	2136.2	2154.2	28.242 µg/L	28.242 ppb	11:34:53
3	Co 228.616†	503.1	462.8	11.017 µg/L	11.017 ppb	11:34:53
3	Cr 267.716†	1016.0	684.2	15.015 µg/L	15.015 ppb	11:34:53
3	Cu 324.752†	231757.2	204092.8	912.84 µg/L	912.84 ppb	11:34:33
3	Mn 257.610†	1185632.0	1075170.2	1674.2 µg/L	1674.2 ppb	11:34:33
3	Mo 202.031†	277.0	223.4	17.093 µg/L	17.093 ppb	11:34:53
3	Ni 231.604†	407.0	447.5	14.963 µg/L	14.963 ppb	11:34:53
3	P 214.914†	1216.5	1027.5	740.85 µg/L	740.85 ppb	11:34:53
3	Pb 220.353†	49254.8	44541.5	7618.7 µg/L	7618.7 ppb	11:34:33
3	S 181.975 Axial†	5572.7	4998.4	8619.9 µg/L	8619.9 ppb	11:34:53
3	Sb 206.836†	91.5	14.0	4.0351 µg/L	4.0351 ppb	11:34:53
3	Se 196.026†	-12.6	-3.2	12.020 µg/L	12.020 ppb	11:34:53
3	SiO2†	27022.0	21082.2	2566.7 µg/L	2566.7 ppb	11:34:33
3	Si 251.611†	28309.3	25245.2	1197.5 µg/L	1197.5 ppb	11:34:33
3	Sn 189.927†	-32.8	-52.5	-6.5856 µg/L	-6.5856 ppb	11:34:53
3	Ti 334.940†	239098.7	216986.8	568.68 µg/L	568.68 ppb	11:34:33
3	Tl 190.801†	-59.2	-13.8	-0.8168 µg/L	-0.8168 ppb	11:34:53
3	U 367.007†	843.0	402.7	-28.04 µg/L	-28.04 ppb	11:34:33
3	V 292.402†	3591.8	3459.0	35.011 µg/L	35.011 ppb	11:34:53
3	Zn 213.857†	952417.0	862774.6	8491.0 µg/L	8491.0 ppb	11:34:33

Mean Data: 305539003|1218790|10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	665393.7	110.51	%	0.265				0.24%
Sc RADIAL	21039.7	110	%	0.3				0.27%
Y 371.029	571544.1	111.79	%	0.313				0.28%
Ag 328.068†	-87.2	6.9901	µg/L	0.45151	6.9901	ppb	0.45151	6.46%
Al 396.153Radial†	47099.5	14291	µg/L	119.8	14291	ppb	119.8	0.84%
As 188.979†	83.0	48.803	µg/L	1.5921	48.803	ppb	1.5921	3.26%
B 249.677†	518.0	10.791	µg/L	0.7265	10.791	ppb	0.7265	6.73%
Ba 233.527†	13427.4	120.04	µg/L	0.370	120.04	ppb	0.370	0.31%
Be 313.107†	2539.8	1.5077	µg/L	0.02559	1.5077	ppb	0.02559	1.70%
Ca 317.933Radial†	29166.9	14283	µg/L	15.4	14283	ppb	15.4	0.11%
Cd 226.502†	2150.3	28.177	µg/L	0.0796	28.177	ppb	0.0796	0.28%
Co 228.616†	452.2	10.741	µg/L	0.2403	10.741	ppb	0.2403	2.24%
Cr 267.716†	683.2	14.994	µg/L	0.3481	14.994	ppb	0.3481	2.32%
Cu 324.752†	204060.8	912.70	µg/L	2.795	912.70	ppb	2.795	0.31%
Fe 238.204 Radial†	51686.7	28804	µg/L	318.5	28804	ppb	318.5	1.11%
K 766.490 Radial†	7052.0	3458.7	µg/L	57.13	3458.7	ppb	57.13	1.65%
Mg 279.077 IEC†	1121.5	5693.9	µg/L	10.76	5693.9	ppb	10.76	0.19%
Mn 257.610†	1074583.0	1673.3	µg/L	5.34	1673.3	ppb	5.34	0.32%
Mo 202.031†	228.1	17.427	µg/L	0.2956	17.427	ppb	0.2956	1.70%
Na 589.592 Radial†	100.3	185.18	µg/L	16.610	185.18	ppb	16.610	8.97%

Ni 231.604†	452.6	15.130 µg/L	0.5662	15.130 ppb	0.5662	3.74%
P 214.914†	1025.4	739.25 µg/L	2.748	739.25 ppb	2.748	0.37%
Pb 220.353†	44531.7	7617.1 µg/L	30.09	7617.1 ppb	30.09	0.40%
S 181.975 Axial†	5017.6	8653.1 µg/L	31.07	8653.1 ppb	31.07	0.36%
Sb 206.836†	13.6	3.8822 µg/L	2.30618	3.8822 ppb	2.30618	59.40%
Se 196.026†	-5.1	10.538 µg/L	2.7690	10.538 ppb	2.7690	26.28%
SiO2†	21297.5	2592.9 µg/L	22.97	2592.9 ppb	22.97	0.89%
Si 251.611†	25493.0	1209.3 µg/L	10.65	1209.3 ppb	10.65	0.88%
Sn 189.927†	-54.0	-6.9227 µg/L	0.37753	-6.9227 ppb	0.37753	5.45%
Sr 421.552†	12377.0	59.526 µg/L	0.6236	59.526 ppb	0.6236	1.05%
Ti 334.940†	216856.3	568.34 µg/L	1.729	568.34 ppb	1.729	0.30%
Tl 190.801†	-14.6	-1.0947 µg/L	0.51412	-1.0947 ppb	0.51412	46.97%
U 367.007†	403.9	-27.86 µg/L	3.208	-27.86 ppb	3.208	11.51%
V 292.402†	3488.3	35.313 µg/L	0.3197	35.313 ppb	0.3197	0.91%
Zn 213.857†	863253.4	8495.7 µg/L	30.04	8495.7 ppb	30.04	0.35%

Sequence No.: 8 **Autosampler Location:** 7
Sample ID: CCV **Date Collected:** 6/7/2012 11:38:20
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20476.4	20476.4	107	%			11:39:10
1	Al 396.153Radial†	17386.8	16304.2	4928.3	µg/L	4928.3	ppb	11:38:50
1	Ca 317.933Radial†	11221.7	10372.1	5079.3	µg/L	5079.3	ppb	11:39:10
1	Fe 238.204 Radial†	9953.9	9277.3	5175.2	µg/L	5175.2	ppb	11:39:10
1	K 766.490 Radial†	11426.6	10017.3	4893.7	µg/L	4893.7	ppb	11:38:50
1	Mg 279.077 IEC†	1106.7	1031.5	5243.5	µg/L	5243.5	ppb	11:39:10
1	Na 589.592 Radial†	5529.9	5354.9	9890.0	µg/L	9890.0	ppb	11:39:10
1	Sr 421.552†	107462.7	101761.8	489.93	µg/L	489.93	ppb	11:38:50
1	Sc 361.383	639677.6	639677.6	106.24	%			11:40:07
1	Y 371.029	538073.3	538073.3	105.25	%			11:40:07
1	Ag 328.068†	78401.9	74391.1	503.20	µg/L	503.20	ppb	11:40:12
1	As 188.979†	922.0	879.3	508.18	µg/L	508.18	ppb	11:40:32
1	B 249.677†	18331.0	17169.1	494.56	µg/L	494.56	ppb	11:40:12
1	Ba 233.527†	59008.6	55661.1	501.48	µg/L	501.48	ppb	11:40:12
1	Be 313.107†	886303.9	842232.6	500.61	µg/L	500.61	ppb	11:40:07
1	Cd 226.502†	35101.8	33257.5	505.68	µg/L	505.68	ppb	11:40:12
1	Co 228.616†	20605.3	19402.1	508.57	µg/L	508.57	ppb	11:40:12
1	Cr 267.716†	25319.5	23595.7	503.12	µg/L	503.12	ppb	11:40:12
1	Cu 324.752†	125102.9	111611.2	498.09	µg/L	498.09	ppb	11:40:12
1	Mn 257.610†	338899.8	318619.1	495.72	µg/L	495.72	ppb	11:40:12
1	Mo 202.031†	7477.9	7011.1	499.71	µg/L	499.71	ppb	11:40:32
1	Ni 231.604†	16734.8	15830.6	512.39	µg/L	512.39	ppb	11:40:12
1	P 214.914†	3595.4	3308.4	2488.8	µg/L	2488.8	ppb	11:40:32
1	Pb 220.353†	3312.6	2977.7	509.90	µg/L	509.90	ppb	11:40:32
1	S 181.975 Axial†	678.3	581.5	1004.9	µg/L	1004.9	ppb	11:40:32
1	Sb 206.836†	1654.8	1488.7	496.65	µg/L	496.65	ppb	11:40:32
1	Se 196.026†	672.1	640.8	506.28	µg/L	506.28	ppb	11:40:32
1	SiO2†	49989.6	43624.0	5334.0	µg/L	5334.0	ppb	11:40:12
1	Si 251.611†	56163.0	52430.1	2480.0	µg/L	2480.0	ppb	11:40:12
1	Sn 189.927†	2351.2	2190.4	505.20	µg/L	505.20	ppb	11:40:32
1	Ti 334.940†	200711.0	189014.8	494.82	µg/L	494.82	ppb	11:40:12
1	Tl 190.801†	1393.1	1351.2	500.15	µg/L	500.15	ppb	11:40:32
1	U 367.007†	2258.7	1764.1	464.6	µg/L	464.6	ppb	11:40:12
1	V 292.402†	52014.4	49161.6	506.25	µg/L	506.25	ppb	11:40:12
1	Zn 213.857†	56066.4	51556.6	503.26	µg/L	503.26	ppb	11:40:12
2	Sc RADIAL	20236.3	20236.3	106	%			11:39:35
2	Al 396.153Radial†	17436.7	16544.3	5001.4	µg/L	5001.4	ppb	11:39:15
2	Ca 317.933Radial†	11068.4	10351.6	5069.3	µg/L	5069.3	ppb	11:39:35
2	Fe 238.204 Radial†	9823.4	9264.3	5168.0	µg/L	5168.0	ppb	11:39:35
2	K 766.490 Radial†	11419.8	10137.7	4952.5	µg/L	4952.5	ppb	11:39:15
2	Mg 279.077 IEC†	1094.8	1032.6	5248.7	µg/L	5248.7	ppb	11:39:35
2	Na 589.592 Radial†	5469.5	5359.1	9897.9	µg/L	9897.9	ppb	11:39:35
2	Sr 421.552†	107777.3	103251.6	497.10	µg/L	497.10	ppb	11:39:15
2	Sc 361.383	645083.3	645083.3	107.13	%			11:40:38
2	Y 371.029	542396.4	542396.4	106.09	%			11:40:38
2	Ag 328.068†	79143.3	74464.7	503.70	µg/L	503.70	ppb	11:40:43
2	As 188.979†	926.9	876.6	506.63	µg/L	506.63	ppb	11:41:03
2	B 249.677†	18541.9	17221.3	496.07	µg/L	496.07	ppb	11:40:43
2	Ba 233.527†	59630.7	55776.4	502.52	µg/L	502.52	ppb	11:40:43
2	Be 313.107†	893247.2	841722.4	500.31	µg/L	500.31	ppb	11:40:38
2	Cd 226.502†	35433.4	33290.2	506.18	µg/L	506.18	ppb	11:40:43
2	Co 228.616†	20780.5	19403.1	508.59	µg/L	508.59	ppb	11:40:43
2	Cr 267.716†	25588.2	23646.8	504.21	µg/L	504.21	ppb	11:40:43
2	Cu 324.752†	125993.0	111455.2	497.40	µg/L	497.40	ppb	11:40:43
2	Mn 257.610†	342019.2	318857.6	496.09	µg/L	496.09	ppb	11:40:43
2	Mo 202.031†	7453.5	6929.3	493.88	µg/L	493.88	ppb	11:41:03
2	Ni 231.604†	16928.2	15879.2	513.96	µg/L	513.96	ppb	11:40:43
2	P 214.914†	3571.6	3257.8	2450.6	µg/L	2450.6	ppb	11:41:03
2	Pb 220.353†	3311.1	2950.2	505.14	µg/L	505.14	ppb	11:41:03

2	S 181.975 Axial†	678.9	576.7	996.58 µg/L	996.58 ppb	11:41:03
2	Sb 206.836†	1638.5	1460.4	487.02 µg/L	487.02 ppb	11:41:03
2	Se 196.026†	674.0	637.4	503.55 µg/L	503.55 ppb	11:41:03
2	SiO2†	50511.5	43716.8	5345.2 µg/L	5345.2 ppb	11:40:43
2	Si 251.611†	56878.3	52654.8	2490.8 µg/L	2490.8 ppb	11:40:43
2	Sn 189.927†	2343.3	2164.5	499.25 µg/L	499.25 ppb	11:41:03
2	Ti 334.940†	202396.6	189005.0	494.80 µg/L	494.80 ppb	11:40:43
2	Tl 190.801†	1398.9	1345.6	498.08 µg/L	498.08 ppb	11:41:03
2	U 367.007†	2263.7	1750.9	461.0 µg/L	461.0 ppb	11:40:43
2	V 292.402†	52553.1	49254.1	507.13 µg/L	507.13 ppb	11:40:43
2	Zn 213.857†	56632.4	51642.5	504.10 µg/L	504.10 ppb	11:40:43
3	Sc RADIAL	20192.7	20192.7	105 %		11:40:00
3	Al 396.153Radial†	17574.1	16710.2	5051.7 µg/L	5051.7 ppb	11:39:40
3	Ca 317.933Radial†	11041.2	10348.5	5067.7 µg/L	5067.7 ppb	11:40:00
3	Fe 238.204 Radial†	9820.4	9281.6	5177.6 µg/L	5177.6 ppb	11:40:00
3	K 766.490 Radial†	11599.3	10331.2	5047.2 µg/L	5047.2 ppb	11:39:40
3	Mg 279.077 IEC†	1086.1	1026.5	5218.1 µg/L	5218.1 ppb	11:40:00
3	Na 589.592 Radial†	5412.6	5316.3	9818.9 µg/L	9818.9 ppb	11:40:00
3	Sr 421.552†	108347.2	104012.2	500.76 µg/L	500.76 ppb	11:39:40
3	Sc 361.383	639063.6	639063.6	106.13 %		11:41:09
3	Y 371.029	537710.8	537710.8	105.17 %		11:41:09
3	Ag 328.068†	78233.4	74303.3	502.60 µg/L	502.60 ppb	11:41:14
3	As 188.979†	907.4	866.4	500.68 µg/L	500.68 ppb	11:41:34
3	B 249.677†	18251.1	17110.4	492.87 µg/L	492.87 ppb	11:41:14
3	Ba 233.527†	58757.5	55478.0	499.83 µg/L	499.83 ppb	11:41:14
3	Be 313.107†	883648.9	840532.5	499.60 µg/L	499.60 ppb	11:41:09
3	Cd 226.502†	34834.9	33037.8	502.34 µg/L	502.34 ppb	11:41:14
3	Co 228.616†	20488.6	19310.7	506.17 µg/L	506.17 ppb	11:41:14
3	Cr 267.716†	25111.9	23423.0	499.44 µg/L	499.44 ppb	11:41:14
3	Cu 324.752†	124961.7	111591.3	498.01 µg/L	498.01 ppb	11:41:14
3	Mn 257.610†	337467.9	317576.5	494.10 µg/L	494.10 ppb	11:41:14
3	Mo 202.031†	7381.6	6927.1	493.73 µg/L	493.73 ppb	11:41:34
3	Ni 231.604†	16554.9	15676.3	507.39 µg/L	507.39 ppb	11:41:14
3	P 214.914†	3541.7	3261.0	2453.1 µg/L	2453.1 ppb	11:41:34
3	Pb 220.353†	3265.9	2936.7	502.81 µg/L	502.81 ppb	11:41:34
3	S 181.975 Axial†	675.8	579.8	1001.8 µg/L	1001.8 ppb	11:41:34
3	Sb 206.836†	1622.0	1459.3	486.76 µg/L	486.76 ppb	11:41:34
3	Se 196.026†	669.0	638.6	504.48 µg/L	504.48 ppb	11:41:34
3	SiO2†	49918.5	43602.2	5331.0 µg/L	5331.0 ppb	11:41:14
3	Si 251.611†	56241.8	52555.2	2486.1 µg/L	2486.1 ppb	11:41:14
3	Sn 189.927†	2313.8	2157.3	497.59 µg/L	497.59 ppb	11:41:34
3	Ti 334.940†	200176.0	188692.3	493.98 µg/L	493.98 ppb	11:41:14
3	Tl 190.801†	1378.0	1338.2	495.36 µg/L	495.36 ppb	11:41:34
3	U 367.007†	2226.3	1735.6	456.7 µg/L	456.7 ppb	11:41:14
3	V 292.402†	51834.2	49038.8	504.92 µg/L	504.92 ppb	11:41:14
3	Zn 213.857†	55688.4	51251.1	500.28 µg/L	500.28 ppb	11:41:14

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	641274.8	106.50	%	0.550				0.52%
Sc RADIAL	20301.8	106	%	0.8				0.75%
Y 371.029	539393.5	105.50	%	0.510				0.48%
Ag 328.068†	74386.4	503.16	µg/L	0.548	503.16	ppb	0.548	0.11%
QC value within limits for Ag 328.068 Recovery = 100.63%								
Al 396.153Radial†	16519.6	4993.8	µg/L	62.07	4993.8	ppb	62.07	1.24%
QC value within limits for Al 396.153Radial Recovery = 99.88%								
As 188.979†	874.1	505.16	µg/L	3.957	505.16	ppb	3.957	0.78%
QC value within limits for As 188.979 Recovery = 101.03%								
B 249.677†	17166.9	494.50	µg/L	1.604	494.50	ppb	1.604	0.32%
QC value within limits for B 249.677 Recovery = 98.90%								
Ba 233.527†	55638.5	501.27	µg/L	1.356	501.27	ppb	1.356	0.27%
QC value within limits for Ba 233.527 Recovery = 100.25%								
Be 313.107†	841495.8	500.17	µg/L	0.520	500.17	ppb	0.520	0.10%
QC value within limits for Be 313.107 Recovery = 100.03%								
Ca 317.933Radial†	10357.4	5072.1	µg/L	6.28	5072.1	ppb	6.28	0.12%
QC value within limits for Ca 317.933Radial Recovery = 101.44%								
Cd 226.502†	33195.2	504.73	µg/L	2.091	504.73	ppb	2.091	0.41%
QC value within limits for Cd 226.502 Recovery = 100.95%								
Co 228.616†	19372.0	507.78	µg/L	1.392	507.78	ppb	1.392	0.27%

QC value within limits for Co 228.616 Recovery = 101.56%

Cr 267.716†	23555.1	502.26 µg/L	2.498	502.26 ppb	2.498	0.50%

QC value within limits for Cr 267.716 Recovery = 100.45%

Cu 324.752†	111552.6	497.84 µg/L	0.377	497.84 ppb	0.377	0.08%

QC value within limits for Cu 324.752 Recovery = 99.57%

Fe 238.204 Radial†	9274.4	5173.6 µg/L	5.00	5173.6 ppb	5.00	0.10%

QC value within limits for Fe 238.204 Radial Recovery = 103.47%

K 766.490 Radial†	10162.1	4964.5 µg/L	77.45	4964.5 ppb	77.45	1.56%

QC value within limits for K 766.490 Radial Recovery = 99.29%

Mg 279.077 IEC†	1030.2	5236.8 µg/L	16.40	5236.8 ppb	16.40	0.31%

QC value within limits for Mg 279.077 IEC Recovery = 104.74%

Mn 257.610†	318351.1	495.30 µg/L	1.058	495.30 ppb	1.058	0.21%

QC value within limits for Mn 257.610 Recovery = 99.06%

Mo 202.031†	6955.8	495.77 µg/L	3.411	495.77 ppb	3.411	0.69%

QC value within limits for Mo 202.031 Recovery = 99.15%

Na 589.592 Radial†	5343.4	9869.0 µg/L	43.54	9869.0 ppb	43.54	0.44%

QC value within limits for Na 589.592 Radial Recovery = 98.69%

Ni 231.604†	15795.4	511.25 µg/L	3.430	511.25 ppb	3.430	0.67%

QC value within limits for Ni 231.604 Recovery = 102.25%

P 214.914†	3275.7	2464.2 µg/L	21.40	2464.2 ppb	21.40	0.87%

QC value within limits for P 214.914 Recovery = 98.57%

Pb 220.353†	2954.9	505.95 µg/L	3.613	505.95 ppb	3.613	0.71%

QC value within limits for Pb 220.353 Recovery = 101.19%

S 181.975 Axial†	579.4	1001.1 µg/L	4.23	1001.1 ppb	4.23	0.42%

QC value within limits for S 181.975 Axial Recovery = 100.11%

Sb 206.836†	1469.5	490.14 µg/L	5.635	490.14 ppb	5.635	1.15%

QC value within limits for Sb 206.836 Recovery = 98.03%

Se 196.026†	638.9	504.77 µg/L	1.386	504.77 ppb	1.386	0.27%

QC value within limits for Se 196.026 Recovery = 100.95%

SiO2†	43647.7	5336.7 µg/L	7.49	5336.7 ppb	7.49	0.14%

QC value within limits for SiO2 Recovery = 99.80%

Si 251.611†	52546.7	2485.6 µg/L	5.39	2485.6 ppb	5.39	0.22%

QC value within limits for Si 251.611 Recovery = 99.43%

Sn 189.927†	2170.7	500.68 µg/L	4.000	500.68 ppb	4.000	0.80%

QC value within limits for Sn 189.927 Recovery = 100.14%

Sr 421.552†	103008.6	495.93 µg/L	5.512	495.93 ppb	5.512	1.11%

QC value within limits for Sr 421.552 Recovery = 99.19%

Ti 334.940†	188904.0	494.53 µg/L	0.478	494.53 ppb	0.478	0.10%

QC value within limits for Ti 334.940 Recovery = 98.91%

Tl 190.801†	1345.0	497.86 µg/L	2.402	497.86 ppb	2.402	0.48%

QC value within limits for Tl 190.801 Recovery = 99.57%

U 367.007†	1750.2	460.7 µg/L	3.97	460.7 ppb	3.97	0.86%

QC value within limits for U 367.007 Recovery = 92.15%

V 292.402†	49151.5	506.10 µg/L	1.110	506.10 ppb	1.110	0.22%

QC value within limits for V 292.402 Recovery = 101.22%

Zn 213.857†	51483.4	502.54 µg/L	2.004	502.54 ppb	2.004	0.40%

QC value within limits for Zn 213.857 Recovery = 100.51%

All analyte(s) passed QC.

Sequence No.: 9 **Autosampler Location:** 8
Sample ID: CCB **Date Collected:** 6/7/2012 11:41:42
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20502.9	20502.9	107	%			11:42:10
1	Al 396.153Radial†	-99.7	-44.1	-13.439	µg/L	-13.439	ppb	11:42:10
1	Ca 317.933Radial†	114.8	-12.0	-5.9000	µg/L	-5.9000	ppb	11:42:30
1	Fe 238.204 Radial†	36.8	5.6	3.1103	µg/L	3.1103	ppb	11:42:30
1	K 766.490 Radial†	703.3	-8.9	-4.3687	µg/L	-4.3687	ppb	11:42:10
1	Mg 279.077 IEC†	6.2	2.6	13.039	µg/L	13.039	ppb	11:42:30
1	Na 589.592 Radial†	-213.7	-14.7	-27.059	µg/L	-27.059	ppb	11:42:10
1	Sr 421.552†	-1288.1	90.0	0.4334	µg/L	0.4334	ppb	11:42:10
1	Sc 361.383	633286.1	633286.1	105.17	%			11:43:26
1	Y 371.029	537659.5	537659.5	105.16	%			11:43:26
1	Ag 328.068†	-493.8	122.2	0.8210	µg/L	0.8210	ppb	11:43:26
1	As 188.979†	-16.3	-4.1	-2.3856	µg/L	-2.3856	ppb	11:43:46
1	B 249.677†	134.8	42.3	1.2214	µg/L	1.2214	ppb	11:43:46
1	Ba 233.527†	-118.3	4.1	0.0367	µg/L	0.0367	ppb	11:43:46
1	Be 313.107†	-8137.0	221.3	0.1269	µg/L	0.1269	ppb	11:43:26
1	Cd 226.502†	-206.0	20.5	0.3111	µg/L	0.3111	ppb	11:43:46
1	Co 228.616†	-5.8	0.9	0.0251	µg/L	0.0251	ppb	11:43:46
1	Cr 267.716†	215.8	-32.3	-0.6666	µg/L	-0.6666	ppb	11:43:46
1	Cu 324.752†	6343.0	-116.8	-0.5005	µg/L	-0.5005	ppb	11:43:26
1	Mn 257.610†	467.2	58.2	0.0904	µg/L	0.0904	ppb	11:43:46
1	Mo 202.031†	46.6	16.4	1.1716	µg/L	1.1716	ppb	11:43:46
1	Ni 231.604†	-105.1	-21.6	-0.7000	µg/L	-0.7000	ppb	11:43:46
1	P 214.914†	62.5	-16.6	-12.585	µg/L	-12.585	ppb	11:43:46
1	Pb 220.353†	201.1	50.8	8.7077	µg/L	8.7077	ppb	11:43:46
1	S 181.975 Axial†	65.2	5.0	8.6699	µg/L	8.6699	ppb	11:43:46
1	Sb 206.836†	91.8	18.4	6.1967	µg/L	6.1967	ppb	11:43:46
1	Se 196.026†	-5.1	3.4	2.6103	µg/L	2.6103	ppb	11:43:46
1	SiO2†	3327.4	-267.4	-32.765	µg/L	-32.765	ppb	11:43:26
1	Si 251.611†	300.0	-150.6	-7.1635	µg/L	-7.1635	ppb	11:43:46
1	Sn 189.927†	25.9	1.8	0.4284	µg/L	0.4284	ppb	11:43:46
1	Ti 334.940†	-88.3	2.4	0.0163	µg/L	0.0163	ppb	11:43:26
1	Tl 190.801†	-37.2	4.5	1.6503	µg/L	1.6503	ppb	11:43:46
1	U 367.007†	296.0	-80.6	-22.36	µg/L	-22.36	ppb	11:43:26
1	V 292.402†	-200.8	9.7	0.0915	µg/L	0.0915	ppb	11:43:26
1	Zn 213.857†	1454.3	164.1	1.6206	µg/L	1.6206	ppb	11:43:46
2	Sc RADIAL	20569.3	20569.3	107	%			11:42:35
2	Al 396.153Radial†	-121.4	-64.1	-19.481	µg/L	-19.481	ppb	11:42:35
2	Ca 317.933Radial†	113.7	-13.5	-6.5869	µg/L	-6.5869	ppb	11:42:55
2	Fe 238.204 Radial†	31.0	0.1	0.0528	µg/L	0.0528	ppb	11:42:55
2	K 766.490 Radial†	754.3	36.4	17.780	µg/L	17.780	ppb	11:42:35
2	Mg 279.077 IEC†	4.1	0.7	3.4787	µg/L	3.4787	ppb	11:42:55
2	Na 589.592 Radial†	-183.4	14.2	26.200	µg/L	26.200	ppb	11:42:35
2	Sr 421.552†	-1289.8	92.3	0.4446	µg/L	0.4446	ppb	11:42:35
2	Sc 361.383	636188.0	636188.0	105.66	%			11:43:52
2	Y 371.029	539963.5	539963.5	105.61	%			11:43:52
2	Ag 328.068†	-603.3	20.7	0.1391	µg/L	0.1391	ppb	11:43:52
2	As 188.979†	-11.2	0.9	0.4979	µg/L	0.4979	ppb	11:44:12
2	B 249.677†	107.8	16.2	0.4680	µg/L	0.4680	ppb	11:44:12
2	Ba 233.527†	-118.2	4.8	0.0430	µg/L	0.0430	ppb	11:44:12
2	Be 313.107†	-8202.2	194.9	0.1145	µg/L	0.1145	ppb	11:43:52
2	Cd 226.502†	-199.1	27.8	0.4239	µg/L	0.4239	ppb	11:44:12
2	Co 228.616†	-3.5	3.1	0.0827	µg/L	0.0827	ppb	11:44:12
2	Cr 267.716†	232.8	-17.1	-0.3589	µg/L	-0.3589	ppb	11:44:12
2	Cu 324.752†	6336.6	-150.4	-0.6643	µg/L	-0.6643	ppb	11:43:52
2	Mn 257.610†	450.8	40.6	0.0631	µg/L	0.0631	ppb	11:44:12
2	Mo 202.031†	42.1	12.0	0.8561	µg/L	0.8561	ppb	11:44:12
2	Ni 231.604†	-81.2	1.4	0.0456	µg/L	0.0456	ppb	11:44:12
2	P 214.914†	72.3	-7.6	-5.7818	µg/L	-5.7818	ppb	11:44:12
2	Pb 220.353†	181.7	31.5	5.4103	µg/L	5.4103	ppb	11:44:12

2	S 181.975 Axial†	60.9	0.7	1.1502 µg/L	1.1502 ppb	11:44:12
2	Sb 206.836†	71.6	-1.2	-0.3800 µg/L	-0.3800 ppb	11:44:12
2	Se 196.026†	-13.6	-4.6	-3.6385 µg/L	-3.6385 ppb	11:44:12
2	SiO2†	3419.6	-194.5	-23.717 µg/L	-23.717 ppb	11:43:52
2	Si 251.611†	313.7	-139.0	-6.6124 µg/L	-6.6124 ppb	11:44:12
2	Sn 189.927†	32.4	7.9	1.8067 µg/L	1.8067 ppb	11:44:12
2	Ti 334.940†	-77.7	12.8	0.0360 µg/L	0.0360 ppb	11:43:52
2	Tl 190.801†	-33.1	8.6	3.1583 µg/L	3.1583 ppb	11:44:12
2	U 367.007†	360.6	-20.7	-5.750 µg/L	-5.750 ppb	11:43:52
2	V 292.402†	-204.3	7.2	0.0773 µg/L	0.0773 ppb	11:43:52
2	Zn 213.857†	1426.7	131.8	1.2977 µg/L	1.2977 ppb	11:44:12
3	Sc RADIAL	20643.1	20643.1	108 %		11:43:00
3	Al 396.153Radial†	-59.8	-6.5	-2.0389 µg/L	-2.0389 ppb	11:43:00
3	Ca 317.933Radial†	112.5	-15.0	-7.3245 µg/L	-7.3245 ppb	11:43:20
3	Fe 238.204 Radial†	36.3	4.9	2.7437 µg/L	2.7437 ppb	11:43:20
3	K 766.490 Radial†	764.9	43.7	21.385 µg/L	21.385 ppb	11:43:00
3	Mg 279.077 IEC†	-0.1	-3.3	-16.651 µg/L	-16.651 ppb	11:43:20
3	Na 589.592 Radial†	-162.1	34.6	63.845 µg/L	63.845 ppb	11:43:00
3	Sr 421.552†	-1271.1	113.9	0.5485 µg/L	0.5485 ppb	11:43:00
3	Sc 361.383	635743.1	635743.1	105.58 %		11:44:17
3	Y 371.029	539549.1	539549.1	105.53 %		11:44:17
3	Ag 328.068†	-558.5	62.7	0.4196 µg/L	0.4196 ppb	11:44:17
3	As 188.979†	-10.8	1.2	0.6793 µg/L	0.6793 ppb	11:44:37
3	B 249.677†	103.4	12.1	0.3464 µg/L	0.3464 ppb	11:44:37
3	Ba 233.527†	-98.5	23.3	0.2093 µg/L	0.2093 ppb	11:44:37
3	Be 313.107†	-8062.7	321.6	0.1916 µg/L	0.1916 ppb	11:44:17
3	Cd 226.502†	-200.0	26.9	0.4091 µg/L	0.4091 ppb	11:44:37
3	Co 228.616†	9.1	15.0	0.3960 µg/L	0.3960 ppb	11:44:37
3	Cr 267.716†	222.7	-26.6	-0.5704 µg/L	-0.5704 ppb	11:44:37
3	Cu 324.752†	6388.1	-97.4	-0.4356 µg/L	-0.4356 ppb	11:44:17
3	Mn 257.610†	440.1	30.8	0.0486 µg/L	0.0486 ppb	11:44:37
3	Mo 202.031†	53.2	22.6	1.6081 µg/L	1.6081 ppb	11:44:37
3	Ni 231.604†	-83.8	-1.1	-0.0361 µg/L	-0.0361 ppb	11:44:37
3	P 214.914†	56.6	-22.4	-16.956 µg/L	-16.956 ppb	11:44:37
3	Pb 220.353†	155.4	6.7	1.1556 µg/L	1.1556 ppb	11:44:37
3	S 181.975 Axial†	57.8	-2.2	-3.7914 µg/L	-3.7914 ppb	11:44:37
3	Sb 206.836†	90.6	16.9	5.7045 µg/L	5.7045 ppb	11:44:37
3	Se 196.026†	-14.2	-5.2	-4.1058 µg/L	-4.1058 ppb	11:44:37
3	SiO2†	3488.2	-127.3	-15.430 µg/L	-15.430 ppb	11:44:17
3	Si 251.611†	308.6	-143.6	-6.8361 µg/L	-6.8361 ppb	11:44:37
3	Sn 189.927†	27.9	3.6	0.8322 µg/L	0.8322 ppb	11:44:37
3	Ti 334.940†	-6.3	80.4	0.2090 µg/L	0.2090 ppb	11:44:17
3	Tl 190.801†	-39.5	2.4	0.9031 µg/L	0.9031 ppb	11:44:37
3	U 367.007†	396.5	13.5	3.720 µg/L	3.720 ppb	11:44:17
3	V 292.402†	-238.6	-25.4	-0.2390 µg/L	-0.2390 ppb	11:44:17
3	Zn 213.857†	1427.4	133.4	1.3134 µg/L	1.3134 ppb	11:44:37

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	635072.4	105.47	%	0.260				0.25%
Sc RADIAL	20571.8	107	%	0.4				0.34%
Y 371.029	539057.3	105.44	%	0.240				0.23%
Ag 328.068†	68.5	0.4599	µg/L	0.34276	0.4599	ppb	0.34276	74.53%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-38.3	-11.653	µg/L	8.8572	-11.653	ppb	8.8572	76.01%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-0.7	-0.4028	µg/L	1.71954	-0.4028	ppb	1.71954	426.90%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	23.5	0.6786	µg/L	0.47399	0.6786	ppb	0.47399	69.85%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	10.7	0.0963	µg/L	0.09788	0.0963	ppb	0.09788	101.63%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	245.9	0.1443	µg/L	0.04140	0.1443	ppb	0.04140	28.68%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-13.5	-6.6038	µg/L	0.71236	-6.6038	ppb	0.71236	10.79%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	25.1	0.3814	µg/L	0.06131	0.3814	ppb	0.06131	16.08%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	6.3	0.1679	µg/L	0.19957	0.1679	ppb	0.19957	118.85%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -25.3     -0.5319 µg/L       0.15743     -0.5319 ppb        0.15743  29.59%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -121.5     -0.5334 µg/L       0.11787     -0.5334 ppb        0.11787  22.10%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         3.5      1.9689 µg/L       1.66952      1.9689 ppb        1.66952  84.79%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         23.7      11.599 µg/L       13.9452      11.599 ppb        13.9452 120.23%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            0.0     -0.0444 µg/L      15.15489     -0.0444 ppb       15.15489 >999.9%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               43.2      0.0674 µg/L       0.02121      0.0674 ppb        0.02121  31.48%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               17.0      1.2119 µg/L       0.37763      1.2119 ppb        0.37763  31.16%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        11.4      20.995 µg/L       45.6752      20.995 ppb        45.6752 217.55%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               -7.1     -0.2302 µg/L       0.40890     -0.2302 ppb        0.40890 177.64%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -15.5     -11.774 µg/L        5.6312     -11.774 ppb         5.6312  47.83%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               29.7      5.0912 µg/L       3.78614      5.0912 ppb        3.78614  74.37%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†           1.2      2.0096 µg/L       6.27494      2.0096 ppb        6.27494 312.25%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               11.3      3.8404 µg/L       3.66327      3.8404 ppb        3.66327  95.39%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -2.2     -1.7113 µg/L       3.74989     -1.7113 ppb        3.74989 219.12%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -196.4     -23.971 µg/L        8.6701     -23.971 ppb         8.6701  36.17%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -144.4     -6.8707 µg/L       0.27719     -6.8707 ppb        0.27719   4.03%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                4.4      1.0225 µg/L       0.70857      1.0225 ppb        0.70857  69.30%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               98.8      0.4755 µg/L       0.06345      0.4755 ppb        0.06345  13.34%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†               31.8      0.0871 µg/L       0.10602      0.0871 ppb        0.10602 121.73%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                5.2      1.9039 µg/L       1.14880      1.9039 ppb        1.14880  60.34%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -29.3      -8.129 µg/L       13.2010      -8.129 ppb        13.2010 162.39%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                -2.8     -0.0234 µg/L       0.18682     -0.0234 ppb        0.18682 798.34%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              143.1      1.4106 µg/L       0.18204      1.4106 ppb        0.18204  12.91%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 10 **Autosampler Location: 308**
Sample ID: 305539004|1218790|1 **Date Collected: 6/7/2012 11:44:45**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305539004|1218790|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20734.9	20734.9	108	%			11:45:21
1	Al 396.153Radial†	381345.6	352132.0	106850	µg/L	106850	ppb	11:45:16
1	Ca 317.933Radial†	417456.7	385304.0	188690	µg/L	188690	ppb	11:45:16
1	Fe 238.204 Radial†	420144.6	387876.1	216160	µg/L	216160	ppb	11:45:16
1	K 766.490 Radial†	66957.5	61153.9	29971	µg/L	29971	ppb	11:45:21
1	Mg 279.077 IEC†	14263.4	13165.8	66841	µg/L	66841	ppb	11:45:21
1	Na 589.592 Radial†	6012.9	5736.4	10595	µg/L	10595	ppb	11:45:21
1	Sr 421.552†	179302.5	166836.5	802.40	µg/L	802.40	ppb	11:45:16
1	Sc 361.383	642422.2	642422.2	106.69	%			11:45:48
1	Y 371.029	657597.5	657597.5	128.62	%			11:45:48
1	Ag 328.068†	-8780.8	-7638.3	6.7279	µg/L	6.7279	ppb	11:45:53
1	As 188.979†	40.5	49.4	35.667	µg/L	35.667	ppb	11:46:13
1	B 249.677†	3910.4	3579.3	72.166	µg/L	72.166	ppb	11:45:53
1	Ba 233.527†	151621.9	142228.0	1274.2	µg/L	1274.2	ppb	11:45:53
1	Be 313.107†	4860.3	12513.4	7.6922	µg/L	7.6922	ppb	11:45:53
1	Cd 226.502†	2163.2	2243.9	-0.0376	µg/L	-0.0376	ppb	11:45:53
1	Co 228.616†	3687.4	3462.5	78.788	µg/L	78.788	ppb	11:46:13
1	Cr 267.716†	8272.1	7515.8	163.74	µg/L	163.74	ppb	11:45:53
1	Cu 324.752†	49035.0	39811.6	213.46	µg/L	213.46	ppb	11:45:53
1	Mn 257.610†	2421599.5	2269318.1	3546.7	µg/L	3546.7	ppb	11:45:48
1	Mo 202.031†	-12.5	-39.6	6.0139	µg/L	6.0139	ppb	11:46:13
1	Ni 231.604†	4072.1	3895.0	129.67	µg/L	129.67	ppb	11:46:13
1	P 214.914†	13275.1	12366.4	9245.2	µg/L	9245.2	ppb	11:45:53
1	Pb 220.353†	1893.5	1634.3	280.44	µg/L	280.44	ppb	11:46:13
1	S 181.975 Axial†	4272.0	3947.1	6762.3	µg/L	6762.3	ppb	11:46:13
1	Sb 206.836†	79.5	5.5	-5.8515	µg/L	-5.8515	ppb	11:46:13
1	Se 196.026†	-121.2	-105.4	26.726	µg/L	26.726	ppb	11:46:13
1	SiO2†	181075.8	166286.7	20244	µg/L	20244	ppb	11:45:53
1	Si 251.611†	211392.9	197697.4	9379.5	µg/L	9379.5	ppb	11:45:53
1	Sn 189.927†	-239.4	-247.1	-7.6695	µg/L	-7.6695	ppb	11:46:13
1	Ti 334.940†	2467291.4	2312616.3	6061.9	µg/L	6061.9	ppb	11:45:48
1	Tl 190.801†	-131.4	-83.2	8.7373	µg/L	8.7373	ppb	11:46:13
1	U 367.007†	4014.6	3400.7	-116.8	µg/L	-116.8	ppb	11:45:53
1	V 292.402†	46516.0	43798.8	441.25	µg/L	441.25	ppb	11:45:53
1	Zn 213.857†	76072.5	70082.3	657.87	µg/L	657.87	ppb	11:45:53
2	Sc RADIAL	20979.7	20979.7	110	%			11:45:31
2	Al 396.153Radial†	386295.8	352541.6	106970	µg/L	106970	ppb	11:45:26
2	Ca 317.933Radial†	418818.2	382050.0	187090	µg/L	187090	ppb	11:45:26
2	Fe 238.204 Radial†	421638.7	384714.2	214400	µg/L	214400	ppb	11:45:26
2	K 766.490 Radial†	67744.1	61150.4	29969	µg/L	29969	ppb	11:45:31
2	Mg 279.077 IEC†	14427.6	13161.9	66822	µg/L	66822	ppb	11:45:31
2	Na 589.592 Radial†	6179.3	5823.5	10756	µg/L	10756	ppb	11:45:31
2	Sr 421.552†	181398.3	166817.6	802.32	µg/L	802.32	ppb	11:45:26
2	Sc 361.383	641171.3	641171.3	106.48	%			11:46:19
2	Y 371.029	656896.3	656896.3	128.49	%			11:46:19
2	Ag 328.068†	-8707.8	-7585.8	6.6333	µg/L	6.6333	ppb	11:46:24
2	As 188.979†	49.1	57.6	40.308	µg/L	40.308	ppb	11:46:44
2	B 249.677†	3779.0	3463.0	69.062	µg/L	69.062	ppb	11:46:24
2	Ba 233.527†	151529.3	142418.2	1276.0	µg/L	1276.0	ppb	11:46:24
2	Be 313.107†	4855.3	12517.6	7.6881	µg/L	7.6881	ppb	11:46:24
2	Cd 226.502†	2201.8	2284.0	0.8532	µg/L	0.8532	ppb	11:46:24
2	Co 228.616†	3699.4	3480.5	79.296	µg/L	79.296	ppb	11:46:44
2	Cr 267.716†	8317.7	7573.7	164.94	µg/L	164.94	ppb	11:46:24
2	Cu 324.752†	49411.6	40254.9	215.14	µg/L	215.14	ppb	11:46:24
2	Mn 257.610†	2405695.4	2258810.6	3530.2	µg/L	3530.2	ppb	11:46:19
2	Mo 202.031†	5.9	-22.3	7.1708	µg/L	7.1708	ppb	11:46:44
2	Ni 231.604†	4096.1	3925.0	130.61	µg/L	130.61	ppb	11:46:44
2	P 214.914†	13236.9	12354.8	9237.6	µg/L	9237.6	ppb	11:46:24
2	Pb 220.353†	1894.1	1638.3	280.66	µg/L	280.66	ppb	11:46:44

2	S 181.975 Axial†	4267.7	3950.8	6768.9 µg/L	6768.9 ppb	11:46:44
2	Sb 206.836†	80.7	6.8	-5.4366 µg/L	-5.4366 ppb	11:46:44
2	Se 196.026†	-123.6	-107.8	23.956 µg/L	23.956 ppb	11:46:44
2	SiO2†	180334.9	165922.1	20200 µg/L	20200 ppb	11:46:24
2	Si 251.611†	210493.9	197239.6	9357.8 µg/L	9357.8 ppb	11:46:24
2	Sn 189.927†	-250.9	-258.4	-10.542 µg/L	-10.542 ppb	11:46:44
2	Ti 334.940†	2456394.4	2306894.6	6046.9 µg/L	6046.9 ppb	11:46:19
2	Tl 190.801†	-131.8	-83.9	8.3302 µg/L	8.3302 ppb	11:46:44
2	U 367.007†	4068.6	3458.8	-92.01 µg/L	-92.01 ppb	11:46:24
2	V 292.402†	46484.4	43854.3	441.85 µg/L	441.85 ppb	11:46:24
2	Zn 213.857†	75879.7	70040.3	657.70 µg/L	657.70 ppb	11:46:24
3	Sc RADIAL	20913.3	20913.3	109 %		11:45:41
3	Al 396.153Radial†	389137.5	356260.9	108100 µg/L	108100 ppb	11:45:36
3	Ca 317.933Radial†	420214.5	384540.3	188310 µg/L	188310 ppb	11:45:36
3	Fe 238.204 Radial†	423021.5	387200.3	215780 µg/L	215780 ppb	11:45:36
3	K 766.490 Radial†	67703.4	61309.3	30047 µg/L	30047 ppb	11:45:41
3	Mg 279.077 IEC†	14339.6	13123.1	66624 µg/L	66624 ppb	11:45:41
3	Na 589.592 Radial†	6131.0	5797.2	10707 µg/L	10707 ppb	11:45:41
3	Sr 421.552†	182050.1	167939.3	807.72 µg/L	807.72 ppb	11:45:36
3	Sc 361.383	648320.7	648320.7	107.67 %		11:46:50
3	Y 371.029	663162.8	663162.8	129.71 %		11:46:50
3	Ag 328.068†	-8807.3	-7588.1	6.9515 µg/L	6.9515 ppb	11:46:55
3	As 188.979†	39.9	48.5	35.132 µg/L	35.132 ppb	11:47:15
3	B 249.677†	3859.4	3498.6	69.890 µg/L	69.890 ppb	11:46:55
3	Ba 233.527†	151714.6	141021.1	1263.4 µg/L	1263.4 ppb	11:46:55
3	Be 313.107†	4756.5	12375.6	7.6119 µg/L	7.6119 ppb	11:46:55
3	Cd 226.502†	2219.6	2277.8	0.5383 µg/L	0.5383 ppb	11:46:55
3	Co 228.616†	3712.6	3454.4	78.615 µg/L	78.615 ppb	11:47:15
3	Cr 267.716†	8324.6	7494.0	163.27 µg/L	163.27 ppb	11:46:55
3	Cu 324.752†	49182.0	39529.9	212.14 µg/L	212.14 ppb	11:46:55
3	Mn 257.610†	2434633.1	2260773.0	3533.4 µg/L	3533.4 ppb	11:46:50
3	Mo 202.031†	-4.6	-32.2	6.5278 µg/L	6.5278 ppb	11:47:15
3	Ni 231.604†	4107.1	3892.7	129.59 µg/L	129.59 ppb	11:47:15
3	P 214.914†	13293.3	12270.1	9172.9 µg/L	9172.9 ppb	11:46:55
3	Pb 220.353†	1896.4	1620.9	277.50 µg/L	277.50 ppb	11:47:15
3	S 181.975 Axial†	4291.0	3928.3	6729.6 µg/L	6729.6 ppb	11:47:15
3	Sb 206.836†	78.5	3.9	-6.4252 µg/L	-6.4252 ppb	11:47:15
3	Se 196.026†	-126.4	-109.2	23.560 µg/L	23.560 ppb	11:47:15
3	SiO2†	179549.1	163324.7	19884 µg/L	19884 ppb	11:46:55
3	Si 251.611†	209754.9	194373.5	9221.7 µg/L	9221.7 ppb	11:46:55
3	Sn 189.927†	-241.3	-246.8	-7.6752 µg/L	-7.6752 ppb	11:47:15
3	Ti 334.940†	2480748.1	2304074.5	6039.6 µg/L	6039.6 ppb	11:46:50
3	Tl 190.801†	-131.1	-81.9	9.1111 µg/L	9.1111 ppb	11:47:15
3	U 367.007†	4031.2	3382.0	-120.1 µg/L	-120.1 ppb	11:46:55
3	V 292.402†	46643.2	43520.4	438.44 µg/L	438.44 ppb	11:46:55
3	Zn 213.857†	75943.2	69313.4	650.36 µg/L	650.36 ppb	11:46:55

Mean Data: 305539004|1218790|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	643971.4	106.95	%	0.634				0.59%
Sc RADIAL	20876.0	109	%	0.7				0.61%
Y 371.029	659218.9	128.94	%	0.672				0.52%
Ag 328.068†	-7604.1	6.7709	µg/L	0.16340	6.7709	ppb	0.16340	2.41%
Al 396.153Radial†	353644.9	107310	µg/L	690.3	107310	ppb	690.3	0.64%
As 188.979†	51.8	37.035	µg/L	2.8463	37.035	ppb	2.8463	7.69%
B 249.677†	3513.6	70.373	µg/L	1.6072	70.373	ppb	1.6072	2.28%
Ba 233.527†	141889.1	1271.2	µg/L	6.83	1271.2	ppb	6.83	0.54%
Be 313.107†	12468.8	7.6641	µg/L	0.04521	7.6641	ppb	0.04521	0.59%
Ca 317.933Radial†	383964.7	188030	µg/L	833.3	188030	ppb	833.3	0.44%
Cd 226.502†	2268.5	0.4513	µg/L	0.45169	0.4513	ppb	0.45169	100.08%
Co 228.616†	3465.8	78.900	µg/L	0.3540	78.900	ppb	0.3540	0.45%
Cr 267.716†	7527.8	163.98	µg/L	0.857	163.98	ppb	0.857	0.52%
Cu 324.752†	39865.5	213.58	µg/L	1.508	213.58	ppb	1.508	0.71%
Fe 238.204 Radial†	386596.9	215440	µg/L	927.9	215440	ppb	927.9	0.43%
K 766.490 Radial†	61204.5	29996	µg/L	44.6	29996	ppb	44.6	0.15%
Mg 279.077 IEC†	13150.3	66762	µg/L	119.9	66762	ppb	119.9	0.18%
Mn 257.610†	2262967.3	3536.8	µg/L	8.75	3536.8	ppb	8.75	0.25%
Mo 202.031†	-31.4	6.5708	µg/L	0.57965	6.5708	ppb	0.57965	8.82%
Na 589.592 Radial†	5785.7	10686	µg/L	82.5	10686	ppb	82.5	0.77%

Ni 231.604†	3904.2	129.96 µg/L	0.568	129.96 ppb	0.568	0.44%
P 214.914†	12330.4	9218.6 µg/L	39.73	9218.6 ppb	39.73	0.43%
Pb 220.353†	1631.2	279.53 µg/L	1.767	279.53 ppb	1.767	0.63%
S 181.975 Axial†	3942.1	6753.6 µg/L	21.03	6753.6 ppb	21.03	0.31%
Sb 206.836†	5.4	-5.9044 µg/L	0.49645	-5.9044 ppb	0.49645	8.41%
Se 196.026†	-107.5	24.747 µg/L	1.7248	24.747 ppb	1.7248	6.97%
SiO2†	165177.8	20110 µg/L	196.3	20110 ppb	196.3	0.98%
Si 251.611†	196436.8	9319.6 µg/L	85.50	9319.6 ppb	85.50	0.92%
Sn 189.927†	-250.8	-8.6290 µg/L	1.65692	-8.6290 ppb	1.65692	19.20%
Sr 421.552†	167197.8	804.15 µg/L	3.091	804.15 ppb	3.091	0.38%
Ti 334.940†	2307861.8	6049.5 µg/L	11.41	6049.5 ppb	11.41	0.19%
Tl 190.801†	-83.0	8.7262 µg/L	0.39057	8.7262 ppb	0.39057	4.48%
U 367.007†	3413.8	-109.6 µg/L	15.35	-109.6 ppb	15.35	14.00%
V 292.402†	43724.5	440.51 µg/L	1.821	440.51 ppb	1.821	0.41%
Zn 213.857†	69812.0	655.31 µg/L	4.291	655.31 ppb	4.291	0.65%

Sequence No.: 11 **Autosampler Location: 309**
Sample ID: 1202672498|1218790|1 **Date Collected: 6/7/2012 11:47:23**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202672498|1218790|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20652.1	20652.1	108	%			11:47:57
1	Al 396.153Radial†	379820.1	352129.5	106850	µg/L	106850	ppb	11:47:52
1	Ca 317.933Radial†	408731.7	378761.4	185480	µg/L	185480	ppb	11:47:52
1	Fe 238.204 Radial†	411458.0	381379.1	212540	µg/L	212540	ppb	11:47:52
1	K 766.490 Radial†	65715.2	60250.1	29528	µg/L	29528	ppb	11:47:57
1	Mg 279.077 IEC†	13909.4	12890.4	65443	µg/L	65443	ppb	11:47:57
1	Na 589.592 Radial†	6016.4	5761.9	10642	µg/L	10642	ppb	11:47:57
1	Sr 421.552†	178827.3	167059.7	803.49	µg/L	803.49	ppb	11:47:52
1	Sc 361.383	642383.3	642383.3	106.69	%			11:48:24
1	Y 371.029	657456.9	657456.9	128.60	%			11:48:24
1	Ag 328.068†	-8530.6	-7404.3	7.3007	µg/L	7.3007	ppb	11:48:29
1	As 188.979†	39.8	48.8	35.164	µg/L	35.164	ppb	11:48:49
1	B 249.677†	3703.5	3385.6	67.090	µg/L	67.090	ppb	11:48:29
1	Ba 233.527†	148802.4	139593.8	1250.6	µg/L	1250.6	ppb	11:48:29
1	Be 313.107†	4582.3	12253.1	7.5336	µg/L	7.5336	ppb	11:48:29
1	Cd 226.502†	2136.3	2218.7	0.1533	µg/L	0.1533	ppb	11:48:29
1	Co 228.616†	3640.3	3418.5	77.845	µg/L	77.845	ppb	11:48:49
1	Cr 267.716†	8112.7	7366.8	160.51	µg/L	160.51	ppb	11:48:29
1	Cu 324.752†	49278.9	40043.0	213.88	µg/L	213.88	ppb	11:48:29
1	Mn 257.610†	2370418.2	2221481.7	3472.1	µg/L	3472.1	ppb	11:48:24
1	Mo 202.031†	-7.6	-35.0	6.1939	µg/L	6.1939	ppb	11:48:49
1	Ni 231.604†	4048.9	3873.5	128.91	µg/L	128.91	ppb	11:48:49
1	P 214.914†	13569.6	12643.2	9457.5	µg/L	9457.5	ppb	11:48:29
1	Pb 220.353†	1901.2	1641.6	280.88	µg/L	280.88	ppb	11:48:49
1	S 181.975 Axial†	4146.1	3829.3	6559.5	µg/L	6559.5	ppb	11:48:49
1	Sb 206.836†	83.8	9.6	-4.4069	µg/L	-4.4069	ppb	11:48:49
1	Se 196.026†	-134.7	-118.0	14.976	µg/L	14.976	ppb	11:48:49
1	SiO2†	190268.2	174913.3	21291	µg/L	21291	ppb	11:48:29
1	Si 251.611†	222074.4	207721.5	9855.2	µg/L	9855.2	ppb	11:48:29
1	Sn 189.927†	-245.8	-253.1	-9.8248	µg/L	-9.8248	ppb	11:48:49
1	Ti 334.940†	2423480.0	2271690.5	5954.7	µg/L	5954.7	ppb	11:48:24
1	Tl 190.801†	-128.5	-80.5	9.0404	µg/L	9.0404	ppb	11:48:49
1	U 367.007†	3938.8	3329.9	-118.7	µg/L	-118.7	ppb	11:48:29
1	V 292.402†	45286.2	42648.7	429.63	µg/L	429.63	ppb	11:48:29
1	Zn 213.857†	83359.5	76916.9	725.70	µg/L	725.70	ppb	11:48:29
2	Sc RADIAL	20760.3	20760.3	108	%			11:48:07
2	Al 396.153Radial†	382754.5	353000.1	107110	µg/L	107110	ppb	11:48:02
2	Ca 317.933Radial†	409352.4	377358.7	184800	µg/L	184800	ppb	11:48:02
2	Fe 238.204 Radial†	412709.8	380545.3	212070	µg/L	212070	ppb	11:48:02
2	K 766.490 Radial†	66204.5	60383.8	29593	µg/L	29593	ppb	11:48:07
2	Mg 279.077 IEC†	14013.7	12919.3	65590	µg/L	65590	ppb	11:48:07
2	Na 589.592 Radial†	5984.0	5703.0	10533	µg/L	10533	ppb	11:48:07
2	Sr 421.552†	179573.0	166883.2	802.65	µg/L	802.65	ppb	11:48:02
2	Sc 361.383	646673.5	646673.5	107.40	%			11:48:55
2	Y 371.029	661743.3	661743.3	129.43	%			11:48:55
2	Ag 328.068†	-8594.8	-7411.0	7.1141	µg/L	7.1141	ppb	11:49:00
2	As 188.979†	37.7	46.5	33.837	µg/L	33.837	ppb	11:49:20
2	B 249.677†	3750.9	3406.7	67.771	µg/L	67.771	ppb	11:49:00
2	Ba 233.527†	148485.8	138373.7	1239.6	µg/L	1239.6	ppb	11:49:00
2	Be 313.107†	4552.9	12197.2	7.4976	µg/L	7.4976	ppb	11:49:00
2	Cd 226.502†	2170.5	2237.3	0.5095	µg/L	0.5095	ppb	11:49:00
2	Co 228.616†	3613.9	3371.4	76.646	µg/L	76.646	ppb	11:49:20
2	Cr 267.716†	8139.1	7341.0	159.96	µg/L	159.96	ppb	11:49:00
2	Cu 324.752†	49287.2	39744.2	212.47	µg/L	212.47	ppb	11:49:00
2	Mn 257.610†	2377788.4	2213603.9	3459.8	µg/L	3459.8	ppb	11:48:55
2	Mo 202.031†	7.1	-21.2	7.1563	µg/L	7.1563	ppb	11:49:20
2	Ni 231.604†	4023.1	3824.2	127.31	µg/L	127.31	ppb	11:49:20
2	P 214.914†	13580.9	12569.3	9402.0	µg/L	9402.0	ppb	11:49:00
2	Pb 220.353†	1881.7	1611.6	275.50	µg/L	275.50	ppb	11:49:20

2	S 181.975 Axial†	4141.2	3799.0	6507.1 µg/L	6507.1 ppb	11:49:20
2	Sb 206.836†	98.5	22.7	0.0084 µg/L	0.0084 ppb	11:49:20
2	Se 196.026†	-141.1	-123.1	10.715 µg/L	10.715 ppb	11:49:20
2	SiO2†	188846.9	172406.8	20987 µg/L	20987 ppb	11:49:00
2	Si 251.611†	220546.8	204918.1	9722.2 µg/L	9722.2 ppb	11:49:00
2	Sn 189.927†	-239.9	-246.1	-8.3323 µg/L	-8.3323 ppb	11:49:20
2	Ti 334.940†	2431231.7	2263838.0	5934.1 µg/L	5934.1 ppb	11:48:55
2	Tl 190.801†	-127.5	-78.9	9.5364 µg/L	9.5364 ppb	11:49:20
2	U 367.007†	3924.0	3291.7	-127.0 µg/L	-127.0 ppb	11:49:00
2	V 292.402†	45198.5	42285.5	425.96 µg/L	425.96 ppb	11:49:00
2	Zn 213.857†	83194.7	76245.1	719.17 µg/L	719.17 ppb	11:49:00
3	Sc RADIAL	20934.9	20934.9	109 %		11:48:17
3	Al 396.153Radial†	382492.1	349816.5	106150 µg/L	106150 ppb	11:48:12
3	Ca 317.933Radial†	409362.5	374219.9	183260 µg/L	183260 ppb	11:48:12
3	Fe 238.204 Radial†	412325.6	377020.0	210110 µg/L	210110 ppb	11:48:12
3	K 766.490 Radial†	66117.4	59795.0	29305 µg/L	29305 ppb	11:48:17
3	Mg 279.077 IEC†	13958.1	12760.8	64785 µg/L	64785 ppb	11:48:17
3	Na 589.592 Radial†	5976.3	5649.9	10435 µg/L	10435 ppb	11:48:17
3	Sr 421.552†	179314.4	165265.7	794.87 µg/L	794.87 ppb	11:48:12
3	Sc 361.383	643689.7	643689.7	106.90 %		11:49:26
3	Y 371.029	658430.9	658430.9	128.79 %		11:49:26
3	Ag 328.068†	-8446.4	-7309.3	7.3059 µg/L	7.3059 ppb	11:49:31
3	As 188.979†	44.0	52.6	37.315 µg/L	37.315 ppb	11:49:51
3	B 249.677†	3773.7	3444.2	69.140 µg/L	69.140 ppb	11:49:31
3	Ba 233.527†	148983.8	139480.4	1249.7 µg/L	1249.7 ppb	11:49:31
3	Be 313.107†	4607.7	12268.1	7.5258 µg/L	7.5258 ppb	11:49:31
3	Cd 226.502†	2163.1	2239.7	0.8571 µg/L	0.8571 ppb	11:49:31
3	Co 228.616†	3595.8	3370.0	76.607 µg/L	76.607 ppb	11:49:51
3	Cr 267.716†	8100.1	7339.6	159.88 µg/L	159.88 ppb	11:49:31
3	Cu 324.752†	49317.7	39985.5	213.25 µg/L	213.25 ppb	11:49:31
3	Mn 257.610†	2367233.0	2213992.8	3460.2 µg/L	3460.2 ppb	11:49:26
3	Mo 202.031†	4.9	-23.3	6.9279 µg/L	6.9279 ppb	11:49:51
3	Ni 231.604†	4009.3	3828.7	127.42 µg/L	127.42 ppb	11:49:51
3	P 214.914†	13535.5	12585.5	9415.3 µg/L	9415.3 ppb	11:49:31
3	Pb 220.353†	1859.5	1599.0	273.35 µg/L	273.35 ppb	11:49:51
3	S 181.975 Axial†	4129.9	3806.3	6520.0 µg/L	6520.0 ppb	11:49:51
3	Sb 206.836†	93.3	18.4	-1.4233 µg/L	-1.4233 ppb	11:49:51
3	Se 196.026†	-123.7	-107.5	22.000 µg/L	22.000 ppb	11:49:51
3	SiO2†	188432.6	172834.3	21039 µg/L	21039 ppb	11:49:31
3	Si 251.611†	220163.1	205511.1	9750.3 µg/L	9750.3 ppb	11:49:31
3	Sn 189.927†	-251.4	-257.9	-11.317 µg/L	-11.317 ppb	11:49:51
3	Ti 334.940†	2422805.5	2266449.3	5940.9 µg/L	5940.9 ppb	11:49:26
3	Tl 190.801†	-126.9	-78.9	9.4457 µg/L	9.4457 ppb	11:49:51
3	U 367.007†	3934.3	3318.2	-110.0 µg/L	-110.0 ppb	11:49:31
3	V 292.402†	45192.0	42474.5	427.87 µg/L	427.87 ppb	11:49:31
3	Zn 213.857†	83301.0	76703.6	723.96 µg/L	723.96 ppb	11:49:31

Mean Data: 1202672498|1218790|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	644248.9	107.00	%	0.365				0.34%
Sc RADIAL	20782.5	109	%	0.7				0.69%
Y 371.029	659210.3	128.94	%	0.440				0.34%
Ag 328.068†	-7374.9	7.2403	µg/L	0.10925	7.2403	ppb	0.10925	1.51%
Al 396.153Radial†	351648.7	106700	µg/L	499.3	106700	ppb	499.3	0.47%
As 188.979†	49.3	35.438	µg/L	1.7553	35.438	ppb	1.7553	4.95%
B 249.677†	3412.2	68.000	µg/L	1.0438	68.000	ppb	1.0438	1.54%
Ba 233.527†	139149.3	1246.6	µg/L	6.08	1246.6	ppb	6.08	0.49%
Be 313.107†	12239.5	7.5190	µg/L	0.01891	7.5190	ppb	0.01891	0.25%
Ca 317.933Radial†	376780.0	184510	µg/L	1138.8	184510	ppb	1138.8	0.62%
Cd 226.502†	2231.9	0.5066	µg/L	0.35189	0.5066	ppb	0.35189	69.46%
Co 228.616†	3386.6	77.033	µg/L	0.7040	77.033	ppb	0.7040	0.91%
Cr 267.716†	7349.1	160.12	µg/L	0.341	160.12	ppb	0.341	0.21%
Cu 324.752†	39924.2	213.20	µg/L	0.705	213.20	ppb	0.705	0.33%
Fe 238.204 Radial†	379648.1	211570	µg/L	1289.5	211570	ppb	1289.5	0.61%
K 766.490 Radial†	60143.0	29475	µg/L	151.4	29475	ppb	151.4	0.51%
Mg 279.077 IEC†	12856.8	65273	µg/L	428.7	65273	ppb	428.7	0.66%
Mn 257.610†	2216359.5	3464.0	µg/L	6.98	3464.0	ppb	6.98	0.20%
Mo 202.031†	-26.5	6.7594	µg/L	0.50282	6.7594	ppb	0.50282	7.44%
Na 589.592 Radial†	5704.9	10537	µg/L	103.4	10537	ppb	103.4	0.98%

Ni 231.604†	3842.1	127.88 µg/L	0.894	127.88 ppb	0.894	0.70%
P 214.914†	12599.3	9424.9 µg/L	28.99	9424.9 ppb	28.99	0.31%
Pb 220.353†	1617.4	276.58 µg/L	3.879	276.58 ppb	3.879	1.40%
S 181.975 Axial†	3811.5	6528.8 µg/L	27.29	6528.8 ppb	27.29	0.42%
Sb 206.836†	16.9	-1.9406 µg/L	2.25266	-1.9406 ppb	2.25266	116.08%
Se 196.026†	-116.2	15.897 µg/L	5.6990	15.897 ppb	5.6990	35.85%
SiO2†	173384.8	21106 µg/L	163.0	21106 ppb	163.0	0.77%
Si 251.611†	206050.2	9775.9 µg/L	70.11	9775.9 ppb	70.11	0.72%
Sn 189.927†	-252.4	-9.8247 µg/L	1.49245	-9.8247 ppb	1.49245	15.19%
Sr 421.552†	166402.9	800.34 µg/L	4.756	800.34 ppb	4.756	0.59%
Ti 334.940†	2267325.9	5943.2 µg/L	10.49	5943.2 ppb	10.49	0.18%
Tl 190.801†	-79.4	9.3408 µg/L	0.26410	9.3408 ppb	0.26410	2.83%
U 367.007†	3313.3	-118.5 µg/L	8.50	-118.5 ppb	8.50	7.18%
V 292.402†	42469.6	427.82 µg/L	1.836	427.82 ppb	1.836	0.43%
Zn 213.857†	76621.9	722.94 µg/L	3.384	722.94 ppb	3.384	0.47%

Sequence No.: 12 **Autosampler Location: 310**
Sample ID: 1202672499|1218790|1 **Date Collected: 6/7/2012 11:49:59**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202672499|1218790|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20842.5	20842.5	109	%			11:50:33
1	Al 396.153Radial†	468610.0	430467.7	130600	µg/L	130600	ppb	11:50:28
1	Ca 317.933Radial†	414903.5	380970.1	186560	µg/L	186560	ppb	11:50:33
1	Fe 238.204 Radial†	438980.8	403175.6	224690	µg/L	224690	ppb	11:50:28
1	K 766.490 Radial†	79726.8	72563.5	35549	µg/L	35549	ppb	11:50:33
1	Mg 279.077 IEC†	15519.6	14251.6	72360	µg/L	72360	ppb	11:50:33
1	Na 589.592 Radial†	8710.1	8185.1	15117	µg/L	15117	ppb	11:50:33
1	Sr 421.552†	278430.3	257031.3	1236.7	µg/L	1236.7	ppb	11:50:28
1	Sc 361.383	642786.2	642786.2	106.75	%			11:51:02
1	Y 371.029	656597.5	656597.5	128.43	%			11:51:02
1	Ag 328.068†	65513.4	61961.0	478.37	µg/L	478.37	ppb	11:51:02
1	As 188.979†	905.4	859.5	503.92	µg/L	503.92	ppb	11:51:22
1	B 249.677†	20553.4	19167.5	520.70	µg/L	520.70	ppb	11:51:02
1	Ba 233.527†	198802.2	186343.3	1671.6	µg/L	1671.6	ppb	11:51:02
1	Be 313.107†	846203.3	800633.8	475.87	µg/L	475.87	ppb	11:51:02
1	Cd 226.502†	33006.7	31135.2	438.61	µg/L	438.61	ppb	11:51:02
1	Co 228.616†	21350.0	20005.8	510.74	µg/L	510.74	ppb	11:51:22
1	Cr 267.716†	30365.3	28207.0	604.97	µg/L	604.97	ppb	11:51:22
1	Cu 324.752†	165879.2	149238.7	702.81	µg/L	702.81	ppb	11:51:02
1	Mn 257.610†	2691790.3	2521132.4	3938.9	µg/L	3938.9	ppb	11:51:02
1	Mo 202.031†	6630.1	6182.8	449.67	µg/L	449.67	ppb	11:51:22
1	Ni 231.604†	18124.0	17055.8	555.71	µg/L	555.71	ppb	11:51:22
1	P 214.914†	14427.6	13438.9	10044	µg/L	10044	ppb	11:51:22
1	Pb 220.353†	4822.9	4377.4	741.35	µg/L	741.35	ppb	11:51:22
1	S 181.975 Axial†	7236.8	6722.1	11552	µg/L	11552	ppb	11:51:22
1	Sb 206.836†	1484.8	1321.9	432.68	µg/L	432.68	ppb	11:51:22
1	Se 196.026†	433.7	414.5	439.72	µg/L	439.72	ppb	11:51:22
1	SiO2†	187116.6	171849.3	20952	µg/L	20952	ppb	11:51:02
1	Si 251.611†	219418.9	205103.5	9723.8	µg/L	9723.8	ppb	11:51:02
1	Sn 189.927†	1796.2	1659.8	435.26	µg/L	435.26	ppb	11:51:22
1	Ti 334.940†	2970665.4	2782839.3	7293.2	µg/L	7293.2	ppb	11:51:02
1	Tl 190.801†	1109.5	1079.2	442.60	µg/L	442.60	ppb	11:51:22
1	U 367.007†	5861.7	5128.8	321.8	µg/L	321.8	ppb	11:51:02
1	V 292.402†	94165.6	88409.7	899.84	µg/L	899.84	ppb	11:51:02
1	Zn 213.857†	130365.3	120900.3	1154.0	µg/L	1154.0	ppb	11:51:02
2	Sc RADIAL	21008.3	21008.3	110	%			11:50:43
2	Al 396.153Radial†	477585.2	435248.8	132050	µg/L	132050	ppb	11:50:38
2	Ca 317.933Radial†	418066.4	380844.0	186500	µg/L	186500	ppb	11:50:43
2	Fe 238.204 Radial†	444248.9	404793.4	225590	µg/L	225590	ppb	11:50:38
2	K 766.490 Radial†	80640.2	72817.7	35674	µg/L	35674	ppb	11:50:43
2	Mg 279.077 IEC†	15690.1	14294.4	72577	µg/L	72577	ppb	11:50:43
2	Na 589.592 Radial†	8772.9	8179.2	15106	µg/L	15106	ppb	11:50:43
2	Sr 421.552†	283409.9	259550.2	1248.8	µg/L	1248.8	ppb	11:50:38
2	Sc 361.383	648918.5	648918.5	107.77	%			11:51:30
2	Y 371.029	663181.3	663181.3	129.72	%			11:51:30
2	Ag 328.068†	66380.4	62185.5	480.12	µg/L	480.12	ppb	11:51:30
2	As 188.979†	901.8	848.2	497.41	µg/L	497.41	ppb	11:51:50
2	B 249.677†	20829.8	19242.0	522.73	µg/L	522.73	ppb	11:51:30
2	Ba 233.527†	200787.7	186425.9	1672.4	µg/L	1672.4	ppb	11:51:30
2	Be 313.107†	856146.4	802369.1	476.90	µg/L	476.90	ppb	11:51:30
2	Cd 226.502†	33372.8	31182.7	439.19	µg/L	439.19	ppb	11:51:30
2	Co 228.616†	21412.5	19874.9	507.27	µg/L	507.27	ppb	11:51:50
2	Cr 267.716†	30378.4	27950.4	599.50	µg/L	599.50	ppb	11:51:50
2	Cu 324.752†	167945.5	149687.6	704.95	µg/L	704.95	ppb	11:51:30
2	Mn 257.610†	2719739.9	2523238.2	3942.3	µg/L	3942.3	ppb	11:51:30
2	Mo 202.031†	6641.4	6134.7	446.28	µg/L	446.28	ppb	11:51:50
2	Ni 231.604†	18188.9	16955.6	552.48	µg/L	552.48	ppb	11:51:50
2	P 214.914†	14475.2	13355.4	9980.4	µg/L	9980.4	ppb	11:51:50
2	Pb 220.353†	4849.3	4359.2	737.69	µg/L	737.69	ppb	11:51:50

2	S 181.975 Axial†	7238.3	6659.4	11443 µg/L	11443 ppb		11:51:50
2	Sb 206.836†	1476.5	1301.1	425.70 µg/L	425.70 ppb		11:51:50
2	Se 196.026†	460.0	435.1	456.32 µg/L	456.32 ppb		11:51:50
2	SiO2†	184596.3	167854.3	20467 µg/L	20467 ppb		11:51:30
2	Si 251.611†	216392.2	200352.6	9498.3 µg/L	9498.3 ppb		11:51:30
2	Sn 189.927†	1813.7	1660.2	435.51 µg/L	435.51 ppb		11:51:50
2	Ti 334.940†	3005447.6	2788816.4	7308.9 µg/L	7308.9 ppb		11:51:30
2	Tl 190.801†	1102.7	1063.1	436.79 µg/L	436.79 ppb		11:51:50
2	U 367.007†	5949.0	5158.0	325.5 µg/L	325.5 ppb		11:51:30
2	V 292.402†	95339.1	88664.9	902.38 µg/L	902.38 ppb		11:51:30
2	Zn 213.857†	131986.8	121250.9	1157.4 µg/L	1157.4 ppb		11:51:30
3	Sc RADIAL	21043.8	21043.8	110 %			11:50:54
3	Al 396.153Radial†	476700.3	433710.8	131590 µg/L	131590 ppb		11:50:48
3	Ca 317.933Radial†	418904.1	380964.5	186560 µg/L	186560 ppb		11:50:54
3	Fe 238.204 Radial†	442043.0	402104.8	224090 µg/L	224090 ppb		11:50:48
3	K 766.490 Radial†	80799.9	72839.3	35684 µg/L	35684 ppb		11:50:54
3	Mg 279.077 IEC†	15653.0	14236.6	72284 µg/L	72284 ppb		11:50:54
3	Na 589.592 Radial†	8748.4	8143.4	15040 µg/L	15040 ppb		11:50:54
3	Sr 421.552†	282735.3	258501.6	1243.8 µg/L	1243.8 ppb		11:50:48
3	Sc 361.383	648420.0	648420.0	107.69 %			11:51:57
3	Y 371.029	662037.1	662037.1	129.49 %			11:51:57
3	Ag 328.068†	66091.7	61964.7	478.25 µg/L	478.25 ppb		11:51:57
3	As 188.979†	914.4	860.6	504.50 µg/L	504.50 ppb		11:52:17
3	B 249.677†	20727.8	19162.2	520.64 µg/L	520.64 ppb		11:51:57
3	Ba 233.527†	200555.7	186353.6	1671.7 µg/L	1671.7 ppb		11:51:57
3	Be 313.107†	854734.2	801668.5	476.48 µg/L	476.48 ppb		11:51:57
3	Cd 226.502†	33393.4	31225.6	440.08 µg/L	440.08 ppb		11:51:57
3	Co 228.616†	21411.3	19889.1	507.66 µg/L	507.66 ppb		11:52:17
3	Cr 267.716†	30413.8	28004.9	600.63 µg/L	600.63 ppb		11:52:17
3	Cu 324.752†	167279.7	149189.1	702.49 µg/L	702.49 ppb		11:51:57
3	Mn 257.610†	2717642.2	2523230.4	3942.1 µg/L	3942.1 ppb		11:51:57
3	Mo 202.031†	6638.3	6136.5	446.35 µg/L	446.35 ppb		11:52:17
3	Ni 231.604†	18164.2	16945.7	552.13 µg/L	552.13 ppb		11:52:17
3	P 214.914†	14500.8	13389.5	10007 µg/L	10007 ppb		11:52:17
3	Pb 220.353†	4823.4	4338.6	734.17 µg/L	734.17 ppb		11:52:17
3	S 181.975 Axial†	7250.8	6676.2	11472 µg/L	11472 ppb		11:52:17
3	Sb 206.836†	1480.5	1305.9	427.30 µg/L	427.30 ppb		11:52:17
3	Se 196.026†	467.6	442.5	461.39 µg/L	461.39 ppb		11:52:17
3	SiO2†	178709.4	162519.4	19819 µg/L	19819 ppb		11:51:57
3	Si 251.611†	209744.0	194333.5	9212.7 µg/L	9212.7 ppb		11:51:57
3	Sn 189.927†	1813.2	1661.0	435.51 µg/L	435.51 ppb		11:52:17
3	Ti 334.940†	2999070.4	2785038.4	7299.0 µg/L	7299.0 ppb		11:51:57
3	Tl 190.801†	1103.2	1064.3	437.10 µg/L	437.10 ppb		11:52:17
3	U 367.007†	5971.5	5183.1	339.7 µg/L	339.7 ppb		11:51:57
3	V 292.402†	95113.6	88523.6	900.96 µg/L	900.96 ppb		11:51:57
3	Zn 213.857†	131840.0	121208.7	1157.2 µg/L	1157.2 ppb		11:51:57

Mean Data: 1202672499|1218790|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	646708.3	107.40	%	0.566				0.53%
Sc RADIAL	20964.8	110	%	0.6				0.51%
Y 371.029	660605.3	129.21	%	0.688				0.53%
Ag 328.068†	62037.1	478.91	µg/L	1.048	478.91	ppb	1.048	0.22%
Al 396.153Radial†	433142.5	131410	µg/L	740.7	131410	ppb	740.7	0.56%
As 188.979†	856.1	501.94	µg/L	3.936	501.94	ppb	3.936	0.78%
B 249.677†	19190.5	521.36	µg/L	1.188	521.36	ppb	1.188	0.23%
Ba 233.527†	186374.3	1671.9	µg/L	0.39	1671.9	ppb	0.39	0.02%
Be 313.107†	801557.1	476.42	µg/L	0.517	476.42	ppb	0.517	0.11%
Ca 317.933Radial†	380926.2	186540	µg/L	34.9	186540	ppb	34.9	0.02%
Cd 226.502†	31181.1	439.29	µg/L	0.740	439.29	ppb	0.740	0.17%
Co 228.616†	19923.3	508.56	µg/L	1.900	508.56	ppb	1.900	0.37%
Cr 267.716†	28054.1	601.70	µg/L	2.883	601.70	ppb	2.883	0.48%
Cu 324.752†	149371.8	703.42	µg/L	1.334	703.42	ppb	1.334	0.19%
Fe 238.204 Radial†	403358.0	224790	µg/L	754.3	224790	ppb	754.3	0.34%
K 766.490 Radial†	72740.2	35635	µg/L	75.0	35635	ppb	75.0	0.21%
Mg 279.077 IEC†	14260.9	72407	µg/L	152.3	72407	ppb	152.3	0.21%
Mn 257.610†	2522533.7	3941.1	µg/L	1.90	3941.1	ppb	1.90	0.05%
Mo 202.031†	6151.3	447.43	µg/L	1.940	447.43	ppb	1.940	0.43%
Na 589.592 Radial†	8169.2	15088	µg/L	41.6	15088	ppb	41.6	0.28%

Ni 231.604†	16985.7	553.44 µg/L	1.971	553.44 ppb	1.971	0.36%
P 214.914†	13394.6	10011 µg/L	31.9	10011 ppb	31.9	0.32%
Pb 220.353†	4358.4	737.74 µg/L	3.588	737.74 ppb	3.588	0.49%
S 181.975 Axial†	6685.9	11489 µg/L	56.2	11489 ppb	56.2	0.49%
Sb 206.836†	1309.6	428.56 µg/L	3.654	428.56 ppb	3.654	0.85%
Se 196.026†	430.7	452.48 µg/L	11.336	452.48 ppb	11.336	2.51%
SiO2†	167407.7	20412 µg/L	568.7	20412 ppb	568.7	2.79%
Si 251.611†	199929.9	9478.3 µg/L	256.11	9478.3 ppb	256.11	2.70%
Sn 189.927†	1660.3	435.43 µg/L	0.149	435.43 ppb	0.149	0.03%
Sr 421.552†	258361.0	1243.1 µg/L	6.09	1243.1 ppb	6.09	0.49%
Ti 334.940†	2785564.7	7300.4 µg/L	7.92	7300.4 ppb	7.92	0.11%
Tl 190.801†	1068.9	438.83 µg/L	3.268	438.83 ppb	3.268	0.74%
U 367.007†	5156.7	329.0 µg/L	9.48	329.0 ppb	9.48	2.88%
V 292.402†	88532.7	901.06 µg/L	1.270	901.06 ppb	1.270	0.14%
Zn 213.857†	121120.0	1156.2 µg/L	1.88	1156.2 ppb	1.88	0.16%

Sequence No.: 13 **Autosampler Location: 311**
Sample ID: 1202672501|1218790|1 **Date Collected: 6/7/2012 11:52:25**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202672501|1218790|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21016.2	21016.2	110	%			11:52:59
1	Al 396.153Radial†	464690.5	423338.7	128440	µg/L	128440	ppb	11:52:54
1	Ca 317.933Radial†	429625.7	391229.7	191590	µg/L	191590	ppb	11:52:59
1	Fe 238.204 Radial†	446902.5	407057.8	226850	µg/L	226850	ppb	11:52:54
1	K 766.490 Radial†	80454.3	72620.7	35576	µg/L	35576	ppb	11:52:59
1	Mg 279.077 IEC†	15969.2	14543.3	73840	µg/L	73840	ppb	11:52:59
1	Na 589.592 Radial†	8798.0	8199.1	15143	µg/L	15143	ppb	11:52:59
1	Sr 421.552†	289957.6	265417.1	1277.0	µg/L	1277.0	ppb	11:52:54
1	Sc 361.383	644856.6	644856.6	107.10	%			11:53:28
1	Y 371.029	661925.1	661925.1	129.47	%			11:53:28
1	Ag 328.068†	65745.5	61980.6	479.07	µg/L	479.07	ppb	11:53:28
1	As 188.979†	906.3	857.7	502.97	µg/L	502.97	ppb	11:53:48
1	B 249.677†	20688.8	19232.1	522.25	µg/L	522.25	ppb	11:53:28
1	Ba 233.527†	209288.0	195536.4	1754.3	µg/L	1754.3	ppb	11:53:28
1	Be 313.107†	855333.5	806614.1	479.57	µg/L	479.57	ppb	11:53:28
1	Cd 226.502†	33286.4	31297.0	440.73	µg/L	440.73	ppb	11:53:28
1	Co 228.616†	21499.2	20081.0	513.52	µg/L	513.52	ppb	11:53:48
1	Cr 267.716†	30395.9	28144.3	603.66	µg/L	603.66	ppb	11:53:48
1	Cu 324.752†	167478.7	150233.3	707.27	µg/L	707.27	ppb	11:53:28
1	Mn 257.610†	2746726.1	2564332.4	4006.2	µg/L	4006.2	ppb	11:53:28
1	Mo 202.031†	6524.1	6063.9	441.29	µg/L	441.29	ppb	11:53:48
1	Ni 231.604†	18283.6	17150.3	558.80	µg/L	558.80	ppb	11:53:48
1	P 214.914†	14532.4	13493.4	10083	µg/L	10083	ppb	11:53:48
1	Pb 220.353†	4697.3	4245.6	720.55	µg/L	720.55	ppb	11:53:48
1	S 181.975 Axial†	7393.6	6846.7	11767	µg/L	11767	ppb	11:53:48
1	Sb 206.836†	1426.9	1263.4	413.01	µg/L	413.01	ppb	11:53:48
1	Se 196.026†	457.8	435.7	457.44	µg/L	457.44	ppb	11:53:48
1	SiO2†	287403.7	264928.3	32258	µg/L	32258	ppb	11:53:28
1	Si 251.611†	338707.2	315827.4	14978	µg/L	14978	ppb	11:53:28
1	Sn 189.927†	1817.2	1674.0	437.78	µg/L	437.78	ppb	11:53:48
1	Ti 334.940†	2830539.3	2643064.2	6927.2	µg/L	6927.2	ppb	11:53:28
1	Tl 190.801†	1106.5	1073.1	438.98	µg/L	438.98	ppb	11:53:48
1	U 367.007†	5947.1	5191.0	328.2	µg/L	328.2	ppb	11:53:28
1	V 292.402†	94714.9	88639.3	902.41	µg/L	902.41	ppb	11:53:28
1	Zn 213.857†	129250.6	119467.4	1139.6	µg/L	1139.6	ppb	11:53:28
2	Sc RADIAL	20898.1	20898.1	109	%			11:53:09
2	Al 396.153Radial†	464831.3	425860.8	129210	µg/L	129210	ppb	11:53:04
2	Ca 317.933Radial†	430857.9	394571.0	193220	µg/L	193220	ppb	11:53:09
2	Fe 238.204 Radial†	444527.5	407183.6	226920	µg/L	226920	ppb	11:53:04
2	K 766.490 Radial†	80989.2	73525.1	36019	µg/L	36019	ppb	11:53:09
2	Mg 279.077 IEC†	16009.2	14662.2	74444	µg/L	74444	ppb	11:53:09
2	Na 589.592 Radial†	8904.2	8341.7	15406	µg/L	15406	ppb	11:53:09
2	Sr 421.552†	289085.2	266111.2	1280.4	µg/L	1280.4	ppb	11:53:04
2	Sc 361.383	646315.3	646315.3	107.34	%			11:53:55
2	Y 371.029	664134.9	664134.9	129.90	%			11:53:55
2	Ag 328.068†	65931.4	62015.4	479.30	µg/L	479.30	ppb	11:53:55
2	As 188.979†	896.4	846.5	496.49	µg/L	496.49	ppb	11:54:16
2	B 249.677†	20726.8	19223.8	522.00	µg/L	522.00	ppb	11:53:55
2	Ba 233.527†	209465.1	195260.4	1751.8	µg/L	1751.8	ppb	11:53:55
2	Be 313.107†	855580.1	805041.2	478.65	µg/L	478.65	ppb	11:53:55
2	Cd 226.502†	33314.9	31253.5	440.06	µg/L	440.06	ppb	11:53:55
2	Co 228.616†	21386.7	19930.8	509.60	µg/L	509.60	ppb	11:54:16
2	Cr 267.716†	30157.7	27858.3	597.57	µg/L	597.57	ppb	11:54:16
2	Cu 324.752†	167469.7	149871.9	705.66	µg/L	705.66	ppb	11:53:55
2	Mn 257.610†	2747520.5	2559284.1	3998.4	µg/L	3998.4	ppb	11:53:55
2	Mo 202.031†	6501.6	6029.2	438.82	µg/L	438.82	ppb	11:54:16
2	Ni 231.604†	18108.4	16948.6	552.27	µg/L	552.27	ppb	11:54:16
2	P 214.914†	14384.1	13324.6	9955.3	µg/L	9955.3	ppb	11:54:16
2	Pb 220.353†	4684.8	4224.0	716.69	µg/L	716.69	ppb	11:54:16

2	S 181.975 Axial†	7304.6	6748.2	11596 µg/L	11596 ppb		11:54:16
2	Sb 206.836†	1409.7	1244.3	406.68 µg/L	406.68 ppb		11:54:16
2	Se 196.026†	443.9	421.7	446.57 µg/L	446.57 ppb		11:54:16
2	SiO2†	284680.0	261785.1	31876 µg/L	31876 ppb		11:53:55
2	Si 251.611†	335292.2	311932.1	14793 µg/L	14793 ppb		11:53:55
2	Sn 189.927†	1815.1	1668.3	436.53 µg/L	436.53 ppb		11:54:16
2	Ti 334.940†	2832091.2	2638545.0	6915.4 µg/L	6915.4 ppb		11:53:55
2	Tl 190.801†	1116.4	1080.0	441.48 µg/L	441.48 ppb		11:54:16
2	U 367.007†	5952.1	5183.2	325.6 µg/L	325.6 ppb		11:53:55
2	V 292.402†	94704.4	88429.9	900.25 µg/L	900.25 ppb		11:53:55
2	Zn 213.857†	129067.2	119024.2	1135.2 µg/L	1135.2 ppb		11:53:55
3	Sc RADIAL	21018.5	21018.5	110 %			11:53:19
3	Al 396.153Radial†	468357.1	426633.3	129440 µg/L	129440 ppb		11:53:14
3	Ca 317.933Radial†	432297.6	393621.8	192760 µg/L	192760 ppb		11:53:19
3	Fe 238.204 Radial†	447091.6	407186.8	226920 µg/L	226920 ppb		11:53:14
3	K 766.490 Radial†	81046.6	73152.4	35837 µg/L	35837 ppb		11:53:19
3	Mg 279.077 IEC†	16070.1	14633.6	74299 µg/L	74299 ppb		11:53:19
3	Na 589.592 Radial†	8887.8	8279.9	15292 µg/L	15292 ppb		11:53:19
3	Sr 421.552†	291084.8	266415.7	1281.8 µg/L	1281.8 ppb		11:53:14
3	Sc 361.383	650107.2	650107.2	107.97 %			11:54:23
3	Y 371.029	666728.3	666728.3	130.41 %			11:54:23
3	Ag 328.068†	66020.7	61739.8	477.42 µg/L	477.42 ppb		11:54:23
3	As 188.979†	897.4	842.6	494.21 µg/L	494.21 ppb		11:54:43
3	B 249.677†	20774.3	19155.2	520.03 µg/L	520.03 ppb		11:54:23
3	Ba 233.527†	209411.2	194072.2	1741.1 µg/L	1741.1 ppb		11:54:23
3	Be 313.107†	855417.2	800241.3	475.80 µg/L	475.80 ppb		11:54:23
3	Cd 226.502†	33260.6	31022.2	436.53 µg/L	436.53 ppb		11:54:23
3	Co 228.616†	21387.6	19815.5	506.63 µg/L	506.63 ppb		11:54:43
3	Cr 267.716†	30219.5	27751.7	595.31 µg/L	595.31 ppb		11:54:43
3	Cu 324.752†	167747.6	149219.3	702.74 µg/L	702.74 ppb		11:54:23
3	Mn 257.610†	2748920.0	2545650.6	3977.2 µg/L	3977.2 ppb		11:54:23
3	Mo 202.031†	6494.5	5987.3	435.84 µg/L	435.84 ppb		11:54:43
3	Ni 231.604†	18115.5	16856.7	549.30 µg/L	549.30 ppb		11:54:43
3	P 214.914†	14414.5	13274.6	9917.6 µg/L	9917.6 ppb		11:54:43
3	Pb 220.353†	4697.6	4210.4	714.21 µg/L	714.21 ppb		11:54:43
3	S 181.975 Axial†	7349.2	6749.9	11599 µg/L	11599 ppb		11:54:43
3	Sb 206.836†	1410.8	1237.7	404.45 µg/L	404.45 ppb		11:54:43
3	Se 196.026†	435.8	411.9	438.79 µg/L	438.79 ppb		11:54:43
3	SiO2†	279198.0	255160.8	31071 µg/L	31071 ppb		11:54:23
3	Si 251.611†	328911.1	304200.0	14427 µg/L	14427 ppb		11:54:23
3	Sn 189.927†	1787.2	1632.6	428.22 µg/L	428.22 ppb		11:54:43
3	Ti 334.940†	2834988.3	2625839.0	6882.1 µg/L	6882.1 ppb		11:54:23
3	Tl 190.801†	1105.3	1063.6	435.32 µg/L	435.32 ppb		11:54:43
3	U 367.007†	5925.2	5125.9	309.7 µg/L	309.7 ppb		11:54:23
3	V 292.402†	94580.9	87801.0	893.84 µg/L	893.84 ppb		11:54:23
3	Zn 213.857†	129066.3	118322.0	1128.3 µg/L	1128.3 ppb		11:54:23

Mean Data: 1202672501|1218790|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	647093.0	107.47	%	0.450				0.42%
Sc RADIAL	20977.6	110	%	0.4				0.33%
Y 371.029	664262.7	129.93	%	0.470				0.36%
Ag 328.068†	61911.9	478.60	µg/L	1.028	478.60	ppb	1.028	0.21%
Al 396.153Radial†	425277.6	129030	µg/L	522.9	129030	ppb	522.9	0.41%
As 188.979†	848.9	497.89	µg/L	4.546	497.89	ppb	4.546	0.91%
B 249.677†	19203.7	521.43	µg/L	1.219	521.43	ppb	1.219	0.23%
Ba 233.527†	194956.3	1749.1	µg/L	7.01	1749.1	ppb	7.01	0.40%
Be 313.107†	803965.5	478.01	µg/L	1.966	478.01	ppb	1.966	0.41%
Ca 317.933Radial†	393140.8	192520	µg/L	843.2	192520	ppb	843.2	0.44%
Cd 226.502†	31190.9	439.11	µg/L	2.255	439.11	ppb	2.255	0.51%
Co 228.616†	19942.4	509.92	µg/L	3.452	509.92	ppb	3.452	0.68%
Cr 267.716†	27918.1	598.85	µg/L	4.320	598.85	ppb	4.320	0.72%
Cu 324.752†	149774.8	705.22	µg/L	2.297	705.22	ppb	2.297	0.33%
Fe 238.204 Radial†	407142.8	226900	µg/L	41.0	226900	ppb	41.0	0.02%
K 766.490 Radial†	73099.4	35811	µg/L	222.2	35811	ppb	222.2	0.62%
Mg 279.077 IEC†	14613.0	74195	µg/L	315.1	74195	ppb	315.1	0.42%
Mn 257.610†	2556422.4	3993.9	µg/L	15.03	3993.9	ppb	15.03	0.38%
Mo 202.031†	6026.8	438.65	µg/L	2.731	438.65	ppb	2.731	0.62%
Na 589.592 Radial†	8273.6	15281	µg/L	132.1	15281	ppb	132.1	0.86%

Ni 231.604†	16985.2	553.46 µg/L	4.860	553.46 ppb	4.860	0.88%
P 214.914†	13364.2	9985.3 µg/L	86.69	9985.3 ppb	86.69	0.87%
Pb 220.353†	4226.7	717.15 µg/L	3.197	717.15 ppb	3.197	0.45%
S 181.975 Axial†	6781.6	11654 µg/L	97.5	11654 ppb	97.5	0.84%
Sb 206.836†	1248.5	408.05 µg/L	4.443	408.05 ppb	4.443	1.09%
Se 196.026†	423.1	447.60 µg/L	9.371	447.60 ppb	9.371	2.09%
SiO2†	260624.7	31735 µg/L	605.9	31735 ppb	605.9	1.91%
Si 251.611†	310653.2	14733 µg/L	280.8	14733 ppb	280.8	1.91%
Sn 189.927†	1658.3	434.18 µg/L	5.194	434.18 ppb	5.194	1.20%
Sr 421.552†	265981.3	1279.7 µg/L	2.46	1279.7 ppb	2.46	0.19%
Ti 334.940†	2635816.1	6908.2 µg/L	23.38	6908.2 ppb	23.38	0.34%
Tl 190.801†	1072.2	438.59 µg/L	3.100	438.59 ppb	3.100	0.71%
U 367.007†	5166.7	321.2 µg/L	10.00	321.2 ppb	10.00	3.11%
V 292.402†	88290.1	898.83 µg/L	4.459	898.83 ppb	4.459	0.50%
Zn 213.857†	118937.9	1134.4 µg/L	5.67	1134.4 ppb	5.67	0.50%

Sequence No.: 14 **Autosampler Location: 312**
Sample ID: 1202672500|1218790|5 **Date Collected: 6/7/2012 11:54:51**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202672500|1218790|5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20575.4	20575.4	107	%			11:55:39
1	Al 396.153Radial†	78674.7	73249.8	22227	µg/L	22227	ppb	11:55:19
1	Ca 317.933Radial†	85160.2	79115.8	38744	µg/L	38744	ppb	11:55:19
1	Fe 238.204 Radial†	88414.8	82234.5	45828	µg/L	45828	ppb	11:55:19
1	K 766.490 Radial†	14250.3	12593.2	6172.3	µg/L	6172.3	ppb	11:55:19
1	Mg 279.077 IEC†	2950.8	2742.4	13923	µg/L	13923	ppb	11:55:39
1	Na 589.592 Radial†	1148.4	1253.4	2314.9	µg/L	2314.9	ppb	11:55:39
1	Sr 421.552†	36034.0	34819.6	167.47	µg/L	167.47	ppb	11:55:19
1	Sc 361.383	642203.8	642203.8	106.66	%			11:56:36
1	Y 371.029	566608.6	566608.6	110.83	%			11:56:36
1	Ag 328.068†	-2312.4	-1576.4	1.7016	µg/L	1.7016	ppb	11:56:36
1	As 188.979†	3.5	14.7	10.016	µg/L	10.016	ppb	11:56:56
1	B 249.677†	882.6	741.7	14.802	µg/L	14.802	ppb	11:56:36
1	Ba 233.527†	32248.7	30352.8	271.94	µg/L	271.94	ppb	11:56:36
1	Be 313.107†	-5368.1	2924.8	1.7863	µg/L	1.7863	ppb	11:56:36
1	Cd 226.502†	296.7	494.5	0.2779	µg/L	0.2779	ppb	11:56:56
1	Co 228.616†	804.9	761.1	17.461	µg/L	17.461	ppb	11:56:56
1	Cr 267.716†	1931.8	1573.8	34.298	µg/L	34.298	ppb	11:56:56
1	Cu 324.752†	14733.8	7666.6	41.800	µg/L	41.800	ppb	11:56:36
1	Mn 257.610†	522808.5	489795.8	765.44	µg/L	765.44	ppb	11:56:36
1	Mo 202.031†	26.8	-2.8	1.6764	µg/L	1.6764	ppb	11:56:56
1	Ni 231.604†	820.0	847.1	28.182	µg/L	28.182	ppb	11:56:56
1	P 214.914†	2812.2	2560.7	1913.7	µg/L	1913.7	ppb	11:56:56
1	Pb 220.353†	520.1	347.2	59.631	µg/L	59.631	ppb	11:56:56
1	S 181.975 Axial†	916.9	802.8	1375.0	µg/L	1375.0	ppb	11:56:56
1	Sb 206.836†	88.5	14.1	3.0778	µg/L	3.0778	ppb	11:56:56
1	Se 196.026†	-29.8	-19.7	7.7320	µg/L	7.7320	ppb	11:56:56
1	SiO2†	40527.1	34566.9	4208.5	µg/L	4208.5	ppb	11:56:36
1	Si 251.611†	44356.7	41152.7	1952.5	µg/L	1952.5	ppb	11:56:36
1	Sn 189.927†	-102.7	-119.0	-17.048	µg/L	-17.048	ppb	11:56:56
1	Ti 334.940†	513523.2	481562.4	1262.3	µg/L	1262.3	ppb	11:56:36
1	Tl 190.801†	-51.5	-8.4	5.1718	µg/L	5.1718	ppb	11:56:56
1	U 367.007†	1134.8	701.9	-29.96	µg/L	-29.96	ppb	11:56:36
1	V 292.402†	9464.0	9074.0	91.417	µg/L	91.417	ppb	11:56:36
1	Zn 213.857†	17350.1	15048.8	141.36	µg/L	141.36	ppb	11:56:36
2	Sc RADIAL	20495.9	20495.9	107	%			11:56:05
2	Al 396.153Radial†	79145.0	73973.1	22446	µg/L	22446	ppb	11:55:44
2	Ca 317.933Radial†	85856.1	80073.3	39212	µg/L	39212	ppb	11:55:44
2	Fe 238.204 Radial†	89007.4	83107.3	46314	µg/L	46314	ppb	11:55:44
2	K 766.490 Radial†	14258.4	12652.2	6201.3	µg/L	6201.3	ppb	11:55:44
2	Mg 279.077 IEC†	2969.6	2770.6	14066	µg/L	14066	ppb	11:56:05
2	Na 589.592 Radial†	1116.9	1228.1	2268.3	µg/L	2268.3	ppb	11:56:05
2	Sr 421.552†	36330.5	35226.6	169.43	µg/L	169.43	ppb	11:55:44
2	Sc 361.383	640153.9	640153.9	106.32	%			11:57:02
2	Y 371.029	564578.8	564578.8	110.43	%			11:57:02
2	Ag 328.068†	-2327.1	-1597.1	1.6879	µg/L	1.6879	ppb	11:57:02
2	As 188.979†	-7.6	4.3	3.9762	µg/L	3.9762	ppb	11:57:22
2	B 249.677†	929.8	788.8	16.089	µg/L	16.089	ppb	11:57:02
2	Ba 233.527†	32129.3	30337.3	271.79	µg/L	271.79	ppb	11:57:02
2	Be 313.107†	-5438.8	2842.2	1.7419	µg/L	1.7419	ppb	11:57:02
2	Cd 226.502†	299.2	497.8	0.2515	µg/L	0.2515	ppb	11:57:22
2	Co 228.616†	808.7	767.0	17.608	µg/L	17.608	ppb	11:57:22
2	Cr 267.716†	1894.4	1544.4	33.672	µg/L	33.672	ppb	11:57:22
2	Cu 324.752†	14769.3	7744.2	42.214	µg/L	42.214	ppb	11:57:02
2	Mn 257.610†	522137.1	490734.1	766.94	µg/L	766.94	ppb	11:57:02
2	Mo 202.031†	24.0	-5.3	1.5152	µg/L	1.5152	ppb	11:57:22
2	Ni 231.604†	836.4	865.0	28.769	µg/L	28.769	ppb	11:57:22
2	P 214.914†	2784.6	2543.2	1900.1	µg/L	1900.1	ppb	11:57:22
2	Pb 220.353†	504.2	333.8	57.360	µg/L	57.360	ppb	11:57:22

2	S 181.975 Axial†	922.9	811.1	1389.3 µg/L	1389.3 ppb	11:57:22
2	Sb 206.836†	82.4	8.5	1.2266 µg/L	1.2266 ppb	11:57:22
2	Se 196.026†	-28.8	-18.8	8.6642 µg/L	8.6642 ppb	11:57:22
2	SiO2†	40503.4	34666.3	4220.7 µg/L	4220.7 ppb	11:57:02
2	Si 251.611†	44443.5	41367.5	1962.7 µg/L	1962.7 ppb	11:57:02
2	Sn 189.927†	-101.9	-118.6	-16.872 µg/L	-16.872 ppb	11:57:22
2	Ti 334.940†	513222.7	482821.5	1265.6 µg/L	1265.6 ppb	11:57:02
2	Tl 190.801†	-53.2	-10.2	4.5484 µg/L	4.5484 ppb	11:57:22
2	U 367.007†	1160.9	729.9	-24.61 µg/L	-24.61 ppb	11:57:02
2	V 292.402†	9452.6	9091.7	91.597 µg/L	91.597 ppb	11:57:02
2	Zn 213.857†	17279.3	15034.2	141.15 µg/L	141.15 ppb	11:57:02
3	Sc RADIAL	20408.8	20408.8	107 %		11:56:30
3	Al 396.153Radial†	79502.5	74623.8	22644 µg/L	22644 ppb	11:56:10
3	Ca 317.933Radial†	86766.5	81269.4	39798 µg/L	39798 ppb	11:56:10
3	Fe 238.204 Radial†	89821.4	84225.5	46938 µg/L	46938 ppb	11:56:10
3	K 766.490 Radial†	14357.4	12801.8	6274.8 µg/L	6274.8 ppb	11:56:10
3	Mg 279.077 IEC†	2954.4	2768.2	14054 µg/L	14054 ppb	11:56:30
3	Na 589.592 Radial†	1116.2	1231.9	2275.3 µg/L	2275.3 ppb	11:56:30
3	Sr 421.552†	36504.6	35534.7	170.91 µg/L	170.91 ppb	11:56:10
3	Sc 361.383	639096.4	639096.4	106.14 %		11:57:27
3	Y 371.029	563179.6	563179.6	110.16 %		11:57:27
3	Ag 328.068†	-2266.4	-1543.6	2.2033 µg/L	2.2033 ppb	11:57:27
3	As 188.979†	-5.5	6.2	5.1378 µg/L	5.1378 ppb	11:57:47
3	B 249.677†	911.8	773.2	15.549 µg/L	15.549 ppb	11:57:27
3	Ba 233.527†	31973.7	30240.7	270.90 µg/L	270.90 ppb	11:57:27
3	Be 313.107†	-5393.0	2876.9	1.7670 µg/L	1.7670 ppb	11:57:27
3	Cd 226.502†	283.1	483.1	-0.0718 µg/L	-0.0718 ppb	11:57:47
3	Co 228.616†	828.7	787.2	18.142 µg/L	18.142 ppb	11:57:47
3	Cr 267.716†	1927.3	1578.4	34.414 µg/L	34.414 ppb	11:57:47
3	Cu 324.752†	14655.5	7660.0	41.937 µg/L	41.937 ppb	11:57:27
3	Mn 257.610†	519999.0	489532.2	765.13 µg/L	765.13 ppb	11:57:27
3	Mo 202.031†	30.3	0.7	1.9680 µg/L	1.9680 ppb	11:57:47
3	Ni 231.604†	832.1	862.3	28.691 µg/L	28.691 ppb	11:57:47
3	P 214.914†	2802.0	2563.9	1915.5 µg/L	1915.5 ppb	11:57:47
3	Pb 220.353†	524.0	353.3	60.753 µg/L	60.753 ppb	11:57:47
3	S 181.975 Axial†	929.9	819.2	1403.2 µg/L	1403.2 ppb	11:57:47
3	Sb 206.836†	83.4	9.6	1.5667 µg/L	1.5667 ppb	11:57:47
3	Se 196.026†	-40.4	-29.8	0.3282 µg/L	0.3282 ppb	11:57:47
3	SiO2†	40208.5	34451.5	4194.7 µg/L	4194.7 ppb	11:57:27
3	Si 251.611†	44020.8	41038.4	1947.0 µg/L	1947.0 ppb	11:57:27
3	Sn 189.927†	-109.7	-126.1	-18.518 µg/L	-18.518 ppb	11:57:47
3	Ti 334.940†	511333.1	481839.9	1263.0 µg/L	1263.0 ppb	11:57:27
3	Tl 190.801†	-53.2	-10.2	4.5727 µg/L	4.5727 ppb	11:57:47
3	U 367.007†	1129.1	701.8	-35.47 µg/L	-35.47 ppb	11:57:27
3	V 292.402†	9390.0	9047.4	91.151 µg/L	91.151 ppb	11:57:27
3	Zn 213.857†	17214.6	15000.2	140.72 µg/L	140.72 ppb	11:57:27

Mean Data: 1202672500|1218790|5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	640484.7	106.37	%	0.262				0.25%
Sc RADIAL	20493.3	107	%	0.4				0.41%
Y 371.029	564789.0	110.47	%	0.337				0.31%
Ag 328.068†	-1572.4	1.8643	µg/L	0.29373	1.8643	ppb	0.29373	15.76%
Al 396.153Radial†	73948.9	22439	µg/L	208.6	22439	ppb	208.6	0.93%
As 188.979†	8.4	6.3768	µg/L	3.20499	6.3768	ppb	3.20499	50.26%
B 249.677†	767.9	15.480	µg/L	0.6465	15.480	ppb	0.6465	4.18%
Ba 233.527†	30310.2	271.54	µg/L	0.563	271.54	ppb	0.563	0.21%
Be 313.107†	2881.3	1.7650	µg/L	0.02227	1.7650	ppb	0.02227	1.26%
Ca 317.933Radial†	80152.8	39251	µg/L	528.4	39251	ppb	528.4	1.35%
Cd 226.502†	491.8	0.1525	µg/L	0.19471	0.1525	ppb	0.19471	127.64%
Co 228.616†	771.8	17.737	µg/L	0.3579	17.737	ppb	0.3579	2.02%
Cr 267.716†	1565.5	34.128	µg/L	0.3989	34.128	ppb	0.3989	1.17%
Cu 324.752†	7690.3	41.984	µg/L	0.2109	41.984	ppb	0.2109	0.50%
Fe 238.204 Radial†	83189.1	46360	µg/L	556.2	46360	ppb	556.2	1.20%
K 766.490 Radial†	12682.4	6216.1	µg/L	52.82	6216.1	ppb	52.82	0.85%
Mg 279.077 IEC†	2760.4	14014	µg/L	79.4	14014	ppb	79.4	0.57%
Mn 257.610†	490020.7	765.84	µg/L	0.968	765.84	ppb	0.968	0.13%
Mo 202.031†	-2.5	1.7199	µg/L	0.22951	1.7199	ppb	0.22951	13.34%
Na 589.592 Radial†	1237.8	2286.2	µg/L	25.16	2286.2	ppb	25.16	1.10%

Ni 231.604†	858.1	28.547 µg/L	0.3192	28.547 ppb	0.3192	1.12%
P 214.914†	2555.9	1909.8 µg/L	8.39	1909.8 ppb	8.39	0.44%
Pb 220.353†	344.7	59.248 µg/L	1.7286	59.248 ppb	1.7286	2.92%
S 181.975 Axial†	811.0	1389.2 µg/L	14.08	1389.2 ppb	14.08	1.01%
Sb 206.836†	10.7	1.9570 µg/L	0.98537	1.9570 ppb	0.98537	50.35%
Se 196.026†	-22.8	5.5748 µg/L	4.56753	5.5748 ppb	4.56753	81.93%
SiO2†	34561.6	4208.0 µg/L	13.04	4208.0 ppb	13.04	0.31%
Si 251.611†	41186.2	1954.1 µg/L	7.93	1954.1 ppb	7.93	0.41%
Sn 189.927†	-121.2	-17.479 µg/L	0.9039	-17.479 ppb	0.9039	5.17%
Sr 421.552†	35193.6	169.27 µg/L	1.725	169.27 ppb	1.725	1.02%
Ti 334.940†	482074.6	1263.6 µg/L	1.73	1263.6 ppb	1.73	0.14%
Tl 190.801†	-9.6	4.7643 µg/L	0.35314	4.7643 ppb	0.35314	7.41%
U 367.007†	711.2	-30.01 µg/L	5.430	-30.01 ppb	5.430	18.09%
V 292.402†	9071.0	91.388 µg/L	0.2244	91.388 ppb	0.2244	0.25%
Zn 213.857†	15027.7	141.08 µg/L	0.327	141.08 ppb	0.327	0.23%

Sequence No.: 15 **Autosampler Location: 313**
Sample ID: 305539005|1218790|1 **Date Collected: 6/7/2012 11:57:55**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305539005|1218790|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20702.2	20702.2	108	%			11:58:29
1	Al 396.153Radial†	372790.5	344777.0	104620	µg/L	104620	ppb	11:58:24
1	Ca 317.933Radial†	434018.8	401228.0	196480	µg/L	196480	ppb	11:58:24
1	Fe 238.204 Radial†	424329.5	392358.7	218660	µg/L	218660	ppb	11:58:24
1	K 766.490 Radial†	67302.1	61570.2	30175	µg/L	30175	ppb	11:58:29
1	Mg 279.077 IEC†	14708.3	13598.0	69035	µg/L	69035	ppb	11:58:29
1	Na 589.592 Radial†	6444.2	6144.0	11348	µg/L	11348	ppb	11:58:29
1	Sr 421.552†	187508.8	174686.4	840.16	µg/L	840.16	ppb	11:58:24
1	Sc 361.383	645211.3	645211.3	107.16	%			11:58:58
1	Y 371.029	668350.4	668350.4	130.73	%			11:58:58
1	Ag 328.068†	-8742.7	-7567.2	7.8748	µg/L	7.8748	ppb	11:58:58
1	As 188.979†	50.7	58.7	41.120	µg/L	41.120	ppb	11:59:18
1	B 249.677†	3942.1	3593.0	72.199	µg/L	72.199	ppb	11:58:58
1	Ba 233.527†	157889.2	147462.4	1321.3	µg/L	1321.3	ppb	11:58:58
1	Be 313.107†	4944.1	12571.9	7.9236	µg/L	7.9236	ppb	11:58:58
1	Cd 226.502†	2341.7	2401.7	1.9722	µg/L	1.9722	ppb	11:59:18
1	Co 228.616†	3789.8	3543.1	81.866	µg/L	81.866	ppb	11:59:18
1	Cr 267.716†	8406.6	7607.7	165.74	µg/L	165.74	ppb	11:59:18
1	Cu 324.752†	50502.8	40982.7	218.67	µg/L	218.67	ppb	11:58:58
1	Mn 257.610†	2575787.1	2403398.5	3755.4	µg/L	3755.4	ppb	11:58:58
1	Mo 202.031†	-6.2	-33.7	6.5383	µg/L	6.5383	ppb	11:59:18
1	Ni 231.604†	4343.2	4131.4	137.37	µg/L	137.37	ppb	11:59:18
1	P 214.914†	14488.0	13444.5	10060	µg/L	10060	ppb	11:59:18
1	Pb 220.353†	2086.9	1807.1	312.13	µg/L	312.13	ppb	11:59:18
1	S 181.975 Axial†	4599.9	4235.8	7259.7	µg/L	7259.7	ppb	11:59:18
1	Sb 206.836†	82.8	8.3	-4.8563	µg/L	-4.8563	ppb	11:59:18
1	Se 196.026†	-128.3	-111.5	23.186	µg/L	23.186	ppb	11:59:18
1	SiO2†	166909.6	152332.8	18550	µg/L	18550	ppb	11:58:58
1	Si 251.611†	194737.3	181297.5	8601.2	µg/L	8601.2	ppb	11:58:58
1	Sn 189.927†	-229.6	-237.0	-6.1993	µg/L	-6.1993	ppb	11:59:18
1	Ti 334.940†	2293563.3	2140493.0	5611.2	µg/L	5611.2	ppb	11:58:58
1	Tl 190.801†	-125.3	-77.0	9.3602	µg/L	9.3602	ppb	11:59:18
1	U 367.007†	4141.4	3502.8	-100.9	µg/L	-100.9	ppb	11:58:58
1	V 292.402†	47267.7	44311.9	446.89	µg/L	446.89	ppb	11:58:58
1	Zn 213.857†	115402.9	106478.1	1015.8	µg/L	1015.8	ppb	11:58:58
2	Sc RADIAL	20841.3	20841.3	109	%			11:58:39
2	Al 396.153Radial†	380487.8	349547.3	106070	µg/L	106070	ppb	11:58:34
2	Ca 317.933Radial†	440262.9	404285.8	197980	µg/L	197980	ppb	11:58:34
2	Fe 238.204 Radial†	430163.8	395099.7	220180	µg/L	220180	ppb	11:58:34
2	K 766.490 Radial†	67875.9	61682.0	30230	µg/L	30230	ppb	11:58:39
2	Mg 279.077 IEC†	14771.0	13564.8	68867	µg/L	68867	ppb	11:58:39
2	Na 589.592 Radial†	6576.9	6226.1	11499	µg/L	11499	ppb	11:58:39
2	Sr 421.552†	191369.3	177075.6	851.66	µg/L	851.66	ppb	11:58:34
2	Sc 361.383	648620.6	648620.6	107.72	%			11:59:25
2	Y 371.029	672091.8	672091.8	131.46	%			11:59:25
2	Ag 328.068†	-8674.9	-7461.4	8.9626	µg/L	8.9626	ppb	11:59:25
2	As 188.979†	52.9	60.5	42.193	µg/L	42.193	ppb	11:59:45
2	B 249.677†	3834.1	3473.4	68.524	µg/L	68.524	ppb	11:59:25
2	Ba 233.527†	158315.3	147083.6	1317.8	µg/L	1317.8	ppb	11:59:25
2	Be 313.107†	5086.0	12679.3	8.0045	µg/L	8.0045	ppb	11:59:25
2	Cd 226.502†	2327.6	2377.0	1.3550	µg/L	1.3550	ppb	11:59:45
2	Co 228.616†	3784.8	3519.9	81.280	µg/L	81.280	ppb	11:59:45
2	Cr 267.716†	8424.5	7583.2	165.24	µg/L	165.24	ppb	11:59:45
2	Cu 324.752†	50434.8	40671.9	217.50	µg/L	217.50	ppb	11:59:25
2	Mn 257.610†	2579617.3	2394319.0	3741.4	µg/L	3741.4	ppb	11:59:25
2	Mo 202.031†	-18.2	-44.8	5.8078	µg/L	5.8078	ppb	11:59:45
2	Ni 231.604†	4344.7	4111.6	136.75	µg/L	136.75	ppb	11:59:45
2	P 214.914†	14436.3	13325.5	9968.7	µg/L	9968.7	ppb	11:59:45
2	Pb 220.353†	2097.3	1806.5	311.74	µg/L	311.74	ppb	11:59:45

2	S 181.975 Axial†	4591.8	4205.7	7207.4 µg/L	7207.4 ppb	11:59:45
2	Sb 206.836†	100.0	23.8	0.3059 µg/L	0.3059 ppb	11:59:45
2	Se 196.026†	-129.4	-111.9	23.692 µg/L	23.692 ppb	11:59:45
2	SiO2†	166137.3	150797.2	18364 µg/L	18364 ppb	11:59:25
2	Si 251.611†	193973.9	179633.6	8522.2 µg/L	8522.2 ppb	11:59:25
2	Sn 189.927†	-256.2	-260.6	-11.400 µg/L	-11.400 ppb	11:59:45
2	Ti 334.940†	2299828.0	2135057.9	5597.0 µg/L	5597.0 ppb	11:59:25
2	Tl 190.801†	-127.3	-78.3	8.9141 µg/L	8.9141 ppb	11:59:45
2	U 367.007†	4164.3	3503.7	-108.2 µg/L	-108.2 ppb	11:59:25
2	V 292.402†	47306.1	44115.7	444.90 µg/L	444.90 ppb	11:59:25
2	Zn 213.857†	115380.4	105891.1	1009.8 µg/L	1009.8 ppb	11:59:25
3	Sc RADIAL	21068.0	21068.0	110 %		11:58:49
3	Al 396.153Radial†	382917.4	347994.1	105590 µg/L	105590 ppb	11:58:44
3	Ca 317.933Radial†	440624.4	400262.4	196010 µg/L	196010 ppb	11:58:44
3	Fe 238.204 Radial†	431162.7	391755.4	218320 µg/L	218320 ppb	11:58:44
3	K 766.490 Radial†	68524.6	61600.5	30189 µg/L	30189 ppb	11:58:49
3	Mg 279.077 IEC†	14928.3	13561.7	68851 µg/L	68851 ppb	11:58:49
3	Na 589.592 Radial†	6550.2	6136.8	11334 µg/L	11334 ppb	11:58:49
3	Sr 421.552†	192472.5	176186.4	847.39 µg/L	847.39 ppb	11:58:44
3	Sc 361.383	645595.2	645595.2	107.22 %		11:59:52
3	Y 371.029	669874.4	669874.4	131.03 %		11:59:52
3	Ag 328.068†	-8911.8	-7720.0	6.7770 µg/L	6.7770 ppb	11:59:52
3	As 188.979†	39.9	48.7	35.297 µg/L	35.297 ppb	12:00:12
3	B 249.677†	3877.5	3530.6	70.444 µg/L	70.444 ppb	11:59:52
3	Ba 233.527†	158544.5	147986.0	1326.0 µg/L	1326.0 ppb	11:59:52
3	Be 313.107†	4927.3	12553.4	7.9041 µg/L	7.9041 ppb	11:59:52
3	Cd 226.502†	2328.5	2388.0	1.8183 µg/L	1.8183 ppb	12:00:12
3	Co 228.616†	3804.1	3554.3	82.118 µg/L	82.118 ppb	12:00:12
3	Cr 267.716†	8407.8	7604.2	165.66 µg/L	165.66 ppb	12:00:12
3	Cu 324.752†	50479.1	40932.6	218.41 µg/L	218.41 ppb	11:59:52
3	Mn 257.610†	2583411.8	2409080.2	3764.2 µg/L	3764.2 ppb	11:59:52
3	Mo 202.031†	-22.5	-48.8	5.4447 µg/L	5.4447 ppb	12:00:12
3	Ni 231.604†	4395.6	4177.9	138.87 µg/L	138.87 ppb	12:00:12
3	P 214.914†	14530.3	13475.9	10084 µg/L	10084 ppb	12:00:12
3	Pb 220.353†	2077.0	1796.7	309.81 µg/L	309.81 ppb	12:00:12
3	S 181.975 Axial†	4613.1	4245.5	7276.2 µg/L	7276.2 ppb	12:00:12
3	Sb 206.836†	89.8	14.8	-2.7121 µg/L	-2.7121 ppb	12:00:12
3	Se 196.026†	-145.0	-127.0	10.894 µg/L	10.894 ppb	12:00:12
3	SiO2†	165780.7	151187.4	18411 µg/L	18411 ppb	11:59:52
3	Si 251.611†	193469.7	180007.2	8539.9 µg/L	8539.9 ppb	11:59:52
3	Sn 189.927†	-236.7	-243.5	-7.6348 µg/L	-7.6348 ppb	12:00:12
3	Ti 334.940†	2303562.2	2148545.7	5632.3 µg/L	5632.3 ppb	11:59:52
3	Tl 190.801†	-134.3	-85.4	6.3322 µg/L	6.3322 ppb	12:00:12
3	U 367.007†	4169.4	3526.6	-92.62 µg/L	-92.62 ppb	11:59:52
3	V 292.402†	47515.3	44516.7	448.94 µg/L	448.94 ppb	11:59:52
3	Zn 213.857†	115714.5	106704.6	1018.1 µg/L	1018.1 ppb	11:59:52

Mean Data: 305539005|1218790|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	646475.7	107.37	%	0.310				0.29%
Sc RADIAL	20870.5	109	%	1.0				0.88%
Y 371.029	670105.5	131.07	%	0.368				0.28%
Ag 328.068†	-7582.9	7.8715	µg/L	1.09278	7.8715	ppb	1.09278	13.88%
Al 396.153Radial†	347439.5	105430	µg/L	738.3	105430	ppb	738.3	0.70%
As 188.979†	56.0	39.536	µg/L	3.7105	39.536	ppb	3.7105	9.39%
B 249.677†	3532.4	70.389	µg/L	1.8382	70.389	ppb	1.8382	2.61%
Ba 233.527†	147510.7	1321.7	µg/L	4.11	1321.7	ppb	4.11	0.31%
Be 313.107†	12601.5	7.9441	µg/L	0.05325	7.9441	ppb	0.05325	0.67%
Ca 317.933Radial†	401925.4	196830	µg/L	1028.6	196830	ppb	1028.6	0.52%
Cd 226.502†	2388.9	1.7152	µg/L	0.32131	1.7152	ppb	0.32131	18.73%
Co 228.616†	3539.1	81.755	µg/L	0.4299	81.755	ppb	0.4299	0.53%
Cr 267.716†	7598.4	165.55	µg/L	0.269	165.55	ppb	0.269	0.16%
Cu 324.752†	40862.4	218.20	µg/L	0.612	218.20	ppb	0.612	0.28%
Fe 238.204 Radial†	393071.3	219050	µg/L	993.3	219050	ppb	993.3	0.45%
K 766.490 Radial†	61617.6	30198	µg/L	28.7	30198	ppb	28.7	0.09%
Mg 279.077 IEC†	13574.8	68918	µg/L	102.0	68918	ppb	102.0	0.15%
Mn 257.610†	2402265.9	3753.7	µg/L	11.48	3753.7	ppb	11.48	0.31%
Mo 202.031†	-42.4	5.9303	µg/L	0.55699	5.9303	ppb	0.55699	9.39%
Na 589.592 Radial†	6169.0	11394	µg/L	91.6	11394	ppb	91.6	0.80%

Ni 231.604†	4140.3	137.66 µg/L	1.089	137.66 ppb	1.089	0.79%
P 214.914†	13415.3	10037 µg/L	60.7	10037 ppb	60.7	0.60%
Pb 220.353†	1803.4	311.23 µg/L	1.239	311.23 ppb	1.239	0.40%
S 181.975 Axial†	4229.0	7247.7 µg/L	35.95	7247.7 ppb	35.95	0.50%
Sb 206.836†	15.6	-2.4209 µg/L	2.59338	-2.4209 ppb	2.59338	107.13%
Se 196.026†	-116.8	19.257 µg/L	7.2473	19.257 ppb	7.2473	37.63%
SiO2†	151439.1	18442 µg/L	96.9	18442 ppb	96.9	0.53%
Si 251.611†	180312.7	8554.4 µg/L	41.42	8554.4 ppb	41.42	0.48%
Sn 189.927†	-247.1	-8.4114 µg/L	2.68593	-8.4114 ppb	2.68593	31.93%
Sr 421.552†	175982.8	846.40 µg/L	5.811	846.40 ppb	5.811	0.69%
Ti 334.940†	2141365.5	5613.5 µg/L	17.75	5613.5 ppb	17.75	0.32%
Tl 190.801†	-80.2	8.2022 µg/L	1.63476	8.2022 ppb	1.63476	19.93%
U 367.007†	3511.0	-100.6 µg/L	7.78	-100.6 ppb	7.78	7.73%
V 292.402†	44314.8	446.91 µg/L	2.020	446.91 ppb	2.020	0.45%
Zn 213.857†	106357.9	1014.5 µg/L	4.27	1014.5 ppb	4.27	0.42%

Sequence No.: 16 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/7/2012 12:00:20**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20644.3	20644.3	108	%			12:00:49
1	Al 396.153Radial†	17460.4	16240.2	4909.4	µg/L	4909.4	ppb	12:00:49
1	Ca 317.933Radial†	10834.7	9927.9	4861.8	µg/L	4861.8	ppb	12:01:09
1	Fe 238.204 Radial†	9634.9	8905.9	4968.1	µg/L	4968.1	ppb	12:01:09
1	K 766.490 Radial†	11441.1	9943.9	4857.9	µg/L	4857.9	ppb	12:00:49
1	Mg 279.077 IEC†	1079.2	997.6	5071.1	µg/L	5071.1	ppb	12:01:09
1	Na 589.592 Radial†	5320.0	5118.2	9452.9	µg/L	9452.9	ppb	12:00:49
1	Sr 421.552†	106604.5	100148.8	482.16	µg/L	482.16	ppb	12:00:49
1	Sc 361.383	650195.4	650195.4	107.98	%			12:02:06
1	Y 371.029	547401.8	547401.8	107.07	%			12:02:06
1	Ag 328.068†	78396.5	73192.3	495.05	µg/L	495.05	ppb	12:02:12
1	As 188.979†	911.7	855.8	494.54	µg/L	494.54	ppb	12:02:32
1	B 249.677†	18300.4	16861.6	485.72	µg/L	485.72	ppb	12:02:12
1	Ba 233.527†	58853.4	54619.0	492.09	µg/L	492.09	ppb	12:02:12
1	Be 313.107†	887386.9	829739.9	493.18	µg/L	493.18	ppb	12:02:06
1	Cd 226.502†	34771.9	32417.5	492.92	µg/L	492.92	ppb	12:02:12
1	Co 228.616†	20461.1	18954.8	496.84	µg/L	496.84	ppb	12:02:12
1	Cr 267.716†	25118.1	23023.7	490.91	µg/L	490.91	ppb	12:02:12
1	Cu 324.752†	125179.2	109776.9	489.88	µg/L	489.88	ppb	12:02:12
1	Mn 257.610†	337775.8	312417.8	486.06	µg/L	486.06	ppb	12:02:12
1	Mo 202.031†	7407.9	6832.4	486.97	µg/L	486.97	ppb	12:02:32
1	Ni 231.604†	16631.4	15480.1	501.04	µg/L	501.04	ppb	12:02:12
1	P 214.914†	3535.5	3198.1	2405.7	µg/L	2405.7	ppb	12:02:32
1	Pb 220.353†	3256.0	2874.9	492.22	µg/L	492.22	ppb	12:02:32
1	S 181.975 Axial†	670.8	564.3	975.10	µg/L	975.10	ppb	12:02:32
1	Sb 206.836†	1641.8	1451.5	484.21	µg/L	484.21	ppb	12:02:32
1	Se 196.026†	666.4	625.3	493.99	µg/L	493.99	ppb	12:02:32
1	SiO2†	50699.2	43519.9	5320.6	µg/L	5320.6	ppb	12:02:12
1	Si 251.611†	57199.4	52534.8	2485.2	µg/L	2485.2	ppb	12:02:12
1	Sn 189.927†	2320.9	2126.6	490.49	µg/L	490.49	ppb	12:02:32
1	Ti 334.940†	200966.8	186195.5	487.44	µg/L	487.44	ppb	12:02:12
1	Tl 190.801†	1396.2	1332.9	493.35	µg/L	493.35	ppb	12:02:32
1	U 367.007†	2279.2	1748.7	461.3	µg/L	461.3	ppb	12:02:12
1	V 292.402†	51870.5	48236.3	496.68	µg/L	496.68	ppb	12:02:12
1	Zn 213.857†	55425.1	50109.0	489.11	µg/L	489.11	ppb	12:02:12
2	Sc RADIAL	20546.7	20546.7	107	%			12:01:14
2	Al 396.153Radial†	17482.7	16337.9	4939.2	µg/L	4939.2	ppb	12:01:14
2	Ca 317.933Radial†	10769.2	9914.6	4855.3	µg/L	4855.3	ppb	12:01:34
2	Fe 238.204 Radial†	9581.6	8898.7	4964.1	µg/L	4964.1	ppb	12:01:34
2	K 766.490 Radial†	11392.3	9948.8	4860.3	µg/L	4860.3	ppb	12:01:14
2	Mg 279.077 IEC†	1079.6	1002.7	5097.1	µg/L	5097.1	ppb	12:01:34
2	Na 589.592 Radial†	5251.6	5077.9	9378.5	µg/L	9378.5	ppb	12:01:14
2	Sr 421.552†	107040.2	101024.5	486.38	µg/L	486.38	ppb	12:01:14
2	Sc 361.383	656869.4	656869.4	109.09	%			12:02:37
2	Y 371.029	553178.8	553178.8	108.20	%			12:02:37
2	Ag 328.068†	79102.0	73101.3	494.43	µg/L	494.43	ppb	12:02:42
2	As 188.979†	910.5	846.1	489.00	µg/L	489.00	ppb	12:03:02
2	B 249.677†	18400.0	16780.7	483.39	µg/L	483.39	ppb	12:02:42
2	Ba 233.527†	59317.3	54490.5	490.93	µg/L	490.93	ppb	12:02:42
2	Be 313.107†	888217.2	822151.5	488.67	µg/L	488.67	ppb	12:02:37
2	Cd 226.502†	35156.4	32442.8	493.31	µg/L	493.31	ppb	12:02:42
2	Co 228.616†	20643.2	18929.2	496.16	µg/L	496.16	ppb	12:02:42
2	Cr 267.716†	25452.4	23093.7	492.41	µg/L	492.41	ppb	12:02:42
2	Cu 324.752†	125837.0	109202.1	487.32	µg/L	487.32	ppb	12:02:42
2	Mn 257.610†	340448.8	311689.9	484.93	µg/L	484.93	ppb	12:02:42
2	Mo 202.031†	7398.2	6753.8	481.37	µg/L	481.37	ppb	12:03:02
2	Ni 231.604†	16695.3	15382.2	497.87	µg/L	497.87	ppb	12:02:42
2	P 214.914†	3540.7	3169.6	2384.3	µg/L	2384.3	ppb	12:03:02
2	Pb 220.353†	3267.4	2854.7	488.73	µg/L	488.73	ppb	12:03:02

2	S 181.975 Axial†	670.6	557.8	963.83 µg/L	963.83 ppb	12:03:02
2	Sb 206.836†	1640.9	1435.2	478.63 µg/L	478.63 ppb	12:03:02
2	Se 196.026†	663.4	616.4	486.96 µg/L	486.96 ppb	12:03:02
2	SiO2†	51249.9	43547.7	5323.9 µg/L	5323.9 ppb	12:02:42
2	Si 251.611†	57730.4	52483.3	2482.9 µg/L	2482.9 ppb	12:02:42
2	Sn 189.927†	2317.4	2101.5	484.72 µg/L	484.72 ppb	12:03:02
2	Ti 334.940†	202601.4	185803.0	486.41 µg/L	486.41 ppb	12:02:42
2	Tl 190.801†	1388.4	1312.6	485.86 µg/L	485.86 ppb	12:03:02
2	U 367.007†	2295.4	1742.1	459.5 µg/L	459.5 ppb	12:02:42
2	V 292.402†	52330.4	48169.8	495.95 µg/L	495.95 ppb	12:02:42
2	Zn 213.857†	55770.9	49904.4	487.12 µg/L	487.12 ppb	12:02:42
3	Sc RADIAL	20540.3	20540.3	107 %		12:01:40
3	Al 396.153Radial†	17426.2	16290.4	4924.6 µg/L	4924.6 ppb	12:01:40
3	Ca 317.933Radial†	10817.5	9962.8	4878.8 µg/L	4878.8 ppb	12:02:00
3	Fe 238.204 Radial†	9620.7	8937.8	4985.9 µg/L	4985.9 ppb	12:02:00
3	K 766.490 Radial†	11401.0	9960.3	4865.9 µg/L	4865.9 ppb	12:01:40
3	Mg 279.077 IEC†	1081.2	1004.5	5106.2 µg/L	5106.2 ppb	12:02:00
3	Na 589.592 Radial†	5347.6	5168.9	9546.6 µg/L	9546.6 ppb	12:01:40
3	Sr 421.552†	106998.8	101017.0	486.34 µg/L	486.34 ppb	12:01:40
3	Sc 361.383	651832.4	651832.4	108.26 %		12:03:08
3	Y 371.029	548631.0	548631.0	107.31 %		12:03:08
3	Ag 328.068†	78382.5	72997.0	493.73 µg/L	493.73 ppb	12:03:13
3	As 188.979†	911.6	853.5	493.24 µg/L	493.24 ppb	12:03:33
3	B 249.677†	18260.4	16782.1	483.43 µg/L	483.43 ppb	12:03:13
3	Ba 233.527†	58897.7	54523.0	491.23 µg/L	491.23 ppb	12:03:13
3	Be 313.107†	886270.2	826644.5	491.34 µg/L	491.34 ppb	12:03:08
3	Cd 226.502†	34836.7	32396.5	492.60 µg/L	492.60 ppb	12:03:13
3	Co 228.616†	20414.0	18863.7	494.45 µg/L	494.45 ppb	12:03:13
3	Cr 267.716†	25162.9	23006.6	490.56 µg/L	490.56 ppb	12:03:13
3	Cu 324.752†	124903.6	109231.2	487.46 µg/L	487.46 ppb	12:03:13
3	Mn 257.610†	337377.6	311264.5	484.27 µg/L	484.27 ppb	12:03:13
3	Mo 202.031†	7422.8	6828.9	486.72 µg/L	486.72 ppb	12:03:33
3	Ni 231.604†	16607.1	15419.0	499.06 µg/L	499.06 ppb	12:03:13
3	P 214.914†	3553.4	3206.4	2412.1 µg/L	2412.1 ppb	12:03:33
3	Pb 220.353†	3265.1	2875.7	492.36 µg/L	492.36 ppb	12:03:33
3	S 181.975 Axial†	666.3	558.5	965.18 µg/L	965.18 ppb	12:03:33
3	Sb 206.836†	1613.2	1421.3	474.06 µg/L	474.06 ppb	12:03:33
3	Se 196.026†	666.7	624.1	493.03 µg/L	493.03 ppb	12:03:33
3	SiO2†	51199.7	43864.3	5362.3 µg/L	5362.3 ppb	12:03:13
3	Si 251.611†	57618.4	52788.8	2497.3 µg/L	2497.3 ppb	12:03:13
3	Sn 189.927†	2320.3	2120.6	489.11 µg/L	489.11 ppb	12:03:33
3	Ti 334.940†	200638.3	185424.7	485.42 µg/L	485.42 ppb	12:03:13
3	Tl 190.801†	1391.1	1324.9	490.39 µg/L	490.39 ppb	12:03:33
3	U 367.007†	2256.3	1722.2	453.9 µg/L	453.9 ppb	12:03:13
3	V 292.402†	51825.3	48073.9	495.03 µg/L	495.03 ppb	12:03:13
3	Zn 213.857†	55366.9	49926.2	487.33 µg/L	487.33 ppb	12:03:13

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	652965.7	108.44	%	0.578				0.53%
Sc RADIAL	20577.1	107	%	0.3				0.28%
Y 371.029	549737.2	107.53	%	0.595				0.55%
Ag 328.068†	73096.9	494.41	µg/L	0.658	494.41	ppb	0.658	0.13%
QC value within limits for Ag 328.068 Recovery = 98.88%								
Al 396.153Radial†	16289.5	4924.4	µg/L	14.93	4924.4	ppb	14.93	0.30%
QC value within limits for Al 396.153Radial Recovery = 98.49%								
As 188.979†	851.8	492.26	µg/L	2.900	492.26	ppb	2.900	0.59%
QC value within limits for As 188.979 Recovery = 98.45%								
B 249.677†	16808.1	484.18	µg/L	1.335	484.18	ppb	1.335	0.28%
QC value within limits for B 249.677 Recovery = 96.84%								
Ba 233.527†	54544.1	491.42	µg/L	0.602	491.42	ppb	0.602	0.12%
QC value within limits for Ba 233.527 Recovery = 98.28%								
Be 313.107†	826178.6	491.07	µg/L	2.267	491.07	ppb	2.267	0.46%
QC value within limits for Be 313.107 Recovery = 98.21%								
Ca 317.933Radial†	9935.1	4865.3	µg/L	12.18	4865.3	ppb	12.18	0.25%
QC value within limits for Ca 317.933Radial Recovery = 97.31%								
Cd 226.502†	32419.0	492.94	µg/L	0.354	492.94	ppb	0.354	0.07%
QC value within limits for Cd 226.502 Recovery = 98.59%								
Co 228.616†	18915.9	495.82	µg/L	1.229	495.82	ppb	1.229	0.25%

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   QC value within limits for Co 228.616  Recovery = 99.16%
Cr 267.716†           23041.3      491.29 µg/L         0.983      491.29 ppb          0.983   0.20%
   QC value within limits for Cr 267.716  Recovery = 98.26%
Cu 324.752†          109403.4      488.22 µg/L         1.440      488.22 ppb          1.440   0.29%
   QC value within limits for Cu 324.752  Recovery = 97.64%
Fe 238.204 Radial†      8914.1      4972.7 µg/L         11.60      4972.7 ppb          11.60   0.23%
   QC value within limits for Fe 238.204 Radial  Recovery = 99.45%
K 766.490 Radial†       9951.0      4861.3 µg/L          4.12      4861.3 ppb           4.12   0.08%
   QC value within limits for K 766.490 Radial  Recovery = 97.23%
Mg 279.077 IEC†         1001.6      5091.4 µg/L         18.22      5091.4 ppb          18.22   0.36%
   QC value within limits for Mg 279.077 IEC  Recovery = 101.83%
Mn 257.610†           311790.7      485.09 µg/L         0.907      485.09 ppb          0.907   0.19%
   QC value within limits for Mn 257.610  Recovery = 97.02%
Mo 202.031†             6805.0      485.02 µg/L         3.162      485.02 ppb          3.162   0.65%
   QC value within limits for Mo 202.031  Recovery = 97.00%
Na 589.592 Radial†      5121.7      9459.3 µg/L         84.23      9459.3 ppb          84.23   0.89%
   QC value within limits for Na 589.592 Radial  Recovery = 94.59%
Ni 231.604†            15427.1      499.32 µg/L         1.601      499.32 ppb          1.601   0.32%
   QC value within limits for Ni 231.604  Recovery = 99.86%
P 214.914†              3191.4      2400.7 µg/L         14.58      2400.7 ppb          14.58   0.61%
   QC value within limits for P 214.914  Recovery = 96.03%
Pb 220.353†             2868.4      491.10 µg/L         2.056      491.10 ppb          2.056   0.42%
   QC value within limits for Pb 220.353  Recovery = 98.22%
S 181.975 Axial†         560.2      968.04 µg/L         6.154      968.04 ppb          6.154   0.64%
   QC value within limits for S 181.975 Axial  Recovery = 96.80%
Sb 206.836†             1436.0      478.97 µg/L         5.086      478.97 ppb          5.086   1.06%
   QC value within limits for Sb 206.836  Recovery = 95.79%
Se 196.026†              621.9      491.33 µg/L         3.812      491.33 ppb          3.812   0.78%
   QC value within limits for Se 196.026  Recovery = 98.27%
SiO2†                  43644.0      5335.6 µg/L         23.18      5335.6 ppb          23.18   0.43%
   QC value within limits for SiO2  Recovery = 99.78%
Si 251.611†            52602.3      2488.5 µg/L          7.73      2488.5 ppb           7.73   0.31%
   QC value within limits for Si 251.611  Recovery = 99.54%
Sn 189.927†             2116.2      488.10 µg/L         3.014      488.10 ppb          3.014   0.62%
   QC value within limits for Sn 189.927  Recovery = 97.62%
Sr 421.552†           100730.1      484.96 µg/L         2.424      484.96 ppb          2.424   0.50%
   QC value within limits for Sr 421.552  Recovery = 96.99%
Ti 334.940†           185807.7      486.42 µg/L         1.008      486.42 ppb          1.008   0.21%
   QC value within limits for Ti 334.940  Recovery = 97.28%
Tl 190.801†             1323.5      489.87 µg/L         3.771      489.87 ppb          3.771   0.77%
   QC value within limits for Tl 190.801  Recovery = 97.97%
U 367.007†              1737.7       458.2 µg/L          3.88       458.2 ppb           3.88   0.85%
   QC value within limits for U 367.007  Recovery = 91.65%
V 292.402†             48160.0      495.89 µg/L         0.830      495.89 ppb          0.830   0.17%
   QC value within limits for V 292.402  Recovery = 99.18%
Zn 213.857†            49979.9      487.85 µg/L         1.096      487.85 ppb          1.096   0.22%
   QC value within limits for Zn 213.857  Recovery = 97.57%
All analyte(s) passed QC.
```

Sequence No.: 17 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/7/2012 12:03:41**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20316.7	20316.7	106	%			12:04:09
1	Al 396.153Radial†	-38.4	12.7	3.8342	µg/L	3.8342	ppb	12:04:09
1	Ca 317.933Radial†	122.9	-3.5	-1.7147	µg/L	-1.7147	ppb	12:04:29
1	Fe 238.204 Radial†	36.2	5.3	2.9760	µg/L	2.9760	ppb	12:04:29
1	K 766.490 Radial†	772.4	62.2	30.393	µg/L	30.393	ppb	12:04:09
1	Mg 279.077 IEC†	5.7	2.2	11.057	µg/L	11.057	ppb	12:04:29
1	Na 589.592 Radial†	-226.7	-28.8	-53.120	µg/L	-53.120	ppb	12:04:09
1	Sr 421.552†	-1277.5	89.0	0.4283	µg/L	0.4283	ppb	12:04:09
1	Sc 361.383	634164.1	634164.1	105.32	%			12:05:25
1	Y 371.029	538588.5	538588.5	105.35	%			12:05:25
1	Ag 328.068†	-483.9	132.3	0.8871	µg/L	0.8871	ppb	12:05:25
1	As 188.979†	-8.5	3.4	1.9437	µg/L	1.9437	ppb	12:05:45
1	B 249.677†	120.1	28.2	0.8150	µg/L	0.8150	ppb	12:05:45
1	Ba 233.527†	-119.6	3.0	0.0270	µg/L	0.0270	ppb	12:05:45
1	Be 313.107†	-8000.7	361.5	0.2111	µg/L	0.2111	ppb	12:05:25
1	Cd 226.502†	-193.2	32.9	0.4997	µg/L	0.4997	ppb	12:05:45
1	Co 228.616†	-11.9	-4.9	-0.1273	µg/L	-0.1273	ppb	12:05:45
1	Cr 267.716†	221.4	-27.3	-0.5640	µg/L	-0.5640	ppb	12:05:45
1	Cu 324.752†	6204.2	-256.9	-1.1281	µg/L	-1.1281	ppb	12:05:25
1	Mn 257.610†	471.3	61.5	0.0956	µg/L	0.0956	ppb	12:05:45
1	Mo 202.031†	41.6	11.6	0.8294	µg/L	0.8294	ppb	12:05:45
1	Ni 231.604†	-90.8	-7.9	-0.2559	µg/L	-0.2559	ppb	12:05:45
1	P 214.914†	62.9	-16.3	-12.317	µg/L	-12.317	ppb	12:05:45
1	Pb 220.353†	164.1	15.4	2.6405	µg/L	2.6405	ppb	12:05:45
1	S 181.975 Axial†	60.1	0.1	0.2203	µg/L	0.2203	ppb	12:05:45
1	Sb 206.836†	83.1	10.0	3.3814	µg/L	3.3814	ppb	12:05:45
1	Se 196.026†	-9.1	-0.4	-0.3358	µg/L	-0.3358	ppb	12:05:45
1	SiO2†	3563.2	-47.9	-6.0622	µg/L	-6.0622	ppb	12:05:25
1	Si 251.611†	640.7	172.4	8.1606	µg/L	8.1606	ppb	12:05:45
1	Sn 189.927†	37.5	12.8	2.9494	µg/L	2.9494	ppb	12:05:45
1	Ti 334.940†	-44.1	44.5	0.1246	µg/L	0.1246	ppb	12:05:25
1	Tl 190.801†	-33.8	7.8	2.8724	µg/L	2.8724	ppb	12:05:45
1	U 367.007†	314.0	-63.9	-17.71	µg/L	-17.71	ppb	12:05:25
1	V 292.402†	-221.9	-10.1	-0.1093	µg/L	-0.1093	ppb	12:05:25
1	Zn 213.857†	1219.9	-60.4	-0.5922	µg/L	-0.5922	ppb	12:05:45
2	Sc RADIAL	20063.4	20063.4	105	%			12:04:34
2	Al 396.153Radial†	-68.7	-16.6	-5.1061	µg/L	-5.1061	ppb	12:04:34
2	Ca 317.933Radial†	112.9	-11.6	-5.6691	µg/L	-5.6691	ppb	12:04:54
2	Fe 238.204 Radial†	38.0	7.5	4.1954	µg/L	4.1954	ppb	12:04:54
2	K 766.490 Radial†	718.5	19.9	9.7446	µg/L	9.7446	ppb	12:04:34
2	Mg 279.077 IEC†	3.6	0.2	1.1561	µg/L	1.1561	ppb	12:04:54
2	Na 589.592 Radial†	-194.0	-0.2	-0.4551	µg/L	-0.4551	ppb	12:04:34
2	Sr 421.552†	-1270.1	80.8	0.3890	µg/L	0.3890	ppb	12:04:34
2	Sc 361.383	633890.8	633890.8	105.28	%			12:05:51
2	Y 371.029	538701.0	538701.0	105.37	%			12:05:51
2	Ag 328.068†	-510.0	107.3	0.7191	µg/L	0.7191	ppb	12:05:51
2	As 188.979†	-11.2	0.8	0.4480	µg/L	0.4480	ppb	12:06:11
2	B 249.677†	121.6	29.7	0.8555	µg/L	0.8555	ppb	12:06:11
2	Ba 233.527†	-118.0	4.6	0.0406	µg/L	0.0406	ppb	12:06:11
2	Be 313.107†	-8060.8	301.0	0.1788	µg/L	0.1788	ppb	12:05:51
2	Cd 226.502†	-194.8	31.3	0.4759	µg/L	0.4759	ppb	12:06:11
2	Co 228.616†	3.9	10.1	0.2663	µg/L	0.2663	ppb	12:06:11
2	Cr 267.716†	225.4	-23.3	-0.4986	µg/L	-0.4986	ppb	12:06:11
2	Cu 324.752†	6275.2	-187.0	-0.8317	µg/L	-0.8317	ppb	12:05:51
2	Mn 257.610†	437.3	29.4	0.0460	µg/L	0.0460	ppb	12:06:11
2	Mo 202.031†	51.5	21.1	1.5024	µg/L	1.5024	ppb	12:06:11
2	Ni 231.604†	-96.5	-13.4	-0.4338	µg/L	-0.4338	ppb	12:06:11
2	P 214.914†	72.6	-7.0	-5.3216	µg/L	-5.3216	ppb	12:06:11
2	Pb 220.353†	172.7	23.6	4.0381	µg/L	4.0381	ppb	12:06:11

2	S 181.975 Axial†	65.4	5.2	8.9872 µg/L	8.9872 ppb	12:06:11
2	Sb 206.836†	90.0	16.5	5.5847 µg/L	5.5847 ppb	12:06:11
2	Se 196.026†	-7.2	1.4	1.0775 µg/L	1.0775 ppb	12:06:11
2	SiO2†	3661.9	47.4	5.7554 µg/L	5.7554 ppb	12:05:51
2	Si 251.611†	687.0	216.7	10.264 µg/L	10.264 ppb	12:06:11
2	Sn 189.927†	28.3	4.2	0.9556 µg/L	0.9556 ppb	12:06:11
2	Ti 334.940†	21.4	106.7	0.2791 µg/L	0.2791 ppb	12:05:51
2	Tl 190.801†	-29.0	12.3	4.5468 µg/L	4.5468 ppb	12:06:11
2	U 367.007†	384.6	3.3	0.884 µg/L	0.884 ppb	12:05:51
2	V 292.402†	-233.4	-21.1	-0.1986 µg/L	-0.1986 ppb	12:05:51
2	Zn 213.857†	1220.7	-59.1	-0.5787 µg/L	-0.5787 ppb	12:06:11
3	Sc RADIAL	20215.2	20215.2	106 %		12:04:59
3	Al 396.153Radial†	-67.6	-15.0	-4.6115 µg/L	-4.6115 ppb	12:04:59
3	Ca 317.933Radial†	105.7	-19.2	-9.4142 µg/L	-9.4142 ppb	12:05:19
3	Fe 238.204 Radial†	33.0	2.5	1.3817 µg/L	1.3817 ppb	12:05:19
3	K 766.490 Radial†	820.7	111.5	54.544 µg/L	54.544 ppb	12:04:59
3	Mg 279.077 IEC†	6.8	3.2	16.395 µg/L	16.395 ppb	12:05:19
3	Na 589.592 Radial†	-171.7	22.3	41.193 µg/L	41.193 ppb	12:04:59
3	Sr 421.552†	-1337.9	25.7	0.1237 µg/L	0.1237 ppb	12:04:59
3	Sc 361.383	631966.8	631966.8	104.96 %		12:06:16
3	Y 371.029	536489.0	536489.0	104.94 %		12:06:16
3	Ag 328.068†	-578.8	40.2	0.2692 µg/L	0.2692 ppb	12:06:16
3	As 188.979†	-16.3	-4.1	-2.3768 µg/L	-2.3768 ppb	12:06:36
3	B 249.677†	122.7	31.1	0.9002 µg/L	0.9002 ppb	12:06:36
3	Ba 233.527†	-113.8	8.2	0.0736 µg/L	0.0736 ppb	12:06:36
3	Be 313.107†	-8142.8	199.6	0.1179 µg/L	0.1179 ppb	12:06:16
3	Cd 226.502†	-209.5	16.7	0.2548 µg/L	0.2548 ppb	12:06:36
3	Co 228.616†	-21.9	-14.4	-0.3771 µg/L	-0.3771 ppb	12:06:36
3	Cr 267.716†	235.2	-13.4	-0.2819 µg/L	-0.2819 ppb	12:06:36
3	Cu 324.752†	6334.4	-112.4	-0.4980 µg/L	-0.4980 ppb	12:06:16
3	Mn 257.610†	453.3	45.9	0.0709 µg/L	0.0709 ppb	12:06:36
3	Mo 202.031†	47.4	17.3	1.2339 µg/L	1.2339 ppb	12:06:36
3	Ni 231.604†	-79.8	2.3	0.0734 µg/L	0.0734 ppb	12:06:36
3	P 214.914†	58.0	-20.7	-15.721 µg/L	-15.721 ppb	12:06:36
3	Pb 220.353†	150.1	2.6	0.4506 µg/L	0.4506 ppb	12:06:36
3	S 181.975 Axial†	50.9	-8.5	-14.585 µg/L	-14.585 ppb	12:06:36
3	Sb 206.836†	92.6	19.2	6.4907 µg/L	6.4907 ppb	12:06:36
3	Se 196.026†	-7.8	0.8	0.5896 µg/L	0.5896 ppb	12:06:36
3	SiO2†	3737.7	130.2	15.776 µg/L	15.776 ppb	12:06:16
3	Si 251.611†	763.8	291.8	13.828 µg/L	13.828 ppb	12:06:36
3	Sn 189.927†	30.8	6.6	1.5138 µg/L	1.5138 ppb	12:06:36
3	Ti 334.940†	-10.1	76.7	0.2019 µg/L	0.2019 ppb	12:06:16
3	Tl 190.801†	-35.9	5.7	2.1001 µg/L	2.1001 ppb	12:06:36
3	U 367.007†	368.8	-10.7	-2.962 µg/L	-2.962 ppb	12:06:16
3	V 292.402†	-226.3	-15.0	-0.1418 µg/L	-0.1418 ppb	12:06:16
3	Zn 213.857†	1222.7	-53.7	-0.5286 µg/L	-0.5286 ppb	12:06:36

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	633340.6	105.18	%	0.199				0.19%
Sc RADIAL	20198.4	106	%	0.7				0.63%
Y 371.029	537926.2	105.22	%	0.244				0.23%
Ag 328.068†	93.3	0.6251	µg/L	0.31947	0.6251	ppb	0.31947	51.10%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-6.3	-1.9611	µg/L	5.02499	-1.9611	ppb	5.02499	256.23%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	0.0	0.0050	µg/L	2.19407	0.0050	ppb	2.19407	>999.9%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	29.7	0.8569	µg/L	0.04258	0.8569	ppb	0.04258	4.97%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	5.3	0.0470	µg/L	0.02398	0.0470	ppb	0.02398	50.99%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	287.4	0.1693	µg/L	0.04736	0.1693	ppb	0.04736	27.98%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-11.4	-5.5993	µg/L	3.85022	-5.5993	ppb	3.85022	68.76%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	27.0	0.4101	µg/L	0.13506	0.4101	ppb	0.13506	32.93%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	-3.1	-0.0794	µg/L	0.32439	-0.0794	ppb	0.32439	408.66%

```
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -21.3     -0.4482 µg/L       0.14768     -0.4482 ppb        0.14768  32.95%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -185.5     -0.8193 µg/L       0.31522     -0.8193 ppb        0.31522  38.48%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         5.1      2.8510 µg/L       1.41098      2.8510 ppb        1.41098  49.49%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         64.5      31.561 µg/L       22.4226      31.561 ppb        22.4226  71.05%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            1.9      9.5361 µg/L       7.73256      9.5361 ppb        7.73256  81.09%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               45.6      0.0709 µg/L       0.02477      0.0709 ppb        0.02477  34.96%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               16.7      1.1886 µg/L       0.33876      1.1886 ppb        0.33876  28.50%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        -2.2     -4.1276 µg/L      47.26372     -4.1276 ppb       47.26372 >999.9%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               -6.3     -0.2055 µg/L       0.25736     -0.2055 ppb        0.25736 125.26%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -14.7     -11.120 µg/L        5.3022     -11.120 ppb         5.3022  47.68%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               13.8      2.3764 µg/L       1.80827      2.3764 ppb        1.80827  76.09%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -1.0     -1.7924 µg/L      11.91412     -1.7924 ppb       11.91412 664.71%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               15.2      5.1523 µg/L       1.59915      5.1523 ppb        1.59915  31.04%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                0.6      0.4438 µg/L       0.71783      0.4438 ppb        0.71783 161.75%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                     43.2      5.1564 µg/L      10.93131      5.1564 ppb       10.93131 212.00%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              227.0      10.751 µg/L        2.8650      10.751 ppb         2.8650  26.65%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                7.9      1.8062 µg/L       1.02858      1.8062 ppb        1.02858  56.95%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               65.1      0.3137 µg/L       0.16567      0.3137 ppb        0.16567  52.82%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†               76.0      0.2019 µg/L       0.07723      0.2019 ppb        0.07723  38.26%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                8.6      3.1731 µg/L       1.25075      3.1731 ppb        1.25075  39.42%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -23.8      -6.597 µg/L        9.8165      -6.597 ppb         9.8165 148.81%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -15.4     -0.1499 µg/L       0.04519     -0.1499 ppb        0.04519  30.15%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -57.7     -0.5665 µg/L       0.03350     -0.5665 ppb        0.03350   5.91%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Miscellaneous

Prep Logbook

Acid Digestion of Sediments, Sludges, and Soils

Batch ID: **1218789.0** Verified by: _____

Analyst: Barry Audain

Method: SW846 3050B

Lab SOP: GL-MA-E-009 REV# 21

Instrument: Sartorius Balance B-001

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1202672497	Metals Spike Mix I	UI1778680-01	.25	mL
LCS	1202672497	Metals Spike Mix II	UI1778684-06	.25	mL
MS	1202672499	Metals Spike Mix I	UI1778680-01	.25	mL
MS	1202672499	Metals Spike Mix II	UI1778684-06	.25	mL
MSD	1202672501	Metals Spike Mix I	UI1778680-01	.25	mL
MSD	1202672501	Metals Spike Mix II	UI1778684-06	.25	mL

Sample ID	Run Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)	pH Check 1
1202672496 MB	06-JUN-2012 20:12:00	Misc Solid	0.51	50	98.03922	
1202672497 LCS	06-JUN-2012 20:12:00	Misc Solid	0.512	50	97.65625	
305539001	06-JUN-2012 20:12:00	Misc Solid	0.504	50	99.20635	
305539002	06-JUN-2012 20:12:00	Misc Solid	0.504	50	99.20635	
305539003	06-JUN-2012 20:12:00	Misc Solid	0.512	50	97.65625	
305539004	06-JUN-2012 20:12:00	Misc Solid	0.51	50	98.03922	
1202672498 DUP (305539004)	06-JUN-2012 20:12:00	Misc Solid	0.508	50	98.4252	
1202672499 MS (305539004)	06-JUN-2012 20:12:00	Misc Solid	0.503	50	99.40358	
1202672501 MSD (305539001)	06-JUN-2012 20:12:00	Misc Solid	0.522	50	95.78544	
1202672500 SDILT (305539004)	06-JUN-2012 20:12:00	Misc Solid	0.51	50	98.03922	
305539005	06-JUN-2012 20:12:00	Misc Solid	0.53	50	94.33962	

Reagent/Solvent Lot ID	Description	Amount
1739602	Concentrated Nitric Acid	1.25 mL
1772400	HYDROCHLORIC ACID	10 mL

Comments:

sample#305539004 brown, soft sand.

Digestion Start Date: 06-JUN-12 20:13:07

Digestion End Date: 06-JUN-12 20:13:07

Hot Block ID: 5

Thermometer ID: 119004

Block Temperature: 93 C

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
07-JUN-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ICP	SW846 3050B/6010B	Solid	ECOL
Batch ID:	**Sample Numbers:**		
1218790	See Below		

Potentially affected work order(s)(SDG): 305539

Application Issues:

Method Blank contamination

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MSD/PSD: QC 1202672501MSD	1. The matrix spike duplicate recovery failed outside of the control limits for lead due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported. Sample #305539004 is a brown,soft sand.

Originator's Name:

Helen Camello 07-JUN-12

Data Validator/Group Leader:

Louise Smith 07-JUN-12

Serial ID: UI110317-42 **Open/Reference Date:** 15-AUG-11 **Amount :** 200 mL
Name: SILICON **Received:** 17-MAR-11 **Catalog Number :** HP100050-4F
Type: Source Material **Expires:** 15-AUG-12 **Lot Number :** 1029420
Employee: Helen Camello **Solvent :** H20/tr HF
Supplier: High-Purity Standards
Description: SILICON 1000mg/L H20/tr HF
Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI110614-40 **Open/Reference Date:** 27-JUN-11 **Amount :** 500 mL
Name: TRACE ICP Stock PQL Sta **Received:** 14-JUN-11 **Catalog Number :** 160543-01-03
Type: Source Material **Expires:** 27-JUN-12 **Lot Number :** 1026653
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3+TrHF
Supplier: 02si
Description: TRACE ICP Stock PQL Standard
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	100 mg/L	Antimony	5 mg/L
Arsenic	15 mg/L	Barium	2.5 mg/L
Beryllium	2.5 mg/L	Boron	25 mg/L
Cadmium	2.5 mg/L	Calcium	100 mg/L
Chromium	2.5 mg/L	Cobalt	2.5 mg/L
Copper	5 mg/L	Iron	50 mg/L
Lead	5 mg/L	Magnesium	150 mg/L
Manganese	5 mg/L	Molybdenum	5 mg/L
Nickel	2.5 mg/L	Phosphorous	75 mg/L
Potassium	75 mg/L	Selenium	15 mg/L
Silicon	50 mg/L	Silver	2.5 mg/L
Sodium	150 mg/L	Strontium	2.5 mg/L
Sulfur	50 mg/L	Thallium	10 mg/L
Tin	5 mg/L	Titanium	2.5 mg/L
Uranium	25 mg/L	Vanadium	2.5 mg/L
Zinc	5 mg/L		

Serial ID: UI111118-41 **Open/Reference Date:** 22-NOV-11 **Amount :** 500 mL
Name: SI 1000mg/L **Received:** 15-NOV-11 **Catalog Number :** 060014-02-03
Type: Source Material **Expires:** 22-NOV-12 **Lot Number :** 1030808
Employee: Helen Camello **Solvent :** 0.3%H2O(NH4)2SiF6
Supplier: o2si
Description: Silicon 1000mg/L+/-0.3%in H2O(NH4)2SiF6
Comments: None

Analyte	Concentration	Analyte	Concentration

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI111122-40 **Open/Reference Date:** 22-NOV-11 **Amount :** 500 mL
Name: TRACE CALSTD#1A SOUR **Received:** 18-NOV-11 **Catalog Number :** HP2270-1-500
Type: Source Material **Expires:** 17-NOV-12 **Lot Number :** 1131927
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Std #1A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	2000 mg/L	Arsenic	200 mg/L
Barium	200 mg/L	Beryllium	200 mg/L
Boron	200 mg/L	Cadmium	200 mg/L
Calcium	2000 mg/L	Chromium	200 mg/L
Cobalt	200 mg/L	Copper	200 mg/L
Iron	2000 mg/L	Lead	200 mg/L
Magnesium	2000 mg/L	Manganese	200 mg/L
Nickel	200 mg/L	Phosphorous	1000 mg/L
Potassium	2000 mg/L	Selenium	200 mg/L
Sodium	2000 mg/L	Strontium	200 mg/L
Thallium	200 mg/L	Uranium	200 mg/L
Vanadium	200 mg/L	Zinc	200 mg/L

Serial ID: UI111122-41 **Open/Reference Date:** 22-NOV-11 **Amount :** 500 mL
Name: TRACE CALSTD#1B SOUR **Received:** 18-NOV-11 **Catalog Number :** HP2270-2-500
Type: Source Material **Expires:** 17-NOV-12 **Lot Number :** 1131926
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Standard #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	200 mg/L	Molybdenum	200 mg/L
Silver	200 mg/L	Sulfur	400 mg/L
Tin	200 mg/L	Titanium	200 mg/L

Serial ID: UI111223-41 **Open/Reference Date:** 12-JAN-12 **Amount :** 500 mL
Name: TRACE ICP Na-1000SOUR **Received:** 23-DEC-11 **Catalog Number :** 060011-02-03
Type: Source Material **Expires:** 12-JAN-13 **Lot Number :** 1027488
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: 02SI
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI120320-40 **Open/Reference Date:** 20-MAR-12 **Amount :** 500 mL
Name: TRACE ICP ICSA SOLN A **Received:** 19-MAR-12 **Catalog Number :** 160005-01-03
Type: Source Material **Expires:** 20-MAR-13 **Lot Number :** 1034867
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: o2si
Description: TRACE ICP ICSA SOLN A mg/L+/-0.5%IN5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	5000 mg/L	Calcium	5000 mg/L
Iron	2000 mg/L	Magnesium	5000 mg/L

Serial ID: UI120417-40 **Open/Reference Date:** 01-MAY-12 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 16-APR-12 **Catalog Number :** 160358-01-03
Type: Source Material **Expires:** 01-MAY-13 **Lot Number :** 1035452
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: 02si
Description: SECOND SOURCE STD #1A 5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 mg/L	Arsenic	100 mg/L
Barium	100 mg/L	Boron	100 mg/L
Cadmium	100 mg/L	Calcium	1000 mg/L
Chromium	100 mg/L	Cobalt	100 mg/L
Copper	100 mg/L	Iron	1000 mg/L
Lead	100 mg/L	Phosphorous	500 mg/L
Potassium	500 mg/L	Selenium	500 mg/L
Sodium	500 mg/L	Strontium	100 mg/L

Serial ID: UI120417-41 **Open/Reference Date:** 01-MAY-12 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 16-APR-12 **Catalog Number :** 130358-01-03
Type: Source Material **Expires:** 01-MAY-13 **Lot Number :** 1035452
Employee: Helen Camello **Solvent :** 5%HNO3,TR.HF
Supplier: 02si
Description: SECOND SOURCE STD #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 mg/L	Beryllium	50 mg/L
Magnesium	1000 mg/L	Manganese	100 mg/L
Molybdenum	100 mg/L	Nickel	100 mg/L

Analyte	Concentration	Analyte	Concentration
Silver	50 mg/L	Sulfur	500 mg/L
Thallium	100 mg/L	Tin	100 mg/L
Titanium	100 mg/L	Uranium	100 mg/L
Vanadium	100 mg/L	Zinc	100 mg/L

Serial ID: UI120430-41 **Open/Reference Date:** 07-MAY-12 **Amount :** 500 mL
Name: TRACE ICP Na-1000SOUR **Received:** 23-APR-12 **Catalog Number :** 060011-02-03
Type: Source Material **Expires:** 07-MAY-13 **Lot Number :** 1035510
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: 02SI
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI120516-48.2 **Open/Reference Date:** 07-JUN-12 **Amount :** 1000 mL
Name: Trace ICP ICSA **Received:** 16-MAY-12 **Catalog Number :** 160005-02
Type: Source Material **Expires:** 07-JUN-13 **Lot Number :** 1036389
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Interferent Check Standard A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 UG/L	Calcium	500000 UG/L
Iron	200000 UG/L	Magnesium	500000 UG/L

Serial ID: UI120516-49.15 **Open/Reference Date:** 07-JUN-12 **Amount :** 100 ml
Name: Trace ICP ICSAB **Received:** 16-MAY-12 **Catalog Number :** 160066-04
Type: Source Material **Expires:** 08-JUN-12 **Lot Number :** 1036383
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Inteferent Check Standard AB
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Antimony	500 ug/L
Arsenic	500 ug/L	Barium	500 ug/L
Beryllium	250 ug/L	Boron	500 ug/L
Cadmium	500 ug/L	Calcium	500000 ug/L
Chromium	500 ug/L	Cobalt	500 ug/L
Copper	500 ug/L	Iron	200000 ug/L
Lead	500 ug/L	Magnesium	500000 ug/L

Analyte	Concentration	Analyte	Concentration
Manganese	500 ug/L	Molybdenum	500 ug/L
Nickel	500 ug/L	Phosphorous	2500 ug/L
Potassium	5000 ug/L	Selenium	2500 ug/L
Silica	10696.5 ug/L	Silicon	5000 ug/L
Silver	250 ug/L	Sodium	5000 ug/L
Strontium	500 ug/L	Sulfur	2500 ug/L
Thallium	500 ug/L	Tin	500 ug/L
Titanium	500 ug/L	Uranium	500 ug/L
Vanadium	500 ug/L	Zinc	500 ug/L

Serial ID: UI120530-40 **Open/Reference Date:** 30-MAY-12 **Amount :** 500 mL
Name: ICP HIGH RANGE STD-A **Received:** 25-MAY-12 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 30-MAY-13 **Lot Number :** 1036537
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION A
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	10000 ug/L	Arsenic	10000 ug/L
Barium	15000 ug/L	Beryllium	3000 ug/L
Boron	5000 ug/L	Cadmium	10000 ug/L
Chromium	25000 ug/L	Cobalt	10000 ug/L
Copper	20000 ug/L	Lead	25000 ug/L
Manganese	10000 ug/L	Molybdenum	10000 ug/L
Nickel	10000 ug/L	Phosphorous	15000 ug/L
Potassium	300000 ug/L	Selenium	10000 ug/L
Silica	107000 ug/L	Silicon	50000 ug/L
Silver	1000 ug/L	Strontium	10000 ug/L
Thallium	10000 ug/L	Tin	10000 ug/L
Titanium	10000 ug/L	Vanadium	10000 ug/L
Zinc	15000 ug/L		

Serial ID: UI120530-41 **Open/Reference Date:** 30-MAY-12 **Amount :** 500 mL
Name: ICP HIGH RANGE STD B **Received:** 25-MAY-12 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 30-MAY-13 **Lot Number :** 1036537
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION B
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Calcium	500000 ug/L
Iron	500000 ug/L	Magnesium	500000 ug/L
Sodium	500000 ug/L	Sulfur	50000 ug/L

Analyte	Concentration	Analyte	Concentration
Uranium	15000 ug/L		

Serial ID: UI1778680-01 **Open/Reference Date:** 16-MAY-12 **Catalog Number :** 160047-01
Name: METALSPIKE-1 **Received:** 15-MAY-12 **Lot Number :** 1036245
Type: Source Material **Expires:** 16-MAY-13
Employee: Louis Hall
Supplier: OS2I
Description: Metals Spike Mix I
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 ug/mL	Arsenic	100 ug/mL
Barium	100 ug/mL	Beryllium	100 ug/mL
Boron	100 ug/mL	Cadmium	100 ug/mL
Calcium	1000 ug/mL	Cobalt	100 ug/mL
Iron	1000 ug/mL	Lead	100 ug/mL
Magnesium	1000 ug/mL	Phosphorous	100 ug/mL
Potassium	1000 ug/mL	Silver	100 ug/mL
Sodium	1000 ug/mL	Strontium	100 ug/mL

Serial ID: UI1778684-06 **Open/Reference Date:** 16-MAY-12 **Catalog Number :** 160048-01
Name: METALSPIKE-2 **Received:** 15-MAY-12 **Lot Number :** 1036235
Type: Source Material **Expires:** 16-MAY-13
Employee: Louis Hall
Supplier: OS2I
Description: Metals Spike Mix II
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 ug/mL	Chromium	100 ug/mL
Copper	100 ug/mL	Manganese	100 ug/mL
Molybdenum	100 ug/mL	Nickel	100 ug/mL
Selenium	100 ug/mL	Silica	2141 ug/mL
Silicon	1000 ug/mL	Sulfur	1000 ug/mL
Thallium	100 ug/mL	Tin	100 ug/mL
Titanium	100 ug/mL	Uranium	100 ug/mL
Uranium-235	.72 ug/mL	Uranium-238	99.28 ug/mL
Vanadium	100 ug/mL	Zinc	100 ug/mL

Serial ID: WI120607-42 **Open/Reference Date:** 07-JUN-12 **Balance Id :** 216
Name: TRACE ICP 0.1 PPM STD. **Received:** 22-NOV-11 **Pipet Id :** 3581809
Type: Working **Expires:** 08-JUN-12 **Solvent :** 3%HCL and 1%HNO3-1785448
Employee: Helen Camello
Supplier: GEL

Description: TRACE ICP 0.1 PPM CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI120607-44	Aluminum	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120607-44	Antimony	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Arsenic	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Barium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Beryllium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Boron	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Cadmium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Calcium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120607-44	Chromium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Cobalt	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Copper	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Iron	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120607-44	Lead	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Magnesium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120607-44	Manganese	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Molybdenum	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Nickel	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Phosphorous	5000 ug/L	10 mL	100 mL	500 ug/L
WI120607-44	Potassium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120607-44	Selenium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Silica	10698 ug/L	10 mL	100 mL	1069 ug/L
WI120607-44	Silicon	5000 ug/L	10 mL	100 mL	500 ug/L
WI120607-44	Silver	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Sodium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120607-44	Strontium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Sulfur	2000 ug/L	10 mL	100 mL	200 ug/L
WI120607-44	Thallium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Tin	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Titanium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Uranium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Vanadium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120607-44	Zinc	1000 ug/L	10 mL	100 mL	100 ug/L

Serial ID: WI120607-43 **Open/Reference Date:** 07-JUN-12 **Balance Id :** 216
Name: TRACE ICP 0.5/CCV STD. **Received:** 22-NOV-11 **Pipet Id :** 3581809
Type: Working **Expires:** 08-JUN-12 **Solvent :** 3%HCL and 1%HNO3-1785448
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP O.5/CCV CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111118-41	Silica	2139 mg/L	2.5 mL	1000 mL	5348.25 UG/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111118-41	Silicon	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI111122-40	Aluminum	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Arsenic	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Barium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Beryllium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Boron	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Cadmium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Calcium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Chromium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Cobalt	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Copper	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Iron	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Lead	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Magnesium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Manganese	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Nickel	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Phosphorous	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI111122-40	Potassium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Selenium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Sodium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Strontium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Thallium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Uranium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Vanadium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Zinc	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Antimony	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Molybdenum	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Silver	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Sulfur	400 mg/L	2.5 mL	1000 mL	1000 UG/L
UI111122-41	Tin	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Titanium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120430-41	Sodium	1000 ug/mL	5 mL	1000 mL	5000 UG/L

Serial ID: WI120607-44 **Open/Reference Date:** 07-JUN-12 **Balance Id :** 216

Name: TRACE ICP SCAL 1.0 **Received:** 22-NOV-11 **Pipet Id :** 3581809

Type: Working **Expires:** 08-JUN-12 **Solvent :** 3%HCL and 1 %HNO3-1785448

Employee: Helen Camello

Supplier: o2si

Description: Trace ICP Calibration Standard 1.0ppm

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111118-41	Silica	2139 mg/L	2.5 mL	500 mL	10698 ug/L
UI111118-41	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI111122-40	Aluminum	2000 mg/L	2.5 mL	500 mL	10000 ug/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111122-40	Arsenic	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Barium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Beryllium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Boron	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Cadmium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Calcium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Chromium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Cobalt	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Copper	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Iron	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Lead	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Magnesium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Manganese	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Nickel	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Phosphorous	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI111122-40	Potassium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Selenium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Sodium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Strontium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Thallium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Uranium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Vanadium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Zinc	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Antimony	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Molybdenum	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Silver	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Sulfur	400 mg/L	2.5 mL	500 mL	2000 ug/L
UI111122-41	Tin	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Titanium	200 mg/L	2.5 mL	500 mL	1000 ug/L

Serial ID: WI120607-45 **Open/Reference Date:** 07-JUN-12 **Balance Id :** 216

Name: TRACE ICP S-10 STD **Received:** 20-MAR-12 **Pipet Id :** 3581809

Type: Working **Expires:** 08-JUN-12 **Solvent :** 3%HCL and 1%HNO3 -1785448

Employee: Helen Camello

Supplier: GEL

Description: TRACE ICP S-10 CALIBRATION STD.

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111223-41	Sodium	1000 ug/mL	10 mL	500 mL	20000 UG/L
UI120320-40	Aluminum	5000 mg/L	5 mL	500 mL	50000 UG/L
UI120320-40	Calcium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI120320-40	Iron	2000 mg/L	5 mL	500 mL	20000 UG/L
UI120320-40	Magnesium	5000 mg/L	5 mL	500 mL	50000 UG/L

Standard Logbook

Serial ID: WI120607-46 **Open/Reference Date:** 07-JUN-12 **Balance Id :** 216
Name: ICP TRACE ICV **Received:** 17-APR-12 **Pipet Id :** 3581809
Type: Working **Expires:** 08-JUN-12 **Solvent :** 3%HCL AND 1%HNO3-1785448
Employee: Helen Camello
Supplier: GEL
Description: Initial Calibration Verification ICP Trace Metals
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI110317-42	Silica	2139 mg/L	2.5 mL	500 mL	10695 ug/L
UI110317-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Aluminum	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Arsenic	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Barium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Boron	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Cadmium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Calcium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Chromium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Cobalt	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Copper	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Iron	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Lead	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Phosphorous	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Potassium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Selenium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Sodium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Strontium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Antimony	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Beryllium	50 mg/L	2.5 mL	500 mL	250 ug/L
UI120417-41	Magnesium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-41	Manganese	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Molybdenum	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Nickel	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Silver	50 mg/L	2.5 mL	500 mL	250 ug/L
UI120417-41	Sulfur	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-41	Thallium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Tin	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Titanium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Uranium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Vanadium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Zinc	100 mg/L	2.5 mL	500 mL	500 ug/L

Standard Logbook

Serial ID: WI120607-47 **Open/Reference Date:** 07-JUN-12 **Balance Id :** 216
Name: PQL Working Standard **Received:** 14-JUN-11 **Pipet Id :** 3581809
Type: Working **Expires:** 08-JUN-12 **Solvent :** 3%HCL &1%HNO3-1785448
Employee: Helen Camello
Supplier: 02si
Description: PQL Working Standard
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI110614-40	Aluminum	100 mg/L	2 mL	1000 mL	200 ug/L
UI110614-40	Antimony	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Arsenic	15 mg/L	2 mL	1000 mL	15 ug/L
UI110614-40	Barium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Beryllium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Boron	25 mg/L	2 mL	1000 mL	50 ug/L
UI110614-40	Cadmium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Calcium	100 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Chromium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Cobalt	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Copper	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Iron	50 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Lead	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Magnesium	150 mg/L	2 mL	1000 mL	300 ug/L
UI110614-40	Manganese	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Molybdenum	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Nickel	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Phosphorous	75 mg/L	2 mL	1000 mL	150 ug/L
UI110614-40	Potassium	75 mg/L	2 mL	1000 mL	150 ug/L
UI110614-40	Selenium	15 mg/L	2 mL	1000 mL	15 ug/L
UI110614-40	Silicon	50 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Silver	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Sodium	150 mg/L	2 mL	1000 mL	150 ug/L
UI110614-40	Strontium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Sulfur	50 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Thallium	10 mg/L	2 mL	1000 mL	20 ug/L
UI110614-40	Tin	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Titanium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Uranium	25 mg/L	2 mL	1000 mL	50 ug/L
UI110614-40	Vanadium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Zinc	5 mg/L	2 mL	1000 mL	10 ug/L

Serial ID: 120418 **Open/Reference Date:** 18-JAN-12 **Lot Number :** K48AO2
Name: I-HCL **Received:** 18-JAN-12
Type: Reagent/Solvent **Expires:** 18-JAN-13
Employee: Richard Dollinger
Supplier: Macron Chemicals

Description: HYDROCHLORIC ACID
Comments: None

Serial ID: 1739602 **Open/Reference Date:** 14-FEB-12 **Lot Number :** L03022
Name: I-HNO3 **Received:** 14-FEB-12
Type: Reagent/Solvent **Expires:** 14-FEB-13
Employee: Louis Hall
Supplier: Macron Chemicals
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 1760073 **Open/Reference Date:** 03-APR-12 **Lot Number :** K45047
Name: I-HNO3 **Received:** 03-APR-12
Type: Reagent/Solvent **Expires:** 03-APR-13
Employee: Louis Hall
Supplier: Macron Chemicals
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 1772400 **Open/Reference Date:** 03-MAY-12 **Lot Number :** L02A02
Name: I-HCL **Received:** 03-MAY-12 **Preservative_Id :** 5 none
Type: Reagent/Solvent **Expires:** 03-MAY-13
Employee: Louis Hall
Supplier: Macron Chemicals
Description: HYDROCHLORIC ACID
Comments: None

Serial ID: 1785448 **Open/Reference Date:** 04-JUN-12 **Amount :** 8 L
Name: B-ICP-RINSE SOLN **Received:** 03-APR-12 **Solvent :** 3%HCL+1%HNO3
Type: Reagent/Solvent **Expires:** 10-JUN-12
Employee: Helen Camello
Supplier: GEL
Description: 3%HCL+1%HNO3 RINSE SOLN.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
120418	I-HCL	36.5-38.0	240 mL	10000 mL	N/A
1760073	I-HNO3	68.0-70.0%	80 mL	10000 mL	N/A

This data package file was not reviewed. Reported data was R9 Tier 2 reviewed. If this package is included as a report deliverable then data in this package needs to include qualifiers or be stamped as "Data without validation Qualifiers.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178

www.gel.com

June 14, 2012

Ms. Mindy Song
Ecology & Environment, Inc.
3700 Industry Ave.
#102
Lakewood, California 90712

Re: Klondyke Tailings Removal Project
Work Order: 305844

Dear Ms. Song:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 12, 2012. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4422.

Sincerely,

Jennifer Pellegrini for
Jake Crook
Project Manager

Purchase Order: 002693.2105.06TTO
Enclosures

Ecology and Environment, Inc. Project #002693
Klondyke Tailings Removal Project
SDG: 305844

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Case Narrative

Case Narrative
for
Ecology and Environment, Inc. Project #002693
SDG: 305844

June 25, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample Receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 12, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
305844001	AD-02-00
305844002	AD-04-01
305844003	AD-06-00
305844004	SH-BKG-00
305844005	SH-02-00
305844006	SH-13-00

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Metals.

Jennifer Pellegrini for
Jake Crook
Project Manager

Chain of Custody and Supporting Documentation

Page: 1 of ~~4~~ 1 KYV
Project #:
GEL Quote #:
COC Number (1):
PO Number:

GEL Chain of Custody and Analytical Request

20120692181
GEL Work Order Number: 305844%

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: ECOLOGY & ENVIRONMENT Phone #: 415-238-3673
Project/Site Name: KLONDYKE REMOVAL Fax #:
Address: 3700 INDUSTRY AVE #102, LAKEWOOD, CA 90712
Collected by: A. SMITH/K VILLARS Send Results To: RKELLY@ENE.COM

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	TSCA Regulated	Total number of containers	EPA 6010B									<-- Preservative Type (6)	Comments Note: extra sample is required for sample specific QC
AD-02-00	6/8/12	0830			SOIL			1	X										
AD-04-01	6/8/12	1500			↓			1	X										
AD-06-00	6/8/12	0835			↓			1	X										
SH-BKG-00	6/9/12	0930			↓			1	X										
SH-02-00	6/9/12	0935			↓			1	X										MS/MSD)
SH-13-00	6/9/12	1015			↓			1	X										

TAT Requested: Normal: Rush: Specify: 24 Hr (Subject to Surcharge) Fax Results: Yes / No Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

NONE

Sample Collection Time Zone
Eastern Pacific
Central Other _____
Mountain

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1 [signature]	6/9/12	1550	1 Fed Ex Naybill		875821369273
2			2 [signature]	6-12-12	0930
3			3		

Sample Shipping and Delivery Details

GEL PM:
Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? *YES* *NO*
Cooler Temp: C

WHITE = LABORATORY **YELLOW = FILE** **PINK = CLIENT**

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ECOC	**SDG/AR/COC/Work Order:** 305844
Received By: JP	**Date Received:** 6-12-12

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Ice bags Blue ice Dry ice (None) Other (describe) *all temperatures are recorded in Celsius 21
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 41502209 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: no time on containers
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: (FedEx Air) FedEx Ground UPS Field Services Courier Other 8758 2136 9273

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials JPC Date 06/12/12 Page 1 of 1

Data Review Qualifier Definitions

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

List of current GEL Certifications as of 14 June 2012

State	Certification
Arizona	AZ0766
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−09−00191
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
Wisconsin	999887790

Metals Analysis

Case Narrative

Metals Fractional Narrative
Ecology and Environment, Inc. Project #002693 (ECOL)
SDG 305844

Sample Analysis

Sample ID	Client ID
305844001	AD-02-00
305844002	AD-04-01
305844003	AD-06-00
305844004	SH-BKG-00
305844005	SH-02-00
305844006	SH-13-00
1202676785	Method Blank (MB) **ICP**
1202676786	Laboratory Control Sample (LCS)
1202676789	305844005(SH-02-00L) Serial Dilution (SD)
1202676787	305844005(SH-02-00D) Sample Duplicate (DUP)
1202676788	305844005(SH-02-00S) Matrix Spike (MS)
1202676790	305844001(AD-02-00SD) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch: 1220620
Prep Batch : 1220619
Standard Operating Procedures: GL-MA-E-013 REV# 20 and GL-MA-E-009 REV# 21
Analytical Method: SW846 3050B/6010B
Prep Method : SW846 3050B

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria for all applicable analytes with the exception of lead. The CCB failed high for lead but samples were 10x greater than the PQL.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 305844001 (AD-02-00) and 305844005 (SH-02-00).

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Matrix Spike Duplicate (MSD) Recovery Statement
The percent recovery (%R) obtained from the MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MSD did not meet the recommended quality control acceptance criteria for percent recoveries for lead or arsenic.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD(s) between the MS and MSD met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Sample 305844005 required dilutions in order to bring over range lead concentrations within the linear calibration range of the instrument. Sample 305844006 required dilutions in order to bring raw lead values within the linear range of the instrument, and for arsenic that lead interferes with, in order to ensure that the inter-element correction factors were valid on the ICP.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER ID 1088481. A copy is included in the Miscellaneous Data section of this package.

Additional Comments
Additional comments were not required for this SDG.

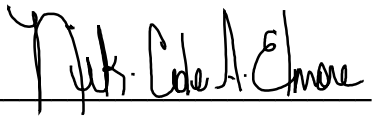
Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:  **Date:** 06.20.12

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ECOL007 Ecology and Environment, Inc. Project #002693

Client SDG: 305844 GEL Work Order: 305844

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the RL or LOQ.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.

Reviewed By: Jake A. Elmore 06-20-12

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 **METHOD TYPE:** SW846

SAMPLE ID: 305844001 **CLIENT ID:** AD−02−00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 12−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	14	mg/kg		N	P	0.492	1	OPTIMA3	061312−1
7439−92−1	Lead	1220	mg/kg		N	P	0.325	1	OPTIMA3	061312−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 **METHOD TYPE:** SW846

SAMPLE ID: 305844002 **CLIENT ID:** AD−04−01

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 12−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	6.81	mg/kg		N	P	0.496	1	OPTIMA3	061312−1
7439−92−1	Lead	89.5	mg/kg		N	P	0.327	1	OPTIMA3	061312−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 **METHOD TYPE:** SW846

SAMPLE ID: 305844003 **CLIENT ID:** AD−06−00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 12−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	11.1	mg/kg		N	P	0.491	1	OPTIMA3	061312−1
7439−92−1	Lead	748	mg/kg		N	P	0.324	1	OPTIMA3	061312−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 **METHOD TYPE:** SW846

SAMPLE ID: 305844004 **CLIENT ID:** SH−BKG−00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 12−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	25.4	mg/kg		N	P	0.483	1	OPTIMA3	061312−1
7439−92−1	Lead	726	mg/kg		N	P	0.319	1	OPTIMA3	061312−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 **METHOD TYPE:** SW846

SAMPLE ID: 305844005 **CLIENT ID:** SH−02−00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 12−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	96.3	mg/kg		N	P	0.497	1	OPTIMA3	061312−1
7439−92−1	Lead	3100	mg/kg		N	P	1.64	5	OPTIMA3	061312−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 **METHOD TYPE:** SW846

SAMPLE ID: 305844006 **CLIENT ID:** SH−13−00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 12−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	1010	mg/kg		N	P	2.48	5	OPTIMA3	061312−1
7439−92−1	Lead	43500	mg/kg		N	P	16.4	50	OPTIMA3	061312−1

***Analytical Methods:**

P **SW846 3050B/6010B**

Quality Control Summary

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 305844

Contract: ECOL00720 **Lab Code:** GEL

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: O2Si

Instrument ID: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
ICV01										
	Arsenic	496	ug/L	500	ug/L	99.2	90.0 − 110.0	P	13−JUN−12 06:31	061312−1
	Lead	505	ug/L	500	ug/L	101	90.0 − 110.0	P	13−JUN−12 06:31	061312−1
CCV01										
	Arsenic	520	ug/L	500	ug/L	104.1	90.0 − 110.0	P	13−JUN−12 06:52	061312−1
	Lead	522	ug/L	500	ug/L	104.4	90.0 − 110.0	P	13−JUN−12 06:52	061312−1
CCV02										
	Arsenic	515	ug/L	500	ug/L	103	90.0 − 110.0	P	13−JUN−12 07:06	061312−1
	Lead	511	ug/L	500	ug/L	102.3	90.0 − 110.0	P	13−JUN−12 07:06	061312−1
CCV03										
	Arsenic	515	ug/L	500	ug/L	102.9	90.0 − 110.0	P	13−JUN−12 07:40	061312−1
	Lead	510	ug/L	500	ug/L	102	90.0 − 110.0	P	13−JUN−12 07:40	061312−1
CCV04										
	Arsenic	508	ug/L	500	ug/L	101.7	90.0 − 110.0	P	13−JUN−12 08:11	061312−1
	Lead	510	ug/L	500	ug/L	102	90.0 − 110.0	P	13−JUN−12 08:11	061312−1
CCV05										
	Arsenic	513	ug/L	500	ug/L	102.6	90.0 − 110.0	P	13−JUN−12 08:36	061312−1
	Lead	535	ug/L	500	ug/L	107	90.0 − 110.0	P	13−JUN−12 08:36	061312−1
CCV06										
	Arsenic	510	ug/L	500	ug/L	102	90.0 − 110.0	P	13−JUN−12 09:03	061312−1
	Lead	515	ug/L	500	ug/L	103.1	90.0 − 110.0	P	13−JUN−12 09:03	061312−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−2b−
CRDL Standard for AA & ICP

SDG No: 305844

Contract: ECOL00720 **Lab Code:** GEL

AA CRDL Standard Source: SPEX

ICP CRDL Standard Source Solutions Plus

Instrument ID: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Advisory Limits (%R)	M*	Analysis Date/Time	Run Number
PQL01										
	Arsenic	32.6	ug/L	30	ug/L	108.8	70.0 − 130.0	P	13−JUN−12 06:37	061312−1
	Lead	9.85	ug/L	10	ug/L	98.5	70.0 − 130.0	P	13−JUN−12 06:37	061312−1

***Analytical Methods:**

P **SW846 3050B/6010B**

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 305844

Contract: ECOL00720

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
ICB01										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	13−JUN−12 06:34	061312−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	13−JUN−12 06:34	061312−1
CCB01										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	13−JUN−12 06:55	061312−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	13−JUN−12 06:55	061312−1
CCB02										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	13−JUN−12 07:09	061312−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	13−JUN−12 07:09	061312−1
CCB03										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	13−JUN−12 07:43	061312−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	13−JUN−12 07:43	061312−1
CCB04										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	13−JUN−12 08:15	061312−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	13−JUN−12 08:15	061312−1
CCB05										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	13−JUN−12 08:39	061312−1
	Lead	10.2	+/−10		3.3	10.0	SOL	P	13−JUN−12 08:39	061312−1
CCB06										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	13−JUN−12 09:07	061312−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	13−JUN−12 09:07	061312−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 305844
Contract: ECOL00720
Matrix: Soil

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202676785								
	Arsenic	0.489	mg/kg	+/−2.94	U	P	0.489	2.94
	Lead	0.441	mg/kg	+/−0.978	B	P	0.323	0.978

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−4−
Interference Check Sample

SDG No: 305844

Contract: ECOL00720 **Lab Code:** GEL

ICS: O2Si

Instrument: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Arsenic	2.04	ug/L					13−JUN−12 06:40	061312−1
	Lead	0.302	ug/L					13−JUN−12 06:40	061312−1
ICSAB01									
	Arsenic	541	ug/L	500	ug/L	108	80.0 − 120.0	13−JUN−12 06:43	061312−1
	Lead	480	ug/L	500	ug/L	95.9	80.0 − 120.0	13−JUN−12 06:43	061312−1

METALS
−5a−

Matrix Spike Summary

SDG NO. 305844 **Client ID** SH−02−00S

Contract: ECOL00720 **Level:** Low

Matrix: SOIL **% Solids:**

Sample ID: 305844005 **Spike ID:** 1202676788

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Arsenic	mg/kg	75−125	147		96.3		48.9	105		P
Lead	mg/kg		3300		3100		48.9	408	N/A	P

***Analytical Methods:**
P SW846 3050B/6010B

METALS
−5a−

Matrix Spike Duplicate Summary

SDG NO. 305844 **Client ID** AD−02−00SD

Contract: ECOL00720 **Level:** Low

Matrix: SOIL **% Solids:**

Sample ID: 305844001 **Spike ID:** 1202676790

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Arsenic	mg/kg	75−125	149		14		49.9	270	N	P
Lead	mg/kg	75−125	3350		0		49.9	4270	N	P

***Analytical Methods:**
P SW846 3050B/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 305844 **Lab Code:** GEL

Contract: ECOL00720 **Client ID:** SH−02−00D

Matrix: SOLID **Level:** Low

Sample ID: 305844005 **Duplicate ID:** 1202676787 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Arsenic	mg/kg	+/−20%	96.3		93.6		2.81		P
Lead	mg/kg	+/−20%	3100		3230		3.91		P

***Analytical Methods:**

P SW846 3050B/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 305844 **Lab Code:** GEL

Contract: ECOL00720 **Client ID:** AD−02−00SD

Matrix: SOLID **Level:** Low

Sample ID: 1202676788 **Duplicate ID:** 1202676790 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Arsenic	mg/kg	+/−20	147		149		.963		P
Lead	mg/kg	+/−20	3300		3350		1.37		P

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 305844

Contract: ECOL00720

Aqueous LCS Source: **Solid LCS Source:** OS2I

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202676786								
	Arsenic	mg/kg	49.8	48.6		97.6	80−120	P
	Lead	mg/kg	49.8	49.3		99	80−120	P

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 305844 **Client ID** SH−02−00L

Contract: ECOL00720

Matrix: SOLID **Level:** Low

Sample ID: 305844005 **Serial Dilution ID:** 1202676789

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Arsenic	969		996		2.84		10	P
Lead	6240		6540		4.7		10	P

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−13−
SAMPLE PREPARATION SUMMARY

SDG No: 305844 **Method Type** P

Contract: ECOL00720 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
Batch Number 1220619							
1202676785	MB for batch 1220619	MB	S	12−JUN−12	.511g	50mL	
1202676786	LCS for batch 1220619	LCS	S	12−JUN−12	.502g	50mL	
1202676788	SH−02−00S	MS	S	12−JUN−12	.511g	50mL	
1202676790	AD−02−00SD	MSD	S	12−JUN−12	.501g	50mL	
1202676787	SH−02−00D	DUP	S	12−JUN−12	.501g	50mL	
305844001	AD−02−00	SAMPLE	S	12−JUN−12	.508g	50mL	
305844002	AD−04−01	SAMPLE	S	12−JUN−12	.504g	50mL	
305844003	AD−06−00	SAMPLE	S	12−JUN−12	.509g	50mL	
305844004	SH−BKG−00	SAMPLE	S	12−JUN−12	.518g	50mL	
305844005	SH−02−00	SAMPLE	S	12−JUN−12	.503g	50mL	
305844006	SH−13−00	SAMPLE	S	12−JUN−12	.504g	50mL	

Metals
−14−
Analysis Run Log

Contract: ECOL00720
Lab Code: GEL
Inst Name: OPTIMA3
Start Date: 13−JUN−12
End Date: 13−JUN−12
Client Sdg: 305844
Method*: P
Data File: 061312−1

Samp No.	D/F	Run Time	As	Pb
S0.0	1	06:17:00	X	X
S0.1	1	06:21:00	X	X
S0.5	1	06:23:00	X	X
SCAL	1	06:26:00	X	X
S10	1	06:29:00		
ICV01	1	06:31:00	X	X
ICB01	1	06:34:00	X	X
PQL01	1	06:37:00	X	X
ICSA01	1	06:40:00	X	X
ICSAB01	1	06:43:00	X	X
LR01	1	06:45:00	X	X
LR02	1	06:48:00	X	X
CCV01	1	06:52:00	X	X
CCB01	1	06:55:00	X	X
ZZZZZZ	1	07:02:00		
CCV02	1	07:06:00	X	X
CCB02	1	07:09:00	X	X
ZZZZZZ	1	07:12:00		
ZZZZZZ	1	07:17:00		
ZZZZZZ	1	07:20:00		
ZZZZZZ	1	07:24:00		
ZZZZZZ	1	07:27:00		
ZZZZZZ	1	07:30:00		
ZZZZZZ	1	07:33:00		
ZZZZZZ	1	07:37:00		
CCV03	1	07:40:00	X	X
CCB03	1	07:43:00	X	X
1202676785	1	07:54:00	X	X
1202676786	1	07:57:00	X	X
305844001	1	08:01:00	X	X
305844002	1	08:03:00	X	X
305844003	1	08:06:00	X	X
305844004	1	08:09:00	X	X
CCV04	1	08:11:00	X	X
CCB04	1	08:15:00	X	X
305844005	1	08:18:00	X	
1202676787	1	08:21:00	X	
1202676788	1	08:24:00	X	
1202676790	1	08:26:00	X	
1202676789	5	08:29:00	X	

Metals
−14−
Analysis Run Log

Samp No.	D/F	Run Time		
305844006	5	08:33:00	X	
CCV05	1	08:36:00	X	X
CCB05	1	08:39:00	X	X
305844005	5	08:43:00		X
1202676787	5	08:47:00		X
1202676788	5	08:50:00		X
1202676790	5	08:53:00		X
1202676789	25	08:57:00		X
305844006	50	09:00:00		X
CCV06	1	09:03:00	X	X
CCB06	1	09:07:00	X	X

Standards

METALS
−10−
Instrument Detection Limits

SDG NO. 305844

Contract: ECOL00720 **Lab Code: GEL** **MDL Effective Date:** 23−JAN−11

ICP	Analyte	Wavelength (nm)	MDL ug/L	RDL ug/L
SOLID	Arsenic	188.979	5.0	30
	Lead	220.353	3.3	10

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 305844
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Aluminum	Antimony	Arsenic	Barium	Beryllium
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.07354	0.00000	0.00000	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	−0.75350	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.49463	0.00000	0.00000	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	−0.23554	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	13.1846	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.21575	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00465	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 305844
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Boron	Cadmium	Calcium	Chromium	Cobalt
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	23.3987	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	−4.41902	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	−0.00885	−0.19499	0.00000
Boron	249.677	0.00000	0.00000	0.00000	−1.83304	3.43795
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.26855	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	−1.36933
Lead	220.353	0.00000	0.00000	−0.04535	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	−10.0236
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.60469
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.17047	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	−1.31651
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.01180	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.10056	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	−0.09685	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	−0.03646	0.35209	0.00000
Uranium	367.007	0.00000	0.00000	0.26208	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	−2.79443	0.00000
Zinc	213.857	0.00000	0.00000	0.01118	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 305844
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Copper	Lead	Magnesium	Manganese	Molybdenum
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	37.9834
Antimony	**206.836**	0.00000	0.00000	0.00000	0.00000	−12.9786
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	5.06550
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	−0.01013	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	0.00000	−1.37414
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.15226	0.00000	0.00000	0.00000	−3.69435
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	−7.03373
Manganese	**257.61**	0.00000	0.00000	0.03774	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	23.6803	0.00000	0.00000	0.00000	8.28450
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	11.9716
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	5.24433	−9.70065
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.01115	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	−0.67352	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	−11.1543
Zinc	**213.857**	0.72938	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 305844
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Nickel	Phosphorous	Potassium	Selenium	Silicon
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.40304	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	6.45017	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 305844
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Silver	Strontium	Sulfur	Thallium	Tin
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	−2.80617
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	3.97807
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: **305844**
Contract: **ECOL00720**
Instrument: **OPTIMA3**
Effective Dates: **01−MAY−12**
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Titanium	Uranium	Vanadium	Zinc
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	−0.46849	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	−1.35629	0.00000
Beryllium	**313.107**	0.26962	−0.19884	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.98445	−0.73762	0.00000
Cobalt	**228.616**	2.07030	0.00000	0.00000	0.00000
Copper	**324.752**	−0.77714	0.83827	0.00000	0.00000
Lead	**220.353**	0.00000	0.64053	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	−7.26842	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	−1.60778	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	−6.14596	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.42459	0.00000	0.00000	0.00000
Thallium	**190.801**	−4.09084	−0.46877	0.00000	0.00000
Tin	**189.927**	−2.84744	0.28891	0.00000	0.00000
Titanium	**334.94**	0.00000	0.45218	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	−1.68602	0.00000
Vanadium	**292.402**	0.86620	−0.82394	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000

METALS
−12−
Linear Ranges

SDG NO. 305844

Contract: ECOL00720 **Lab Code: GEL**

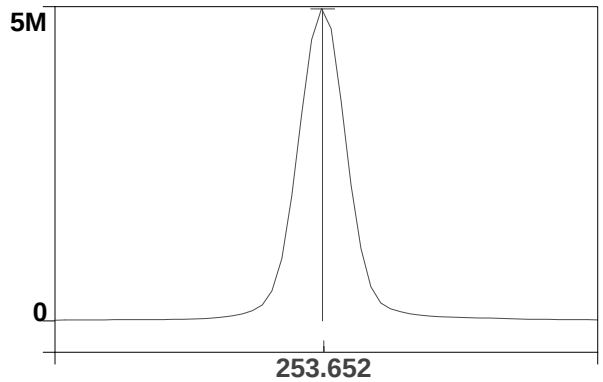
Instrument ID OPTIMA3

Analyte	Integration Time (sec)	LDR	Units	Effective Date
Arsenic	20	10000	ug/L	01−MAY−12
Lead	20	25000	ug/L	01−MAY−12

Raw Data

Method: Hg_ReAlign **Sample ID: Hg_ReAlign**
Result: 061312

Hg 253.652 **Rep: 1**



Intensity: 4964241.3 cps
Conc:

1

6/13/2012 6:10:55 Hg ReAlign... Actual peak offset (nm): 0.002
Drift (nm): -0.001 Slit adjustment: -3

Analysis Begun

Start Time: 6/13/2012 6:17:56 **Plasma On Time: 6/12/2012 10:37:26**
Logged In Analyst: optima3 **Technique: ICP Continuous**
Spectrometer Model: Optima 5300 DV, S/N 077C7090601Autosampler Model: AS-93plus

Sample Information File: C:\pe\Optima3\Sample Information\061312.sif
Batch ID:
Results Data Set: 061312
Results Library: C:\pe\Optima3\Results\Results.mdb

Method Loaded
Method Name: Gen Eng fast_new Si2 **Method Last Saved: 6/12/2012 10:04:39**
IEC File: 041012.iec **MSF File:**
Method Description:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Al 396.153Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
B 249.677	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Be 313.107	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ca 317.933Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Cd 226.502	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cr 267.716	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Fe 238.204 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
K 766.490 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mg 279.077 IEC	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mn 257.610	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Na 589.592 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Ni 231.604	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
P 214.914	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
S 181.975 Axial	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sc 361.383	Lin Thru 0	Peak Area	Axial	n/a	n/a
Sc RADIAL	Lin, Calc Int	Peak Area	Radial	n/a	n/a
Se 196.026	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
SiO2	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Si 251.611	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sn 189.927	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Ti 334.940	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
U 367.007	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Y 371.029	Lin, Calc Int	Peak Area	Axial	n/a	n/a
Zn 213.857	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes

Sequence No.: 1 **Autosampler Location: 8**
Sample ID: S0 **Date Collected: 6/13/2012 6:17:57**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time

1	Sc RADIAL	20938.2	20938.2	100	%	06:18:29
1	Al 396.153Radial†	-70.3	-70.1	[0.00]	µg/L	06:18:29
1	Ca 317.933Radial†	110.0	109.7	[0.00]	µg/L	06:18:49
1	Fe 238.204 Radial†	34.3	34.2	[0.00]	µg/L	06:18:49
1	K 766.490 Radial†	838.1	835.9	[0.00]	µg/L	06:18:29
1	Mg 279.077 IEC†	2.3	2.3	[0.00]	µg/L	06:18:49
1	Na 589.592 Radial†	-113.1	-112.8	[0.00]	µg/L	06:18:29
1	Sr 421.552†	-1291.8	-1288.4	[0.00]	µg/L	06:18:29
1	Sc 361.383	673853.8	673853.8	99.905	%	06:19:45
1	Y 371.029	579966.0	579966.0	99.857	%	06:19:45
1	Ag 328.068†	-614.7	-615.3	[0.00]	µg/L	06:19:45
1	As 188.979†	-4.8	-4.8	[0.00]	µg/L	06:20:05
1	B 249.677†	62.9	62.9	[0.00]	µg/L	06:20:05
1	Ba 233.527†	-129.8	-129.9	[0.00]	µg/L	06:20:05
1	Be 313.107†	-7697.2	-7704.6	[0.00]	µg/L	06:19:45
1	Cd 226.502†	-223.7	-223.9	[0.00]	µg/L	06:20:05
1	Co 228.616†	-26.4	-26.5	[0.00]	µg/L	06:20:05
1	Cr 267.716†	213.3	213.5	[0.00]	µg/L	06:20:05
1	Cu 324.752†	5579.0	5584.4	[0.00]	µg/L	06:19:45
1	Mn 257.610†	415.8	416.2	[0.00]	µg/L	06:20:05
1	Mo 202.031†	28.3	28.4	[0.00]	µg/L	06:20:05
1	Ni 231.604†	-10.1	-10.1	[0.00]	µg/L	06:20:05
1	P 214.914†	125.1	125.2	[0.00]	µg/L	06:20:05
1	Pb 220.353†	153.2	153.4	[0.00]	µg/L	06:20:05
1	S 181.975 Axial†	55.7	55.7	[0.00]	µg/L	06:20:05
1	Sb 206.836†	57.1	57.2	[0.00]	µg/L	06:20:05
1	Se 196.026†	-5.4	-5.4	[0.00]	µg/L	06:20:05
1	SiO2†	2831.7	2834.4	[0.00]	µg/L	06:19:45
1	Si 251.611†	186.7	186.9	[0.00]	µg/L	06:20:05
1	Sn 189.927†	22.9	22.9	[0.00]	µg/L	06:20:05
1	Ti 334.940†	-211.7	-211.9	[0.00]	µg/L	06:19:45
1	Tl 190.801†	-42.4	-42.4	[0.00]	µg/L	06:20:05
1	U 367.007†	341.5	341.8	[0.00]	µg/L	06:19:45
1	V 292.402†	-232.3	-232.5	[0.00]	µg/L	06:19:45
1	Zn 213.857†	1239.9	1241.0	[0.00]	µg/L	06:20:05
2	Sc RADIAL	20779.1	20779.1	99.5	%	06:18:54
2	Al 396.153Radial†	-93.0	-93.4	[0.00]	µg/L	06:18:54
2	Ca 317.933Radial†	115.1	115.7	[0.00]	µg/L	06:19:14
2	Fe 238.204 Radial†	32.4	32.6	[0.00]	µg/L	06:19:14
2	K 766.490 Radial†	871.4	875.7	[0.00]	µg/L	06:18:54
2	Mg 279.077 IEC†	2.4	2.4	[0.00]	µg/L	06:19:14
2	Na 589.592 Radial†	-143.6	-144.3	[0.00]	µg/L	06:18:54
2	Sr 421.552†	-1324.3	-1330.9	[0.00]	µg/L	06:18:54
2	Sc 361.383	673338.2	673338.2	99.828	%	06:20:11
2	Y 371.029	579793.7	579793.7	99.827	%	06:20:11
2	Ag 328.068†	-627.1	-628.2	[0.00]	µg/L	06:20:11
2	As 188.979†	-5.0	-5.0	[0.00]	µg/L	06:20:31
2	B 249.677†	92.8	93.0	[0.00]	µg/L	06:20:31
2	Ba 233.527†	-127.9	-128.1	[0.00]	µg/L	06:20:31
2	Be 313.107†	-7571.3	-7584.3	[0.00]	µg/L	06:20:11
2	Cd 226.502†	-218.1	-218.5	[0.00]	µg/L	06:20:31
2	Co 228.616†	-24.0	-24.1	[0.00]	µg/L	06:20:31
2	Cr 267.716†	220.8	221.1	[0.00]	µg/L	06:20:31
2	Cu 324.752†	5598.7	5608.3	[0.00]	µg/L	06:20:11
2	Mn 257.610†	419.7	420.4	[0.00]	µg/L	06:20:31
2	Mo 202.031†	30.3	30.3	[0.00]	µg/L	06:20:31
2	Ni 231.604†	-37.2	-37.2	[0.00]	µg/L	06:20:31
2	P 214.914†	117.6	117.8	[0.00]	µg/L	06:20:31
2	Pb 220.353†	165.0	165.3	[0.00]	µg/L	06:20:31
2	S 181.975 Axial†	59.4	59.5	[0.00]	µg/L	06:20:31
2	Sb 206.836†	65.6	65.8	[0.00]	µg/L	06:20:31
2	Se 196.026†	-9.4	-9.4	[0.00]	µg/L	06:20:31
2	SiO2†	2820.8	2825.6	[0.00]	µg/L	06:20:11
2	Si 251.611†	203.5	203.9	[0.00]	µg/L	06:20:31
2	Sn 189.927†	27.5	27.5	[0.00]	µg/L	06:20:31
2	Ti 334.940†	-231.8	-232.2	[0.00]	µg/L	06:20:11
2	Tl 190.801†	-37.9	-37.9	[0.00]	µg/L	06:20:31
2	U 367.007†	359.3	359.9	[0.00]	µg/L	06:20:11
2	V 292.402†	-156.7	-156.9	[0.00]	µg/L	06:20:11
2	Zn 213.857†	1260.3	1262.5	[0.00]	µg/L	06:20:31
3	Sc RADIAL	20929.7	20929.7	100	%	06:19:19

3	Al 396.153Radial†	-76.5	-76.3	[0.00] µg/L	06:19:19
3	Ca 317.933Radial†	114.3	114.0	[0.00] µg/L	06:19:39
3	Fe 238.204 Radial†	31.8	31.7	[0.00] µg/L	06:19:39
3	K 766.490 Radial†	872.4	870.4	[0.00] µg/L	06:19:19
3	Mg 279.077 IEC†	0.1	0.1	[0.00] µg/L	06:19:39
3	Na 589.592 Radial†	-176.7	-176.3	[0.00] µg/L	06:19:19
3	Sr 421.552†	-1321.4	-1318.4	[0.00] µg/L	06:19:19
3	Sc 361.383	676297.1	676297.1	100.27 %	06:20:36
3	Y 371.029	582632.5	582632.5	100.32 %	06:20:36
3	Ag 328.068†	-641.1	-639.3	[0.00] µg/L	06:20:36
3	As 188.979†	-14.7	-14.6	[0.00] µg/L	06:20:56
3	B 249.677†	89.9	89.6	[0.00] µg/L	06:20:56
3	Ba 233.527†	-139.4	-139.0	[0.00] µg/L	06:20:56
3	Be 313.107†	-7684.5	-7664.0	[0.00] µg/L	06:20:36
3	Cd 226.502†	-238.7	-238.1	[0.00] µg/L	06:20:56
3	Co 228.616†	-42.7	-42.6	[0.00] µg/L	06:20:56
3	Cr 267.716†	242.9	242.3	[0.00] µg/L	06:20:56
3	Cu 324.752†	5487.7	5473.1	[0.00] µg/L	06:20:36
3	Mn 257.610†	414.0	412.9	[0.00] µg/L	06:20:56
3	Mo 202.031†	31.8	31.8	[0.00] µg/L	06:20:56
3	Ni 231.604†	-36.7	-36.6	[0.00] µg/L	06:20:56
3	P 214.914†	137.8	137.4	[0.00] µg/L	06:20:56
3	Pb 220.353†	178.2	177.7	[0.00] µg/L	06:20:56
3	S 181.975 Axial†	56.7	56.5	[0.00] µg/L	06:20:56
3	Sb 206.836†	69.2	69.0	[0.00] µg/L	06:20:56
3	Se 196.026†	-4.3	-4.3	[0.00] µg/L	06:20:56
3	SiO2†	2809.7	2802.2	[0.00] µg/L	06:20:36
3	Si 251.611†	196.7	196.1	[0.00] µg/L	06:20:56
3	Sn 189.927†	28.8	28.8	[0.00] µg/L	06:20:56
3	Ti 334.940†	-187.3	-186.8	[0.00] µg/L	06:20:36
3	Tl 190.801†	-44.0	-43.9	[0.00] µg/L	06:20:56
3	U 367.007†	323.0	322.1	[0.00] µg/L	06:20:36
3	V 292.402†	-184.4	-183.9	[0.00] µg/L	06:20:36
3	Zn 213.857†	1275.0	1271.6	[0.00] µg/L	06:20:56

Mean Data: S0

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	674496.4	1580.63	0.23%	100.00	%
Sc RADIAL	20882.3	89.48	0.43%	100	%
Y 371.029	580797.4	1591.56	0.27%	100.00	%
Ag 328.068†	-627.6	12.03	1.92%	[0.00]	µg/L
Al 396.153Radial†	-80.0	12.07	15.09%	[0.00]	µg/L
As 188.979†	-8.1	5.62	69.00%	[0.00]	µg/L
B 249.677†	81.8	16.48	20.13%	[0.00]	µg/L
Ba 233.527†	-132.3	5.82	4.40%	[0.00]	µg/L
Be 313.107†	-7651.0	61.18	0.80%	[0.00]	µg/L
Ca 317.933Radial†	113.1	3.13	2.76%	[0.00]	µg/L
Cd 226.502†	-226.8	10.10	4.45%	[0.00]	µg/L
Co 228.616†	-31.0	10.10	32.52%	[0.00]	µg/L
Cr 267.716†	225.6	14.90	6.61%	[0.00]	µg/L
Cu 324.752†	5555.3	72.17	1.30%	[0.00]	µg/L
Fe 238.204 Radial†	32.8	1.24	3.78%	[0.00]	µg/L
K 766.490 Radial†	860.7	21.64	2.51%	[0.00]	µg/L
Mg 279.077 IEC†	1.6	1.31	81.43%	[0.00]	µg/L
Mn 257.610†	416.5	3.75	0.90%	[0.00]	µg/L
Mo 202.031†	30.2	1.70	5.63%	[0.00]	µg/L
Na 589.592 Radial†	-144.5	31.78	22.00%	[0.00]	µg/L
Ni 231.604†	-28.0	15.49	55.37%	[0.00]	µg/L
P 214.914†	126.8	9.89	7.80%	[0.00]	µg/L
Pb 220.353†	165.5	12.19	7.36%	[0.00]	µg/L
S 181.975 Axial†	57.3	2.01	3.51%	[0.00]	µg/L
Sb 206.836†	64.0	6.13	9.59%	[0.00]	µg/L
Se 196.026†	-6.4	2.67	41.95%	[0.00]	µg/L
SiO2†	2820.7	16.68	0.59%	[0.00]	µg/L
Si 251.611†	195.7	8.49	4.34%	[0.00]	µg/L
Sn 189.927†	26.4	3.08	11.66%	[0.00]	µg/L
Sr 421.552†	-1312.5	21.84	1.66%	[0.00]	µg/L
Ti 334.940†	-210.3	22.74	10.81%	[0.00]	µg/L
Tl 190.801†	-41.4	3.09	7.47%	[0.00]	µg/L

U 367.007†	341.3	18.90	5.54%	[0.00] µg/L
V 292.402†	-191.1	38.28	20.03%	[0.00] µg/L
Zn 213.857†	1258.4	15.69	1.25%	[0.00] µg/L

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: S0.1 **Date Collected: 6/13/2012 6:21:04**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	21003.3	21003.3	101	%	06:21:33
1	K 766.490 Radial†	3066.0	2187.6	[1000]	µg/L	06:21:33
1	Sr 421.552†	20261.0	21456.9	[100]	µg/L	06:21:33
1	Sc 361.383	681686.4	681686.4	101.07	%	06:21:50
1	Y 371.029	586123.1	586123.1	100.92	%	06:21:50
1	Ag 328.068†	15790.1	16251.2	[100]	µg/L	06:21:55
1	As 188.979†	166.0	172.3	[100]	µg/L	06:22:15
1	B 249.677†	3713.7	3592.6	[100]	µg/L	06:21:55
1	Ba 233.527†	12216.5	12220.0	[100]	µg/L	06:21:55
1	Be 313.107†	174828.5	180635.5	[100]	µg/L	06:21:50
1	Cd 226.502†	7121.3	7273.1	[100]	µg/L	06:21:55
1	Co 228.616†	4095.5	4083.4	[100]	µg/L	06:22:15
1	Cr 267.716†	5381.9	5099.5	[100]	µg/L	06:21:55
1	Cu 324.752†	30098.3	24225.6	[100]	µg/L	06:21:55
1	Mn 257.610†	71443.4	70273.4	[100]	µg/L	06:21:55
1	Mo 202.031†	1573.3	1526.6	[100]	µg/L	06:22:15
1	Ni 231.604†	3369.6	3362.1	[100]	µg/L	06:22:15
1	P 214.914†	815.1	679.6	[500]	µg/L	06:22:15
1	Pb 220.353†	796.9	623.0	[100]	µg/L	06:22:15
1	S 181.975 Axial†	178.3	119.1	[200]	µg/L	06:22:15
1	Sb 206.836†	381.7	313.7	[100]	µg/L	06:22:15
1	Se 196.026†	125.5	130.5	[100]	µg/L	06:22:15
1	SiO2†	12161.0	9212.0	[1069.5]	µg/L	06:21:55
1	Si 251.611†	11215.4	10901.5	[500]	µg/L	06:21:55
1	Sn 189.927†	499.0	467.3	[100]	µg/L	06:22:15
1	Ti 334.940†	41759.1	41529.0	[100]	µg/L	06:21:55
1	Tl 190.801†	249.0	287.8	[100]	µg/L	06:22:15
1	U 367.007†	716.7	367.9	[100]	µg/L	06:21:55
1	V 292.402†	10825.9	10902.8	[100]	µg/L	06:21:55
1	Zn 213.857†	12766.7	11373.7	[100]	µg/L	06:21:55
2	Sc RADIAL	20894.6	20894.6	100	%	06:21:38
2	K 766.490 Radial†	3048.2	2185.7	[1000]	µg/L	06:21:38
2	Sr 421.552†	20258.1	21558.8	[100]	µg/L	06:21:38
2	Sc 361.383	689950.6	689950.6	102.29	%	06:22:20
2	Y 371.029	593050.2	593050.2	102.11	%	06:22:20
2	Ag 328.068†	15711.9	15987.6	[100]	µg/L	06:22:25
2	As 188.979†	171.1	175.4	[100]	µg/L	06:22:45
2	B 249.677†	3746.7	3580.9	[100]	µg/L	06:22:25
2	Ba 233.527†	12157.5	12017.5	[100]	µg/L	06:22:25
2	Be 313.107†	176423.2	180122.5	[100]	µg/L	06:22:20
2	Cd 226.502†	7115.4	7182.8	[100]	µg/L	06:22:25
2	Co 228.616†	4111.4	4050.4	[100]	µg/L	06:22:45
2	Cr 267.716†	5338.9	4993.7	[100]	µg/L	06:22:25
2	Cu 324.752†	30034.7	23806.7	[100]	µg/L	06:22:25
2	Mn 257.610†	71170.4	69159.8	[100]	µg/L	06:22:25
2	Mo 202.031†	1548.9	1484.1	[100]	µg/L	06:22:45
2	Ni 231.604†	3379.1	3331.4	[100]	µg/L	06:22:45
2	P 214.914†	813.0	668.0	[500]	µg/L	06:22:45
2	Pb 220.353†	798.7	615.3	[100]	µg/L	06:22:45
2	S 181.975 Axial†	177.7	116.5	[200]	µg/L	06:22:45
2	Sb 206.836†	392.4	319.6	[100]	µg/L	06:22:45
2	Se 196.026†	123.0	126.6	[100]	µg/L	06:22:45
2	SiO2†	12271.1	9175.5	[1069.5]	µg/L	06:22:25
2	Si 251.611†	11287.5	10839.0	[500]	µg/L	06:22:25
2	Sn 189.927†	510.1	472.3	[100]	µg/L	06:22:45
2	Ti 334.940†	41554.1	40833.6	[100]	µg/L	06:22:25
2	Tl 190.801†	251.0	286.8	[100]	µg/L	06:22:45
2	U 367.007†	704.7	347.6	[100]	µg/L	06:22:25
2	V 292.402†	10696.0	10647.5	[100]	µg/L	06:22:25

2	Zn 213.857†	12760.6	11216.4	[100]	µg/L	06:22:25
3	Sc RADIAL	21097.2	21097.2	101	%	06:21:43
3	K 766.490 Radial†	3003.5	2112.3	[1000]	µg/L	06:21:43
3	Sr 421.552†	20339.9	21445.2	[100]	µg/L	06:21:43
3	Sc 361.383	684592.8	684592.8	101.50	%	06:22:50
3	Y 371.029	587943.2	587943.2	101.23	%	06:22:50
3	Ag 328.068†	15773.3	16168.2	[100]	µg/L	06:22:56
3	As 188.979†	167.6	173.3	[100]	µg/L	06:23:16
3	B 249.677†	3616.4	3481.3	[100]	µg/L	06:22:56
3	Ba 233.527†	12203.3	12155.7	[100]	µg/L	06:22:56
3	Be 313.107†	174736.1	179810.1	[100]	µg/L	06:22:50
3	Cd 226.502†	7092.7	7214.9	[100]	µg/L	06:22:56
3	Co 228.616†	4061.6	4032.7	[100]	µg/L	06:23:16
3	Cr 267.716†	5336.5	5032.2	[100]	µg/L	06:22:56
3	Cu 324.752†	29971.7	23974.4	[100]	µg/L	06:22:56
3	Mn 257.610†	71099.9	69634.8	[100]	µg/L	06:22:56
3	Mo 202.031†	1537.6	1484.8	[100]	µg/L	06:23:16
3	Ni 231.604†	3351.4	3330.0	[100]	µg/L	06:23:16
3	P 214.914†	813.3	674.5	[500]	µg/L	06:23:16
3	Pb 220.353†	791.0	613.9	[100]	µg/L	06:23:16
3	S 181.975 Axial†	174.2	114.4	[200]	µg/L	06:23:16
3	Sb 206.836†	383.6	313.9	[100]	µg/L	06:23:16
3	Se 196.026†	112.3	117.0	[100]	µg/L	06:23:16
3	SiO2†	12159.2	9159.1	[1069.5]	µg/L	06:22:56
3	Si 251.611†	11277.4	10915.4	[500]	µg/L	06:22:56
3	Sn 189.927†	499.2	465.5	[100]	µg/L	06:23:16
3	Ti 334.940†	41507.8	41106.0	[100]	µg/L	06:22:56
3	Tl 190.801†	238.7	276.6	[100]	µg/L	06:23:16
3	U 367.007†	718.5	366.6	[100]	µg/L	06:22:56
3	V 292.402†	10699.4	10732.8	[100]	µg/L	06:22:56
3	Zn 213.857†	12751.9	11305.5	[100]	µg/L	06:22:56

Mean Data: S0.1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	685409.9	4192.25	0.61%	101.62	%
Sc RADIAL	20998.4	101.43	0.48%	101	%
Y 371.029	589038.8	3591.18	0.61%	101.42	%
Ag 328.068†	16135.7	134.76	0.84%	[100]	µg/L
As 188.979†	173.7	1.56	0.90%	[100]	µg/L
B 249.677†	3551.6	61.21	1.72%	[100]	µg/L
Ba 233.527†	12131.1	103.46	0.85%	[100]	µg/L
Be 313.107†	180189.3	416.76	0.23%	[100]	µg/L
Cd 226.502†	7223.6	45.74	0.63%	[100]	µg/L
Co 228.616†	4055.5	25.71	0.63%	[100]	µg/L
Cr 267.716†	5041.8	53.55	1.06%	[100]	µg/L
Cu 324.752†	24002.2	210.83	0.88%	[100]	µg/L
K 766.490 Radial†	2161.9	42.96	1.99%	[1000]	µg/L
Mn 257.610†	69689.3	558.79	0.80%	[100]	µg/L
Mo 202.031†	1498.5	24.35	1.63%	[100]	µg/L
Ni 231.604†	3341.1	18.14	0.54%	[100]	µg/L
P 214.914†	674.0	5.83	0.87%	[500]	µg/L
Pb 220.353†	617.4	4.92	0.80%	[100]	µg/L
S 181.975 Axial†	116.7	2.37	2.03%	[200]	µg/L
Sb 206.836†	315.7	3.37	1.07%	[100]	µg/L
Se 196.026†	124.7	6.94	5.56%	[100]	µg/L
SiO2†	9182.2	27.07	0.29%	[1069.5]	µg/L
Si 251.611†	10885.3	40.66	0.37%	[500]	µg/L
Sn 189.927†	468.4	3.54	0.76%	[100]	µg/L
Sr 421.552†	21487.0	62.48	0.29%	[100]	µg/L
Ti 334.940†	41156.2	350.40	0.85%	[100]	µg/L
Tl 190.801†	283.7	6.20	2.19%	[100]	µg/L
U 367.007†	360.7	11.35	3.15%	[100]	µg/L
V 292.402†	10761.0	129.99	1.21%	[100]	µg/L
Zn 213.857†	11298.5	78.83	0.70%	[100]	µg/L

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Sequence No.: 3 **Autosampler Location: 3**
Sample ID: S0.5 **Date Collected: 6/13/2012 6:23:23**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	21065.3	21065.3	101	%	06:24:11
1	Al 396.153Radial†	17166.1	17097.0	[5000]	µg/L	06:23:51
1	Ca 317.933Radial†	10875.6	10668.0	[5000]	µg/L	06:24:11
1	K 766.490 Radial†	11815.7	10852.4	[5000]	µg/L	06:23:51
1	Mg 279.077 IEC†	1088.8	1077.7	[5000]	µg/L	06:24:11
1	Sr 421.552†	107711.4	108088.4	[500]	µg/L	06:23:51
1	Sc 361.383	702596.8	702596.8	104.17	%	06:25:08
1	Y 371.029	600472.0	600472.0	103.39	%	06:25:08
1	Ag 328.068†	82205.8	79545.6	[500]	µg/L	06:25:13
1	As 188.979†	897.5	869.8	[500]	µg/L	06:25:33
1	B 249.677†	18302.1	17488.3	[500]	µg/L	06:25:13
1	Ba 233.527†	60627.4	58334.9	[500]	µg/L	06:25:13
1	Be 313.107†	912069.6	883242.2	[500]	µg/L	06:25:08
1	Cd 226.502†	36223.5	35001.5	[500]	µg/L	06:25:13
1	Co 228.616†	20638.1	19843.7	[500]	µg/L	06:25:13
1	Cr 267.716†	25643.5	24392.3	[500]	µg/L	06:25:13
1	Cu 324.752†	126617.9	115998.5	[500]	µg/L	06:25:13
1	Mn 257.610†	343492.5	329338.0	[500]	µg/L	06:25:13
1	Mo 202.031†	7722.7	7383.6	[500]	µg/L	06:25:33
1	Ni 231.604†	17114.4	16457.9	[500]	µg/L	06:25:13
1	P 214.914†	3538.1	3269.8	[2500]	µg/L	06:25:33
1	Pb 220.353†	3344.2	3045.0	[500]	µg/L	06:25:33
1	S 181.975 Axial†	658.9	575.3	[1000]	µg/L	06:25:33
1	Sb 206.836†	1647.6	1517.8	[500]	µg/L	06:25:33
1	Se 196.026†	646.0	626.5	[500]	µg/L	06:25:33
1	SiO2†	49199.9	44411.4	[5347.5]	µg/L	06:25:13
1	Si 251.611†	55209.3	52805.5	[2500]	µg/L	06:25:13
1	Sn 189.927†	2409.8	2287.0	[500]	µg/L	06:25:33
1	Ti 334.940†	209134.2	200980.2	[500]	µg/L	06:25:13
1	Tl 190.801†	1428.3	1412.6	[500]	µg/L	06:25:33
1	U 367.007†	2210.5	1780.8	[500]	µg/L	06:25:13
1	V 292.402†	54286.2	52306.1	[500]	µg/L	06:25:13
1	Zn 213.857†	56201.4	52695.2	[500]	µg/L	06:25:13
2	Sc RADIAL	20930.3	20930.3	100	%	06:24:36
2	Al 396.153Radial†	17224.6	17265.1	[5000]	µg/L	06:24:16
2	Ca 317.933Radial†	10874.2	10736.1	[5000]	µg/L	06:24:36
2	K 766.490 Radial†	11814.4	10926.7	[5000]	µg/L	06:24:16
2	Mg 279.077 IEC†	1086.8	1082.7	[5000]	µg/L	06:24:36
2	Sr 421.552†	108098.7	109163.6	[500]	µg/L	06:24:16
2	Sc 361.383	703222.9	703222.9	104.26	%	06:25:39
2	Y 371.029	601200.1	601200.1	103.51	%	06:25:39
2	Ag 328.068†	82321.5	79586.3	[500]	µg/L	06:25:44
2	As 188.979†	895.1	866.7	[500]	µg/L	06:26:04
2	B 249.677†	18437.5	17602.5	[500]	µg/L	06:25:44
2	Ba 233.527†	60855.7	58502.1	[500]	µg/L	06:25:44
2	Be 313.107†	914717.9	885002.8	[500]	µg/L	06:25:39
2	Cd 226.502†	36235.3	34981.9	[500]	µg/L	06:25:44
2	Co 228.616†	20697.4	19882.9	[500]	µg/L	06:25:44
2	Cr 267.716†	25605.2	24333.6	[500]	µg/L	06:25:44
2	Cu 324.752†	126900.8	116161.6	[500]	µg/L	06:25:44
2	Mn 257.610†	344334.1	329851.7	[500]	µg/L	06:25:44
2	Mo 202.031†	7726.1	7380.4	[500]	µg/L	06:26:04
2	Ni 231.604†	17172.1	16498.6	[500]	µg/L	06:25:44
2	P 214.914†	3548.6	3276.8	[2500]	µg/L	06:26:04
2	Pb 220.353†	3322.9	3021.7	[500]	µg/L	06:26:04
2	S 181.975 Axial†	663.3	578.9	[1000]	µg/L	06:26:04
2	Sb 206.836†	1644.8	1513.6	[500]	µg/L	06:26:04
2	Se 196.026†	644.0	624.1	[500]	µg/L	06:26:04
2	SiO2†	49417.4	44578.0	[5347.5]	µg/L	06:25:44

2	Si 251.611†	55459.0	52997.9	[2500] µg/L	06:25:44
2	Sn 189.927†	2417.4	2292.2	[500] µg/L	06:26:04
2	Ti 334.940†	209521.5	201172.9	[500] µg/L	06:25:44
2	Tl 190.801†	1430.8	1413.8	[500] µg/L	06:26:04
2	U 367.007†	2245.6	1812.5	[500] µg/L	06:25:44
2	V 292.402†	54380.8	52350.5	[500] µg/L	06:25:44
2	Zn 213.857†	56297.7	52739.6	[500] µg/L	06:25:44
3	Sc RADIAL	21040.9	21040.9	101 %	06:25:01
3	Al 396.153Radial†	17105.8	17056.8	[5000] µg/L	06:24:41
3	Ca 317.933Radial†	10861.7	10666.7	[5000] µg/L	06:25:01
3	K 766.490 Radial†	11735.8	10786.7	[5000] µg/L	06:24:41
3	Mg 279.077 IEC†	1085.3	1075.5	[5000] µg/L	06:25:01
3	Sr 421.552†	107138.6	107643.5	[500] µg/L	06:24:41
3	Sc 361.383	699228.2	699228.2	103.67 %	06:26:10
3	Y 371.029	596906.4	596906.4	102.77 %	06:26:10
3	Ag 328.068†	82054.7	79780.0	[500] µg/L	06:26:15
3	As 188.979†	894.5	871.0	[500] µg/L	06:26:35
3	B 249.677†	18295.1	17566.2	[500] µg/L	06:26:15
3	Ba 233.527†	60422.5	58417.6	[500] µg/L	06:26:15
3	Be 313.107†	906530.5	882117.2	[500] µg/L	06:26:10
3	Cd 226.502†	36017.1	34970.0	[500] µg/L	06:26:15
3	Co 228.616†	20619.6	19921.3	[500] µg/L	06:26:15
3	Cr 267.716†	25553.3	24423.9	[500] µg/L	06:26:15
3	Cu 324.752†	126582.3	116549.8	[500] µg/L	06:26:15
3	Mn 257.610†	342371.7	329845.4	[500] µg/L	06:26:15
3	Mo 202.031†	7747.3	7443.1	[500] µg/L	06:26:35
3	Ni 231.604†	17009.2	16435.5	[500] µg/L	06:26:15
3	P 214.914†	3557.3	3304.7	[2500] µg/L	06:26:35
3	Pb 220.353†	3355.9	3071.7	[500] µg/L	06:26:35
3	S 181.975 Axial†	667.4	586.5	[1000] µg/L	06:26:35
3	Sb 206.836†	1637.5	1515.6	[500] µg/L	06:26:35
3	Se 196.026†	634.3	618.2	[500] µg/L	06:26:35
3	SiO2†	49217.2	44655.6	[5347.5] µg/L	06:26:15
3	Si 251.611†	55197.8	53049.8	[2500] µg/L	06:26:15
3	Sn 189.927†	2426.0	2313.8	[500] µg/L	06:26:35
3	Ti 334.940†	208841.9	201665.4	[500] µg/L	06:26:15
3	Tl 190.801†	1446.9	1437.1	[500] µg/L	06:26:35
3	U 367.007†	2225.2	1805.2	[500] µg/L	06:26:15
3	V 292.402†	54044.7	52324.3	[500] µg/L	06:26:15
3	Zn 213.857†	55887.5	52652.4	[500] µg/L	06:26:15

Mean Data: S0.5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	701682.7	2148.52	0.31%	104.03	%
Sc RADIAL	21012.2	71.95	0.34%	101	%
Y 371.029	599526.1	2297.79	0.38%	103.22	%
Ag 328.068†	79637.3	125.25	0.16%	[500]	µg/L
Al 396.153Radial†	17139.6	110.50	0.64%	[5000]	µg/L
As 188.979†	869.1	2.22	0.26%	[500]	µg/L
B 249.677†	17552.3	58.36	0.33%	[500]	µg/L
Ba 233.527†	58418.2	83.58	0.14%	[500]	µg/L
Be 313.107†	883454.1	1454.41	0.16%	[500]	µg/L
Ca 317.933Radial†	10690.3	39.73	0.37%	[5000]	µg/L
Cd 226.502†	34984.5	15.92	0.05%	[500]	µg/L
Co 228.616†	19882.7	38.81	0.20%	[500]	µg/L
Cr 267.716†	24383.3	45.82	0.19%	[500]	µg/L
Cu 324.752†	116236.6	283.16	0.24%	[500]	µg/L
K 766.490 Radial†	10855.3	70.07	0.65%	[5000]	µg/L
Mg 279.077 IEC†	1078.7	3.69	0.34%	[5000]	µg/L
Mn 257.610†	329678.4	294.77	0.09%	[500]	µg/L
Mo 202.031†	7402.4	35.34	0.48%	[500]	µg/L
Ni 231.604†	16464.0	32.00	0.19%	[500]	µg/L
P 214.914†	3283.7	18.46	0.56%	[2500]	µg/L
Pb 220.353†	3046.1	25.02	0.82%	[500]	µg/L
S 181.975 Axial†	580.2	5.75	0.99%	[1000]	µg/L
Sb 206.836†	1515.7	2.06	0.14%	[500]	µg/L
Se 196.026†	622.9	4.26	0.68%	[500]	µg/L
SiO2†	44548.3	124.79	0.28%	[5347.5]	µg/L
Si 251.611†	52951.1	128.69	0.24%	[2500]	µg/L

Sn 189.927†	2297.7	14.23	0.62%	[500] µg/L
Sr 421.552†	108298.5	781.51	0.72%	[500] µg/L
Ti 334.940†	201272.8	353.41	0.18%	[500] µg/L
Tl 190.801†	1421.2	13.82	0.97%	[500] µg/L
U 367.007†	1799.5	16.59	0.92%	[500] µg/L
V 292.402†	52327.0	22.30	0.04%	[500] µg/L
Zn 213.857†	52695.7	43.60	0.08%	[500] µg/L

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SCAL **Date Collected: 6/13/2012 6:26:43**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: SCAL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	20978.3	20978.3	100	%	06:27:31
1	Al 396.153Radial†	34378.1	34300.8	[10000]	µg/L	06:27:11
1	Ca 317.933Radial†	21541.7	21330.0	[10000]	µg/L	06:27:31
1	Fe 238.204 Radial†	19155.3	19034.8	[10000]	µg/L	06:27:31
1	K 766.490 Radial†	22555.3	21591.5	[10000]	µg/L	06:27:11
1	Mg 279.077 IEC†	2165.9	2154.3	[10000]	µg/L	06:27:31
1	Na 589.592 Radial†	6020.0	6136.9	[10000]	µg/L	06:27:31
1	Sr 421.552†	217472.9	217790.5	[1000]	µg/L	06:27:11
1	Sc 361.383	699122.5	699122.5	103.65	%	06:28:31
1	Y 371.029	597408.8	597408.8	102.86	%	06:28:31
1	Ag 328.068†	162081.0	156999.4	[1000]	µg/L	06:28:31
1	As 188.979†	1803.4	1748.0	[1000]	µg/L	06:28:51
1	B 249.677†	37046.6	35659.9	[1000]	µg/L	06:28:31
1	Ba 233.527†	122420.1	118240.2	[1000]	µg/L	06:28:31
1	Be 313.107†	1830042.4	1773231.3	[1000]	µg/L	06:28:31
1	Cd 226.502†	72537.4	70209.2	[1000]	µg/L	06:28:31
1	Co 228.616†	41057.7	39642.5	[1000]	µg/L	06:28:31
1	Cr 267.716†	51297.7	49265.1	[1000]	µg/L	06:28:31
1	Cu 324.752†	249031.2	234704.0	[1000]	µg/L	06:28:31
1	Mn 257.610†	700576.0	675482.2	[1000]	µg/L	06:28:31
1	Mo 202.031†	15340.0	14769.5	[1000]	µg/L	06:28:51
1	Ni 231.604†	33415.5	32266.4	[1000]	µg/L	06:28:51
1	P 214.914†	7022.8	6648.6	[5000]	µg/L	06:28:51
1	Pb 220.353†	6537.0	6141.3	[1000]	µg/L	06:28:51
1	S 181.975 Axial†	1237.6	1136.8	[2000]	µg/L	06:28:51
1	Sb 206.836†	3226.0	3048.4	[1000]	µg/L	06:28:51
1	Se 196.026†	1263.6	1225.4	[1000]	µg/L	06:28:51
1	SiO2†	96214.0	90004.2	[10695]	µg/L	06:28:31
1	Si 251.611†	110805.1	106706.4	[5000]	µg/L	06:28:31
1	Sn 189.927†	4779.8	4585.0	[1000]	µg/L	06:28:51
1	Ti 334.940†	418751.8	404211.9	[1000]	µg/L	06:28:31
1	Tl 190.801†	2922.2	2860.7	[1000]	µg/L	06:28:51
1	U 367.007†	4191.5	3702.5	[1000]	µg/L	06:28:31
1	V 292.402†	109621.5	105951.3	[1000]	µg/L	06:28:31
1	Zn 213.857†	110225.8	105084.8	[1000]	µg/L	06:28:31
2	Sc RADIAL	21019.6	21019.6	101	%	06:27:57
2	Al 396.153Radial†	34413.0	34268.2	[10000]	µg/L	06:27:37
2	Ca 317.933Radial†	21572.8	21318.7	[10000]	µg/L	06:27:57
2	Fe 238.204 Radial†	19165.4	19007.4	[10000]	µg/L	06:27:57
2	K 766.490 Radial†	22614.9	21606.5	[10000]	µg/L	06:27:37
2	Mg 279.077 IEC†	2160.4	2144.7	[10000]	µg/L	06:27:57
2	Na 589.592 Radial†	5986.5	6091.9	[10000]	µg/L	06:27:57
2	Sr 421.552†	217957.7	217846.7	[1000]	µg/L	06:27:37
2	Sc 361.383	694184.5	694184.5	102.92	%	06:28:58
2	Y 371.029	592850.7	592850.7	102.08	%	06:28:58
2	Ag 328.068†	161140.2	157197.6	[1000]	µg/L	06:28:58
2	As 188.979†	1798.7	1755.8	[1000]	µg/L	06:29:18
2	B 249.677†	36813.0	35687.0	[1000]	µg/L	06:28:58
2	Ba 233.527†	121356.1	118046.6	[1000]	µg/L	06:28:58
2	Be 313.107†	1814967.0	1771142.7	[1000]	µg/L	06:28:58
2	Cd 226.502†	71807.1	69997.4	[1000]	µg/L	06:28:58
2	Co 228.616†	40752.3	39627.6	[1000]	µg/L	06:28:58
2	Cr 267.716†	50701.5	49037.9	[1000]	µg/L	06:28:58
2	Cu 324.752†	248211.3	235616.4	[1000]	µg/L	06:28:58
2	Mn 257.610†	694793.5	674671.6	[1000]	µg/L	06:28:58
2	Mo 202.031†	15362.2	14896.3	[1000]	µg/L	06:29:18
2	Ni 231.604†	33509.0	32586.6	[1000]	µg/L	06:29:18
2	P 214.914†	7038.1	6711.7	[5000]	µg/L	06:29:18
2	Pb 220.353†	6543.9	6192.9	[1000]	µg/L	06:29:18

2	S 181.975 Axial†	1242.2	1149.7	[2000]	µg/L	06:29:18
2	Sb 206.836†	3240.1	3084.2	[1000]	µg/L	06:29:18
2	Se 196.026†	1258.3	1229.0	[1000]	µg/L	06:29:18
2	SiO2†	95793.6	90256.0	[10695]	µg/L	06:28:58
2	Si 251.611†	110286.7	106963.1	[5000]	µg/L	06:28:58
2	Sn 189.927†	4768.0	4606.4	[1000]	µg/L	06:29:18
2	Ti 334.940†	416362.5	404764.1	[1000]	µg/L	06:28:58
2	Tl 190.801†	2935.8	2894.0	[1000]	µg/L	06:29:18
2	U 367.007†	4220.6	3759.6	[1000]	µg/L	06:28:58
2	V 292.402†	108773.6	105879.7	[1000]	µg/L	06:28:58
2	Zn 213.857†	109368.0	105007.8	[1000]	µg/L	06:28:58
3	Sc RADIAL	20924.4	20924.4	100	%	06:28:22
3	Al 396.153Radial†	34329.1	34340.1	[10000]	µg/L	06:28:02
3	Ca 317.933Radial†	21575.8	21419.3	[10000]	µg/L	06:28:22
3	Fe 238.204 Radial†	19182.5	19111.1	[10000]	µg/L	06:28:22
3	K 766.490 Radial†	22545.7	21639.8	[10000]	µg/L	06:28:02
3	Mg 279.077 IEC†	2165.0	2159.1	[10000]	µg/L	06:28:22
3	Na 589.592 Radial†	5952.0	6084.5	[10000]	µg/L	06:28:22
3	Sr 421.552†	217565.7	218441.2	[1000]	µg/L	06:28:02
3	Sc 361.383	697539.7	697539.7	103.42	%	06:29:26
3	Y 371.029	595504.2	595504.2	102.53	%	06:29:26
3	Ag 328.068†	161866.1	157146.5	[1000]	µg/L	06:29:26
3	As 188.979†	1792.8	1741.7	[1000]	µg/L	06:29:46
3	B 249.677†	37020.2	35715.4	[1000]	µg/L	06:29:26
3	Ba 233.527†	122060.1	118160.2	[1000]	µg/L	06:29:26
3	Be 313.107†	1824064.2	1771456.9	[1000]	µg/L	06:29:26
3	Cd 226.502†	72227.8	70068.6	[1000]	µg/L	06:29:26
3	Co 228.616†	40910.6	39590.2	[1000]	µg/L	06:29:26
3	Cr 267.716†	51064.8	49152.3	[1000]	µg/L	06:29:26
3	Cu 324.752†	249486.0	235689.0	[1000]	µg/L	06:29:26
3	Mn 257.610†	698457.2	674967.1	[1000]	µg/L	06:29:26
3	Mo 202.031†	15347.0	14809.8	[1000]	µg/L	06:29:46
3	Ni 231.604†	33423.9	32347.7	[1000]	µg/L	06:29:46
3	P 214.914†	7023.4	6664.6	[5000]	µg/L	06:29:46
3	Pb 220.353†	6550.2	6168.4	[1000]	µg/L	06:29:46
3	S 181.975 Axial†	1240.4	1142.1	[2000]	µg/L	06:29:46
3	Sb 206.836†	3237.8	3066.9	[1000]	µg/L	06:29:46
3	Se 196.026†	1246.3	1211.5	[1000]	µg/L	06:29:46
3	SiO2†	96472.7	90465.0	[10695]	µg/L	06:29:26
3	Si 251.611†	110950.4	107089.5	[5000]	µg/L	06:29:26
3	Sn 189.927†	4763.0	4579.3	[1000]	µg/L	06:29:46
3	Ti 334.940†	418521.1	404905.5	[1000]	µg/L	06:29:26
3	Tl 190.801†	2924.6	2869.4	[1000]	µg/L	06:29:46
3	U 367.007†	4256.7	3774.8	[1000]	µg/L	06:29:26
3	V 292.402†	109379.4	105957.2	[1000]	µg/L	06:29:26
3	Zn 213.857†	109826.8	104940.3	[1000]	µg/L	06:29:26

Mean Data: SCAL

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	696948.9	2521.46	0.36%	103.33	%
Sc RADIAL	20974.1	47.76	0.23%	100	%
Y 371.029	595254.6	2289.28	0.38%	102.49	%
Ag 328.068†	157114.5	102.92	0.07%	[1000]	µg/L
Al 396.153Radial†	34303.0	35.98	0.10%	[10000]	µg/L
As 188.979†	1748.5	7.09	0.41%	[1000]	µg/L
B 249.677†	35687.4	27.79	0.08%	[1000]	µg/L
Ba 233.527†	118149.0	97.28	0.08%	[1000]	µg/L
Be 313.107†	1771943.6	1126.16	0.06%	[1000]	µg/L
Ca 317.933Radial†	21356.0	55.12	0.26%	[10000]	µg/L
Cd 226.502†	70091.7	107.77	0.15%	[1000]	µg/L
Co 228.616†	39620.1	26.96	0.07%	[1000]	µg/L
Cr 267.716†	49151.8	113.61	0.23%	[1000]	µg/L
Cu 324.752†	235336.4	548.93	0.23%	[1000]	µg/L
Fe 238.204 Radial†	19051.1	53.75	0.28%	[10000]	µg/L
K 766.490 Radial†	21612.6	24.71	0.11%	[10000]	µg/L
Mg 279.077 IEC†	2152.7	7.32	0.34%	[10000]	µg/L
Mn 257.610†	675040.3	410.19	0.06%	[1000]	µg/L
Mo 202.031†	14825.2	64.81	0.44%	[1000]	µg/L
Na 589.592 Radial†	6104.4	28.36	0.46%	[10000]	µg/L

Ni 231.604†	32400.2	166.45	0.51%	[1000]	µg/L
P 214.914†	6674.9	32.77	0.49%	[5000]	µg/L
Pb 220.353†	6167.5	25.79	0.42%	[1000]	µg/L
S 181.975 Axial†	1142.9	6.49	0.57%	[2000]	µg/L
Sb 206.836†	3066.5	17.92	0.58%	[1000]	µg/L
Se 196.026†	1222.0	9.23	0.76%	[1000]	µg/L
SiO2†	90241.7	230.73	0.26%	[10695]	µg/L
Si 251.611†	106919.7	195.17	0.18%	[5000]	µg/L
Sn 189.927†	4590.2	14.29	0.31%	[1000]	µg/L
Sr 421.552†	218026.1	360.55	0.17%	[1000]	µg/L
Ti 334.940†	404627.2	366.55	0.09%	[1000]	µg/L
Tl 190.801†	2874.7	17.27	0.60%	[1000]	µg/L
U 367.007†	3745.6	38.07	1.02%	[1000]	µg/L
V 292.402†	105929.4	43.13	0.04%	[1000]	µg/L
Zn 213.857†	105011.0	72.33	0.07%	[1000]	µg/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: S10 **Date Collected: 6/13/2012 6:29:54**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	20691.8	20691.8	99.1	%	06:30:27
1	Al 396.153Radial†	173672.5	175351.4	[50000]	µg/L	06:30:22
1	Ca 317.933Radial†	109407.8	110301.9	[50000]	µg/L	06:30:27
1	Fe 238.204 Radial†	38032.0	38349.3	[20000]	µg/L	06:30:27
1	Mg 279.077 IEC†	10541.1	10636.5	[50000]	µg/L	06:30:27
1	Na 589.592 Radial†	12252.9	12510.2	[20000]	µg/L	06:30:27
1	Sc 361.383	672632.2	672632.2	99.724	%	06:30:54
1	Y 371.029	572195.3	572195.3	98.519	%	06:30:54
2	Sc RADIAL	20750.6	20750.6	99.4	%	06:30:37
2	Al 396.153Radial†	174486.3	175674.0	[50000]	µg/L	06:30:32
2	Ca 317.933Radial†	109163.5	109743.4	[50000]	µg/L	06:30:37
2	Fe 238.204 Radial†	37959.5	38167.7	[20000]	µg/L	06:30:37
2	Mg 279.077 IEC†	10515.4	10580.6	[50000]	µg/L	06:30:37
2	Na 589.592 Radial†	12242.3	12464.5	[20000]	µg/L	06:30:37
2	Sc 361.383	672854.4	672854.4	99.757	%	06:31:00
2	Y 371.029	573162.0	573162.0	98.685	%	06:31:00
3	Sc RADIAL	20763.0	20763.0	99.4	%	06:30:47
3	Al 396.153Radial†	173431.8	174508.3	[50000]	µg/L	06:30:42
3	Ca 317.933Radial†	109658.9	110175.9	[50000]	µg/L	06:30:47
3	Fe 238.204 Radial†	38151.1	38337.5	[20000]	µg/L	06:30:47
3	Mg 279.077 IEC†	10625.7	10685.2	[50000]	µg/L	06:30:47
3	Na 589.592 Radial†	12197.4	12412.0	[20000]	µg/L	06:30:47
3	Sc 361.383	680148.3	680148.3	100.84	%	06:31:05
3	Y 371.029	579000.2	579000.2	99.691	%	06:31:05

Mean Data: S10

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	675211.6	4276.71	0.63%	100.11	%
Sc RADIAL	20735.2	38.03	0.18%	99.3	%
Y 371.029	574785.9	3681.61	0.64%	98.965	%
Al 396.153Radial†	175177.9	601.90	0.34%	[50000]	µg/L
Ca 317.933Radial†	110073.7	292.92	0.27%	[50000]	µg/L
Fe 238.204 Radial†	38284.8	101.62	0.27%	[20000]	µg/L
Mg 279.077 IEC†	10634.1	52.33	0.49%	[50000]	µg/L
Na 589.592 Radial†	12462.2	49.17	0.39%	[20000]	µg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	3	Lin Thru 0	0.0	157.6	0.00000	0.999983	
Al 396.153Radial	3	Lin Thru 0	0.0	3.500	0.00000	0.999990	
As 188.979	3	Lin Thru 0	0.0	1.746	0.00000	0.999997	
B 249.677	3	Lin Thru 0	0.0	35.57	0.00000	0.999979	
Ba 233.527	3	Lin Thru 0	0.0	117.9	0.00000	0.999987	
Be 313.107	3	Lin Thru 0	0.0	1771	0.00000	0.999998	
Ca 317.933Radial	3	Lin Thru 0	0.0	2.198	0.00000	0.999980	
Cd 226.502	3	Lin Thru 0	0.0	70.08	0.00000	0.999996	
Co 228.616	3	Lin Thru 0	0.0	39.66	0.00000	0.999997	
Cr 267.716	3	Lin Thru 0	0.0	49.09	0.00000	0.999992	
Cu 324.752	3	Lin Thru 0	0.0	234.8	0.00000	0.999986	
Fe 238.204 Radia	2	Lin Thru 0	0.0	1.912	0.00000	0.999998	
K 766.490 Radial	3	Lin Thru 0	0.0	2.163	0.00000	0.999998	
Mg 279.077 IEC	3	Lin Thru 0	0.0	0.2128	0.00000	0.999996	
Mn 257.610	3	Lin Thru 0	0.0	672.1	0.00000	0.999951	
Mo 202.031	3	Lin Thru 0	0.0	14.82	0.00000	0.999999	
Na 589.592 Radia	2	Lin Thru 0	0.0	0.6206	0.00000	0.999967	

Ni 231.604	3	Lin Thru 0	0.0	32.51	0.00000	0.999976
P 214.914	3	Lin Thru 0	0.0	1.331	0.00000	0.999979
Pb 220.353	3	Lin Thru 0	0.0	6.153	0.00000	0.999988
S 181.975 Axial	3	Lin Thru 0	0.0	0.5733	0.00000	0.999980
Sb 206.836	3	Lin Thru 0	0.0	3.060	0.00000	0.999985
Se 196.026	3	Lin Thru 0	0.0	1.227	0.00000	0.999969
SiO2	3	Lin Thru 0	0.0	8.418	0.00000	0.999986
Si 251.611	3	Lin Thru 0	0.0	21.35	0.00000	0.999991
Sn 189.927	3	Lin Thru 0	0.0	4.592	0.00000	0.999998
Sr 421.552	3	Lin Thru 0	0.0	217.7	0.00000	0.999996
Ti 334.940	3	Lin Thru 0	0.0	404.3	0.00000	0.999997
Tl 190.801	3	Lin Thru 0	0.0	2.868	0.00000	0.999989
U 367.007	3	Lin Thru 0	0.0	3.715	0.00000	0.999873
V 292.402	3	Lin Thru 0	0.0	105.7	0.00000	0.999987
Zn 213.857	3	Lin Thru 0	0.0	105.1	0.00000	0.999977

Sequence No.: 6 **Autosampler Location: 9**
Sample ID: ICV **Date Collected: 6/13/2012 6:31:13**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21137.6	21137.6	101	%			06:32:02
1	Al 396.153Radial†	16938.5	16813.9	4785.1	µg/L	4785.1	ppb	06:31:42
1	Ca 317.933Radial†	11275.4	11026.1	5015.6	µg/L	5015.6	ppb	06:32:02
1	Fe 238.204 Radial†	9777.6	9626.7	5038.9	µg/L	5038.9	ppb	06:32:02
1	K 766.490 Radial†	6278.3	5341.8	2464.6	µg/L	2464.6	ppb	06:31:42
1	Mg 279.077 IEC†	1084.0	1069.3	5032.2	µg/L	5032.2	ppb	06:32:02
1	Na 589.592 Radial†	1431.2	1558.4	2511.3	µg/L	2511.3	ppb	06:32:02
1	Sr 421.552†	107095.8	107115.0	491.97	µg/L	491.97	ppb	06:31:42
1	Sc 361.383	685684.6	685684.6	101.66	%			06:32:59
1	Y 371.029	587761.0	587761.0	101.20	%			06:32:59
1	Ag 328.068†	40053.4	40027.4	258.43	µg/L	258.43	ppb	06:32:59
1	As 188.979†	881.0	874.7	500.78	µg/L	500.78	ppb	06:33:19
1	B 249.677†	18225.2	17845.9	500.17	µg/L	500.17	ppb	06:32:59
1	Ba 233.527†	61060.5	60196.5	511.05	µg/L	511.05	ppb	06:32:59
1	Be 313.107†	451052.5	451343.7	254.94	µg/L	254.94	ppb	06:32:59
1	Cd 226.502†	36047.0	35685.6	508.59	µg/L	508.59	ppb	06:32:59
1	Co 228.616†	20414.4	20112.3	507.04	µg/L	507.04	ppb	06:33:19
1	Cr 267.716†	25706.4	25061.3	510.55	µg/L	510.55	ppb	06:33:19
1	Cu 324.752†	128950.6	121291.3	517.95	µg/L	517.95	ppb	06:32:59
1	Mn 257.610†	348534.7	342431.3	509.82	µg/L	509.82	ppb	06:32:59
1	Mo 202.031†	7508.6	7355.9	496.47	µg/L	496.47	ppb	06:33:19
1	Ni 231.604†	16970.4	16721.4	514.08	µg/L	514.08	ppb	06:33:19
1	P 214.914†	3530.6	3346.2	2495.9	µg/L	2495.9	ppb	06:33:19
1	Pb 220.353†	3335.0	3115.1	506.79	µg/L	506.79	ppb	06:33:19
1	S 181.975 Axial†	1534.9	1452.6	2534.4	µg/L	2534.4	ppb	06:33:19
1	Sb 206.836†	1618.0	1527.6	495.16	µg/L	495.16	ppb	06:33:19
1	Se 196.026†	3203.9	3157.9	2577.9	µg/L	2577.9	ppb	06:33:19
1	SiO2†	97082.7	92677.9	11046	µg/L	11046	ppb	06:32:59
1	Si 251.611†	111261.2	109250.1	5109.9	µg/L	5109.9	ppb	06:32:59
1	Sn 189.927†	2411.9	2346.1	513.05	µg/L	513.05	ppb	06:33:19
1	Ti 334.940†	206681.8	203519.7	503.10	µg/L	503.10	ppb	06:32:59
1	Tl 190.801†	1461.9	1479.5	518.49	µg/L	518.49	ppb	06:33:19
1	U 367.007†	2345.3	1965.8	505.5	µg/L	505.5	ppb	06:32:59
1	V 292.402†	54398.4	53701.9	515.08	µg/L	515.08	ppb	06:32:59
1	Zn 213.857†	55581.0	53415.8	503.57	µg/L	503.57	ppb	06:32:59
2	Sc RADIAL	20846.7	20846.7	99.8	%			06:32:27
2	Al 396.153Radial†	17025.3	17134.4	4876.7	µg/L	4876.7	ppb	06:32:07
2	Ca 317.933Radial†	11311.7	11217.9	5102.9	µg/L	5102.9	ppb	06:32:27
2	Fe 238.204 Radial†	9780.5	9764.4	5110.8	µg/L	5110.8	ppb	06:32:27
2	K 766.490 Radial†	6309.2	5459.3	2519.0	µg/L	2519.0	ppb	06:32:07
2	Mg 279.077 IEC†	1080.3	1080.6	5084.9	µg/L	5084.9	ppb	06:32:27
2	Na 589.592 Radial†	1424.0	1570.9	2531.3	µg/L	2531.3	ppb	06:32:27
2	Sr 421.552†	107857.6	109354.6	502.25	µg/L	502.25	ppb	06:32:07
2	Sc 361.383	690200.4	690200.4	102.33	%			06:33:25
2	Y 371.029	591796.3	591796.3	101.89	%			06:33:25
2	Ag 328.068†	39998.0	39715.5	256.45	µg/L	256.45	ppb	06:33:25
2	As 188.979†	877.9	866.0	495.79	µg/L	495.79	ppb	06:33:46
2	B 249.677†	18221.5	17725.1	496.77	µg/L	496.77	ppb	06:33:25
2	Ba 233.527†	61079.7	59822.3	507.87	µg/L	507.87	ppb	06:33:25
2	Be 313.107†	451531.3	448908.6	253.56	µg/L	253.56	ppb	06:33:25
2	Cd 226.502†	36147.4	35551.7	506.67	µg/L	506.67	ppb	06:33:25
2	Co 228.616†	20415.9	19982.4	503.77	µg/L	503.77	ppb	06:33:46
2	Cr 267.716†	25687.1	24877.1	506.82	µg/L	506.82	ppb	06:33:46
2	Cu 324.752†	128968.2	120478.6	514.51	µg/L	514.51	ppb	06:33:25
2	Mn 257.610†	348706.0	340355.5	506.73	µg/L	506.73	ppb	06:33:25
2	Mo 202.031†	7511.8	7310.8	493.43	µg/L	493.43	ppb	06:33:46
2	Ni 231.604†	16985.0	16626.5	511.16	µg/L	511.16	ppb	06:33:46
2	P 214.914†	3525.1	3318.1	2474.9	µg/L	2474.9	ppb	06:33:46
2	Pb 220.353†	3329.7	3088.5	502.45	µg/L	502.45	ppb	06:33:46

2	S 181.975 Axial†	1534.4	1442.3	2516.4 µg/L	2516.4 ppb	06:33:46
2	Sb 206.836†	1605.8	1505.3	487.91 µg/L	487.91 ppb	06:33:46
2	Se 196.026†	3205.0	3138.4	2562.0 µg/L	2562.0 ppb	06:33:46
2	SiO2†	97333.5	92298.1	11000 µg/L	11000 ppb	06:33:25
2	Si 251.611†	111529.3	108796.0	5088.6 µg/L	5088.6 ppb	06:33:25
2	Sn 189.927†	2418.8	2337.3	511.14 µg/L	511.14 ppb	06:33:46
2	Ti 334.940†	206706.8	202213.9	499.88 µg/L	499.88 ppb	06:33:25
2	Tl 190.801†	1452.9	1461.3	512.14 µg/L	512.14 ppb	06:33:46
2	U 367.007†	2282.2	1888.9	484.5 µg/L	484.5 ppb	06:33:25
2	V 292.402†	54542.1	53492.3	513.04 µg/L	513.04 ppb	06:33:25
2	Zn 213.857†	55657.9	53133.2	500.89 µg/L	500.89 ppb	06:33:25
3	Sc RADIAL	20862.0	20862.0	99.9 %		06:32:52
3	Al 396.153Radial†	17227.5	17324.3	4931.0 µg/L	4931.0 ppb	06:32:32
3	Ca 317.933Radial†	11228.4	11126.2	5061.1 µg/L	5061.1 ppb	06:32:52
3	Fe 238.204 Radial†	9725.1	9701.7	5078.1 µg/L	5078.1 ppb	06:32:52
3	K 766.490 Radial†	6398.6	5544.2	2558.2 µg/L	2558.2 ppb	06:32:32
3	Mg 279.077 IEC†	1079.5	1078.9	5077.1 µg/L	5077.1 ppb	06:32:52
3	Na 589.592 Radial†	1396.2	1542.1	2484.9 µg/L	2484.9 ppb	06:32:52
3	Sr 421.552†	109204.4	110623.4	508.08 µg/L	508.08 ppb	06:32:32
3	Sc 361.383	691498.3	691498.3	102.52 %		06:33:52
3	Y 371.029	592510.7	592510.7	102.02 %		06:33:52
3	Ag 328.068†	40115.5	39756.8	256.70 µg/L	256.70 ppb	06:33:52
3	As 188.979†	872.5	859.2	491.87 µg/L	491.87 ppb	06:34:12
3	B 249.677†	18228.4	17698.3	496.02 µg/L	496.02 ppb	06:33:52
3	Ba 233.527†	61320.0	59944.6	508.91 µg/L	508.91 ppb	06:33:52
3	Be 313.107†	451811.5	448353.8	253.25 µg/L	253.25 ppb	06:33:52
3	Cd 226.502†	36133.7	35472.1	505.54 µg/L	505.54 ppb	06:33:52
3	Co 228.616†	20369.0	19899.2	501.67 µg/L	501.67 ppb	06:34:12
3	Cr 267.716†	25642.2	24786.1	504.96 µg/L	504.96 ppb	06:34:12
3	Cu 324.752†	129293.7	120559.5	514.85 µg/L	514.85 ppb	06:33:52
3	Mn 257.610†	349283.1	340278.8	506.62 µg/L	506.62 ppb	06:33:52
3	Mo 202.031†	7516.3	7301.4	492.80 µg/L	492.80 ppb	06:34:12
3	Ni 231.604†	16909.4	16521.6	507.93 µg/L	507.93 ppb	06:34:12
3	P 214.914†	3531.7	3318.0	2474.9 µg/L	2474.9 ppb	06:34:12
3	Pb 220.353†	3355.6	3107.7	505.53 µg/L	505.53 ppb	06:34:12
3	S 181.975 Axial†	1518.6	1424.0	2484.5 µg/L	2484.5 ppb	06:34:12
3	Sb 206.836†	1618.8	1515.1	491.12 µg/L	491.12 ppb	06:34:12
3	Se 196.026†	3183.2	3111.3	2539.9 µg/L	2539.9 ppb	06:34:12
3	SiO2†	97558.7	92339.2	11005 µg/L	11005 ppb	06:33:52
3	Si 251.611†	111798.2	108853.7	5091.4 µg/L	5091.4 ppb	06:33:52
3	Sn 189.927†	2410.3	2324.7	508.38 µg/L	508.38 ppb	06:34:12
3	Ti 334.940†	207089.5	202208.1	499.86 µg/L	499.86 ppb	06:33:52
3	Tl 190.801†	1452.6	1458.3	511.10 µg/L	511.10 ppb	06:34:12
3	U 367.007†	2304.3	1906.3	489.3 µg/L	489.3 ppb	06:33:52
3	V 292.402†	54575.3	53424.5	512.39 µg/L	512.39 ppb	06:33:52
3	Zn 213.857†	55738.7	53109.9	500.69 µg/L	500.69 ppb	06:33:52

Mean Data: ICV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	689127.8	102.17	%	0.452				0.44%
Sc RADIAL	20948.8	100	%	0.8				0.78%
Y 371.029	590689.3	101.70	%	0.441				0.43%
Ag 328.068†	39833.2	257.19	µg/L	1.074	257.19	ppb	1.074	0.42%
QC value within limits for Ag 328.068 Recovery = 102.88%								
Al 396.153Radial†	17090.9	4864.3	µg/L	73.77	4864.3	ppb	73.77	1.52%
QC value within limits for Al 396.153Radial Recovery = 97.29%								
As 188.979†	866.7	496.15	µg/L	4.464	496.15	ppb	4.464	0.90%
QC value within limits for As 188.979 Recovery = 99.23%								
B 249.677†	17756.5	497.65	µg/L	2.211	497.65	ppb	2.211	0.44%
QC value within limits for B 249.677 Recovery = 99.53%								
Ba 233.527†	59987.8	509.28	µg/L	1.621	509.28	ppb	1.621	0.32%
QC value within limits for Ba 233.527 Recovery = 101.86%								
Be 313.107†	449535.4	253.92	µg/L	0.900	253.92	ppb	0.900	0.35%
QC value within limits for Be 313.107 Recovery = 101.57%								
Ca 317.933Radial†	11123.4	5059.9	µg/L	43.65	5059.9	ppb	43.65	0.86%
QC value within limits for Ca 317.933Radial Recovery = 101.20%								
Cd 226.502†	35569.8	506.93	µg/L	1.544	506.93	ppb	1.544	0.30%
QC value within limits for Cd 226.502 Recovery = 101.39%								
Co 228.616†	19998.0	504.16	µg/L	2.707	504.16	ppb	2.707	0.54%

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   QC value within limits for Co 228.616  Recovery = 100.83%
Cr 267.716†           24908.2      507.44 µg/L         2.848      507.44 ppb          2.848   0.56%
   QC value within limits for Cr 267.716  Recovery = 101.49%
Cu 324.752†          120776.5      515.77 µg/L         1.897      515.77 ppb          1.897   0.37%
   QC value within limits for Cu 324.752  Recovery = 103.15%
Fe 238.204 Radial†      9697.6      5075.9 µg/L         36.02      5075.9 ppb          36.02   0.71%
   QC value within limits for Fe 238.204 Radial  Recovery = 101.52%
K 766.490 Radial†       5448.4      2513.9 µg/L         47.00      2513.9 ppb          47.00   1.87%
   QC value within limits for K 766.490 Radial  Recovery = 100.56%
Mg 279.077 IEC†         1076.3      5064.7 µg/L         28.43      5064.7 ppb          28.43   0.56%
   QC value within limits for Mg 279.077 IEC  Recovery = 101.29%
Mn 257.610†           341021.8      507.72 µg/L         1.815      507.72 ppb          1.815   0.36%
   QC value within limits for Mn 257.610  Recovery = 101.54%
Mo 202.031†             7322.7      494.23 µg/L         1.966      494.23 ppb          1.966   0.40%
   QC value within limits for Mo 202.031  Recovery = 98.85%
Na 589.592 Radial†      1557.1      2509.1 µg/L         23.28      2509.1 ppb          23.28   0.93%
   QC value within limits for Na 589.592 Radial  Recovery = 100.37%
Ni 231.604†            16623.2      511.06 µg/L         3.073      511.06 ppb          3.073   0.60%
   QC value within limits for Ni 231.604  Recovery = 102.21%
P 214.914†              3327.4      2481.9 µg/L         12.15      2481.9 ppb          12.15   0.49%
   QC value within limits for P 214.914  Recovery = 99.28%
Pb 220.353†             3103.7      504.92 µg/L         2.235      504.92 ppb          2.235   0.44%
   QC value within limits for Pb 220.353  Recovery = 100.98%
S 181.975 Axial†        1439.6      2511.8 µg/L         25.30      2511.8 ppb          25.30   1.01%
   QC value within limits for S 181.975 Axial  Recovery = 100.47%
Sb 206.836†             1516.0      491.40 µg/L         3.633      491.40 ppb          3.633   0.74%
   QC value within limits for Sb 206.836  Recovery = 98.28%
Se 196.026†             3135.9      2559.9 µg/L         19.11      2559.9 ppb          19.11   0.75%
   QC value within limits for Se 196.026  Recovery = 102.40%
SiO2†                  92438.4       11017 µg/L          25.0       11017 ppb           25.0   0.23%
   QC value within limits for SiO2  Recovery = 103.01%
Si 251.611†           108966.6      5096.6 µg/L         11.55      5096.6 ppb          11.55   0.23%
   QC value within limits for Si 251.611  Recovery = 101.93%
Sn 189.927†             2336.0      510.86 µg/L         2.348      510.86 ppb          2.348   0.46%
   QC value within limits for Sn 189.927  Recovery = 102.17%
Sr 421.552†           109031.0      500.77 µg/L         8.159      500.77 ppb          8.159   1.63%
   QC value within limits for Sr 421.552  Recovery = 100.15%
Ti 334.940†           202647.2      500.95 µg/L         1.863      500.95 ppb          1.863   0.37%
   QC value within limits for Ti 334.940  Recovery = 100.19%
Tl 190.801†             1466.3      513.91 µg/L         4.003      513.91 ppb          4.003   0.78%
   QC value within limits for Tl 190.801  Recovery = 102.78%
U 367.007†              1920.4       493.1 µg/L         11.02       493.1 ppb          11.02   2.23%
   QC value within limits for U 367.007  Recovery = 98.62%
V 292.402†             53539.6      513.50 µg/L         1.404      513.50 ppb          1.404   0.27%
   QC value within limits for V 292.402  Recovery = 102.70%
Zn 213.857†            53219.6      501.72 µg/L         1.605      501.72 ppb          1.605   0.32%
   QC value within limits for Zn 213.857  Recovery = 100.34%
All analyte(s) passed QC.
```

Sequence No.: 7 **Autosampler Location: 10**
Sample ID: ICB **Date Collected: 6/13/2012 6:34:19**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20733.4	20733.4	99.3	%			06:34:47
1	Al 396.153Radial†	-61.0	18.6	5.2752	µg/L	5.2752	ppb	06:34:47
1	Ca 317.933Radial†	117.0	4.7	2.1275	µg/L	2.1275	ppb	06:35:07
1	Fe 238.204 Radial†	35.7	3.2	1.6635	µg/L	1.6635	ppb	06:35:07
1	K 766.490 Radial†	808.0	-46.8	-21.653	µg/L	-21.653	ppb	06:34:47
1	Mg 279.077 IEC†	3.8	2.2	10.399	µg/L	10.399	ppb	06:35:07
1	Na 589.592 Radial†	-144.8	-1.4	-2.2658	µg/L	-2.2658	ppb	06:34:47
1	Sr 421.552†	-1237.9	65.8	0.3020	µg/L	0.3020	ppb	06:34:47
1	Sc 361.383	689693.0	689693.0	102.25	%			06:36:03
1	Y 371.029	593191.0	593191.0	102.13	%			06:36:03
1	Ag 328.068†	-567.1	73.0	0.4626	µg/L	0.4626	ppb	06:36:09
1	As 188.979†	-7.3	1.0	0.5552	µg/L	0.5552	ppb	06:36:29
1	B 249.677†	109.2	24.9	0.6983	µg/L	0.6983	ppb	06:36:29
1	Ba 233.527†	-124.0	11.1	0.0938	µg/L	0.0938	ppb	06:36:29
1	Be 313.107†	-7599.1	219.3	0.1230	µg/L	0.1230	ppb	06:36:09
1	Cd 226.502†	-222.6	9.1	0.1297	µg/L	0.1297	ppb	06:36:29
1	Co 228.616†	-12.7	18.6	0.4704	µg/L	0.4704	ppb	06:36:29
1	Cr 267.716†	227.9	-2.8	-0.0521	µg/L	-0.0521	ppb	06:36:29
1	Cu 324.752†	5534.3	-142.9	-0.6040	µg/L	-0.6040	ppb	06:36:09
1	Mn 257.610†	417.8	-7.9	-0.0118	µg/L	-0.0118	ppb	06:36:29
1	Mo 202.031†	42.3	11.3	0.7599	µg/L	0.7599	ppb	06:36:29
1	Ni 231.604†	-49.7	-20.6	-0.6341	µg/L	-0.6341	ppb	06:36:29
1	P 214.914†	111.3	-18.0	-13.504	µg/L	-13.504	ppb	06:36:29
1	Pb 220.353†	164.0	-5.0	-0.8148	µg/L	-0.8148	ppb	06:36:29
1	S 181.975 Axial†	55.4	-3.1	-5.3572	µg/L	-5.3572	ppb	06:36:29
1	Sb 206.836†	72.5	6.9	2.2738	µg/L	2.2738	ppb	06:36:29
1	Se 196.026†	-4.3	2.1	1.7417	µg/L	1.7417	ppb	06:36:29
1	SiO2†	2838.6	-44.7	-5.3558	µg/L	-5.3558	ppb	06:36:09
1	Si 251.611†	222.5	22.0	1.0168	µg/L	1.0168	ppb	06:36:29
1	Sn 189.927†	32.1	5.0	1.0807	µg/L	1.0807	ppb	06:36:29
1	Ti 334.940†	-179.7	34.5	0.0873	µg/L	0.0873	ppb	06:36:09
1	Tl 190.801†	-27.7	14.3	4.9850	µg/L	4.9850	ppb	06:36:29
1	U 367.007†	333.1	-15.6	-4.194	µg/L	-4.194	ppb	06:36:09
1	V 292.402†	-215.8	-19.9	-0.1836	µg/L	-0.1836	ppb	06:36:09
1	Zn 213.857†	1276.1	-10.4	-0.0943	µg/L	-0.0943	ppb	06:36:29
2	Sc RADIAL	20894.9	20894.9	100	%			06:35:12
2	Al 396.153Radial†	-50.9	29.1	8.2763	µg/L	8.2763	ppb	06:35:12
2	Ca 317.933Radial†	115.4	2.2	0.9813	µg/L	0.9813	ppb	06:35:32
2	Fe 238.204 Radial†	33.1	0.2	0.1105	µg/L	0.1105	ppb	06:35:32
2	K 766.490 Radial†	855.5	-5.7	-2.6465	µg/L	-2.6465	ppb	06:35:12
2	Mg 279.077 IEC†	1.7	0.1	0.6313	µg/L	0.6313	ppb	06:35:32
2	Na 589.592 Radial†	-149.5	-4.9	-7.9163	µg/L	-7.9163	ppb	06:35:12
2	Sr 421.552†	-1296.4	16.9	0.0775	µg/L	0.0775	ppb	06:35:12
2	Sc 361.383	683850.2	683850.2	101.39	%			06:36:34
2	Y 371.029	588648.3	588648.3	101.35	%			06:36:34
2	Ag 328.068†	-608.3	27.6	0.1756	µg/L	0.1756	ppb	06:36:39
2	As 188.979†	-9.6	-1.3	-0.7466	µg/L	-0.7466	ppb	06:36:59
2	B 249.677†	126.5	42.9	1.2059	µg/L	1.2059	ppb	06:36:59
2	Ba 233.527†	-127.2	6.9	0.0588	µg/L	0.0588	ppb	06:36:59
2	Be 313.107†	-7639.4	116.1	0.0647	µg/L	0.0647	ppb	06:36:39
2	Cd 226.502†	-218.3	11.5	0.1635	µg/L	0.1635	ppb	06:36:59
2	Co 228.616†	-12.1	19.1	0.4823	µg/L	0.4823	ppb	06:36:59
2	Cr 267.716†	233.2	4.4	0.0940	µg/L	0.0940	ppb	06:36:59
2	Cu 324.752†	5614.8	-17.3	-0.0694	µg/L	-0.0694	ppb	06:36:39
2	Mn 257.610†	427.5	5.2	0.0077	µg/L	0.0077	ppb	06:36:59
2	Mo 202.031†	48.3	17.5	1.1826	µg/L	1.1826	ppb	06:36:59
2	Ni 231.604†	-34.0	-5.6	-0.1725	µg/L	-0.1725	ppb	06:36:59
2	P 214.914†	110.8	-17.6	-13.214	µg/L	-13.214	ppb	06:36:59
2	Pb 220.353†	168.1	0.3	0.0514	µg/L	0.0514	ppb	06:36:59

2	S 181.975 Axial†	56.0	-2.0	-3.5614 µg/L	-3.5614 ppb	06:36:59
2	Sb 206.836†	71.8	6.8	2.2393 µg/L	2.2393 ppb	06:36:59
2	Se 196.026†	-5.2	1.3	1.0158 µg/L	1.0158 ppb	06:36:59
2	SiO2†	2848.1	-11.6	-1.4232 µg/L	-1.4232 ppb	06:36:39
2	Si 251.611†	229.9	31.1	1.4332 µg/L	1.4332 ppb	06:36:59
2	Sn 189.927†	35.4	8.5	1.8501 µg/L	1.8501 ppb	06:36:59
2	Ti 334.940†	-164.2	48.4	0.1214 µg/L	0.1214 ppb	06:36:39
2	Tl 190.801†	-27.4	14.4	5.0277 µg/L	5.0277 ppb	06:36:59
2	U 367.007†	330.8	-15.0	-4.035 µg/L	-4.035 ppb	06:36:39
2	V 292.402†	-188.0	5.7	0.0637 µg/L	0.0637 ppb	06:36:39
2	Zn 213.857†	1273.5	-2.3	-0.0203 µg/L	-0.0203 ppb	06:36:59
3	Sc RADIAL	20647.3	20647.3	98.9 %		06:35:37
3	Al 396.153Radial†	-85.1	-6.1	-1.7954 µg/L	-1.7954 ppb	06:35:37
3	Ca 317.933Radial†	105.6	-6.3	-2.8669 µg/L	-2.8669 ppb	06:35:57
3	Fe 238.204 Radial†	33.4	0.9	0.4903 µg/L	0.4903 ppb	06:35:57
3	K 766.490 Radial†	891.3	40.8	18.874 µg/L	18.874 ppb	06:35:37
3	Mg 279.077 IEC†	0.1	-1.5	-6.8638 µg/L	-6.8638 ppb	06:35:57
3	Na 589.592 Radial†	-146.4	-3.6	-5.7778 µg/L	-5.7778 ppb	06:35:37
3	Sr 421.552†	-1283.5	14.4	0.0663 µg/L	0.0663 ppb	06:35:37
3	Sc 361.383	690483.1	690483.1	102.37 %		06:37:04
3	Y 371.029	594013.8	594013.8	102.28 %		06:37:04
3	Ag 328.068†	-530.2	109.7	0.6987 µg/L	0.6987 ppb	06:37:09
3	As 188.979†	-0.9	7.3	4.1746 µg/L	4.1746 ppb	06:37:29
3	B 249.677†	97.9	13.8	0.3849 µg/L	0.3849 ppb	06:37:29
3	Ba 233.527†	-127.8	7.5	0.0640 µg/L	0.0640 ppb	06:37:29
3	Be 313.107†	-7497.8	326.7	0.1836 µg/L	0.1836 ppb	06:37:09
3	Cd 226.502†	-217.7	14.1	0.2010 µg/L	0.2010 ppb	06:37:29
3	Co 228.616†	-5.7	25.5	0.6439 µg/L	0.6439 ppb	06:37:29
3	Cr 267.716†	210.2	-20.3	-0.4103 µg/L	-0.4103 ppb	06:37:29
3	Cu 324.752†	5543.7	-139.9	-0.5917 µg/L	-0.5917 ppb	06:37:09
3	Mn 257.610†	417.5	-8.6	-0.0126 µg/L	-0.0126 ppb	06:37:29
3	Mo 202.031†	52.6	21.2	1.4315 µg/L	1.4315 ppb	06:37:29
3	Ni 231.604†	-49.7	-20.6	-0.6336 µg/L	-0.6336 ppb	06:37:29
3	P 214.914†	127.0	-2.8	-2.0959 µg/L	-2.0959 ppb	06:37:29
3	Pb 220.353†	163.5	-5.8	-0.9352 µg/L	-0.9352 ppb	06:37:29
3	S 181.975 Axial†	62.9	4.2	7.2893 µg/L	7.2893 ppb	06:37:29
3	Sb 206.836†	77.9	12.1	3.9860 µg/L	3.9860 ppb	06:37:29
3	Se 196.026†	-0.3	6.1	4.9515 µg/L	4.9515 ppb	06:37:29
3	SiO2†	2853.9	-33.0	-3.9580 µg/L	-3.9580 ppb	06:37:09
3	Si 251.611†	224.8	23.9	1.1008 µg/L	1.1008 ppb	06:37:29
3	Sn 189.927†	29.2	2.2	0.4738 µg/L	0.4738 ppb	06:37:29
3	Ti 334.940†	-64.6	147.2	0.3658 µg/L	0.3658 ppb	06:37:09
3	Tl 190.801†	-27.2	14.9	5.1859 µg/L	5.1859 ppb	06:37:29
3	U 367.007†	336.4	-12.7	-3.418 µg/L	-3.418 ppb	06:37:09
3	V 292.402†	-156.3	38.4	0.3750 µg/L	0.3750 ppb	06:37:09
3	Zn 213.857†	1259.6	-28.0	-0.2615 µg/L	-0.2615 ppb	06:37:29

Mean Data: ICB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	688008.8	102.00	%	0.537				0.53%
Sc RADIAL	20758.5	99.4	%	0.60				0.61%
Y 371.029	591951.0	101.92	%	0.498				0.49%
Ag 328.068†	70.1	0.4456	µg/L	0.26199	0.4456	ppb	0.26199	58.79%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	13.9	3.9187	µg/L	5.17107	3.9187	ppb	5.17107	131.96%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	2.3	1.3277	µg/L	2.54992	1.3277	ppb	2.54992	192.05%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	27.2	0.7630	µg/L	0.41427	0.7630	ppb	0.41427	54.29%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	8.5	0.0722	µg/L	0.01886	0.0722	ppb	0.01886	26.12%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	220.7	0.1238	µg/L	0.05942	0.1238	ppb	0.05942	48.01%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	0.2	0.0807	µg/L	2.61620	0.0807	ppb	2.61620	>999.9%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	11.6	0.1647	µg/L	0.03565	0.1647	ppb	0.03565	21.64%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	21.1	0.5322	µg/L	0.09691	0.5322	ppb	0.09691	18.21%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -6.2     -0.1228 µg/L       0.25945     -0.1228 ppb        0.25945 211.27%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†            -100.0     -0.4217 µg/L       0.30518     -0.4217 ppb        0.30518  72.37%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        1.4      0.7548 µg/L       0.80959      0.7548 ppb        0.80959 107.26%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        -3.9     -1.8087 µg/L      20.27656     -1.8087 ppb       20.27656 >999.9%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           0.3      1.3887 µg/L       8.65608      1.3887 ppb        8.65608 623.33%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -3.8     -0.0056 µg/L       0.01150     -0.0056 ppb        0.01150 206.12%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              16.7      1.1247 µg/L       0.33954      1.1247 ppb        0.33954  30.19%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -3.3     -5.3200 µg/L       2.85291     -5.3200 ppb        2.85291  53.63%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†             -15.6     -0.4801 µg/L       0.26633     -0.4801 ppb        0.26633  55.48%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†              -12.8     -9.6046 µg/L       6.50438     -9.6046 ppb        6.50438  67.72%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              -3.5     -0.5662 µg/L       0.53825     -0.5662 ppb        0.53825  95.06%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -0.3     -0.5431 µg/L       6.84223     -0.5431 ppb        6.84223 >999.9%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               8.6      2.8330 µg/L       0.99869      2.8330 ppb        0.99869  35.25%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               3.2      2.5697 µg/L       2.09445      2.5697 ppb        2.09445  81.51%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -29.8     -3.5790 µg/L       1.99349     -3.5790 ppb        1.99349  55.70%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              25.6      1.1836 µg/L       0.22024      1.1836 ppb        0.22024  18.61%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               5.2      1.1348 µg/L       0.68973      1.1348 ppb        0.68973  60.78%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              32.4      0.1486 µg/L       0.13297      0.1486 ppb        0.13297  89.47%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              76.7      0.1915 µg/L       0.15192      0.1915 ppb        0.15192  79.32%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†              14.5      5.0662 µg/L       0.10583      5.0662 ppb        0.10583   2.09%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†              -14.4      -3.882 µg/L        0.4099      -3.882 ppb         0.4099  10.56%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                8.1      0.0851 µg/L       0.27992      0.0851 ppb        0.27992 329.07%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             -13.5     -0.1254 µg/L       0.12358     -0.1254 ppb        0.12358  98.56%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 8 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/13/2012 6:37:37**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21041.7	21041.7	101	%			06:38:06
1	Al 396.153Radial†	626.6	701.8	200.13	µg/L	200.13	ppb	06:38:06
1	Ca 317.933Radial†	569.9	452.5	205.82	µg/L	205.82	ppb	06:38:26
1	Fe 238.204 Radial†	232.7	198.1	103.62	µg/L	103.62	ppb	06:38:26
1	K 766.490 Radial†	1240.7	370.7	171.32	µg/L	171.32	ppb	06:38:06
1	Mg 279.077 IEC†	67.9	65.8	309.53	µg/L	309.53	ppb	06:38:26
1	Na 589.592 Radial†	14.3	158.7	255.74	µg/L	255.74	ppb	06:38:06
1	Sr 421.552†	-166.0	1147.8	5.2710	µg/L	5.2710	ppb	06:38:06
1	Sc 361.383	686950.7	686950.7	101.85	%			06:39:22
1	Y 371.029	591064.0	591064.0	101.77	%			06:39:22
1	Ag 328.068†	234.3	857.7	5.5000	µg/L	5.5000	ppb	06:39:27
1	As 188.979†	58.1	65.2	37.285	µg/L	37.285	ppb	06:39:47
1	B 249.677†	1961.7	1844.3	51.824	µg/L	51.824	ppb	06:39:27
1	Ba 233.527†	507.9	631.1	5.3557	µg/L	5.3557	ppb	06:39:47
1	Be 313.107†	1677.0	9297.5	5.2617	µg/L	5.2617	ppb	06:39:27
1	Cd 226.502†	166.0	389.8	5.5475	µg/L	5.5475	ppb	06:39:47
1	Co 228.616†	188.5	216.2	5.4563	µg/L	5.4563	ppb	06:39:47
1	Cr 267.716†	491.2	256.7	5.1835	µg/L	5.1835	ppb	06:39:47
1	Cu 324.752†	8115.8	2413.4	10.259	µg/L	10.259	ppb	06:39:27
1	Mn 257.610†	7601.7	7047.4	10.486	µg/L	10.486	ppb	06:39:27
1	Mo 202.031†	181.5	148.1	9.9926	µg/L	9.9926	ppb	06:39:47
1	Ni 231.604†	131.4	157.0	4.8279	µg/L	4.8279	ppb	06:39:47
1	P 214.914†	320.9	188.3	141.12	µg/L	141.12	ppb	06:39:47
1	Pb 220.353†	224.6	55.1	8.8975	µg/L	8.8975	ppb	06:39:47
1	S 181.975 Axial†	121.2	61.8	107.75	µg/L	107.75	ppb	06:39:47
1	Sb 206.836†	98.6	32.8	10.782	µg/L	10.782	ppb	06:39:47
1	Se 196.026†	30.0	35.8	29.331	µg/L	29.331	ppb	06:39:47
1	SiO2†	4720.1	1813.8	216.47	µg/L	216.47	ppb	06:39:27
1	Si 251.611†	2380.7	2141.8	100.17	µg/L	100.17	ppb	06:39:47
1	Sn 189.927†	81.1	53.2	11.611	µg/L	11.611	ppb	06:39:47
1	Ti 334.940†	1959.0	2133.8	5.2542	µg/L	5.2542	ppb	06:39:27
1	Tl 190.801†	19.8	60.9	21.276	µg/L	21.276	ppb	06:39:47
1	U 367.007†	555.7	204.3	54.49	µg/L	54.49	ppb	06:39:27
1	V 292.402†	343.1	528.0	5.1627	µg/L	5.1627	ppb	06:39:27
1	Zn 213.857†	2398.6	1096.8	10.376	µg/L	10.376	ppb	06:39:47
2	Sc RADIAL	21075.9	21075.9	101	%			06:38:31
2	Al 396.153Radial†	680.9	754.7	215.23	µg/L	215.23	ppb	06:38:31
2	Ca 317.933Radial†	560.4	442.1	201.10	µg/L	201.10	ppb	06:38:51
2	Fe 238.204 Radial†	237.3	202.3	105.82	µg/L	105.82	ppb	06:38:51
2	K 766.490 Radial†	1232.3	360.4	166.55	µg/L	166.55	ppb	06:38:31
2	Mg 279.077 IEC†	69.1	66.9	314.67	µg/L	314.67	ppb	06:38:51
2	Na 589.592 Radial†	27.7	171.9	277.02	µg/L	277.02	ppb	06:38:31
2	Sr 421.552†	-190.7	1123.6	5.1598	µg/L	5.1598	ppb	06:38:31
2	Sc 361.383	688470.6	688470.6	102.07	%			06:39:53
2	Y 371.029	592744.2	592744.2	102.06	%			06:39:53
2	Ag 328.068†	255.6	878.0	5.6297	µg/L	5.6297	ppb	06:39:58
2	As 188.979†	49.3	56.4	32.285	µg/L	32.285	ppb	06:40:18
2	B 249.677†	1949.2	1827.8	51.359	µg/L	51.359	ppb	06:39:58
2	Ba 233.527†	478.4	601.0	5.1006	µg/L	5.1006	ppb	06:40:18
2	Be 313.107†	1816.8	9430.9	5.3364	µg/L	5.3364	ppb	06:39:58
2	Cd 226.502†	169.5	392.9	5.5919	µg/L	5.5919	ppb	06:40:18
2	Co 228.616†	195.8	222.9	5.6256	µg/L	5.6256	ppb	06:40:18
2	Cr 267.716†	495.6	259.9	5.2532	µg/L	5.2532	ppb	06:40:18
2	Cu 324.752†	8185.7	2464.3	10.479	µg/L	10.479	ppb	06:39:58
2	Mn 257.610†	7725.2	7151.9	10.642	µg/L	10.642	ppb	06:39:58
2	Mo 202.031†	182.7	148.8	10.046	µg/L	10.046	ppb	06:40:18
2	Ni 231.604†	162.2	186.9	5.7477	µg/L	5.7477	ppb	06:40:18
2	P 214.914†	326.1	192.6	144.39	µg/L	144.39	ppb	06:40:18
2	Pb 220.353†	235.3	65.0	10.513	µg/L	10.513	ppb	06:40:18

2	S 181.975 Axial†	118.3	58.7	102.33 µg/L	102.33 ppb	06:40:18
2	Sb 206.836†	95.9	30.0	9.8425 µg/L	9.8425 ppb	06:40:18
2	Se 196.026†	26.6	32.4	26.538 µg/L	26.538 ppb	06:40:18
2	SiO2†	4781.6	1863.8	222.40 µg/L	222.40 ppb	06:39:58
2	Si 251.611†	2385.9	2141.9	100.18 µg/L	100.18 ppb	06:40:18
2	Sn 189.927†	69.8	41.9	9.1578 µg/L	9.1578 ppb	06:40:18
2	Ti 334.940†	1910.4	2081.9	5.1272 µg/L	5.1272 ppb	06:39:58
2	Tl 190.801†	22.9	63.8	22.304 µg/L	22.304 ppb	06:40:18
2	U 367.007†	544.8	192.5	51.29 µg/L	51.29 ppb	06:39:58
2	V 292.402†	342.3	526.5	5.1466 µg/L	5.1466 ppb	06:39:58
2	Zn 213.857†	2398.2	1091.2	10.316 µg/L	10.316 ppb	06:40:18
3	Sc RADIAL	21025.0	21025.0	101 %		06:38:56
3	Al 396.153Radial†	652.5	728.0	207.61 µg/L	207.61 ppb	06:38:56
3	Ca 317.933Radial†	567.6	450.6	204.96 µg/L	204.96 ppb	06:39:16
3	Fe 238.204 Radial†	230.7	196.3	102.71 µg/L	102.71 ppb	06:39:16
3	K 766.490 Radial†	1241.2	372.2	172.00 µg/L	172.00 ppb	06:38:56
3	Mg 279.077 IEC†	70.9	68.8	323.93 µg/L	323.93 ppb	06:39:16
3	Na 589.592 Radial†	25.0	169.3	272.89 µg/L	272.89 ppb	06:38:56
3	Sr 421.552†	-185.9	1127.8	5.1794 µg/L	5.1794 ppb	06:38:56
3	Sc 361.383	683835.4	683835.4	101.38 %		06:40:23
3	Y 371.029	588743.5	588743.5	101.37 %		06:40:23
3	Ag 328.068†	218.6	843.2	5.4078 µg/L	5.4078 ppb	06:40:28
3	As 188.979†	41.9	49.5	28.304 µg/L	28.304 ppb	06:40:48
3	B 249.677†	1906.4	1798.5	50.539 µg/L	50.539 ppb	06:40:28
3	Ba 233.527†	489.2	614.8	5.2180 µg/L	5.2180 ppb	06:40:48
3	Be 313.107†	1808.9	9435.1	5.3385 µg/L	5.3385 ppb	06:40:28
3	Cd 226.502†	173.9	398.3	5.6695 µg/L	5.6695 ppb	06:40:48
3	Co 228.616†	189.0	217.5	5.4888 µg/L	5.4888 ppb	06:40:48
3	Cr 267.716†	483.3	251.0	5.0731 µg/L	5.0731 ppb	06:40:48
3	Cu 324.752†	8143.6	2477.1	10.534 µg/L	10.534 ppb	06:40:28
3	Mn 257.610†	7632.7	7112.0	10.582 µg/L	10.582 ppb	06:40:28
3	Mo 202.031†	183.0	150.3	10.145 µg/L	10.145 ppb	06:40:48
3	Ni 231.604†	131.7	157.9	4.8554 µg/L	4.8554 ppb	06:40:48
3	P 214.914†	329.3	198.0	148.42 µg/L	148.42 ppb	06:40:48
3	Pb 220.353†	231.3	62.7	10.136 µg/L	10.136 ppb	06:40:48
3	S 181.975 Axial†	118.3	59.4	103.60 µg/L	103.60 ppb	06:40:48
3	Sb 206.836†	94.2	28.9	9.5013 µg/L	9.5013 ppb	06:40:48
3	Se 196.026†	36.7	42.5	34.787 µg/L	34.787 ppb	06:40:48
3	SiO2†	4719.5	1834.3	218.86 µg/L	218.86 ppb	06:40:28
3	Si 251.611†	2365.2	2137.3	99.959 µg/L	99.959 ppb	06:40:48
3	Sn 189.927†	73.9	46.5	10.146 µg/L	10.146 ppb	06:40:48
3	Ti 334.940†	2040.5	2222.9	5.4764 µg/L	5.4764 ppb	06:40:28
3	Tl 190.801†	15.8	57.0	19.914 µg/L	19.914 ppb	06:40:48
3	U 367.007†	537.9	189.3	50.44 µg/L	50.44 ppb	06:40:28
3	V 292.402†	339.7	526.2	5.1437 µg/L	5.1437 ppb	06:40:28
3	Zn 213.857†	2380.6	1089.7	10.308 µg/L	10.308 ppb	06:40:48

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	686418.9	101.77	%	0.350				0.34%
Sc RADIAL	21047.5	101	%	0.1				0.12%
Y 371.029	590850.6	101.73	%	0.346				0.34%
Ag 328.068†	859.6	5.5125	µg/L	0.11147	5.5125	ppb	0.11147	2.02%
QC value within limits for Ag 328.068 Recovery = 110.25%								
Al 396.153Radial†	728.2	207.66	µg/L	7.553	207.66	ppb	7.553	3.64%
QC value within limits for Al 396.153Radial Recovery = 103.83%								
As 188.979†	57.0	32.625	µg/L	4.5001	32.625	ppb	4.5001	13.79%
QC value within limits for As 188.979 Recovery = 108.75%								
B 249.677†	1823.5	51.241	µg/L	0.6508	51.241	ppb	0.6508	1.27%
QC value within limits for B 249.677 Recovery = 102.48%								
Ba 233.527†	615.6	5.2248	µg/L	0.12765	5.2248	ppb	0.12765	2.44%
QC value within limits for Ba 233.527 Recovery = 104.50%								
Be 313.107†	9387.9	5.3122	µg/L	0.04374	5.3122	ppb	0.04374	0.82%
QC value within limits for Be 313.107 Recovery = 106.24%								
Ca 317.933Radial†	448.4	203.96	µg/L	2.517	203.96	ppb	2.517	1.23%
QC value within limits for Ca 317.933Radial Recovery = 101.98%								
Cd 226.502†	393.7	5.6030	µg/L	0.06176	5.6030	ppb	0.06176	1.10%
QC value within limits for Cd 226.502 Recovery = 112.06%								
Co 228.616†	218.8	5.5236	µg/L	0.08983	5.5236	ppb	0.08983	1.63%

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   QC value within limits for Co 228.616  Recovery = 110.47%
Cr 267.716†              255.9      5.1699 µg/L       0.09082      5.1699 ppb        0.09082   1.76%
   QC value within limits for Cr 267.716  Recovery = 103.40%
Cu 324.752†             2451.6      10.424 µg/L        0.1455      10.424 ppb         0.1455   1.40%
   QC value within limits for Cu 324.752  Recovery = 104.24%
Fe 238.204 Radial†       198.9      104.05 µg/L         1.597      104.05 ppb          1.597   1.54%
   QC value within limits for Fe 238.204 Radial  Recovery = 104.05%
K 766.490 Radial†        367.7      169.96 µg/L         2.970      169.96 ppb          2.970   1.75%
   QC value within limits for K 766.490 Radial  Recovery = 113.30%
Mg 279.077 IEC†           67.2      316.05 µg/L         7.295      316.05 ppb          7.295   2.31%
   QC value within limits for Mg 279.077 IEC  Recovery = 105.35%
Mn 257.610†             7103.8      10.570 µg/L        0.0784      10.570 ppb         0.0784   0.74%
   QC value within limits for Mn 257.610  Recovery = 105.70%
Mo 202.031†              149.1      10.061 µg/L        0.0775      10.061 ppb         0.0775   0.77%
   QC value within limits for Mo 202.031  Recovery = 100.61%
Na 589.592 Radial†       166.7      268.55 µg/L         11.285      268.55 ppb          11.285   4.20%
   QC value within limits for Na 589.592 Radial  Recovery = 89.52%
Ni 231.604†              167.3      5.1436 µg/L       0.52329      5.1436 ppb        0.52329  10.17%
   QC value within limits for Ni 231.604  Recovery = 102.87%
P 214.914†               193.0      144.65 µg/L         3.659      144.65 ppb          3.659   2.53%
   QC value within limits for P 214.914  Recovery = 96.43%
Pb 220.353†               60.9      9.8489 µg/L       0.84515      9.8489 ppb        0.84515   8.58%
   QC value within limits for Pb 220.353  Recovery = 98.49%
S 181.975 Axial†          60.0      104.56 µg/L         2.833      104.56 ppb          2.833   2.71%
   QC value within limits for S 181.975 Axial  Recovery = 104.56%
Sb 206.836†               30.6      10.042 µg/L        0.6630      10.042 ppb         0.6630   6.60%
   QC value within limits for Sb 206.836  Recovery = 100.42%
Se 196.026†               36.9      30.219 µg/L        4.1953      30.219 ppb         4.1953  13.88%
   QC value within limits for Se 196.026  Recovery = 100.73%
SiO2†                   1837.3      219.24 µg/L         2.984      219.24 ppb          2.984   1.36%
   QC value within limits for SiO2  Recovery = 102.93%
Si 251.611†             2140.3      100.10 µg/L         0.124      100.10 ppb          0.124   0.12%
   QC value within limits for Si 251.611  Recovery = 100.10%
Sn 189.927†               47.2      10.305 µg/L        1.2345      10.305 ppb         1.2345  11.98%
   QC value within limits for Sn 189.927  Recovery = 103.05%
Sr 421.552†             1133.1      5.2034 µg/L       0.05933      5.2034 ppb        0.05933   1.14%
   QC value within limits for Sr 421.552  Recovery = 104.07%
Ti 334.940†             2146.2      5.2859 µg/L       0.17676      5.2859 ppb        0.17676   3.34%
   QC value within limits for Ti 334.940  Recovery = 105.72%
Tl 190.801†               60.5      21.164 µg/L        1.1986      21.164 ppb         1.1986   5.66%
   QC value within limits for Tl 190.801  Recovery = 105.82%
U 367.007†               195.3       52.07 µg/L         2.133       52.07 ppb          2.133   4.10%
   QC value within limits for U 367.007  Recovery = 104.14%
V 292.402†               526.9      5.1510 µg/L       0.01024      5.1510 ppb        0.01024   0.20%
   QC value within limits for V 292.402  Recovery = 103.02%
Zn 213.857†             1092.5      10.333 µg/L        0.0368      10.333 ppb         0.0368   0.36%
   QC value within limits for Zn 213.857  Recovery = 103.33%
All analyte(s) passed QC.
```

Sequence No.: 9 **Autosampler Location: 103**
Sample ID: ICSA **Date Collected: 6/13/2012 6:40:56**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSA

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20214.7	20214.7	96.8	%			06:41:31
1	Al 396.153Radial†	1704010.4	1760366.8	502960	µg/L	502960	ppb	06:41:26
1	Ca 317.933Radial†	1016044.5	1049487.1	477400	µg/L	477400	ppb	06:41:26
1	Fe 238.204 Radial†	337356.4	348465.0	182210	µg/L	182210	ppb	06:41:26
1	K 766.490 Radial†	780.5	-54.3	24.031	µg/L	24.031	ppb	06:41:31
1	Mg 279.077 IEC†	98556.3	101809.6	478410	µg/L	478410	ppb	06:41:31
1	Na 589.592 Radial†	-126.6	13.7	22.030	µg/L	22.030	ppb	06:41:31
1	Sr 421.552†	-809.3	476.5	0.0204	µg/L	0.0204	ppb	06:41:31
1	Sc 361.383	614837.8	614837.8	91.155	%			06:41:58
1	Y 371.029	526083.4	526083.4	90.580	%			06:41:58
1	Ag 328.068†	-7382.2	-7470.9	-0.8814	µg/L	-0.8814	ppb	06:42:18
1	As 188.979†	-15.8	-9.2	0.1148	µg/L	0.1148	ppb	06:42:18
1	B 249.677†	1120.6	1147.4	5.9034	µg/L	5.9034	ppb	06:41:58
1	Ba 233.527†	378.8	547.9	-0.7789	µg/L	-0.7789	ppb	06:42:18
1	Be 313.107†	-13702.1	-7380.7	0.2458	µg/L	0.2458	ppb	06:41:58
1	Cd 226.502†	1641.9	2028.0	0.0651	µg/L	0.0651	ppb	06:42:18
1	Co 228.616†	0.6	31.7	0.5032	µg/L	0.5032	ppb	06:42:18
1	Cr 267.716†	-126.3	-364.2	-0.4107	µg/L	-0.4107	ppb	06:42:18
1	Cu 324.752†	-856.8	-6495.1	-1.2502	µg/L	-1.2502	ppb	06:42:18
1	Mn 257.610†	-914.2	-1419.4	0.6832	µg/L	0.6832	ppb	06:41:58
1	Mo 202.031†	-68.9	-105.7	0.3131	µg/L	0.3131	ppb	06:42:18
1	Ni 231.604†	-184.8	-174.8	-2.3409	µg/L	-2.3409	ppb	06:42:18
1	P 214.914†	212.3	106.0	105.46	µg/L	105.46	ppb	06:42:18
1	Pb 220.353†	988.8	919.3	0.8182	µg/L	0.8182	ppb	06:42:18
1	S 181.975 Axial†	140.8	97.2	13.085	µg/L	13.085	ppb	06:42:18
1	Sb 206.836†	119.2	66.8	2.3862	µg/L	2.3862	ppb	06:42:18
1	Se 196.026†	-127.1	-133.1	-16.246	µg/L	-16.246	ppb	06:42:18
1	SiO2†	2630.6	65.1	41.372	µg/L	41.372	ppb	06:42:18
1	Si 251.611†	157.9	-22.5	-2.9313	µg/L	-2.9313	ppb	06:42:18
1	Sn 189.927†	-223.5	-271.6	-6.8590	µg/L	-6.8590	ppb	06:42:18
1	Ti 334.940†	-3528.1	-3660.1	-0.8792	µg/L	-0.8792	ppb	06:41:58
1	Tl 190.801†	-59.2	-23.6	4.1203	µg/L	4.1203	ppb	06:42:18
1	U 367.007†	3454.5	3448.4	15.77	µg/L	15.77	ppb	06:41:58
1	V 292.402†	-340.0	-181.9	-0.6494	µg/L	-0.6494	ppb	06:42:18
1	Zn 213.857†	4007.2	3137.7	0.1970	µg/L	0.1970	ppb	06:42:18
2	Sc RADIAL	20184.0	20184.0	96.7	%			06:41:41
2	Al 396.153Radial†	1721505.9	1781146.9	508890	µg/L	508890	ppb	06:41:36
2	Ca 317.933Radial†	1029479.8	1064984.9	484440	µg/L	484440	ppb	06:41:36
2	Fe 238.204 Radial†	341509.5	353292.3	184740	µg/L	184740	ppb	06:41:36
2	K 766.490 Radial†	768.6	-65.5	19.544	µg/L	19.544	ppb	06:41:41
2	Mg 279.077 IEC†	98185.9	101581.3	477340	µg/L	477340	ppb	06:41:41
2	Na 589.592 Radial†	-166.7	-28.0	-45.058	µg/L	-45.058	ppb	06:41:41
2	Sr 421.552†	-739.3	547.6	0.3152	µg/L	0.3152	ppb	06:41:41
2	Sc 361.383	616134.0	616134.0	91.347	%			06:42:23
2	Y 371.029	527560.1	527560.1	90.834	%			06:42:23
2	Ag 328.068†	-7457.8	-7536.6	-0.6499	µg/L	-0.6499	ppb	06:42:44
2	As 188.979†	-12.4	-5.4	2.3360	µg/L	2.3360	ppb	06:42:44
2	B 249.677†	1115.8	1139.7	5.3187	µg/L	5.3187	ppb	06:42:23
2	Ba 233.527†	390.9	560.2	-0.7488	µg/L	-0.7488	ppb	06:42:44
2	Be 313.107†	-13693.5	-7339.6	0.3287	µg/L	0.3287	ppb	06:42:23
2	Cd 226.502†	1673.0	2058.3	0.0980	µg/L	0.0980	ppb	06:42:44
2	Co 228.616†	1.9	33.2	0.5368	µg/L	0.5368	ppb	06:42:44
2	Cr 267.716†	-143.6	-382.9	-0.7501	µg/L	-0.7501	ppb	06:42:44
2	Cu 324.752†	-893.9	-6533.8	-1.0276	µg/L	-1.0276	ppb	06:42:44
2	Mn 257.610†	-1031.0	-1545.1	0.7672	µg/L	0.7672	ppb	06:42:23
2	Mo 202.031†	-69.2	-105.9	0.4037	µg/L	0.4037	ppb	06:42:44
2	Ni 231.604†	-163.5	-151.0	-1.5683	µg/L	-1.5683	ppb	06:42:44
2	P 214.914†	200.4	92.5	95.351	µg/L	95.351	ppb	06:42:44
2	Pb 220.353†	996.0	924.8	0.1790	µg/L	0.1790	ppb	06:42:44

2	S 181.975 Axial†	131.0	86.2	-8.1632 µg/L	-8.1632 ppb		06:42:44
2	Sb 206.836†	88.5	32.9	-8.9071 µg/L	-8.9071 ppb		06:42:44
2	Se 196.026†	-106.1	-109.8	4.0012 µg/L	4.0012 ppb		06:42:44
2	SiO2†	2578.0	1.5	33.977 µg/L	33.977 ppb		06:42:44
2	Si 251.611†	126.2	-57.5	-4.5956 µg/L	-4.5956 ppb		06:42:44
2	Sn 189.927†	-232.5	-280.9	-8.1770 µg/L	-8.1770 ppb		06:42:44
2	Ti 334.940†	-3503.0	-3624.6	-0.5886 µg/L	-0.5886 ppb		06:42:23
2	Tl 190.801†	-60.5	-24.8	3.8369 µg/L	3.8369 ppb		06:42:44
2	U 367.007†	3418.9	3401.5	-9.530 µg/L	-9.530 ppb		06:42:23
2	V 292.402†	-281.1	-116.6	-0.0375 µg/L	-0.0375 ppb		06:42:44
2	Zn 213.857†	4037.1	3161.2	0.0000 µg/L	0.0000 ppb		06:42:44
3	Sc RADIAL	20052.5	20052.5	96.0 %			06:41:51
3	Al 396.153Radial†	1713074.0	1784050.2	509720 µg/L	509720 ppb		06:41:46
3	Ca 317.933Radial†	1020817.1	1062951.0	483520 µg/L	483520 ppb		06:41:46
3	Fe 238.204 Radial†	339331.8	353342.4	184760 µg/L	184760 ppb		06:41:46
3	K 766.490 Radial†	795.4	-32.4	34.924 µg/L	34.924 ppb		06:41:51
3	Mg 279.077 IEC†	98707.6	102791.1	483030 µg/L	483030 ppb		06:41:51
3	Na 589.592 Radial†	-134.2	4.7	7.5903 µg/L	7.5903 ppb		06:41:51
3	Sr 421.552†	-725.3	557.2	0.3636 µg/L	0.3636 ppb		06:41:51
3	Sc 361.383	618890.8	618890.8	91.756 %			06:42:49
3	Y 371.029	529885.3	529885.3	91.234 %			06:42:49
3	Ag 328.068†	-7492.7	-7538.3	-0.6534 µg/L	-0.6534 ppb		06:43:09
3	As 188.979†	-10.3	-3.1	3.6608 µg/L	3.6608 ppb		06:43:09
3	B 249.677†	1143.7	1164.6	6.0192 µg/L	6.0192 ppb		06:42:49
3	Ba 233.527†	375.2	541.3	-0.9103 µg/L	-0.9103 ppb		06:43:09
3	Be 313.107†	-13785.4	-7373.0	0.3019 µg/L	0.3019 ppb		06:42:49
3	Cd 226.502†	1657.4	2033.1	-0.2665 µg/L	-0.2665 ppb		06:43:09
3	Co 228.616†	-7.4	23.0	0.2807 µg/L	0.2807 ppb		06:43:09
3	Cr 267.716†	-116.3	-352.4	-0.0686 µg/L	-0.0686 ppb		06:43:09
3	Cu 324.752†	-871.0	-6504.5	-0.8998 µg/L	-0.8998 ppb		06:43:09
3	Mn 257.610†	-949.9	-1451.7	0.7371 µg/L	0.7371 ppb		06:42:49
3	Mo 202.031†	-60.7	-96.3	1.0527 µg/L	1.0527 ppb		06:43:09
3	Ni 231.604†	-181.1	-169.4	-2.1335 µg/L	-2.1335 ppb		06:43:09
3	P 214.914†	210.7	102.9	103.33 µg/L	103.33 ppb		06:43:09
3	Pb 220.353†	1001.5	926.0	-0.0916 µg/L	-0.0916 ppb		06:43:09
3	S 181.975 Axial†	124.0	77.8	-22.807 µg/L	-22.807 ppb		06:43:09
3	Sb 206.836†	100.7	45.7	-4.7530 µg/L	-4.7530 ppb		06:43:09
3	Se 196.026†	-117.5	-121.7	-5.6843 µg/L	-5.6843 ppb		06:43:09
3	SiO2†	2591.9	4.0	34.310 µg/L	34.310 ppb		06:43:09
3	Si 251.611†	156.1	-25.6	-3.1161 µg/L	-3.1161 ppb		06:43:09
3	Sn 189.927†	-223.8	-270.3	-5.8618 µg/L	-5.8618 ppb		06:43:09
3	Ti 334.940†	-3499.5	-3603.6	-0.6107 µg/L	-0.6107 ppb		06:42:49
3	Tl 190.801†	-62.4	-26.6	3.2364 µg/L	3.2364 ppb		06:43:09
3	U 367.007†	3436.6	3404.1	-8.907 µg/L	-8.907 ppb		06:42:49
3	V 292.402†	-274.0	-107.5	0.0585 µg/L	0.0585 ppb		06:43:09
3	Zn 213.857†	4055.0	3161.0	0.0075 µg/L	0.0075 ppb		06:43:09

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	616620.9	91.419	%	0.3069				0.34%
Sc RADIAL	20150.4	96.5	%	0.41				0.43%
Y 371.029	527842.9	90.882	%	0.3300				0.36%
Ag 328.068†	-7515.3	-0.7282	µg/L	0.13268	-0.7282	ppb	0.13268	18.22%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	1775188.0	507190	µg/L	3690.6	507190	ppb	3690.6	0.73%
QC value within limits for Al 396.153Radial Recovery = 101.44%								
As 188.979†	-5.9	2.0372	µg/L	1.79178	2.0372	ppb	1.79178	87.95%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	1150.6	5.7471	µg/L	0.37546	5.7471	ppb	0.37546	6.53%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	549.8	-0.8126	µg/L	0.08586	-0.8126	ppb	0.08586	10.57%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-7364.4	0.2921	µg/L	0.04235	0.2921	ppb	0.04235	14.50%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	1059141.0	481790	µg/L	3831.1	481790	ppb	3831.1	0.80%
QC value within limits for Ca 317.933Radial Recovery = 96.36%								
Cd 226.502†	2039.8	-0.0345	µg/L	0.20165	-0.0345	ppb	0.20165	585.12%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	29.3	0.4402	µg/L	0.13913	0.4402	ppb	0.13913	31.60%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†            -366.5     -0.4098 µg/L       0.34077     -0.4098 ppb        0.34077  83.16%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†           -6511.2     -1.0592 µg/L       0.17734     -1.0592 ppb        0.17734  16.74%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†    351699.9      183900 µg/L        1464.9      183900 ppb         1464.9   0.80%
   QC value within limits for Fe 238.204 Radial  Recovery = 91.95%
K 766.490 Radial†        -50.7      26.166 µg/L        7.9095      26.166 ppb         7.9095  30.23%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†       102060.7      479590 µg/L        3020.4      479590 ppb         3020.4   0.63%
   QC value within limits for Mg 279.077 IEC  Recovery = 95.92%
Mn 257.610†           -1472.1      0.7291 µg/L       0.04256      0.7291 ppb        0.04256   5.84%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†            -102.7      0.5898 µg/L       0.40338      0.5898 ppb        0.40338  68.39%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -3.2     -5.1458 µg/L      35.31079     -5.1458 ppb       35.31079 686.20%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†            -165.1     -2.0143 µg/L       0.39986     -2.0143 ppb        0.39986  19.85%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†              100.5      101.38 µg/L         5.328      101.38 ppb          5.328   5.26%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†             923.4      0.3018 µg/L       0.46720      0.3018 ppb        0.46720 154.78%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         87.1     -5.9619 µg/L      18.04672     -5.9619 ppb       18.04672 302.70%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              48.5     -3.7580 µg/L       5.71201     -3.7580 ppb        5.71201 152.00%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†            -121.5     -5.9765 µg/L      10.12684     -5.9765 ppb       10.12684 169.45%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    23.5      36.553 µg/L        4.1768      36.553 ppb         4.1768  11.43%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -35.2     -3.5477 µg/L       0.91223     -3.5477 ppb        0.91223  25.71%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†            -274.3     -6.9659 µg/L       1.16128     -6.9659 ppb        1.16128  16.67%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             527.1      0.2331 µg/L       0.18575      0.2331 ppb        0.18575  79.70%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†           -3629.4     -0.6928 µg/L       0.16176     -0.6928 ppb        0.16176  23.35%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†             -25.0      3.7312 µg/L       0.45134      3.7312 ppb        0.45134  12.10%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†             3418.0      -0.890 µg/L       14.4283      -0.890 ppb        14.4283 >999.9%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†             -135.3     -0.2095 µg/L       0.38398     -0.2095 ppb        0.38398 183.29%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†            3153.3      0.0682 µg/L       0.11164      0.0682 ppb        0.11164 163.77%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 10 **Autosampler Location: 104**
Sample ID: ICSAB **Date Collected: 6/13/2012 6:43:17**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSAB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20097.4	20097.4	96.2	%			06:43:51
1	Al 396.153Radial†	1703056.7	1769657.1	505590	µg/L	505590	ppb	06:43:46
1	Ca 317.933Radial†	994548.6	1033282.0	470020	µg/L	470020	ppb	06:43:46
1	Fe 238.204 Radial†	334667.7	347706.8	181820	µg/L	181820	ppb	06:43:46
1	K 766.490 Radial†	12565.1	12195.2	5680.2	µg/L	5680.2	ppb	06:43:51
1	Mg 279.077 IEC†	98894.9	102756.1	482870	µg/L	482870	ppb	06:43:51
1	Na 589.592 Radial†	3068.6	3333.0	5370.7	µg/L	5370.7	ppb	06:43:51
1	Sr 421.552†	109008.8	114579.2	524.14	µg/L	524.14	ppb	06:43:46
1	Sc 361.383	627382.8	627382.8	93.015	%			06:44:19
1	Y 371.029	536533.4	536533.4	92.379	%			06:44:19
1	Ag 328.068†	33441.6	36580.5	281.85	µg/L	281.85	ppb	06:44:19
1	As 188.979†	859.9	932.6	539.00	µg/L	539.00	ppb	06:44:39
1	B 249.677†	19300.4	20667.9	554.07	µg/L	554.07	ppb	06:44:19
1	Ba 233.527†	57388.8	61830.7	519.68	µg/L	519.68	ppb	06:44:19
1	Be 313.107†	414248.2	453007.2	260.16	µg/L	260.16	ppb	06:44:19
1	Cd 226.502†	33644.9	36398.3	490.73	µg/L	490.73	ppb	06:44:19
1	Co 228.616†	17095.6	18410.4	463.81	µg/L	463.81	ppb	06:44:39
1	Cr 267.716†	22837.8	24327.2	502.58	µg/L	502.58	ppb	06:44:39
1	Cu 324.752†	125992.7	129899.0	580.22	µg/L	580.22	ppb	06:44:19
1	Mn 257.610†	314654.0	337866.5	505.32	µg/L	505.32	ppb	06:44:19
1	Mo 202.031†	7058.6	7558.5	517.37	µg/L	517.37	ppb	06:44:39
1	Ni 231.604†	13892.6	14963.9	462.99	µg/L	462.99	ppb	06:44:39
1	P 214.914†	3514.8	3651.9	2752.9	µg/L	2752.9	ppb	06:44:39
1	Pb 220.353†	3758.4	3875.2	480.75	µg/L	480.75	ppb	06:44:39
1	S 181.975 Axial†	1619.7	1684.1	2783.5	µg/L	2783.5	ppb	06:44:39
1	Sb 206.836†	1612.1	1669.1	522.49	µg/L	522.49	ppb	06:44:39
1	Se 196.026†	2709.4	2919.3	2472.8	µg/L	2472.8	ppb	06:44:39
1	SiO2†	95398.4	99741.6	11917	µg/L	11917	ppb	06:44:19
1	Si 251.611†	110153.5	118229.9	5528.5	µg/L	5528.5	ppb	06:44:19
1	Sn 189.927†	1956.6	2077.1	505.80	µg/L	505.80	ppb	06:44:39
1	Ti 334.940†	199158.9	214325.1	537.70	µg/L	537.70	ppb	06:44:19
1	Tl 190.801†	1182.9	1313.2	472.61	µg/L	472.61	ppb	06:44:39
1	U 367.007†	5200.3	5249.5	504.1	µg/L	504.1	ppb	06:44:19
1	V 292.402†	52119.9	56224.9	540.16	µg/L	540.16	ppb	06:44:19
1	Zn 213.857†	54225.5	57039.2	509.52	µg/L	509.52	ppb	06:44:19
2	Sc RADIAL	20193.2	20193.2	96.7	%			06:44:02
2	Al 396.153Radial†	1721794.2	1780632.2	508730	µg/L	508730	ppb	06:43:57
2	Ca 317.933Radial†	1005342.4	1039537.6	472870	µg/L	472870	ppb	06:43:57
2	Fe 238.204 Radial†	338207.1	349716.0	182870	µg/L	182870	ppb	06:43:57
2	K 766.490 Radial†	12594.7	12163.8	5665.9	µg/L	5665.9	ppb	06:44:02
2	Mg 279.077 IEC†	98840.5	102212.0	480310	µg/L	480310	ppb	06:44:02
2	Na 589.592 Radial†	2997.1	3243.9	5227.2	µg/L	5227.2	ppb	06:44:02
2	Sr 421.552†	110041.2	115109.0	526.56	µg/L	526.56	ppb	06:43:57
2	Sc 361.383	630079.5	630079.5	93.415	%			06:44:45
2	Y 371.029	539246.4	539246.4	92.846	%			06:44:45
2	Ag 328.068†	33618.5	36616.0	282.36	µg/L	282.36	ppb	06:44:45
2	As 188.979†	867.6	936.9	541.46	µg/L	541.46	ppb	06:45:05
2	B 249.677†	19469.3	20759.9	556.51	µg/L	556.51	ppb	06:44:45
2	Ba 233.527†	57986.4	62206.4	522.84	µg/L	522.84	ppb	06:44:45
2	Be 313.107†	418482.8	455634.3	261.67	µg/L	261.67	ppb	06:44:45
2	Cd 226.502†	34008.5	36632.7	493.91	µg/L	493.91	ppb	06:44:45
2	Co 228.616†	17153.7	18394.0	463.39	µg/L	463.39	ppb	06:45:05
2	Cr 267.716†	22922.8	24313.1	502.27	µg/L	502.27	ppb	06:45:05
2	Cu 324.752†	126647.2	130019.8	580.88	µg/L	580.88	ppb	06:44:45
2	Mn 257.610†	317698.8	339678.2	508.20	µg/L	508.20	ppb	06:44:45
2	Mo 202.031†	7063.6	7531.4	515.58	µg/L	515.58	ppb	06:45:05
2	Ni 231.604†	13963.1	14975.4	463.36	µg/L	463.36	ppb	06:45:05
2	P 214.914†	3505.0	3625.3	2733.1	µg/L	2733.1	ppb	06:45:05
2	Pb 220.353†	3743.7	3842.2	474.43	µg/L	474.43	ppb	06:45:05

2	S 181.975 Axial†	1640.3	1698.7	2807.9 µg/L	2807.9 ppb	06:45:05
2	Sb 206.836†	1619.8	1670.0	522.64 µg/L	522.64 ppb	06:45:05
2	Se 196.026†	2722.0	2920.2	2474.1 µg/L	2474.1 ppb	06:45:05
2	SiO2†	96018.8	99966.8	11944 µg/L	11944 ppb	06:44:45
2	Si 251.611†	111091.6	118727.3	5551.8 µg/L	5551.8 ppb	06:44:45
2	Sn 189.927†	1961.6	2073.5	505.32 µg/L	505.32 ppb	06:45:05
2	Ti 334.940†	200481.2	214824.3	539.03 µg/L	539.03 ppb	06:44:45
2	Tl 190.801†	1188.5	1313.7	472.89 µg/L	472.89 ppb	06:45:05
2	U 367.007†	5259.9	5289.4	509.6 µg/L	509.6 ppb	06:44:45
2	V 292.402†	52543.1	56438.2	542.16 µg/L	542.16 ppb	06:44:45
2	Zn 213.857†	54821.0	57427.2	513.03 µg/L	513.03 ppb	06:44:45
3	Sc RADIAL	20191.2	20191.2	96.7 %		06:44:12
3	Al 396.153Radial†	1708767.7	1767337.0	504930 µg/L	504930 ppb	06:44:07
3	Ca 317.933Radial†	996061.1	1030042.0	468550 µg/L	468550 ppb	06:44:07
3	Fe 238.204 Radial†	335210.1	346651.2	181270 µg/L	181270 ppb	06:44:07
3	K 766.490 Radial†	12638.1	12210.1	5686.9 µg/L	5686.9 ppb	06:44:12
3	Mg 279.077 IEC†	98762.7	102141.6	479980 µg/L	479980 ppb	06:44:12
3	Na 589.592 Radial†	3038.0	3286.4	5295.8 µg/L	5295.8 ppb	06:44:12
3	Sr 421.552†	109348.0	114403.4	523.34 µg/L	523.34 ppb	06:44:07
3	Sc 361.383	624213.6	624213.6	92.545 %		06:45:11
3	Y 371.029	534199.8	534199.8	91.977 %		06:45:11
3	Ag 328.068†	33415.6	36735.0	282.70 µg/L	282.70 ppb	06:45:11
3	As 188.979†	860.3	937.7	541.91 µg/L	541.91 ppb	06:45:31
3	B 249.677†	19343.3	20819.6	558.41 µg/L	558.41 ppb	06:45:11
3	Ba 233.527†	57366.9	62120.4	522.16 µg/L	522.16 ppb	06:45:11
3	Be 313.107†	413916.8	454910.3	261.23 µg/L	261.23 ppb	06:45:11
3	Cd 226.502†	33649.2	36586.6	493.50 µg/L	493.50 ppb	06:45:11
3	Co 228.616†	17125.0	18535.6	466.96 µg/L	466.96 ppb	06:45:31
3	Cr 267.716†	22859.0	24474.8	505.53 µg/L	505.53 ppb	06:45:31
3	Cu 324.752†	125585.8	130146.9	581.18 µg/L	581.18 ppb	06:45:11
3	Mn 257.610†	314228.4	339124.2	507.23 µg/L	507.23 ppb	06:45:11
3	Mo 202.031†	7050.9	7588.7	519.39 µg/L	519.39 ppb	06:45:31
3	Ni 231.604†	13917.3	15066.4	466.13 µg/L	466.13 ppb	06:45:31
3	P 214.914†	3531.9	3689.6	2781.4 µg/L	2781.4 ppb	06:45:31
3	Pb 220.353†	3756.0	3893.1	483.73 µg/L	483.73 ppb	06:45:31
3	S 181.975 Axial†	1616.1	1689.1	2792.5 µg/L	2792.5 ppb	06:45:31
3	Sb 206.836†	1614.1	1680.1	526.05 µg/L	526.05 ppb	06:45:31
3	Se 196.026†	2711.8	2936.6	2486.7 µg/L	2486.7 ppb	06:45:31
3	SiO2†	95186.9	100033.8	11952 µg/L	11952 ppb	06:45:11
3	Si 251.611†	109885.2	118541.2	5543.0 µg/L	5543.0 ppb	06:45:11
3	Sn 189.927†	1938.0	2067.7	503.62 µg/L	503.62 ppb	06:45:31
3	Ti 334.940†	198698.8	214915.1	539.14 µg/L	539.14 ppb	06:45:11
3	Tl 190.801†	1192.4	1329.9	478.43 µg/L	478.43 ppb	06:45:31
3	U 367.007†	5228.3	5308.2	522.7 µg/L	522.7 ppb	06:45:11
3	V 292.402†	51943.5	56318.8	541.09 µg/L	541.09 ppb	06:45:11
3	Zn 213.857†	54093.9	57193.0	511.05 µg/L	511.05 ppb	06:45:11

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	627225.3	92.992	%	0.4353				0.47%
Sc RADIAL	20160.6	96.5	%	0.26				0.27%
Y 371.029	536659.9	92.401	%	0.4349				0.47%
Ag 328.068†	36643.8	282.30	µg/L	0.425	282.30	ppb	0.425	0.15%
QC value within limits for Ag 328.068 Recovery = 112.92%								
Al 396.153Radial†	1772542.1	506410	µg/L	2029.1	506410	ppb	2029.1	0.40%
QC value within limits for Al 396.153Radial Recovery = 101.28%								
As 188.979†	935.7	540.79	µg/L	1.565	540.79	ppb	1.565	0.29%
QC value within limits for As 188.979 Recovery = 108.16%								
B 249.677†	20749.2	556.33	µg/L	2.176	556.33	ppb	2.176	0.39%
QC value within limits for B 249.677 Recovery = 111.27%								
Ba 233.527†	62052.5	521.56	µg/L	1.661	521.56	ppb	1.661	0.32%
QC value within limits for Ba 233.527 Recovery = 104.31%								
Be 313.107†	454517.3	261.02	µg/L	0.776	261.02	ppb	0.776	0.30%
QC value within limits for Be 313.107 Recovery = 104.41%								
Ca 317.933Radial†	1034287.2	470480	µg/L	2195.7	470480	ppb	2195.7	0.47%
QC value within limits for Ca 317.933Radial Recovery = 94.10%								
Cd 226.502†	36539.2	492.71	µg/L	1.731	492.71	ppb	1.731	0.35%
QC value within limits for Cd 226.502 Recovery = 98.54%								
Co 228.616†	18446.7	464.72	µg/L	1.955	464.72	ppb	1.955	0.42%

QC value within limits for Co 228.616 Recovery = 92.94%

Cr 267.716†	24371.7	503.46 µg/L	1.800	503.46 ppb	1.800	0.36%

QC value within limits for Cr 267.716 Recovery = 100.69%

Cu 324.752†	130021.9	580.76 µg/L	0.494	580.76 ppb	0.494	0.09%

QC value within limits for Cu 324.752 Recovery = 116.15%

Fe 238.204 Radial†	348024.6	181990 µg/L	814.1	181990 ppb	814.1	0.45%

QC value within limits for Fe 238.204 Radial Recovery = 90.99%

K 766.490 Radial†	12189.7	5677.7 µg/L	10.71	5677.7 ppb	10.71	0.19%

QC value within limits for K 766.490 Radial Recovery = 113.55%

Mg 279.077 IEC†	102369.9	481050 µg/L	1580.2	481050 ppb	1580.2	0.33%

QC value within limits for Mg 279.077 IEC Recovery = 96.21%

Mn 257.610†	338889.6	506.92 µg/L	1.461	506.92 ppb	1.461	0.29%

QC value within limits for Mn 257.610 Recovery = 101.38%

Mo 202.031†	7559.5	517.45 µg/L	1.902	517.45 ppb	1.902	0.37%

QC value within limits for Mo 202.031 Recovery = 103.49%

Na 589.592 Radial†	3287.8	5297.9 µg/L	71.79	5297.9 ppb	71.79	1.36%

QC value within limits for Na 589.592 Radial Recovery = 105.96%

Ni 231.604†	15001.9	464.16 µg/L	1.717	464.16 ppb	1.717	0.37%

QC value within limits for Ni 231.604 Recovery = 92.83%

P 214.914†	3655.6	2755.8 µg/L	24.26	2755.8 ppb	24.26	0.88%

QC value within limits for P 214.914 Recovery = 110.23%

Pb 220.353†	3870.2	479.64 µg/L	4.752	479.64 ppb	4.752	0.99%

QC value within limits for Pb 220.353 Recovery = 95.93%

S 181.975 Axial†	1690.6	2794.6 µg/L	12.37	2794.6 ppb	12.37	0.44%

QC value within limits for S 181.975 Axial Recovery = 111.78%

Sb 206.836†	1673.1	523.73 µg/L	2.016	523.73 ppb	2.016	0.39%

QC value within limits for Sb 206.836 Recovery = 104.75%

Se 196.026†	2925.4	2477.9 µg/L	7.68	2477.9 ppb	7.68	0.31%

QC value within limits for Se 196.026 Recovery = 99.12%

SiO2†	99914.1	11938 µg/L	18.3	11938 ppb	18.3	0.15%

QC value within limits for SiO2 Recovery = 111.62%

Si 251.611†	118499.4	5541.1 µg/L	11.78	5541.1 ppb	11.78	0.21%

QC value within limits for Si 251.611 Recovery = 110.82%

Sn 189.927†	2072.7	504.92 µg/L	1.148	504.92 ppb	1.148	0.23%

QC value within limits for Sn 189.927 Recovery = 100.98%

Sr 421.552†	114697.2	524.68 µg/L	1.677	524.68 ppb	1.677	0.32%

QC value within limits for Sr 421.552 Recovery = 104.94%

Ti 334.940†	214688.2	538.62 µg/L	0.800	538.62 ppb	0.800	0.15%

QC value within limits for Ti 334.940 Recovery = 107.72%

Tl 190.801†	1318.9	474.64 µg/L	3.281	474.64 ppb	3.281	0.69%

QC value within limits for Tl 190.801 Recovery = 94.93%

U 367.007†	5282.3	512.1 µg/L	9.54	512.1 ppb	9.54	1.86%

QC value within limits for U 367.007 Recovery = 102.42%

V 292.402†	56327.3	541.14 µg/L	1.004	541.14 ppb	1.004	0.19%

QC value within limits for V 292.402 Recovery = 108.23%

Zn 213.857†	57219.8	511.20 µg/L	1.762	511.20 ppb	1.762	0.34%

QC value within limits for Zn 213.857 Recovery = 102.24%

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location: 105**
Sample ID: LR1 **Date Collected: 6/13/2012 6:45:39**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20273.5	20273.5	97.1	%			06:46:13
1	Al 396.153Radial†	1684830.5	1735507.3	495850	µg/L	495850	ppb	06:46:08
1	Ca 317.933Radial†	1008261.8	1038427.6	472360	µg/L	472360	ppb	06:46:08
1	Fe 238.204 Radial†	816041.8	840515.3	439500	µg/L	439500	ppb	06:46:08
1	K 766.490 Radial†	796.6	-40.1	146.84	µg/L	146.84	ppb	06:46:13
1	Mg 279.077 IEC†	98210.5	101158.2	475470	µg/L	475470	ppb	06:46:13
1	Na 589.592 Radial†	287126.4	295893.5	476800	µg/L	476800	ppb	06:46:08
1	Sr 421.552†	-495.9	801.7	1.5371	µg/L	1.5371	ppb	06:46:13
1	Sc 361.383	632492.2	632492.2	93.773	%			06:46:41
1	Y 371.029	537948.1	537948.1	92.622	%			06:46:41
1	Ag 328.068†	-18053.2	-18624.5	-6.0293	µg/L	-6.0293	ppb	06:46:41
1	As 188.979†	-35.9	-30.2	-4.2230	µg/L	-4.2230	ppb	06:47:02
1	B 249.677†	2333.8	2407.0	4.1366	µg/L	4.1366	ppb	06:46:41
1	Ba 233.527†	963.4	1159.8	-3.2667	µg/L	-3.2667	ppb	06:47:02
1	Be 313.107†	-19889.3	-13559.2	-0.0574	µg/L	-0.0574	ppb	06:46:41
1	Cd 226.502†	4418.8	4939.0	0.8344	µg/L	0.8344	ppb	06:46:41
1	Co 228.616†	149.0	189.9	4.0329	µg/L	4.0329	ppb	06:47:02
1	Cr 267.716†	612.7	427.7	3.7291	µg/L	3.7291	ppb	06:47:02
1	Cu 324.752†	-8886.0	-15031.4	-12.803	µg/L	-12.803	ppb	06:46:41
1	Mn 257.610†	-17062.9	-18612.6	-0.4704	µg/L	-0.4704	ppb	06:46:41
1	Mo 202.031†	-174.8	-216.6	3.3507	µg/L	3.3507	ppb	06:47:02
1	Ni 231.604†	-284.6	-275.5	-1.1556	µg/L	-1.1556	ppb	06:47:02
1	P 214.914†	730.3	652.0	330.88	µg/L	330.88	ppb	06:47:02
1	Pb 220.353†	1024.5	927.1	28.676	µg/L	28.676	ppb	06:47:02
1	S 181.975 Axial†	27540.8	29312.5	50992	µg/L	50992	ppb	06:47:02
1	Sb 206.836†	105.3	48.3	3.7867	µg/L	3.7867	ppb	06:47:02
1	Se 196.026†	-270.5	-282.1	16.631	µg/L	16.631	ppb	06:47:02
1	SiO2†	1111.5	-1635.4	66.062	µg/L	66.062	ppb	06:47:02
1	Si 251.611†	-638.3	-876.3	-45.984	µg/L	-45.984	ppb	06:47:02
1	Sn 189.927†	-191.2	-230.3	22.923	µg/L	22.923	ppb	06:47:02
1	Ti 334.940†	-1029.1	-887.1	-1.4749	µg/L	-1.4749	ppb	06:46:41
1	Tl 190.801†	-76.7	-40.4	22.751	µg/L	22.751	ppb	06:47:02
1	U 367.007†	60121.7	63773.2	15000	µg/L	15000	ppb	06:46:41
1	V 292.402†	-1698.8	-1620.5	-0.3627	µg/L	-0.3627	ppb	06:46:41
1	Zn 213.857†	7771.4	7029.1	2.4003	µg/L	2.4003	ppb	06:47:02
2	Sc RADIAL	20184.7	20184.7	96.7	%			06:46:24
2	Al 396.153Radial†	1693825.8	1752450.4	500690	µg/L	500690	ppb	06:46:19
2	Ca 317.933Radial†	1012017.0	1046882.8	476210	µg/L	476210	ppb	06:46:19
2	Fe 238.204 Radial†	819404.0	847692.6	443260	µg/L	443260	ppb	06:46:19
2	K 766.490 Radial†	857.0	26.0	178.85	µg/L	178.85	ppb	06:46:24
2	Mg 279.077 IEC†	97441.0	100807.3	473820	µg/L	473820	ppb	06:46:24
2	Na 589.592 Radial†	290533.8	300720.2	484580	µg/L	484580	ppb	06:46:19
2	Sr 421.552†	-490.9	804.6	1.5331	µg/L	1.5331	ppb	06:46:24
2	Sc 361.383	626293.5	626293.5	92.853	%			06:47:07
2	Y 371.029	533313.1	533313.1	91.824	%			06:47:07
2	Ag 328.068†	-17892.7	-18642.2	-5.1752	µg/L	-5.1752	ppb	06:47:07
2	As 188.979†	-47.0	-42.5	-11.145	µg/L	-11.145	ppb	06:47:27
2	B 249.677†	2294.5	2389.3	3.0985	µg/L	3.0985	ppb	06:47:07
2	Ba 233.527†	943.4	1148.4	-3.4731	µg/L	-3.4731	ppb	06:47:27
2	Be 313.107†	-19715.4	-13581.8	-0.0436	µg/L	-0.0436	ppb	06:47:07
2	Cd 226.502†	4384.1	4948.3	0.3727	µg/L	0.3727	ppb	06:47:07
2	Co 228.616†	146.1	188.4	3.9863	µg/L	3.9863	ppb	06:47:27
2	Cr 267.716†	629.6	452.5	4.3129	µg/L	4.3129	ppb	06:47:27
2	Cu 324.752†	-8715.4	-14941.4	-11.828	µg/L	-11.828	ppb	06:47:07
2	Mn 257.610†	-16904.3	-18621.9	-0.0796	µg/L	-0.0796	ppb	06:47:07
2	Mo 202.031†	-177.0	-220.8	3.2224	µg/L	3.2224	ppb	06:47:27
2	Ni 231.604†	-276.6	-270.0	-0.9212	µg/L	-0.9212	ppb	06:47:27
2	P 214.914†	727.6	656.8	333.28	µg/L	333.28	ppb	06:47:27
2	Pb 220.353†	1001.3	912.9	25.157	µg/L	25.157	ppb	06:47:27

2	S 181.975 Axial†	27628.1	29697.2	51662 µg/L	51662 ppb		06:47:27
2	Sb 206.836†	84.9	27.5	-3.2486 µg/L	-3.2486 ppb		06:47:27
2	Se 196.026†	-277.5	-292.5	9.9417 µg/L	9.9417 ppb		06:47:27
2	SiO2†	1115.2	-1619.7	67.974 µg/L	67.974 ppb		06:47:27
2	Si 251.611†	-642.7	-887.8	-46.551 µg/L	-46.551 ppb		06:47:27
2	Sn 189.927†	-204.0	-246.1	20.164 µg/L	20.164 ppb		06:47:27
2	Ti 334.940†	-1080.6	-953.5	-1.5054 µg/L	-1.5054 ppb		06:47:07
2	Tl 190.801†	-78.5	-43.1	22.010 µg/L	22.010 ppb		06:47:27
2	U 367.007†	59399.9	63630.4	14940 µg/L	14940 ppb		06:47:07
2	V 292.402†	-1558.4	-1487.2	0.8732 µg/L	0.8732 ppb		06:47:07
2	Zn 213.857†	7749.2	7087.2	2.4023 µg/L	2.4023 ppb		06:47:27
3	Sc RADIAL	20250.1	20250.1	97.0 %			06:46:34
3	Al 396.153Radial†	1679818.1	1732345.4	494950 µg/L	494950 ppb		06:46:29
3	Ca 317.933Radial†	1005937.2	1037231.4	471820 µg/L	471820 ppb		06:46:29
3	Fe 238.204 Radial†	813827.8	839204.3	438820 µg/L	438820 ppb		06:46:29
3	K 766.490 Radial†	841.5	7.1	168.40 µg/L	168.40 ppb		06:46:34
3	Mg 279.077 IEC†	97986.1	101043.8	474930 µg/L	474930 ppb		06:46:34
3	Na 589.592 Radial†	286182.7	295262.4	475790 µg/L	475790 ppb		06:46:29
3	Sr 421.552†	-507.3	789.4	1.4831 µg/L	1.4831 ppb		06:46:34
3	Sc 361.383	625059.7	625059.7	92.671 %			06:47:33
3	Y 371.029	531803.4	531803.4	91.564 %			06:47:33
3	Ag 328.068†	-17921.9	-18711.8	-6.7576 µg/L	-6.7576 ppb		06:47:33
3	As 188.979†	-36.3	-31.0	-4.7151 µg/L	-4.7151 ppb		06:47:53
3	B 249.677†	2118.5	2204.2	-1.4619 µg/L	-1.4619 ppb		06:47:33
3	Ba 233.527†	937.5	1143.9	-3.3803 µg/L	-3.3803 ppb		06:47:53
3	Be 313.107†	-19704.3	-13611.7	-0.0815 µg/L	-0.0815 ppb		06:47:33
3	Cd 226.502†	4389.2	4963.1	1.2868 µg/L	1.2868 ppb		06:47:33
3	Co 228.616†	142.5	184.8	3.9033 µg/L	3.9033 ppb		06:47:53
3	Cr 267.716†	648.2	473.8	4.6019 µg/L	4.6019 ppb		06:47:53
3	Cu 324.752†	-8731.2	-14977.0	-12.716 µg/L	-12.716 ppb		06:47:33
3	Mn 257.610†	-16742.9	-18483.5	-0.3271 µg/L	-0.3271 ppb		06:47:33
3	Mo 202.031†	-193.2	-238.7	1.8334 µg/L	1.8334 ppb		06:47:53
3	Ni 231.604†	-277.1	-271.0	-1.0266 µg/L	-1.0266 ppb		06:47:53
3	P 214.914†	726.1	656.7	334.64 µg/L	334.64 ppb		06:47:53
3	Pb 220.353†	997.1	910.5	26.196 µg/L	26.196 ppb		06:47:53
3	S 181.975 Axial†	27673.7	29805.2	51852 µg/L	51852 ppb		06:47:53
3	Sb 206.836†	87.0	29.9	-2.1966 µg/L	-2.1966 ppb		06:47:53
3	Se 196.026†	-268.1	-282.9	15.683 µg/L	15.683 ppb		06:47:53
3	SiO2†	1103.7	-1629.7	67.272 µg/L	67.272 ppb		06:47:53
3	Si 251.611†	-651.5	-898.7	-47.009 µg/L	-47.009 ppb		06:47:53
3	Sn 189.927†	-185.7	-226.8	23.548 µg/L	23.548 ppb		06:47:53
3	Ti 334.940†	-1205.9	-1090.9	-2.0120 µg/L	-2.0120 ppb		06:47:33
3	Tl 190.801†	-74.5	-38.9	23.226 µg/L	23.226 ppb		06:47:53
3	U 367.007†	59588.6	63960.2	15050 µg/L	15050 ppb		06:47:33
3	V 292.402†	-1665.0	-1605.6	-0.1959 µg/L	-0.1959 ppb		06:47:33
3	Zn 213.857†	7761.5	7117.0	3.3335 µg/L	3.3335 ppb		06:47:53

Mean Data: LR1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	627948.4	93.099	%	0.5905				0.63%
Sc RADIAL	20236.1	96.9	%	0.22				0.23%
Y 371.029	534354.9	92.004	%	0.5513				0.60%
Ag 328.068†	-18659.5	-5.9873	µg/L	0.79202	-5.9873	ppb	0.79202	13.23%
Al 396.153Radial†	1740101.0	497170	µg/L	3088.8	497170	ppb	3088.8	0.62%
QC value within limits for Al 396.153Radial Recovery = 99.43%								
As 188.979†	-34.6	-6.6942	µg/L	3.86203	-6.6942	ppb	3.86203	57.69%
B 249.677†	2333.5	1.9244	µg/L	2.97822	1.9244	ppb	2.97822	154.76%
Ba 233.527†	1150.7	-3.3734	µg/L	0.10337	-3.3734	ppb	0.10337	3.06%
Be 313.107†	-13584.3	-0.0608	µg/L	0.01921	-0.0608	ppb	0.01921	31.58%
Ca 317.933Radial†	1040847.2	473470	µg/L	2393.2	473470	ppb	2393.2	0.51%
QC value within limits for Ca 317.933Radial Recovery = 94.69%								
Cd 226.502†	4950.2	0.8313	µg/L	0.45706	0.8313	ppb	0.45706	54.98%
Co 228.616†	187.7	3.9742	µg/L	0.06563	3.9742	ppb	0.06563	1.65%
Cr 267.716†	451.3	4.2146	µg/L	0.44460	4.2146	ppb	0.44460	10.55%
Cu 324.752†	-14983.3	-12.449	µg/L	0.5399	-12.449	ppb	0.5399	4.34%
Fe 238.204 Radial†	842470.8	440530	µg/L	2389.4	440530	ppb	2389.4	0.54%
QC value less than the lower limit for Fe 238.204 Radial Recovery = 88.11%								
K 766.490 Radial†	-2.3	164.70	µg/L	16.324	164.70	ppb	16.324	9.91%
Mg 279.077 IEC†	101003.1	474740	µg/L	841.1	474740	ppb	841.1	0.18%

QC value within limits for Mg 279.077 IEC Recovery = 94.95%							
Mn 257.610†	-18572.7	-0.2924 µg/L	0.19774	-0.2924 ppb	0.19774	67.63%	
Mo 202.031†	-225.3	2.8022 µg/L	0.84143	2.8022 ppb	0.84143	30.03%	
Na 589.592 Radial†	297292.0	479060 µg/L	4811.0	479060 ppb	4811.0	1.00%	
QC value within limits for Na 589.592 Radial Recovery = 95.81%							
Ni 231.604†	-272.2	-1.0345 µg/L	0.11736	-1.0345 ppb	0.11736	11.35%	
P 214.914†	655.1	332.93 µg/L	1.902	332.93 ppb	1.902	0.57%	
Pb 220.353†	916.8	26.676 µg/L	1.8080	26.676 ppb	1.8080	6.78%	
S 181.975 Axial†	29605.0	51502 µg/L	451.6	51502 ppb	451.6	0.88%	
QC value within limits for S 181.975 Axial Recovery = 103.00%							
Sb 206.836†	35.2	-0.5528 µg/L	3.79479	-0.5528 ppb	3.79479	686.46%	
Se 196.026†	-285.8	14.085 µg/L	3.6195	14.085 ppb	3.6195	25.70%	
SiO2†	-1628.3	67.103 µg/L	0.9670	67.103 ppb	0.9670	1.44%	
Si 251.611†	-887.6	-46.514 µg/L	0.5135	-46.514 ppb	0.5135	1.10%	
Sn 189.927†	-234.4	22.212 µg/L	1.8010	22.212 ppb	1.8010	8.11%	
Sr 421.552†	798.6	1.5178 µg/L	0.03007	1.5178 ppb	0.03007	1.98%	
Ti 334.940†	-977.2	-1.6641 µg/L	0.30169	-1.6641 ppb	0.30169	18.13%	
Tl 190.801†	-40.8	22.662 µg/L	0.6126	22.662 ppb	0.6126	2.70%	
U 367.007†	63787.9	15000 µg/L	55.3	15000 ppb	55.3	0.37%	
QC value within limits for U 367.007 Recovery = 99.99%							
V 292.402†	-1571.1	0.1048 µg/L	0.67060	0.1048 ppb	0.67060	639.67%	
Zn 213.857†	7077.8	2.7120 µg/L	0.53823	2.7120 ppb	0.53823	19.85%	

QC Failed. Continue with analysis.

Sequence No.: 12 **Autosampler Location: 108**
Sample ID: LR2 **Date Collected: 6/13/2012 6:48:01**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR2

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21148.5	21148.5	101	%			06:48:36
1	Al 396.153Radial†	1803.4	1860.7	154.15	µg/L	154.15	ppb	06:48:36
1	Ca 317.933Radial†	455.7	336.8	153.20	µg/L	153.20	ppb	06:48:56
1	Fe 238.204 Radial†	86.5	52.6	130.36	µg/L	130.36	ppb	06:48:56
1	K 766.490 Radial†	646253.7	637260.8	294390	µg/L	294390	ppb	06:48:31
1	Mg 279.077 IEC†	4.2	2.6	81.955	µg/L	81.955	ppb	06:48:56
1	Na 589.592 Radial†	54.3	198.1	319.22	µg/L	319.22	ppb	06:48:36
1	Sr 421.552†	2184538.0	2158361.1	9913.6	µg/L	9913.6	ppb	06:48:31
1	Sc 361.383	684977.4	684977.4	101.55	%			06:50:14
1	Y 371.029	585561.3	585561.3	100.82	%			06:50:14
1	Ag 328.068†	-8945.8	-8181.3	12.682	µg/L	12.682	ppb	06:50:19
1	As 188.979†	17996.2	17729.0	10215	µg/L	10215	ppb	06:50:19
1	B 249.677†	184124.4	181225.2	5106.6	µg/L	5106.6	ppb	06:50:14
1	Ba 233.527†	1805210.2	1777720.6	15091	µg/L	15091	ppb	06:50:14
1	Be 313.107†	5399885.1	5324910.9	3008.7	µg/L	3008.7	ppb	06:50:07
1	Cd 226.502†	724566.5	713706.6	10188	µg/L	10188	ppb	06:50:14
1	Co 228.616†	413184.0	406892.8	10258	µg/L	10258	ppb	06:50:14
1	Cr 267.716†	1279154.2	1259355.9	25664	µg/L	25664	ppb	06:50:14
1	Cu 324.752†	5036065.4	4953451.9	21118	µg/L	21118	ppb	06:50:07
1	Mn 257.610†	6750379.5	6646673.6	9889.4	µg/L	9889.4	ppb	06:50:07
1	Mo 202.031†	149625.0	147305.4	9938.0	µg/L	9938.0	ppb	06:50:19
1	Ni 231.604†	337845.1	332703.7	10227	µg/L	10227	ppb	06:50:14
1	P 214.914†	21687.4	21228.8	15370	µg/L	15370	ppb	06:50:19
1	Pb 220.353†	153240.0	150729.7	24532	µg/L	24532	ppb	06:50:19
1	S 181.975 Axial†	59.2	1.0	41.939	µg/L	41.939	ppb	06:50:39
1	Sb 206.836†	32550.1	31988.1	10011	µg/L	10011	ppb	06:50:19
1	Se 196.026†	12556.2	12370.4	10096	µg/L	10096	ppb	06:50:19
1	SiO2†	870049.1	853915.4	102770	µg/L	102770	ppb	06:50:14
1	Si 251.611†	1029657.3	1013706.6	47327	µg/L	47327	ppb	06:50:14
1	Sn 189.927†	48749.2	47976.9	10476	µg/L	10476	ppb	06:50:19
1	Ti 334.940†	4100095.7	4037569.3	9978.3	µg/L	9978.3	ppb	06:50:14
1	Tl 190.801†	29097.9	28694.1	10046	µg/L	10046	ppb	06:50:19
1	U 367.007†	324.3	-21.9	18.33	µg/L	18.33	ppb	06:50:19
1	V 292.402†	1127873.8	1110807.0	10684	µg/L	10684	ppb	06:50:14
1	Zn 213.857†	1576552.9	1551171.2	14671	µg/L	14671	ppb	06:50:14
2	Sc RADIAL	21151.7	21151.7	101	%			06:49:07
2	Al 396.153Radial†	1498.4	1559.3	63.029	µg/L	63.029	ppb	06:49:07
2	Ca 317.933Radial†	334.4	217.0	98.711	µg/L	98.711	ppb	06:49:27
2	Fe 238.204 Radial†	-20.6	-53.1	75.531	µg/L	75.531	ppb	06:49:27
2	K 766.490 Radial†	651074.4	641923.3	296550	µg/L	296550	ppb	06:49:02
2	Mg 279.077 IEC†	-8.4	-9.9	24.139	µg/L	24.139	ppb	06:49:27
2	Na 589.592 Radial†	-33.8	111.1	179.04	µg/L	179.04	ppb	06:49:07
2	Sr 421.552†	2194303.7	2167675.1	9956.4	µg/L	9956.4	ppb	06:49:02
2	Sc 361.383	692060.0	692060.0	102.60	%			06:50:54
2	Y 371.029	591996.0	591996.0	101.93	%			06:50:54
2	Ag 328.068†	-9084.9	-8226.7	12.661	µg/L	12.661	ppb	06:50:59
2	As 188.979†	18549.0	18086.4	10420	µg/L	10420	ppb	06:50:59
2	B 249.677†	186747.5	181926.3	5126.5	µg/L	5126.5	ppb	06:50:54
2	Ba 233.527†	1830649.1	1784321.9	15147	µg/L	15147	ppb	06:50:54
2	Be 313.107†	5463727.2	5332715.8	3013.2	µg/L	3013.2	ppb	06:50:47
2	Cd 226.502†	736677.5	718208.3	10252	µg/L	10252	ppb	06:50:54
2	Co 228.616†	419330.6	408719.6	10304	µg/L	10304	ppb	06:50:54
2	Cr 267.716†	1301219.3	1267970.4	25840	µg/L	25840	ppb	06:50:54
2	Cu 324.752†	5085978.7	4951347.8	21109	µg/L	21109	ppb	06:50:47
2	Mn 257.610†	6818727.0	6645260.0	9887.3	µg/L	9887.3	ppb	06:50:47
2	Mo 202.031†	153175.2	149257.7	10070	µg/L	10070	ppb	06:50:59
2	Ni 231.604†	343068.6	334389.9	10279	µg/L	10279	ppb	06:50:54
2	P 214.914†	22286.1	21593.6	15643	µg/L	15643	ppb	06:50:59
2	Pb 220.353†	157109.7	152957.0	24894	µg/L	24894	ppb	06:50:59

2	S 181.975 Axial†	60.0	1.2	43.621 µg/L	43.621 ppb		06:51:19
2	Sb 206.836†	33294.0	32385.0	10139 µg/L	10139 ppb		06:50:59
2	Se 196.026†	12833.5	12514.2	10213 µg/L	10213 ppb		06:50:59
2	SiO2†	886283.1	860969.6	103620 µg/L	103620 ppb		06:50:54
2	Si 251.611†	1048919.6	1022103.8	47718 µg/L	47718 ppb		06:50:54
2	Sn 189.927†	50080.6	48783.2	10652 µg/L	10652 ppb		06:50:59
2	Ti 334.940†	4139252.2	4034413.6	9970.4 µg/L	9970.4 ppb		06:50:54
2	Tl 190.801†	29857.6	29141.3	10202 µg/L	10202 ppb		06:50:59
2	U 367.007†	319.9	-29.6	16.63 µg/L	16.63 ppb		06:50:59
2	V 292.402†	1144497.8	1115643.0	10732 µg/L	10732 ppb		06:50:54
2	Zn 213.857†	1597810.2	1556001.5	14716 µg/L	14716 ppb		06:50:54
3	Sc RADIAL	21334.9	21334.9	102 %			06:49:38
3	Al 396.153Radial†	1384.3	1434.9	37.855 µg/L	37.855 ppb		06:49:38
3	Ca 317.933Radial†	261.7	143.0	65.034 µg/L	65.034 ppb		06:49:58
3	Fe 238.204 Radial†	-87.9	-118.9	39.580 µg/L	39.580 ppb		06:49:58
3	K 766.490 Radial†	655417.7	640655.5	295960 µg/L	295960 ppb		06:49:33
3	Mg 279.077 IEC†	-21.0	-22.2	-35.430 µg/L	-35.430 ppb		06:49:58
3	Na 589.592 Radial†	-44.7	100.7	162.24 µg/L	162.24 ppb		06:49:38
3	Sr 421.552†	2212750.0	2167129.6	9953.9 µg/L	9953.9 ppb		06:49:33
3	Sc 361.383	703985.0	703985.0	104.37 %			06:51:33
3	Y 371.029	601429.4	601429.4	103.55 %			06:51:33
3	Ag 328.068†	-8953.0	-7950.3	13.209 µg/L	13.209 ppb		06:51:38
3	As 188.979†	18678.9	17904.7	10313 µg/L	10313 ppb		06:51:38
3	B 249.677†	189467.1	181448.9	5112.1 µg/L	5112.1 ppb		06:51:33
3	Ba 233.527†	1842049.4	1765021.8	14983 µg/L	14983 ppb		06:51:33
3	Be 313.107†	5508221.8	5285143.9	2986.2 µg/L	2986.2 ppb		06:51:26
3	Cd 226.502†	742039.6	711183.8	10152 µg/L	10152 ppb		06:51:33
3	Co 228.616†	420042.7	402479.0	10147 µg/L	10147 ppb		06:51:33
3	Cr 267.716†	1282928.8	1228963.7	25045 µg/L	25045 ppb		06:51:33
3	Cu 324.752†	5103677.0	4884338.4	20823 µg/L	20823 ppb		06:51:26
3	Mn 257.610†	6870421.8	6582216.4	9793.5 µg/L	9793.5 ppb		06:51:26
3	Mo 202.031†	151592.4	145212.3	9796.8 µg/L	9796.8 ppb		06:51:38
3	Ni 231.604†	344047.6	329664.1	10133 µg/L	10133 ppb		06:51:33
3	P 214.914†	22276.8	21216.9	15369 µg/L	15369 ppb		06:51:38
3	Pb 220.353†	158159.2	151368.7	24635 µg/L	24635 ppb		06:51:38
3	S 181.975 Axial†	57.6	-2.1	35.732 µg/L	35.732 ppb		06:51:58
3	Sb 206.836†	33344.3	31883.5	9988.8 µg/L	9988.8 ppb		06:51:38
3	Se 196.026†	12965.8	12429.0	10144 µg/L	10144 ppb		06:51:38
3	SiO2†	900712.5	860162.6	103480 µg/L	103480 ppb		06:51:33
3	Si 251.611†	1065145.7	1020333.1	47640 µg/L	47640 ppb		06:51:33
3	Sn 189.927†	49499.1	47399.3	10350 µg/L	10350 ppb		06:51:38
3	Ti 334.940†	4142011.8	3968721.1	9808.2 µg/L	9808.2 ppb		06:51:33
3	Tl 190.801†	30428.0	29194.8	10220 µg/L	10220 ppb		06:51:38
3	U 367.007†	301.1	-52.8	10.16 µg/L	10.16 ppb		06:51:38
3	V 292.402†	1142723.3	1095047.9	10532 µg/L	10532 ppb		06:51:33
3	Zn 213.857†	1602089.4	1533722.5	14506 µg/L	14506 ppb		06:51:33

Mean Data: LR2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	693674.1	102.84	%	1.424				1.38%
Sc RADIAL	21211.7	102	%	0.5				0.50%
Y 371.029	592995.6	102.10	%	1.374				1.35%
Ag 328.068†	-8119.5	12.851	µg/L	0.3103	12.851	ppb	0.3103	2.41%
Al 396.153Radial†	1618.3	85.010	µg/L	61.1829	85.010	ppb	61.1829	71.97%
As 188.979†	17906.7	10316	µg/L	102.4	10316	ppb	102.4	0.99%
QC value within limits for As 188.979 Recovery = 103.16%								
B 249.677†	181533.4	5115.1	µg/L	10.26	5115.1	ppb	10.26	0.20%
QC value within limits for B 249.677 Recovery = 102.30%								
Ba 233.527†	1775688.1	15073	µg/L	83.3	15073	ppb	83.3	0.55%
QC value within limits for Ba 233.527 Recovery = 100.49%								
Be 313.107†	5314256.9	3002.7	µg/L	14.46	3002.7	ppb	14.46	0.48%
QC value within limits for Be 313.107 Recovery = 100.09%								
Ca 317.933Radial†	232.3	105.65	µg/L	44.492	105.65	ppb	44.492	42.11%
Cd 226.502†	714366.2	10197	µg/L	50.8	10197	ppb	50.8	0.50%
QC value within limits for Cd 226.502 Recovery = 101.97%								
Co 228.616†	406030.4	10236	µg/L	80.9	10236	ppb	80.9	0.79%
QC value within limits for Co 228.616 Recovery = 102.36%								
Cr 267.716†	1252096.7	25516	µg/L	417.5	25516	ppb	417.5	1.64%
QC value within limits for Cr 267.716 Recovery = 102.07%								

Cu 324.752†	4929712.7	21017 µg/L	167.6	21017 ppb	167.6	0.80%
QC value within limits for Cu 324.752 Recovery = 105.08%						
Fe 238.204 Radial†	-39.8	81.824 µg/L	45.7168	81.824 ppb	45.7168	55.87%
K 766.490 Radial†	639946.5	295630 µg/L	1114.3	295630 ppb	1114.3	0.38%
QC value within limits for K 766.490 Radial Recovery = 98.54%						
Mg 279.077 IEC†	-9.8	23.555 µg/L	58.6950	23.555 ppb	58.6950	249.19%
Mn 257.610†	6624716.7	9856.7 µg/L	54.77	9856.7 ppb	54.77	0.56%
QC value within limits for Mn 257.610 Recovery = 98.57%						
Mo 202.031†	147258.5	9934.8 µg/L	136.49	9934.8 ppb	136.49	1.37%
QC value within limits for Mo 202.031 Recovery = 99.35%						
Na 589.592 Radial†	136.6	220.17 µg/L	86.193	220.17 ppb	86.193	39.15%
Ni 231.604†	332252.6	10213 µg/L	73.6	10213 ppb	73.6	0.72%
QC value within limits for Ni 231.604 Recovery = 102.13%						
P 214.914†	21346.4	15461 µg/L	158.0	15461 ppb	158.0	1.02%
QC value within limits for P 214.914 Recovery = 103.07%						
Pb 220.353†	151685.2	24687 µg/L	186.7	24687 ppb	186.7	0.76%
QC value within limits for Pb 220.353 Recovery = 98.75%						
S 181.975 Axial†	0.0	40.431 µg/L	4.1551	40.431 ppb	4.1551	10.28%
Sb 206.836†	32085.6	10046 µg/L	80.8	10046 ppb	80.8	0.80%
QC value within limits for Sb 206.836 Recovery = 100.46%						
Se 196.026†	12437.9	10151 µg/L	59.0	10151 ppb	59.0	0.58%
QC value within limits for Se 196.026 Recovery = 101.51%						
SiO2†	858349.2	103290 µg/L	454.9	103290 ppb	454.9	0.44%
QC value within limits for SiO2 Recovery = 96.54%						
Si 251.611†	1018714.5	47562 µg/L	206.9	47562 ppb	206.9	0.44%
QC value within limits for Si 251.611 Recovery = 95.12%						
Sn 189.927†	48053.1	10493 µg/L	151.6	10493 ppb	151.6	1.44%
QC value within limits for Sn 189.927 Recovery = 104.93%						
Sr 421.552†	2164388.6	9941.3 µg/L	24.01	9941.3 ppb	24.01	0.24%
QC value within limits for Sr 421.552 Recovery = 99.41%						
Ti 334.940†	4013568.0	9919.0 µg/L	96.01	9919.0 ppb	96.01	0.97%
QC value within limits for Ti 334.940 Recovery = 99.19%						
Tl 190.801†	29010.1	10156 µg/L	95.6	10156 ppb	95.6	0.94%
QC value within limits for Tl 190.801 Recovery = 101.56%						
U 367.007†	-34.8	15.04 µg/L	4.313	15.04 ppb	4.313	28.68%
V 292.402†	1107166.0	10649 µg/L	104.5	10649 ppb	104.5	0.98%
QC value within limits for V 292.402 Recovery = 106.49%						
Zn 213.857†	1546965.1	14631 µg/L	110.9	14631 ppb	110.9	0.76%
QC value within limits for Zn 213.857 Recovery = 97.54%						

All analyte(s) passed QC.

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Sequence No.: 13 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/13/2012 6:52:06**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21634.3	21634.3	104	%			06:52:56
1	Al 396.153Radial†	18320.1	17763.3	5055.1	µg/L	5055.1	ppb	06:52:36
1	Ca 317.933Radial†	11630.1	11112.7	5055.0	µg/L	5055.0	ppb	06:52:56
1	Fe 238.204 Radial†	10303.8	9912.8	5188.7	µg/L	5188.7	ppb	06:52:56
1	K 766.490 Radial†	13226.4	11906.0	5499.0	µg/L	5499.0	ppb	06:52:36
1	Mg 279.077 IEC†	1160.9	1118.9	5265.4	µg/L	5265.4	ppb	06:52:56
1	Na 589.592 Radial†	6263.0	6189.7	9974.2	µg/L	9974.2	ppb	06:52:56
1	Sr 421.552†	115949.6	113231.8	520.06	µg/L	520.06	ppb	06:52:36
1	Sc 361.383	721009.3	721009.3	106.90	%			06:53:53
1	Y 371.029	616224.4	616224.4	106.10	%			06:53:53
1	Ag 328.068†	86623.2	81662.7	522.72	µg/L	522.72	ppb	06:53:58
1	As 188.979†	971.6	917.1	524.89	µg/L	524.89	ppb	06:54:18
1	B 249.677†	19764.4	18407.5	515.89	µg/L	515.89	ppb	06:53:58
1	Ba 233.527†	64989.8	60929.6	517.27	µg/L	517.27	ppb	06:53:58
1	Be 313.107†	969452.3	914563.1	516.47	µg/L	516.47	ppb	06:53:53
1	Cd 226.502†	39143.1	36844.8	525.11	µg/L	525.11	ppb	06:53:58
1	Co 228.616†	22192.1	20791.5	524.19	µg/L	524.19	ppb	06:53:58
1	Cr 267.716†	27448.7	25452.3	518.54	µg/L	518.54	ppb	06:53:58
1	Cu 324.752†	134261.9	120045.3	512.72	µg/L	512.72	ppb	06:53:58
1	Mn 257.610†	366380.6	342328.6	509.67	µg/L	509.67	ppb	06:53:58
1	Mo 202.031†	8383.9	7812.9	527.31	µg/L	527.31	ppb	06:54:18
1	Ni 231.604†	18345.2	17189.7	528.47	µg/L	528.47	ppb	06:53:58
1	P 214.914†	3784.7	3413.7	2546.5	µg/L	2546.5	ppb	06:54:18
1	Pb 220.353†	3634.6	3234.7	526.25	µg/L	526.25	ppb	06:54:18
1	S 181.975 Axial†	709.6	606.5	1058.8	µg/L	1058.8	ppb	06:54:18
1	Sb 206.836†	1795.8	1616.0	524.27	µg/L	524.27	ppb	06:54:18
1	Se 196.026†	687.8	649.8	533.69	µg/L	533.69	ppb	06:54:18
1	SiO2†	52510.5	46302.2	5537.0	µg/L	5537.0	ppb	06:53:58
1	Si 251.611†	59144.0	55133.0	2574.3	µg/L	2574.3	ppb	06:53:58
1	Sn 189.927†	2615.1	2420.0	529.20	µg/L	529.20	ppb	06:54:18
1	Ti 334.940†	222767.3	208606.7	515.68	µg/L	515.68	ppb	06:53:58
1	Tl 190.801†	1539.1	1481.2	519.17	µg/L	519.17	ppb	06:54:18
1	U 367.007†	2400.1	1903.9	488.2	µg/L	488.2	ppb	06:53:58
1	V 292.402†	57759.2	54224.2	520.37	µg/L	520.37	ppb	06:53:58
1	Zn 213.857†	60318.8	55169.2	520.13	µg/L	520.13	ppb	06:53:58
2	Sc RADIAL	21744.2	21744.2	104	%			06:53:21
2	Al 396.153Radial†	17965.5	17333.4	4932.4	µg/L	4932.4	ppb	06:53:01
2	Ca 317.933Radial†	11707.3	11130.1	5062.9	µg/L	5062.9	ppb	06:53:21
2	Fe 238.204 Radial†	10351.7	9908.6	5186.4	µg/L	5186.4	ppb	06:53:21
2	K 766.490 Radial†	12862.1	11491.6	5307.6	µg/L	5307.6	ppb	06:53:01
2	Mg 279.077 IEC†	1164.6	1116.8	5255.3	µg/L	5255.3	ppb	06:53:21
2	Na 589.592 Radial†	6323.0	6216.9	10018	µg/L	10018	ppb	06:53:21
2	Sr 421.552†	113240.5	110064.6	505.52	µg/L	505.52	ppb	06:53:01
2	Sc 361.383	726779.7	726779.7	107.75	%			06:54:24
2	Y 371.029	621503.3	621503.3	107.01	%			06:54:24
2	Ag 328.068†	86245.2	80668.5	516.37	µg/L	516.37	ppb	06:54:29
2	As 188.979†	965.5	904.2	517.50	µg/L	517.50	ppb	06:54:49
2	B 249.677†	19597.7	18106.0	507.43	µg/L	507.43	ppb	06:54:29
2	Ba 233.527†	64542.1	60031.4	509.65	µg/L	509.65	ppb	06:54:29
2	Be 313.107†	978966.3	916192.1	517.38	µg/L	517.38	ppb	06:54:24
2	Cd 226.502†	38814.0	36248.6	516.60	µg/L	516.60	ppb	06:54:29
2	Co 228.616†	22013.8	20461.2	515.87	µg/L	515.87	ppb	06:54:29
2	Cr 267.716†	27230.1	25045.6	510.27	µg/L	510.27	ppb	06:54:29
2	Cu 324.752†	133346.6	118198.6	504.85	µg/L	504.85	ppb	06:54:29
2	Mn 257.610†	363874.6	337281.6	502.16	µg/L	502.16	ppb	06:54:29
2	Mo 202.031†	8417.5	7781.8	525.21	µg/L	525.21	ppb	06:54:49
2	Ni 231.604†	18248.3	16963.5	521.52	µg/L	521.52	ppb	06:54:29
2	P 214.914†	3797.8	3397.7	2534.7	µg/L	2534.7	ppb	06:54:49
2	Pb 220.353†	3619.5	3193.7	519.65	µg/L	519.65	ppb	06:54:49

2	S 181.975 Axial†	709.4	601.1	1049.4 µg/L	1049.4 ppb	06:54:49
2	Sb 206.836†	1802.3	1608.7	522.04 µg/L	522.04 ppb	06:54:49
2	Se 196.026†	694.8	651.1	534.77 µg/L	534.77 ppb	06:54:49
2	SiO2†	52235.7	45657.2	5459.8 µg/L	5459.8 ppb	06:54:29
2	Si 251.611†	58723.6	54303.5	2535.5 µg/L	2535.5 ppb	06:54:29
2	Sn 189.927†	2614.0	2399.6	524.73 µg/L	524.73 ppb	06:54:49
2	Ti 334.940†	221261.4	205554.6	508.14 µg/L	508.14 ppb	06:54:29
2	Tl 190.801†	1545.4	1475.6	517.17 µg/L	517.17 ppb	06:54:49
2	U 367.007†	2361.9	1850.7	473.8 µg/L	473.8 ppb	06:54:29
2	V 292.402†	57538.4	53590.3	514.32 µg/L	514.32 ppb	06:54:29
2	Zn 213.857†	59896.4	54329.2	512.20 µg/L	512.20 ppb	06:54:29
3	Sc RADIAL	21635.7	21635.7	104 %		06:53:46
3	Al 396.153Radial†	18161.0	17608.6	5011.0 µg/L	5011.0 ppb	06:53:26
3	Ca 317.933Radial†	11582.3	11065.8	5033.7 µg/L	5033.7 ppb	06:53:46
3	Fe 238.204 Radial†	10259.4	9869.3	5165.9 µg/L	5165.9 ppb	06:53:46
3	K 766.490 Radial†	12817.2	11510.3	5316.1 µg/L	5316.1 ppb	06:53:26
3	Mg 279.077 IEC†	1155.9	1114.1	5242.5 µg/L	5242.5 ppb	06:53:46
3	Na 589.592 Radial†	6311.1	6235.8	10048 µg/L	10048 ppb	06:53:46
3	Sr 421.552†	114224.5	111559.6	512.38 µg/L	512.38 ppb	06:53:26
3	Sc 361.383	725315.7	725315.7	107.53 %		06:54:55
3	Y 371.029	619302.9	619302.9	106.63 %		06:54:55
3	Ag 328.068†	86966.9	81501.1	521.69 µg/L	521.69 ppb	06:55:00
3	As 188.979†	966.2	906.7	518.95 µg/L	518.95 ppb	06:55:20
3	B 249.677†	19729.9	18265.6	511.90 µg/L	511.90 ppb	06:55:00
3	Ba 233.527†	65374.6	60926.5	517.25 µg/L	517.25 ppb	06:55:00
3	Be 313.107†	975379.7	914690.6	516.54 µg/L	516.54 ppb	06:54:55
3	Cd 226.502†	39366.4	36835.0	524.98 µg/L	524.98 ppb	06:55:00
3	Co 228.616†	22314.9	20782.4	523.96 µg/L	523.96 ppb	06:55:00
3	Cr 267.716†	27486.1	25334.7	516.15 µg/L	516.15 ppb	06:55:00
3	Cu 324.752†	134505.3	119525.9	510.50 µg/L	510.50 ppb	06:55:00
3	Mn 257.610†	368417.2	342187.5	509.46 µg/L	509.46 ppb	06:55:00
3	Mo 202.031†	8392.2	7774.0	524.69 µg/L	524.69 ppb	06:55:20
3	Ni 231.604†	18401.5	17140.2	526.95 µg/L	526.95 ppb	06:55:00
3	P 214.914†	3783.1	3391.2	2529.7 µg/L	2529.7 ppb	06:55:20
3	Pb 220.353†	3617.9	3198.9	520.46 µg/L	520.46 ppb	06:55:20
3	S 181.975 Axial†	705.6	598.9	1045.5 µg/L	1045.5 ppb	06:55:20
3	Sb 206.836†	1806.1	1615.6	524.15 µg/L	524.15 ppb	06:55:20
3	Se 196.026†	677.9	636.8	523.10 µg/L	523.10 ppb	06:55:20
3	SiO2†	52936.1	46406.4	5549.2 µg/L	5549.2 ppb	06:55:00
3	Si 251.611†	59407.0	55049.0	2570.4 µg/L	2570.4 ppb	06:55:00
3	Sn 189.927†	2603.1	2394.3	523.61 µg/L	523.61 ppb	06:55:20
3	Ti 334.940†	224000.6	208516.3	515.46 µg/L	515.46 ppb	06:55:00
3	Tl 190.801†	1543.6	1476.9	517.66 µg/L	517.66 ppb	06:55:20
3	U 367.007†	2400.6	1891.1	484.8 µg/L	484.8 ppb	06:55:00
3	V 292.402†	58151.6	54268.3	520.75 µg/L	520.75 ppb	06:55:00
3	Zn 213.857†	60459.5	54965.0	518.21 µg/L	518.21 ppb	06:55:00

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	724368.2	107.39	%	0.445				0.41%
Sc RADIAL	21671.4	104	%	0.3				0.29%
Y 371.029	619010.2	106.58	%	0.457				0.43%
Ag 328.068†	81277.4	520.26	µg/L	3.407	520.26	ppb	3.407	0.65%
QC value within limits for Ag 328.068 Recovery = 104.05%								
Al 396.153Radial†	17568.4	4999.5	µg/L	62.18	4999.5	ppb	62.18	1.24%
QC value within limits for Al 396.153Radial Recovery = 99.99%								
As 188.979†	909.3	520.45	µg/L	3.916	520.45	ppb	3.916	0.75%
QC value within limits for As 188.979 Recovery = 104.09%								
B 249.677†	18259.7	511.74	µg/L	4.234	511.74	ppb	4.234	0.83%
QC value within limits for B 249.677 Recovery = 102.35%								
Ba 233.527†	60629.2	514.72	µg/L	4.396	514.72	ppb	4.396	0.85%
QC value within limits for Ba 233.527 Recovery = 102.94%								
Be 313.107†	915148.6	516.80	µg/L	0.510	516.80	ppb	0.510	0.10%
QC value within limits for Be 313.107 Recovery = 103.36%								
Ca 317.933Radial†	11102.9	5050.5	µg/L	15.13	5050.5	ppb	15.13	0.30%
QC value within limits for Ca 317.933Radial Recovery = 101.01%								
Cd 226.502†	36642.8	522.23	µg/L	4.874	522.23	ppb	4.874	0.93%
QC value within limits for Cd 226.502 Recovery = 104.45%								
Co 228.616†	20678.4	521.34	µg/L	4.738	521.34	ppb	4.738	0.91%

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   QC value within limits for Co 228.616  Recovery = 104.27%
Cr 267.716†          25277.5      514.99 µg/L         4.259      514.99 ppb          4.259   0.83%
   QC value within limits for Cr 267.716  Recovery = 103.00%
Cu 324.752†         119256.6      509.36 µg/L         4.059      509.36 ppb          4.059   0.80%
   QC value within limits for Cu 324.752  Recovery = 101.87%
Fe 238.204 Radial†    9896.9      5180.3 µg/L         12.52      5180.3 ppb          12.52   0.24%
   QC value within limits for Fe 238.204 Radial  Recovery = 103.61%
K 766.490 Radial†    11636.0      5374.2 µg/L        108.16      5374.2 ppb         108.16   2.01%
   QC value within limits for K 766.490 Radial  Recovery = 107.48%
Mg 279.077 IEC†       1116.6      5254.4 µg/L         11.44      5254.4 ppb          11.44   0.22%
   QC value within limits for Mg 279.077 IEC  Recovery = 105.09%
Mn 257.610†         340599.3      507.10 µg/L         4.276      507.10 ppb          4.276   0.84%
   QC value within limits for Mn 257.610  Recovery = 101.42%
Mo 202.031†           7789.6      525.74 µg/L         1.390      525.74 ppb          1.390   0.26%
   QC value within limits for Mo 202.031  Recovery = 105.15%
Na 589.592 Radial†    6214.1       10013 µg/L          37.3       10013 ppb           37.3   0.37%
   QC value within limits for Na 589.592 Radial  Recovery = 100.13%
Ni 231.604†          17097.8      525.65 µg/L         3.654      525.65 ppb          3.654   0.70%
   QC value within limits for Ni 231.604  Recovery = 105.13%
P 214.914†            3400.9      2536.9 µg/L          8.65      2536.9 ppb           8.65   0.34%
   QC value within limits for P 214.914  Recovery = 101.48%
Pb 220.353†           3209.1      522.12 µg/L         3.602      522.12 ppb          3.602   0.69%
   QC value within limits for Pb 220.353  Recovery = 104.42%
S 181.975 Axial†       602.2      1051.2 µg/L          6.84      1051.2 ppb           6.84   0.65%
   QC value within limits for S 181.975 Axial  Recovery = 105.12%
Sb 206.836†           1613.4      523.49 µg/L         1.255      523.49 ppb          1.255   0.24%
   QC value within limits for Sb 206.836  Recovery = 104.70%
Se 196.026†            645.9      530.52 µg/L         6.450      530.52 ppb          6.450   1.22%
   QC value within limits for Se 196.026  Recovery = 106.10%
SiO2†                46122.0      5515.4 µg/L         48.49      5515.4 ppb          48.49   0.88%
   QC value within limits for SiO2  Recovery = 103.14%
Si 251.611†          54828.5      2560.0 µg/L         21.38      2560.0 ppb          21.38   0.84%
   QC value within limits for Si 251.611  Recovery = 102.40%
Sn 189.927†           2404.6      525.85 µg/L         2.955      525.85 ppb          2.955   0.56%
   QC value within limits for Sn 189.927  Recovery = 105.17%
Sr 421.552†         111618.7      512.65 µg/L         7.278      512.65 ppb          7.278   1.42%
   QC value within limits for Sr 421.552  Recovery = 102.53%
Ti 334.940†         207559.2      513.10 µg/L         4.291      513.10 ppb          4.291   0.84%
   QC value within limits for Ti 334.940  Recovery = 102.62%
Tl 190.801†           1477.9      518.00 µg/L         1.043      518.00 ppb          1.043   0.20%
   QC value within limits for Tl 190.801  Recovery = 103.60%
U 367.007†            1881.9       482.3 µg/L          7.51       482.3 ppb           7.51   1.56%
   QC value within limits for U 367.007  Recovery = 96.45%
V 292.402†           54027.6      518.48 µg/L         3.607      518.48 ppb          3.607   0.70%
   QC value within limits for V 292.402  Recovery = 103.70%
Zn 213.857†          54821.1      516.85 µg/L         4.140      516.85 ppb          4.140   0.80%
   QC value within limits for Zn 213.857  Recovery = 103.37%
All analyte(s) passed QC.
```

Sequence No.: 14 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/13/2012 6:55:28**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21996.8	21996.8	105	%			06:55:56
1	Al 396.153Radial†	-54.5	28.3	7.9828	µg/L	7.9828	ppb	06:55:56
1	Ca 317.933Radial†	117.9	-1.2	-0.5361	µg/L	-0.5361	ppb	06:56:16
1	Fe 238.204 Radial†	37.6	2.9	1.5142	µg/L	1.5142	ppb	06:56:16
1	K 766.490 Radial†	1079.6	164.2	75.923	µg/L	75.923	ppb	06:55:56
1	Mg 279.077 IEC†	9.9	7.8	36.472	µg/L	36.472	ppb	06:56:16
1	Na 589.592 Radial†	-125.6	25.2	40.593	µg/L	40.593	ppb	06:55:56
1	Sr 421.552†	-1229.6	145.2	0.6670	µg/L	0.6670	ppb	06:55:56
1	Sc 361.383	710490.5	710490.5	105.34	%			06:57:13
1	Y 371.029	611121.5	611121.5	105.22	%			06:57:13
1	Ag 328.068†	-479.9	172.1	1.0940	µg/L	1.0940	ppb	06:57:18
1	As 188.979†	-3.1	5.2	2.9696	µg/L	2.9696	ppb	06:57:38
1	B 249.677†	198.2	106.3	2.9877	µg/L	2.9877	ppb	06:57:38
1	Ba 233.527†	-117.1	21.2	0.1803	µg/L	0.1803	ppb	06:57:38
1	Be 313.107†	-7674.7	365.1	0.2050	µg/L	0.2050	ppb	06:57:18
1	Cd 226.502†	-208.5	28.8	0.4109	µg/L	0.4109	ppb	06:57:38
1	Co 228.616†	-21.0	11.1	0.2826	µg/L	0.2826	ppb	06:57:38
1	Cr 267.716†	245.6	7.6	0.1601	µg/L	0.1601	ppb	06:57:38
1	Cu 324.752†	6070.8	208.0	0.8910	µg/L	0.8910	ppb	06:57:18
1	Mn 257.610†	476.8	36.1	0.0528	µg/L	0.0528	ppb	06:57:38
1	Mo 202.031†	69.0	35.4	2.3851	µg/L	2.3851	ppb	06:57:38
1	Ni 231.604†	-49.2	-18.7	-0.5765	µg/L	-0.5765	ppb	06:57:38
1	P 214.914†	118.1	-14.7	-11.120	µg/L	-11.120	ppb	06:57:38
1	Pb 220.353†	194.3	19.0	3.0887	µg/L	3.0887	ppb	06:57:38
1	S 181.975 Axial†	61.5	1.2	2.0613	µg/L	2.0613	ppb	06:57:38
1	Sb 206.836†	86.7	18.3	6.0167	µg/L	6.0167	ppb	06:57:38
1	Se 196.026†	-7.5	-0.8	-0.6596	µg/L	-0.6596	ppb	06:57:38
1	SiO2†	2968.1	-3.0	-0.3859	µg/L	-0.3859	ppb	06:57:18
1	Si 251.611†	287.3	77.1	3.5755	µg/L	3.5755	ppb	06:57:38
1	Sn 189.927†	35.4	7.2	1.5810	µg/L	1.5810	ppb	06:57:38
1	Ti 334.940†	-101.0	114.4	0.2850	µg/L	0.2850	ppb	06:57:18
1	Tl 190.801†	-27.5	15.3	5.3214	µg/L	5.3214	ppb	06:57:38
1	U 367.007†	338.5	-19.9	-5.366	µg/L	-5.366	ppb	06:57:18
1	V 292.402†	-169.9	29.8	0.3044	µg/L	0.3044	ppb	06:57:18
1	Zn 213.857†	1536.5	200.3	1.9079	µg/L	1.9079	ppb	06:57:38
2	Sc RADIAL	21666.6	21666.6	104	%			06:56:21
2	Al 396.153Radial†	-64.1	18.2	5.0966	µg/L	5.0966	ppb	06:56:21
2	Ca 317.933Radial†	116.2	-1.2	-0.5372	µg/L	-0.5372	ppb	06:56:41
2	Fe 238.204 Radial†	37.9	3.7	1.9196	µg/L	1.9196	ppb	06:56:41
2	K 766.490 Radial†	1131.9	230.3	106.44	µg/L	106.44	ppb	06:56:21
2	Mg 279.077 IEC†	3.5	1.7	8.1023	µg/L	8.1023	ppb	06:56:41
2	Na 589.592 Radial†	-117.9	30.8	49.705	µg/L	49.705	ppb	06:56:21
2	Sr 421.552†	-1270.7	87.9	0.4036	µg/L	0.4036	ppb	06:56:21
2	Sc 361.383	713538.8	713538.8	105.79	%			06:57:43
2	Y 371.029	613891.3	613891.3	105.70	%			06:57:43
2	Ag 328.068†	-571.1	87.7	0.5581	µg/L	0.5581	ppb	06:57:48
2	As 188.979†	-9.0	-0.4	-0.2418	µg/L	-0.2418	ppb	06:58:08
2	B 249.677†	179.7	88.1	2.4738	µg/L	2.4738	ppb	06:58:08
2	Ba 233.527†	-122.3	16.7	0.1421	µg/L	0.1421	ppb	06:58:08
2	Be 313.107†	-7626.2	442.0	0.2485	µg/L	0.2485	ppb	06:57:48
2	Cd 226.502†	-196.3	41.2	0.5875	µg/L	0.5875	ppb	06:58:08
2	Co 228.616†	-20.1	12.1	0.3074	µg/L	0.3074	ppb	06:58:08
2	Cr 267.716†	228.1	-10.0	-0.1997	µg/L	-0.1997	ppb	06:58:08
2	Cu 324.752†	5964.6	83.0	0.3583	µg/L	0.3583	ppb	06:57:48
2	Mn 257.610†	458.1	16.5	0.0246	µg/L	0.0246	ppb	06:58:08
2	Mo 202.031†	74.2	40.0	2.7004	µg/L	2.7004	ppb	06:58:08
2	Ni 231.604†	-47.8	-17.2	-0.5302	µg/L	-0.5302	ppb	06:58:08
2	P 214.914†	111.1	-21.8	-16.434	µg/L	-16.434	ppb	06:58:08
2	Pb 220.353†	199.9	23.5	3.8254	µg/L	3.8254	ppb	06:58:08

2	S 181.975 Axial†	58.5	-2.0	-3.4209 µg/L	-3.4209 ppb	06:58:08
2	Sb 206.836†	98.3	28.9	9.4888 µg/L	9.4888 ppb	06:58:08
2	Se 196.026†	2.0	8.2	6.7116 µg/L	6.7116 ppb	06:58:08
2	SiO2†	2913.4	-66.8	-7.9690 µg/L	-7.9690 ppb	06:57:48
2	Si 251.611†	288.1	76.7	3.5536 µg/L	3.5536 ppb	06:58:08
2	Sn 189.927†	37.4	9.0	1.9568 µg/L	1.9568 ppb	06:58:08
2	Ti 334.940†	-69.7	144.4	0.3594 µg/L	0.3594 ppb	06:57:48
2	Tl 190.801†	-28.8	14.2	4.9459 µg/L	4.9459 ppb	06:58:08
2	U 367.007†	342.6	-17.5	-4.710 µg/L	-4.710 ppb	06:57:48
2	V 292.402†	-187.2	14.2	0.1597 µg/L	0.1597 ppb	06:57:48
2	Zn 213.857†	1509.8	168.8	1.6083 µg/L	1.6083 ppb	06:58:08
3	Sc RADIAL	21538.3	21538.3	103 %		06:56:46
3	Al 396.153Radial†	-93.0	-10.2	-3.0168 µg/L	-3.0168 ppb	06:56:46
3	Ca 317.933Radial†	115.3	-1.3	-0.6105 µg/L	-0.6105 ppb	06:57:06
3	Fe 238.204 Radial†	39.3	5.2	2.7354 µg/L	2.7354 ppb	06:57:06
3	K 766.490 Radial†	1082.9	189.3	87.488 µg/L	87.488 ppb	06:56:46
3	Mg 279.077 IEC†	6.2	4.4	20.711 µg/L	20.711 ppb	06:57:06
3	Na 589.592 Radial†	-142.9	5.9	9.4955 µg/L	9.4955 ppb	06:56:46
3	Sr 421.552†	-1324.0	28.8	0.1323 µg/L	0.1323 ppb	06:56:46
3	Sc 361.383	706998.6	706998.6	104.82 %		06:58:13
3	Y 371.029	607865.3	607865.3	104.66 %		06:58:13
3	Ag 328.068†	-574.7	79.3	0.5059 µg/L	0.5059 ppb	06:58:18
3	As 188.979†	-1.6	6.6	3.7674 µg/L	3.7674 ppb	06:58:38
3	B 249.677†	191.0	100.4	2.8201 µg/L	2.8201 ppb	06:58:38
3	Ba 233.527†	-117.5	20.2	0.1720 µg/L	0.1720 ppb	06:58:38
3	Be 313.107†	-7614.0	387.0	0.2183 µg/L	0.2183 ppb	06:58:18
3	Cd 226.502†	-225.8	11.4	0.1618 µg/L	0.1618 ppb	06:58:38
3	Co 228.616†	-26.2	6.1	0.1564 µg/L	0.1564 ppb	06:58:38
3	Cr 267.716†	229.1	-7.1	-0.1436 µg/L	-0.1436 ppb	06:58:38
3	Cu 324.752†	5968.1	138.5	0.5910 µg/L	0.5910 ppb	06:58:18
3	Mn 257.610†	456.9	19.4	0.0285 µg/L	0.0285 ppb	06:58:38
3	Mo 202.031†	78.8	45.0	3.0379 µg/L	3.0379 ppb	06:58:38
3	Ni 231.604†	-38.0	-8.2	-0.2537 µg/L	-0.2537 ppb	06:58:38
3	P 214.914†	114.5	-17.6	-13.273 µg/L	-13.273 ppb	06:58:38
3	Pb 220.353†	187.2	13.2	2.1530 µg/L	2.1530 ppb	06:58:38
3	S 181.975 Axial†	60.6	0.6	1.0386 µg/L	1.0386 ppb	06:58:38
3	Sb 206.836†	102.4	33.8	11.078 µg/L	11.078 ppb	06:58:38
3	Se 196.026†	-4.3	2.3	1.8633 µg/L	1.8633 ppb	06:58:38
3	SiO2†	2888.9	-64.6	-7.6608 µg/L	-7.6608 ppb	06:58:18
3	Si 251.611†	300.1	90.7	4.2017 µg/L	4.2017 ppb	06:58:38
3	Sn 189.927†	38.5	10.4	2.2571 µg/L	2.2571 ppb	06:58:38
3	Ti 334.940†	-78.7	135.2	0.3346 µg/L	0.3346 ppb	06:58:18
3	Tl 190.801†	-29.5	13.2	4.6159 µg/L	4.6159 ppb	06:58:38
3	U 367.007†	355.8	-1.9	-0.522 µg/L	-0.522 ppb	06:58:18
3	V 292.402†	-163.5	35.1	0.3650 µg/L	0.3650 ppb	06:58:18
3	Zn 213.857†	1489.3	162.5	1.5459 µg/L	1.5459 ppb	06:58:38

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	710342.7	105.31	%	0.485				0.46%
Sc RADIAL	21733.9	104	%	1.1				1.09%
Y 371.029	610959.4	105.19	%	0.519				0.49%
Ag 328.068†	113.0	0.7193	µg/L	0.32551	0.7193	ppb	0.32551	45.25%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	12.1	3.3542	µg/L	5.70302	3.3542	ppb	5.70302	170.03%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	3.8	2.1651	µg/L	2.12225	2.1651	ppb	2.12225	98.02%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	98.2	2.7606	µg/L	0.26207	2.7606	ppb	0.26207	9.49%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	19.4	0.1648	µg/L	0.02013	0.1648	ppb	0.02013	12.22%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	398.0	0.2239	µg/L	0.02228	0.2239	ppb	0.02228	9.95%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-1.2	-0.5613	µg/L	0.04264	-0.5613	ppb	0.04264	7.60%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	27.1	0.3868	µg/L	0.21387	0.3868	ppb	0.21387	55.30%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	9.7	0.2488	µg/L	0.08098	0.2488	ppb	0.08098	32.55%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	-3.2	-0.0611 µg/L	0.19355	-0.0611 ppb	0.19355	316.96%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	143.1	0.6134 µg/L	0.26704	0.6134 ppb	0.26704	43.53%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	3.9	2.0564 µg/L	0.62195	2.0564 ppb	0.62195	30.24%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	194.6	89.952 µg/L	15.4095	89.952 ppb	15.4095	17.13%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	4.6	21.762 µg/L	14.2141	21.762 ppb	14.2141	65.32%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	24.0	0.0353 µg/L	0.01529	0.0353 ppb	0.01529	43.32%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	40.1	2.7078 µg/L	0.32645	2.7078 ppb	0.32645	12.06%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	20.6	33.264 µg/L	21.0826	33.264 ppb	21.0826	63.38%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	-14.7	-0.4535 µg/L	0.17454	-0.4535 ppb	0.17454	38.49%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	-18.1	-13.609 µg/L	2.6729	-13.609 ppb	2.6729	19.64%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	18.5	3.0224 µg/L	0.83814	3.0224 ppb	0.83814	27.73%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	-0.1	-0.1070 µg/L	2.91515	-0.1070 ppb	2.91515	>999.9%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	27.0	8.8612 µg/L	2.58844	8.8612 ppb	2.58844	29.21%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	3.2	2.6384 µg/L	3.74624	2.6384 ppb	3.74624	141.99%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	-44.8	-5.3386 µg/L	4.29193	-5.3386 ppb	4.29193	80.39%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	81.5	3.7769 µg/L	0.36807	3.7769 ppb	0.36807	9.75%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	8.9	1.9316 µg/L	0.33876	1.9316 ppb	0.33876	17.54%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	87.3	0.4010 µg/L	0.26736	0.4010 ppb	0.26736	66.68%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	131.3	0.3263 µg/L	0.03787	0.3263 ppb	0.03787	11.61%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	14.2	4.9611 µg/L	0.35300	4.9611 ppb	0.35300	7.12%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	-13.1	-3.533 µg/L	2.6277	-3.533 ppb	2.6277	74.38%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	26.4	0.2764 µg/L	0.10545	0.2764 ppb	0.10545	38.15%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	177.2	1.6874 µg/L	0.19353	1.6874 ppb	0.19353	11.47%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 2 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/13/2012 7:06:03**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21366.2	21366.2	102	%			07:06:53
1	Al 396.153Radial†	17823.4	17499.8	4980.4	µg/L	4980.4	ppb	07:06:33
1	Ca 317.933Radial†	11321.6	10952.1	4981.9	µg/L	4981.9	ppb	07:06:53
1	Fe 238.204 Radial†	10285.2	10019.4	5244.4	µg/L	5244.4	ppb	07:06:53
1	K 766.490 Radial†	12226.0	11088.4	5121.2	µg/L	5121.2	ppb	07:06:33
1	Mg 279.077 IEC†	1137.8	1110.4	5225.0	µg/L	5225.0	ppb	07:06:53
1	Na 589.592 Radial†	6102.8	6109.1	9844.1	µg/L	9844.1	ppb	07:06:53
1	Sr 421.552†	111884.8	110663.6	508.27	µg/L	508.27	ppb	07:06:33
1	Sc 361.383	709440.3	709440.3	105.18	%			07:07:50
1	Y 371.029	606177.7	606177.7	104.37	%			07:07:50
1	Ag 328.068†	85224.1	81653.9	522.67	µg/L	522.67	ppb	07:07:55
1	As 188.979†	944.7	906.3	518.77	µg/L	518.77	ppb	07:08:15
1	B 249.677†	19077.4	18055.9	506.01	µg/L	506.01	ppb	07:07:55
1	Ba 233.527†	63524.4	60527.8	513.86	µg/L	513.86	ppb	07:07:55
1	Be 313.107†	948632.8	909558.2	513.64	µg/L	513.64	ppb	07:07:50
1	Cd 226.502†	37996.1	36351.4	518.06	µg/L	518.06	ppb	07:07:55
1	Co 228.616†	21648.5	20613.2	519.68	µg/L	519.68	ppb	07:07:55
1	Cr 267.716†	26751.1	25207.8	513.57	µg/L	513.57	ppb	07:07:55
1	Cu 324.752†	131738.8	119694.7	511.23	µg/L	511.23	ppb	07:07:55
1	Mn 257.610†	358947.6	340850.9	507.48	µg/L	507.48	ppb	07:07:55
1	Mo 202.031†	8044.1	7617.7	514.14	µg/L	514.14	ppb	07:08:15
1	Ni 231.604†	17914.9	17060.5	524.50	µg/L	524.50	ppb	07:07:55
1	P 214.914†	3697.8	3388.9	2527.9	µg/L	2527.9	ppb	07:08:15
1	Pb 220.353†	3505.2	3167.1	515.27	µg/L	515.27	ppb	07:08:15
1	S 181.975 Axial†	696.3	604.7	1055.6	µg/L	1055.6	ppb	07:08:15
1	Sb 206.836†	1708.5	1560.4	506.04	µg/L	506.04	ppb	07:08:15
1	Se 196.026†	674.3	647.4	531.78	µg/L	531.78	ppb	07:08:15
1	SiO2†	51079.3	45742.6	5470.1	µg/L	5470.1	ppb	07:07:55
1	Si 251.611†	57563.8	54532.8	2546.4	µg/L	2546.4	ppb	07:07:55
1	Sn 189.927†	2533.5	2382.3	520.99	µg/L	520.99	ppb	07:08:15
1	Ti 334.940†	218186.0	207649.4	513.32	µg/L	513.32	ppb	07:07:55
1	Tl 190.801†	1496.2	1463.9	513.11	µg/L	513.11	ppb	07:08:15
1	U 367.007†	2330.6	1874.5	480.0	µg/L	480.0	ppb	07:07:55
1	V 292.402†	56661.0	54061.3	518.66	µg/L	518.66	ppb	07:07:55
1	Zn 213.857†	58689.6	54540.4	514.17	µg/L	514.17	ppb	07:07:55
2	Sc RADIAL	21359.9	21359.9	102	%			07:07:18
2	Al 396.153Radial†	17921.8	17601.0	5009.5	µg/L	5009.5	ppb	07:06:58
2	Ca 317.933Radial†	11395.4	11027.5	5016.2	µg/L	5016.2	ppb	07:07:18
2	Fe 238.204 Radial†	10246.1	9984.2	5225.9	µg/L	5225.9	ppb	07:07:18
2	K 766.490 Radial†	12344.1	11207.4	5176.2	µg/L	5176.2	ppb	07:06:58
2	Mg 279.077 IEC†	1136.8	1109.8	5222.1	µg/L	5222.1	ppb	07:07:18
2	Na 589.592 Radial†	6127.5	6135.0	9885.9	µg/L	9885.9	ppb	07:07:18
2	Sr 421.552†	112052.5	110859.5	509.17	µg/L	509.17	ppb	07:06:58
2	Sc 361.383	717234.3	717234.3	106.34	%			07:08:21
2	Y 371.029	613083.8	613083.8	105.56	%			07:08:21
2	Ag 328.068†	85284.2	80830.0	517.40	µg/L	517.40	ppb	07:08:26
2	As 188.979†	942.3	894.3	511.94	µg/L	511.94	ppb	07:08:46
2	B 249.677†	19056.0	17838.7	499.91	µg/L	499.91	ppb	07:08:26
2	Ba 233.527†	63533.3	59879.8	508.36	µg/L	508.36	ppb	07:08:26
2	Be 313.107†	959294.3	909783.6	513.77	µg/L	513.77	ppb	07:08:21
2	Cd 226.502†	38098.5	36055.1	513.84	µg/L	513.84	ppb	07:08:26
2	Co 228.616†	21746.0	20481.2	516.35	µg/L	516.35	ppb	07:08:26
2	Cr 267.716†	26819.9	24996.2	509.26	µg/L	509.26	ppb	07:08:26
2	Cu 324.752†	131440.5	118053.1	504.23	µg/L	504.23	ppb	07:08:26
2	Mn 257.610†	359057.3	337245.6	502.11	µg/L	502.11	ppb	07:08:26
2	Mo 202.031†	8061.2	7550.7	509.63	µg/L	509.63	ppb	07:08:46
2	Ni 231.604†	17981.0	16937.6	520.72	µg/L	520.72	ppb	07:08:26
2	P 214.914†	3716.8	3368.5	2512.9	µg/L	2512.9	ppb	07:08:46
2	Pb 220.353†	3486.2	3113.0	506.45	µg/L	506.45	ppb	07:08:46

2	S 181.975 Axial†	692.0	593.5	1035.9 µg/L	1035.9 ppb	07:08:46
2	Sb 206.836†	1714.5	1548.4	502.15 µg/L	502.15 ppb	07:08:46
2	Se 196.026†	673.2	639.4	525.27 µg/L	525.27 ppb	07:08:46
2	SiO2†	51170.0	45300.2	5417.2 µg/L	5417.2 ppb	07:08:26
2	Si 251.611†	57548.4	53923.6	2517.9 µg/L	2517.9 ppb	07:08:26
2	Sn 189.927†	2541.8	2363.9	516.97 µg/L	516.97 ppb	07:08:46
2	Ti 334.940†	218284.9	205488.3	507.98 µg/L	507.98 ppb	07:08:26
2	Tl 190.801†	1508.7	1460.3	511.82 µg/L	511.82 ppb	07:08:46
2	U 367.007†	2339.6	1858.9	475.8 µg/L	475.8 ppb	07:08:26
2	V 292.402†	56656.1	53471.2	513.02 µg/L	513.02 ppb	07:08:26
2	Zn 213.857†	58569.4	53821.0	507.36 µg/L	507.36 ppb	07:08:26
3	Sc RADIAL	21477.5	21477.5	103 %		07:07:43
3	Al 396.153Radial†	17796.5	17383.4	4947.1 µg/L	4947.1 ppb	07:07:23
3	Ca 317.933Radial†	11478.3	11047.1	5025.2 µg/L	5025.2 ppb	07:07:43
3	Fe 238.204 Radial†	10265.3	9948.0	5207.0 µg/L	5207.0 ppb	07:07:43
3	K 766.490 Radial†	12219.6	11020.3	5089.7 µg/L	5089.7 ppb	07:07:23
3	Mg 279.077 IEC†	1135.3	1102.3	5186.9 µg/L	5186.9 ppb	07:07:43
3	Na 589.592 Radial†	6217.1	6189.3	9973.5 µg/L	9973.5 ppb	07:07:43
3	Sr 421.552†	112058.1	110265.6	506.44 µg/L	506.44 ppb	07:07:23
3	Sc 361.383	711587.7	711587.7	105.50 %		07:08:52
3	Y 371.029	607910.3	607910.3	104.67 %		07:08:52
3	Ag 328.068†	85189.5	81376.6	520.89 µg/L	520.89 ppb	07:08:57
3	As 188.979†	938.7	897.9	513.95 µg/L	513.95 ppb	07:09:17
3	B 249.677†	19147.7	18067.8	506.35 µg/L	506.35 ppb	07:08:57
3	Ba 233.527†	63626.4	60442.3	513.13 µg/L	513.13 ppb	07:08:57
3	Be 313.107†	950342.4	908457.0	513.02 µg/L	513.02 ppb	07:08:52
3	Cd 226.502†	38073.3	36315.6	517.56 µg/L	517.56 ppb	07:08:57
3	Co 228.616†	21665.0	20566.7	518.51 µg/L	518.51 ppb	07:08:57
3	Cr 267.716†	26842.2	25217.5	513.76 µg/L	513.76 ppb	07:08:57
3	Cu 324.752†	131106.1	118717.0	507.06 µg/L	507.06 ppb	07:08:57
3	Mn 257.610†	359105.6	339970.8	506.17 µg/L	506.17 ppb	07:08:57
3	Mo 202.031†	8081.4	7630.0	514.97 µg/L	514.97 ppb	07:09:17
3	Ni 231.604†	17938.0	17030.9	523.59 µg/L	523.59 ppb	07:08:57
3	P 214.914†	3719.9	3399.1	2535.7 µg/L	2535.7 ppb	07:09:17
3	Pb 220.353†	3494.6	3147.0	512.01 µg/L	512.01 ppb	07:09:17
3	S 181.975 Axial†	689.9	596.7	1041.6 µg/L	1041.6 ppb	07:09:17
3	Sb 206.836†	1706.9	1553.9	503.94 µg/L	503.94 ppb	07:09:17
3	Se 196.026†	673.1	644.4	529.26 µg/L	529.26 ppb	07:09:17
3	SiO2†	51240.3	45748.7	5470.8 µg/L	5470.8 ppb	07:08:57
3	Si 251.611†	57672.3	54470.5	2543.4 µg/L	2543.4 ppb	07:08:57
3	Sn 189.927†	2541.9	2383.0	521.13 µg/L	521.13 ppb	07:09:17
3	Ti 334.940†	218013.5	206859.9	511.37 µg/L	511.37 ppb	07:08:57
3	Tl 190.801†	1500.2	1463.4	512.93 µg/L	512.93 ppb	07:09:17
3	U 367.007†	2332.9	1870.0	478.9 µg/L	478.9 ppb	07:08:57
3	V 292.402†	56666.4	53903.8	517.18 µg/L	517.18 ppb	07:08:57
3	Zn 213.857†	58669.2	54352.7	512.40 µg/L	512.40 ppb	07:08:57

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	712754.1	105.67	%	0.597				0.56%
Sc RADIAL	21401.2	102	%	0.3				0.31%
Y 371.029	609057.2	104.87	%	0.619				0.59%
Ag 328.068†	81286.9	520.32	µg/L	2.680	520.32	ppb	2.680	0.52%
QC value within limits for Ag 328.068 Recovery = 104.06%								
Al 396.153Radial†	17494.7	4979.0	µg/L	31.22	4979.0	ppb	31.22	0.63%
QC value within limits for Al 396.153Radial Recovery = 99.58%								
As 188.979†	899.5	514.88	µg/L	3.510	514.88	ppb	3.510	0.68%
QC value within limits for As 188.979 Recovery = 102.98%								
B 249.677†	17987.5	504.09	µg/L	3.626	504.09	ppb	3.626	0.72%
QC value within limits for B 249.677 Recovery = 100.82%								
Ba 233.527†	60283.3	511.78	µg/L	2.989	511.78	ppb	2.989	0.58%
QC value within limits for Ba 233.527 Recovery = 102.36%								
Be 313.107†	909266.3	513.47	µg/L	0.400	513.47	ppb	0.400	0.08%
QC value within limits for Be 313.107 Recovery = 102.69%								
Ca 317.933Radial†	11008.9	5007.8	µg/L	22.82	5007.8	ppb	22.82	0.46%
QC value within limits for Ca 317.933Radial Recovery = 100.16%								
Cd 226.502†	36240.7	516.48	µg/L	2.308	516.48	ppb	2.308	0.45%
QC value within limits for Cd 226.502 Recovery = 103.30%								
Co 228.616†	20553.7	518.18	µg/L	1.688	518.18	ppb	1.688	0.33%

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   QC value within limits for Co 228.616  Recovery = 103.64%
Cr 267.716†           25140.5      512.20 µg/L         2.548      512.20 ppb          2.548   0.50%
   QC value within limits for Cr 267.716  Recovery = 102.44%
Cu 324.752†          118821.6      507.51 µg/L         3.521      507.51 ppb          3.521   0.69%
   QC value within limits for Cu 324.752  Recovery = 101.50%
Fe 238.204 Radial†     9983.9      5225.8 µg/L         18.69      5225.8 ppb          18.69   0.36%
   QC value within limits for Fe 238.204 Radial  Recovery = 104.52%
K 766.490 Radial†     11105.4      5129.0 µg/L         43.82      5129.0 ppb          43.82   0.85%
   QC value within limits for K 766.490 Radial  Recovery = 102.58%
Mg 279.077 IEC†        1107.5      5211.3 µg/L         21.23      5211.3 ppb          21.23   0.41%
   QC value within limits for Mg 279.077 IEC  Recovery = 104.23%
Mn 257.610†          339355.8      505.25 µg/L         2.797      505.25 ppb          2.797   0.55%
   QC value within limits for Mn 257.610  Recovery = 101.05%
Mo 202.031†            7599.5      512.91 µg/L         2.879      512.91 ppb          2.879   0.56%
   QC value within limits for Mo 202.031  Recovery = 102.58%
Na 589.592 Radial†     6144.5      9901.2 µg/L         66.01      9901.2 ppb          66.01   0.67%
   QC value within limits for Na 589.592 Radial  Recovery = 99.01%
Ni 231.604†           17009.7      522.94 µg/L         1.973      522.94 ppb          1.973   0.38%
   QC value within limits for Ni 231.604  Recovery = 104.59%
P 214.914†             3385.5      2525.5 µg/L         11.63      2525.5 ppb          11.63   0.46%
   QC value within limits for P 214.914  Recovery = 101.02%
Pb 220.353†            3142.4      511.24 µg/L         4.457      511.24 ppb          4.457   0.87%
   QC value within limits for Pb 220.353  Recovery = 102.25%
S 181.975 Axial†        598.3      1044.4 µg/L         10.15      1044.4 ppb          10.15   0.97%
   QC value within limits for S 181.975 Axial  Recovery = 104.44%
Sb 206.836†            1554.2      504.04 µg/L         1.947      504.04 ppb          1.947   0.39%
   QC value within limits for Sb 206.836  Recovery = 100.81%
Se 196.026†             643.7      528.77 µg/L         3.285      528.77 ppb          3.285   0.62%
   QC value within limits for Se 196.026  Recovery = 105.75%
SiO2†                 45597.2      5452.7 µg/L         30.73      5452.7 ppb          30.73   0.56%
   QC value within limits for SiO2  Recovery = 101.97%
Si 251.611†           54309.0      2535.9 µg/L         15.66      2535.9 ppb          15.66   0.62%
   QC value within limits for Si 251.611  Recovery = 101.44%
Sn 189.927†            2376.4      519.69 µg/L         2.360      519.69 ppb          2.360   0.45%
   QC value within limits for Sn 189.927  Recovery = 103.94%
Sr 421.552†          110596.2      507.96 µg/L         1.390      507.96 ppb          1.390   0.27%
   QC value within limits for Sr 421.552  Recovery = 101.59%
Ti 334.940†          206665.8      510.89 µg/L         2.703      510.89 ppb          2.703   0.53%
   QC value within limits for Ti 334.940  Recovery = 102.18%
Tl 190.801†            1462.5      512.62 µg/L         0.697      512.62 ppb          0.697   0.14%
   QC value within limits for Tl 190.801  Recovery = 102.52%
U 367.007†             1867.8       478.2 µg/L          2.15       478.2 ppb           2.15   0.45%
   QC value within limits for U 367.007  Recovery = 95.65%
V 292.402†            53812.1      516.28 µg/L         2.927      516.28 ppb          2.927   0.57%
   QC value within limits for V 292.402  Recovery = 103.26%
Zn 213.857†           54238.0      511.31 µg/L         3.533      511.31 ppb          3.533   0.69%
   QC value within limits for Zn 213.857  Recovery = 102.26%
All analyte(s) passed QC.
```

Sequence No.: 3 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/13/2012 7:09:25**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21375.1	21375.1	102	%			07:09:53
1	Al 396.153Radial†	-32.6	48.1	13.663	µg/L	13.663	ppb	07:09:53
1	Ca 317.933Radial†	117.8	1.9	0.8718	µg/L	0.8718	ppb	07:10:13
1	Fe 238.204 Radial†	45.7	11.8	6.1789	µg/L	6.1789	ppb	07:10:13
1	K 766.490 Radial†	899.8	18.4	8.4871	µg/L	8.4871	ppb	07:09:53
1	Mg 279.077 IEC†	2.4	0.7	3.3420	µg/L	3.3420	ppb	07:10:13
1	Na 589.592 Radial†	-153.3	-5.3	-8.6045	µg/L	-8.6045	ppb	07:09:53
1	Sr 421.552†	-1278.5	63.5	0.2916	µg/L	0.2916	ppb	07:09:53
1	Sc 361.383	703277.5	703277.5	104.27	%			07:11:10
1	Y 371.029	604934.7	604934.7	104.16	%			07:11:10
1	Ag 328.068†	-581.2	70.2	0.4459	µg/L	0.4459	ppb	07:11:15
1	As 188.979†	-10.1	-1.5	-0.8724	µg/L	-0.8724	ppb	07:11:35
1	B 249.677†	150.3	62.3	1.7490	µg/L	1.7490	ppb	07:11:35
1	Ba 233.527†	-115.1	22.0	0.1860	µg/L	0.1860	ppb	07:11:35
1	Be 313.107†	-7741.7	226.1	0.1298	µg/L	0.1298	ppb	07:11:15
1	Cd 226.502†	-212.5	23.0	0.3276	µg/L	0.3276	ppb	07:11:35
1	Co 228.616†	-22.5	9.5	0.2418	µg/L	0.2418	ppb	07:11:35
1	Cr 267.716†	233.4	-1.8	-0.0469	µg/L	-0.0469	ppb	07:11:35
1	Cu 324.752†	5829.2	35.4	0.1427	µg/L	0.1427	ppb	07:11:15
1	Mn 257.610†	438.3	3.9	0.0062	µg/L	0.0062	ppb	07:11:35
1	Mo 202.031†	62.4	29.7	2.0022	µg/L	2.0022	ppb	07:11:35
1	Ni 231.604†	-49.8	-19.7	-0.6075	µg/L	-0.6075	ppb	07:11:35
1	P 214.914†	104.0	-27.1	-20.372	µg/L	-20.372	ppb	07:11:35
1	Pb 220.353†	172.2	-0.4	-0.0627	µg/L	-0.0627	ppb	07:11:35
1	S 181.975 Axial†	59.3	-0.4	-0.6357	µg/L	-0.6357	ppb	07:11:35
1	Sb 206.836†	81.9	14.6	4.7982	µg/L	4.7982	ppb	07:11:35
1	Se 196.026†	3.0	9.3	7.5763	µg/L	7.5763	ppb	07:11:35
1	SiO2†	2920.3	-20.0	-2.2152	µg/L	-2.2152	ppb	07:11:15
1	Si 251.611†	228.6	23.6	1.0771	µg/L	1.0771	ppb	07:11:35
1	Sn 189.927†	31.5	3.8	0.8197	µg/L	0.8197	ppb	07:11:35
1	Ti 334.940†	-169.3	47.9	0.1135	µg/L	0.1135	ppb	07:11:15
1	Tl 190.801†	-31.2	11.5	4.0109	µg/L	4.0109	ppb	07:11:35
1	U 367.007†	399.2	41.6	11.16	µg/L	11.16	ppb	07:11:15
1	V 292.402†	-217.5	-17.5	-0.1341	µg/L	-0.1341	ppb	07:11:15
1	Zn 213.857†	1310.5	-1.5	-0.0111	µg/L	-0.0111	ppb	07:11:35
2	Sc RADIAL	21422.2	21422.2	103	%			07:10:18
2	Al 396.153Radial†	-24.0	56.6	16.131	µg/L	16.131	ppb	07:10:18
2	Ca 317.933Radial†	122.2	6.0	2.7082	µg/L	2.7082	ppb	07:10:38
2	Fe 238.204 Radial†	43.5	9.6	5.0348	µg/L	5.0348	ppb	07:10:38
2	K 766.490 Radial†	944.6	60.1	27.790	µg/L	27.790	ppb	07:10:18
2	Mg 279.077 IEC†	7.6	5.8	27.502	µg/L	27.502	ppb	07:10:38
2	Na 589.592 Radial†	-156.2	-7.8	-12.628	µg/L	-12.628	ppb	07:10:18
2	Sr 421.552†	-1259.6	84.6	0.3887	µg/L	0.3887	ppb	07:10:18
2	Sc 361.383	703938.5	703938.5	104.37	%			07:11:40
2	Y 371.029	605683.1	605683.1	104.28	%			07:11:40
2	Ag 328.068†	-524.1	125.5	0.7995	µg/L	0.7995	ppb	07:11:45
2	As 188.979†	-8.3	0.2	0.1004	µg/L	0.1004	ppb	07:12:05
2	B 249.677†	124.7	37.7	1.0564	µg/L	1.0564	ppb	07:12:05
2	Ba 233.527†	-134.2	3.7	0.0319	µg/L	0.0319	ppb	07:12:05
2	Be 313.107†	-7686.8	285.6	0.1616	µg/L	0.1616	ppb	07:11:45
2	Cd 226.502†	-201.6	33.6	0.4792	µg/L	0.4792	ppb	07:12:05
2	Co 228.616†	-18.2	13.6	0.3440	µg/L	0.3440	ppb	07:12:05
2	Cr 267.716†	230.8	-4.4	-0.0917	µg/L	-0.0917	ppb	07:12:05
2	Cu 324.752†	5777.5	-19.4	-0.0828	µg/L	-0.0828	ppb	07:11:45
2	Mn 257.610†	442.9	7.9	0.0114	µg/L	0.0114	ppb	07:12:05
2	Mo 202.031†	45.2	13.1	0.8856	µg/L	0.8856	ppb	07:12:05
2	Ni 231.604†	-28.1	1.1	0.0338	µg/L	0.0338	ppb	07:12:05
2	P 214.914†	129.4	-2.8	-2.1258	µg/L	-2.1258	ppb	07:12:05
2	Pb 220.353†	185.0	11.8	1.9166	µg/L	1.9166	ppb	07:12:05

2	S 181.975 Axial†	58.1	-1.6	-2.7220 µg/L	-2.7220 ppb	07:12:05
2	Sb 206.836†	82.0	14.6	4.7807 µg/L	4.7807 ppb	07:12:05
2	Se 196.026†	-0.5	5.9	4.7818 µg/L	4.7818 ppb	07:12:05
2	SiO2†	2895.5	-46.3	-5.4793 µg/L	-5.4793 ppb	07:11:45
2	Si 251.611†	213.9	9.3	0.4252 µg/L	0.4252 ppb	07:12:05
2	Sn 189.927†	29.9	2.2	0.4864 µg/L	0.4864 ppb	07:12:05
2	Ti 334.940†	-131.9	83.9	0.2066 µg/L	0.2066 ppb	07:11:45
2	Tl 190.801†	-33.7	9.1	3.1855 µg/L	3.1855 ppb	07:12:05
2	U 367.007†	362.8	6.3	1.676 µg/L	1.676 ppb	07:11:45
2	V 292.402†	-161.9	36.0	0.3513 µg/L	0.3513 ppb	07:11:45
2	Zn 213.857†	1312.1	-1.1	-0.0115 µg/L	-0.0115 ppb	07:12:05
3	Sc RADIAL	21363.4	21363.4	102 %		07:10:43
3	Al 396.153Radial†	-46.2	34.8	9.9030 µg/L	9.9030 ppb	07:10:43
3	Ca 317.933Radial†	114.6	-1.1	-0.5094 µg/L	-0.5094 ppb	07:11:03
3	Fe 238.204 Radial†	36.1	2.4	1.2656 µg/L	1.2656 ppb	07:11:03
3	K 766.490 Radial†	1000.3	117.1	54.138 µg/L	54.138 ppb	07:10:43
3	Mg 279.077 IEC†	5.6	3.9	18.161 µg/L	18.161 ppb	07:11:03
3	Na 589.592 Radial†	-162.5	-14.3	-23.118 µg/L	-23.118 ppb	07:10:43
3	Sr 421.552†	-1317.5	24.7	0.1134 µg/L	0.1134 ppb	07:10:43
3	Sc 361.383	706063.8	706063.8	104.68 %		07:12:10
3	Y 371.029	607604.7	607604.7	104.62 %		07:12:10
3	Ag 328.068†	-554.7	97.7	0.6218 µg/L	0.6218 ppb	07:12:15
3	As 188.979†	-6.1	2.3	1.3219 µg/L	1.3219 ppb	07:12:35
3	B 249.677†	109.5	22.7	0.6373 µg/L	0.6373 ppb	07:12:35
3	Ba 233.527†	-133.8	4.5	0.0385 µg/L	0.0385 ppb	07:12:35
3	Be 313.107†	-7759.9	238.0	0.1344 µg/L	0.1344 ppb	07:12:15
3	Cd 226.502†	-220.5	16.1	0.2303 µg/L	0.2303 ppb	07:12:35
3	Co 228.616†	-15.1	16.6	0.4200 µg/L	0.4200 ppb	07:12:35
3	Cr 267.716†	234.9	-1.3	-0.0256 µg/L	-0.0256 ppb	07:12:35
3	Cu 324.752†	5821.1	5.6	0.0243 µg/L	0.0243 ppb	07:12:15
3	Mn 257.610†	434.1	-1.8	-0.0031 µg/L	-0.0031 ppb	07:12:35
3	Mo 202.031†	52.4	19.9	1.3399 µg/L	1.3399 ppb	07:12:35
3	Ni 231.604†	-19.1	9.8	0.3007 µg/L	0.3007 ppb	07:12:35
3	P 214.914†	129.0	-3.6	-2.7323 µg/L	-2.7323 ppb	07:12:35
3	Pb 220.353†	177.7	4.3	0.7030 µg/L	0.7030 ppb	07:12:35
3	S 181.975 Axial†	57.2	-2.7	-4.6130 µg/L	-4.6130 ppb	07:12:35
3	Sb 206.836†	88.4	20.4	6.6918 µg/L	6.6918 ppb	07:12:35
3	Se 196.026†	-7.3	-0.6	-0.4957 µg/L	-0.4957 ppb	07:12:35
3	SiO2†	2941.1	-11.1	-1.2981 µg/L	-1.2981 ppb	07:12:15
3	Si 251.611†	243.3	36.8	1.7068 µg/L	1.7068 ppb	07:12:35
3	Sn 189.927†	29.4	1.7	0.3738 µg/L	0.3738 ppb	07:12:35
3	Ti 334.940†	-117.3	98.2	0.2426 µg/L	0.2426 ppb	07:12:15
3	Tl 190.801†	-30.3	12.5	4.3562 µg/L	4.3562 ppb	07:12:35
3	U 367.007†	358.7	1.4	0.370 µg/L	0.370 ppb	07:12:15
3	V 292.402†	-171.0	27.7	0.2772 µg/L	0.2772 ppb	07:12:15
3	Zn 213.857†	1316.9	-0.4	-0.0059 µg/L	-0.0059 ppb	07:12:35

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	704426.6	104.44	%	0.216				0.21%
Sc RADIAL	21386.9	102	%	0.1				0.15%
Y 371.029	606074.2	104.35	%	0.237				0.23%
Ag 328.068†	97.8	0.6224	µg/L	0.17682	0.6224	ppb	0.17682	28.41%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	46.5	13.232	µg/L	3.1362	13.232	ppb	3.1362	23.70%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	0.3	0.1833	µg/L	1.09951	0.1833	ppb	1.09951	599.92%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	40.9	1.1476	µg/L	0.56140	1.1476	ppb	0.56140	48.92%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	10.1	0.0855	µg/L	0.08717	0.0855	ppb	0.08717	101.99%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	249.9	0.1419	µg/L	0.01716	0.1419	ppb	0.01716	12.09%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	2.3	1.0235	µg/L	1.61415	1.0235	ppb	1.61415	157.71%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	24.3	0.3457	µg/L	0.12544	0.3457	ppb	0.12544	36.28%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	13.2	0.3353	µg/L	0.08942	0.3353	ppb	0.08942	26.67%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	-2.5	-0.0547 µg/L	0.03374	-0.0547 ppb	0.03374	61.66%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	7.2	0.0281 µg/L	0.11281	0.0281 ppb	0.11281	401.89%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	7.9	4.1598 µg/L	2.57089	4.1598 ppb	2.57089	61.80%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	65.2	30.138 µg/L	22.9157	30.138 ppb	22.9157	76.04%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	3.5	16.335 µg/L	12.1831	16.335 ppb	12.1831	74.58%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	3.3	0.0048 µg/L	0.00732	0.0048 ppb	0.00732	151.17%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	20.9	1.4093 µg/L	0.56151	1.4093 ppb	0.56151	39.84%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	-9.2	-14.783 µg/L	7.4931	-14.783 ppb	7.4931	50.69%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	-3.0	-0.0910 µg/L	0.46677	-0.0910 ppb	0.46677	512.98%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	-11.2	-8.4099 µg/L	10.36353	-8.4099 ppb	10.36353	123.23%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	5.3	0.8523 µg/L	0.99803	0.8523 ppb	0.99803	117.10%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	-1.5	-2.6569 µg/L	1.98944	-2.6569 ppb	1.98944	74.88%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	16.5	5.4235 µg/L	1.09838	5.4235 ppb	1.09838	20.25%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	4.8	3.9541 µg/L	4.09913	3.9541 ppb	4.09913	103.67%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	-25.8	-2.9976 µg/L	2.19765	-2.9976 ppb	2.19765	73.31%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	23.2	1.0697 µg/L	0.64086	1.0697 ppb	0.64086	59.91%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	2.6	0.5600 µg/L	0.23186	0.5600 ppb	0.23186	41.41%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	57.6	0.2646 µg/L	0.13967	0.2646 ppb	0.13967	52.79%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	76.7	0.1876 µg/L	0.06663	0.1876 ppb	0.06663	35.52%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	11.0	3.8509 µg/L	0.60156	3.8509 ppb	0.60156	15.62%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	16.4	4.400 µg/L	5.8866	4.400 ppb	5.8866	133.77%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	15.4	0.1648 µg/L	0.26153	0.1648 ppb	0.26153	158.68%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	-1.0	-0.0095 µg/L	0.00315	-0.0095 ppb	0.00315	33.04%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/13/2012 7:40:31**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21497.5	21497.5	103	%			07:41:21
1	Al 396.153Radial†	17606.3	17182.4	4889.8	µg/L	4889.8	ppb	07:41:01
1	Ca 317.933Radial†	11331.8	10894.3	4955.7	µg/L	4955.7	ppb	07:41:21
1	Fe 238.204 Radial†	10056.6	9736.0	5096.1	µg/L	5096.1	ppb	07:41:21
1	K 766.490 Radial†	12091.9	10885.2	5027.2	µg/L	5027.2	ppb	07:41:01
1	Mg 279.077 IEC†	1131.5	1097.5	5164.6	µg/L	5164.6	ppb	07:41:21
1	Na 589.592 Radial†	6092.2	6062.3	9768.8	µg/L	9768.8	ppb	07:41:21
1	Sr 421.552†	110119.6	108280.7	497.32	µg/L	497.32	ppb	07:41:01
1	Sc 361.383	719349.2	719349.2	106.65	%			07:42:18
1	Y 371.029	614657.7	614657.7	105.83	%			07:42:18
1	Ag 328.068†	85164.9	80482.3	515.14	µg/L	515.14	ppb	07:42:24
1	As 188.979†	947.6	896.7	513.25	µg/L	513.25	ppb	07:42:44
1	B 249.677†	19071.1	17800.2	498.85	µg/L	498.85	ppb	07:42:24
1	Ba 233.527†	63593.4	59760.5	507.35	µg/L	507.35	ppb	07:42:24
1	Be 313.107†	950050.3	898463.7	507.37	µg/L	507.37	ppb	07:42:18
1	Cd 226.502†	38051.0	35905.2	511.72	µg/L	511.72	ppb	07:42:24
1	Co 228.616†	21669.7	20349.6	513.04	µg/L	513.04	ppb	07:42:24
1	Cr 267.716†	26752.6	24858.9	506.46	µg/L	506.46	ppb	07:42:24
1	Cu 324.752†	131253.8	117514.6	501.92	µg/L	501.92	ppb	07:42:24
1	Mn 257.610†	359062.9	336258.2	500.63	µg/L	500.63	ppb	07:42:24
1	Mo 202.031†	8086.3	7552.0	509.70	µg/L	509.70	ppb	07:42:44
1	Ni 231.604†	17917.4	16828.2	517.36	µg/L	517.36	ppb	07:42:24
1	P 214.914†	3726.6	3367.4	2512.1	µg/L	2512.1	ppb	07:42:44
1	Pb 220.353†	3495.4	3112.0	506.32	µg/L	506.32	ppb	07:42:44
1	S 181.975 Axial†	696.0	595.4	1039.3	µg/L	1039.3	ppb	07:42:44
1	Sb 206.836†	1728.6	1556.8	504.97	µg/L	504.97	ppb	07:42:44
1	Se 196.026†	670.7	635.3	521.79	µg/L	521.79	ppb	07:42:44
1	SiO2†	51134.1	45125.0	5396.2	µg/L	5396.2	ppb	07:42:24
1	Si 251.611†	57393.7	53619.4	2503.6	µg/L	2503.6	ppb	07:42:24
1	Sn 189.927†	2538.2	2353.5	514.68	µg/L	514.68	ppb	07:42:44
1	Ti 334.940†	217905.3	204528.8	505.61	µg/L	505.61	ppb	07:42:24
1	Tl 190.801†	1499.7	1447.6	507.39	µg/L	507.39	ppb	07:42:44
1	U 367.007†	2317.0	1831.2	469.0	µg/L	469.0	ppb	07:42:24
1	V 292.402†	56518.2	53185.3	510.30	µg/L	510.30	ppb	07:42:24
1	Zn 213.857†	58516.0	53609.0	505.39	µg/L	505.39	ppb	07:42:24
2	Sc RADIAL	21546.7	21546.7	103	%			07:41:47
2	Al 396.153Radial†	17728.6	17261.9	4912.5	µg/L	4912.5	ppb	07:41:27
2	Ca 317.933Radial†	11371.2	10907.4	4961.6	µg/L	4961.6	ppb	07:41:47
2	Fe 238.204 Radial†	10074.6	9731.2	5093.6	µg/L	5093.6	ppb	07:41:47
2	K 766.490 Radial†	12180.6	10944.4	5054.5	µg/L	5054.5	ppb	07:41:27
2	Mg 279.077 IEC†	1131.1	1094.6	5150.7	µg/L	5150.7	ppb	07:41:47
2	Na 589.592 Radial†	6152.7	6107.5	9841.6	µg/L	9841.6	ppb	07:41:47
2	Sr 421.552†	111178.3	109062.6	500.91	µg/L	500.91	ppb	07:41:27
2	Sc 361.383	715851.5	715851.5	106.13	%			07:42:49
2	Y 371.029	611866.7	611866.7	105.35	%			07:42:49
2	Ag 328.068†	85895.4	81560.8	522.03	µg/L	522.03	ppb	07:42:55
2	As 188.979†	943.0	896.7	513.28	µg/L	513.28	ppb	07:43:15
2	B 249.677†	19276.9	18081.4	506.74	µg/L	506.74	ppb	07:42:55
2	Ba 233.527†	64119.9	60548.0	514.04	µg/L	514.04	ppb	07:42:55
2	Be 313.107†	949547.4	902342.4	509.56	µg/L	509.56	ppb	07:42:49
2	Cd 226.502†	38463.9	36468.6	519.76	µg/L	519.76	ppb	07:42:55
2	Co 228.616†	21913.4	20678.5	521.32	µg/L	521.32	ppb	07:42:55
2	Cr 267.716†	27033.3	25245.9	514.35	µg/L	514.35	ppb	07:42:55
2	Cu 324.752†	132462.6	119254.9	509.34	µg/L	509.34	ppb	07:42:55
2	Mn 257.610†	362260.1	340915.7	507.56	µg/L	507.56	ppb	07:42:55
2	Mo 202.031†	8065.8	7569.7	510.90	µg/L	510.90	ppb	07:43:15
2	Ni 231.604†	18119.3	17100.6	525.73	µg/L	525.73	ppb	07:42:55
2	P 214.914†	3749.6	3406.2	2541.1	µg/L	2541.1	ppb	07:43:15
2	Pb 220.353†	3517.3	3148.7	512.27	µg/L	512.27	ppb	07:43:15

2	S 181.975 Axial†	685.5	588.7	1027.5 µg/L	1027.5 ppb		07:43:15
2	Sb 206.836†	1719.1	1555.8	504.49 µg/L	504.49 ppb		07:43:15
2	Se 196.026†	672.3	639.8	525.48 µg/L	525.48 ppb		07:43:15
2	SiO2†	51673.6	45867.6	5484.8 µg/L	5484.8 ppb		07:42:55
2	Si 251.611†	57987.0	54441.4	2542.1 µg/L	2542.1 ppb		07:42:55
2	Sn 189.927†	2546.3	2372.8	518.89 µg/L	518.89 ppb		07:43:15
2	Ti 334.940†	219706.6	207224.3	512.27 µg/L	512.27 ppb		07:42:55
2	Tl 190.801†	1501.6	1456.3	510.44 µg/L	510.44 ppb		07:43:15
2	U 367.007†	2322.6	1847.2	473.3 µg/L	473.3 ppb		07:42:55
2	V 292.402†	57064.0	53958.5	517.65 µg/L	517.65 ppb		07:42:55
2	Zn 213.857†	59246.1	54565.1	514.42 µg/L	514.42 ppb		07:42:55
3	Sc RADIAL	21476.0	21476.0	103 %			07:42:12
3	Al 396.153Radial†	17796.0	17384.0	4947.4 µg/L	4947.4 ppb		07:41:52
3	Ca 317.933Radial†	11304.2	10878.6	4948.5 µg/L	4948.5 ppb		07:42:12
3	Fe 238.204 Radial†	10040.6	9730.2	5093.1 µg/L	5093.1 ppb		07:42:12
3	K 766.490 Radial†	12230.1	11031.4	5094.8 µg/L	5094.8 ppb		07:41:52
3	Mg 279.077 IEC†	1133.2	1100.3	5177.6 µg/L	5177.6 ppb		07:42:12
3	Na 589.592 Radial†	6049.1	6026.4	9710.9 µg/L	9710.9 ppb		07:42:12
3	Sr 421.552†	111759.7	109982.8	505.14 µg/L	505.14 ppb		07:41:52
3	Sc 361.383	715528.3	715528.3	106.08 %			07:43:20
3	Y 371.029	610862.6	610862.6	105.18 %			07:43:20
3	Ag 328.068†	85164.6	80908.5	517.87 µg/L	517.87 ppb		07:43:25
3	As 188.979†	950.3	903.9	517.42 µg/L	517.42 ppb		07:43:45
3	B 249.677†	19101.0	17923.8	502.32 µg/L	502.32 ppb		07:43:25
3	Ba 233.527†	63561.6	60049.0	509.80 µg/L	509.80 ppb		07:43:25
3	Be 313.107†	949925.1	903102.6	509.99 µg/L	509.99 ppb		07:43:20
3	Cd 226.502†	38127.0	36167.4	515.46 µg/L	515.46 ppb		07:43:25
3	Co 228.616†	21709.3	20495.4	516.71 µg/L	516.71 ppb		07:43:25
3	Cr 267.716†	26755.9	24996.0	509.26 µg/L	509.26 ppb		07:43:25
3	Cu 324.752†	131250.9	118169.0	504.72 µg/L	504.72 ppb		07:43:25
3	Mn 257.610†	359219.2	338203.3	503.53 µg/L	503.53 ppb		07:43:25
3	Mo 202.031†	8048.0	7556.4	510.00 µg/L	510.00 ppb		07:43:45
3	Ni 231.604†	17962.1	16960.1	521.41 µg/L	521.41 ppb		07:43:25
3	P 214.914†	3718.9	3378.8	2520.6 µg/L	2520.6 ppb		07:43:45
3	Pb 220.353†	3510.6	3143.8	511.47 µg/L	511.47 ppb		07:43:45
3	S 181.975 Axial†	691.1	594.2	1037.3 µg/L	1037.3 ppb		07:43:45
3	Sb 206.836†	1712.5	1550.3	502.79 µg/L	502.79 ppb		07:43:45
3	Se 196.026†	666.4	634.5	521.19 µg/L	521.19 ppb		07:43:45
3	SiO2†	51361.8	45595.7	5452.1 µg/L	5452.1 ppb		07:43:25
3	Si 251.611†	57665.4	54162.9	2529.1 µg/L	2529.1 ppb		07:43:25
3	Sn 189.927†	2542.1	2369.9	518.26 µg/L	518.26 ppb		07:43:45
3	Ti 334.940†	217918.4	205632.2	508.34 µg/L	508.34 ppb		07:43:25
3	Tl 190.801†	1500.8	1456.2	510.39 µg/L	510.39 ppb		07:43:45
3	U 367.007†	2285.1	1812.7	464.1 µg/L	464.1 ppb		07:43:25
3	V 292.402†	56656.4	53598.6	514.21 µg/L	514.21 ppb		07:43:25
3	Zn 213.857†	58661.5	54039.2	509.45 µg/L	509.45 ppb		07:43:25

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	716909.7	106.29	%	0.314				0.30%
Sc RADIAL	21506.8	103	%	0.2				0.17%
Y 371.029	612462.3	105.45	%	0.339				0.32%
Ag 328.068†	80983.9	518.35	µg/L	3.469	518.35	ppb	3.469	0.67%
QC value within limits for Ag 328.068 Recovery = 103.67%								
Al 396.153Radial†	17276.1	4916.6	µg/L	29.02	4916.6	ppb	29.02	0.59%
QC value within limits for Al 396.153Radial Recovery = 98.33%								
As 188.979†	899.1	514.65	µg/L	2.398	514.65	ppb	2.398	0.47%
QC value within limits for As 188.979 Recovery = 102.93%								
B 249.677†	17935.1	502.64	µg/L	3.956	502.64	ppb	3.956	0.79%
QC value within limits for B 249.677 Recovery = 100.53%								
Ba 233.527†	60119.2	510.39	µg/L	3.383	510.39	ppb	3.383	0.66%
QC value within limits for Ba 233.527 Recovery = 102.08%								
Be 313.107†	901302.9	508.97	µg/L	1.404	508.97	ppb	1.404	0.28%
QC value within limits for Be 313.107 Recovery = 101.79%								
Ca 317.933Radial†	10893.5	4955.3	µg/L	6.57	4955.3	ppb	6.57	0.13%
QC value within limits for Ca 317.933Radial Recovery = 99.11%								
Cd 226.502†	36180.4	515.64	µg/L	4.024	515.64	ppb	4.024	0.78%
QC value within limits for Cd 226.502 Recovery = 103.13%								
Co 228.616†	20507.8	517.02	µg/L	4.151	517.02	ppb	4.151	0.80%

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   QC value within limits for Co 228.616  Recovery = 103.40%
Cr 267.716†          25033.6      510.02 µg/L         3.997      510.02 ppb          3.997   0.78%
   QC value within limits for Cr 267.716  Recovery = 102.00%
Cu 324.752†         118312.8      505.33 µg/L         3.749      505.33 ppb          3.749   0.74%
   QC value within limits for Cu 324.752  Recovery = 101.07%
Fe 238.204 Radial†      9732.5      5094.3 µg/L          1.59      5094.3 ppb           1.59   0.03%
   QC value within limits for Fe 238.204 Radial  Recovery = 101.89%
K 766.490 Radial†      10953.7      5058.8 µg/L         33.98      5058.8 ppb          33.98   0.67%
   QC value within limits for K 766.490 Radial  Recovery = 101.18%
Mg 279.077 IEC†         1097.5      5164.3 µg/L         13.43      5164.3 ppb          13.43   0.26%
   QC value within limits for Mg 279.077 IEC  Recovery = 103.29%
Mn 257.610†          338459.1      503.91 µg/L         3.481      503.91 ppb          3.481   0.69%
   QC value within limits for Mn 257.610  Recovery = 100.78%
Mo 202.031†             7559.3      510.20 µg/L         0.622      510.20 ppb          0.622   0.12%
   QC value within limits for Mo 202.031  Recovery = 102.04%
Na 589.592 Radial†      6065.4      9773.8 µg/L         65.45      9773.8 ppb          65.45   0.67%
   QC value within limits for Na 589.592 Radial  Recovery = 97.74%
Ni 231.604†            16962.9      521.50 µg/L         4.186      521.50 ppb          4.186   0.80%
   QC value within limits for Ni 231.604  Recovery = 104.30%
P 214.914†              3384.1      2524.6 µg/L         14.88      2524.6 ppb          14.88   0.59%
   QC value within limits for P 214.914  Recovery = 100.98%
Pb 220.353†             3134.8      510.02 µg/L         3.230      510.02 ppb          3.230   0.63%
   QC value within limits for Pb 220.353  Recovery = 102.00%
S 181.975 Axial†         592.8      1034.7 µg/L          6.27      1034.7 ppb           6.27   0.61%
   QC value within limits for S 181.975 Axial  Recovery = 103.47%
Sb 206.836†             1554.3      504.08 µg/L         1.144      504.08 ppb          1.144   0.23%
   QC value within limits for Sb 206.836  Recovery = 100.82%
Se 196.026†              636.5      522.82 µg/L         2.322      522.82 ppb          2.322   0.44%
   QC value within limits for Se 196.026  Recovery = 104.56%
SiO2†                  45529.4      5444.4 µg/L         44.83      5444.4 ppb          44.83   0.82%
   QC value within limits for SiO2  Recovery = 101.81%
Si 251.611†            54074.6      2525.0 µg/L         19.57      2525.0 ppb          19.57   0.78%
   QC value within limits for Si 251.611  Recovery = 101.00%
Sn 189.927†             2365.4      517.28 µg/L         2.273      517.28 ppb          2.273   0.44%
   QC value within limits for Sn 189.927  Recovery = 103.46%
Sr 421.552†          109108.7      501.13 µg/L         3.913      501.13 ppb          3.913   0.78%
   QC value within limits for Sr 421.552  Recovery = 100.23%
Ti 334.940†          205795.1      508.74 µg/L         3.350      508.74 ppb          3.350   0.66%
   QC value within limits for Ti 334.940  Recovery = 101.75%
Tl 190.801†             1453.4      509.41 µg/L         1.749      509.41 ppb          1.749   0.34%
   QC value within limits for Tl 190.801  Recovery = 101.88%
U 367.007†              1830.4       468.8 µg/L          4.64       468.8 ppb           4.64   0.99%
   QC value within limits for U 367.007  Recovery = 93.76%
V 292.402†             53580.8      514.05 µg/L         3.677      514.05 ppb          3.677   0.72%
   QC value within limits for V 292.402  Recovery = 102.81%
Zn 213.857†            54071.1      509.75 µg/L         4.524      509.75 ppb          4.524   0.89%
   QC value within limits for Zn 213.857  Recovery = 101.95%
All analyte(s) passed QC.
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Sequence No.: 12 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/13/2012 7:43:53**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21690.0	21690.0	104	%			07:44:21
1	Al 396.153Radial†	-62.5	19.8	5.6092	µg/L	5.6092	ppb	07:44:21
1	Ca 317.933Radial†	122.4	4.7	2.1437	µg/L	2.1437	ppb	07:44:41
1	Fe 238.204 Radial†	38.5	4.2	2.2120	µg/L	2.2120	ppb	07:44:41
1	K 766.490 Radial†	877.7	-15.7	-7.2502	µg/L	-7.2502	ppb	07:44:21
1	Mg 279.077 IEC†	8.0	6.1	28.716	µg/L	28.716	ppb	07:44:41
1	Na 589.592 Radial†	-163.6	-13.0	-20.956	µg/L	-20.956	ppb	07:44:21
1	Sr 421.552†	-1303.5	57.6	0.2644	µg/L	0.2644	ppb	07:44:21
1	Sc 361.383	713206.8	713206.8	105.74	%			07:45:38
1	Y 371.029	613295.3	613295.3	105.60	%			07:45:38
1	Ag 328.068†	-655.9	7.3	0.0486	µg/L	0.0486	ppb	07:45:43
1	As 188.979†	-17.2	-8.2	-4.6794	µg/L	-4.6794	ppb	07:46:03
1	B 249.677†	110.3	22.5	0.6309	µg/L	0.6309	ppb	07:46:03
1	Ba 233.527†	-99.8	38.0	0.3222	µg/L	0.3222	ppb	07:46:03
1	Be 313.107†	-7656.0	410.5	0.2323	µg/L	0.2323	ppb	07:45:43
1	Cd 226.502†	-243.8	-3.7	-0.0529	µg/L	-0.0529	ppb	07:46:03
1	Co 228.616†	-37.0	-3.9	-0.0980	µg/L	-0.0980	ppb	07:46:03
1	Cr 267.716†	214.6	-22.7	-0.4653	µg/L	-0.4653	ppb	07:46:03
1	Cu 324.752†	5532.6	-323.0	-1.3778	µg/L	-1.3778	ppb	07:45:43
1	Mn 257.610†	435.9	-4.2	-0.0070	µg/L	-0.0070	ppb	07:46:03
1	Mo 202.031†	47.0	14.3	0.9670	µg/L	0.9670	ppb	07:46:03
1	Ni 231.604†	3.4	31.2	0.9605	µg/L	0.9605	ppb	07:46:03
1	P 214.914†	128.6	-5.2	-3.8807	µg/L	-3.8807	ppb	07:46:03
1	Pb 220.353†	182.3	6.9	1.1213	µg/L	1.1213	ppb	07:46:03
1	S 181.975 Axial†	56.4	-4.0	-6.8857	µg/L	-6.8857	ppb	07:46:03
1	Sb 206.836†	85.6	17.0	5.5840	µg/L	5.5840	ppb	07:46:03
1	Se 196.026†	-6.0	0.7	0.5439	µg/L	0.5439	ppb	07:46:03
1	SiO2†	2870.0	-106.6	-12.637	µg/L	-12.637	ppb	07:45:43
1	Si 251.611†	206.0	-0.9	-0.0561	µg/L	-0.0561	ppb	07:46:03
1	Sn 189.927†	33.0	4.8	1.0548	µg/L	1.0548	ppb	07:46:03
1	Ti 334.940†	-141.8	76.3	0.1872	µg/L	0.1872	ppb	07:45:43
1	Tl 190.801†	-37.3	6.2	2.1545	µg/L	2.1545	ppb	07:46:03
1	U 367.007†	373.1	11.5	3.097	µg/L	3.097	ppb	07:45:43
1	V 292.402†	-175.4	25.2	0.2507	µg/L	0.2507	ppb	07:45:43
1	Zn 213.857†	1266.1	-61.0	-0.5852	µg/L	-0.5852	ppb	07:46:03
2	Sc RADIAL	21826.4	21826.4	105	%			07:44:46
2	Al 396.153Radial†	-45.8	36.1	10.274	µg/L	10.274	ppb	07:44:46
2	Ca 317.933Radial†	116.2	-2.0	-0.9037	µg/L	-0.9037	ppb	07:45:06
2	Fe 238.204 Radial†	37.4	2.9	1.5393	µg/L	1.5393	ppb	07:45:06
2	K 766.490 Radial†	890.7	-8.5	-3.9148	µg/L	-3.9148	ppb	07:44:46
2	Mg 279.077 IEC†	7.6	5.7	26.662	µg/L	26.662	ppb	07:45:06
2	Na 589.592 Radial†	-159.8	-8.4	-13.612	µg/L	-13.612	ppb	07:44:46
2	Sr 421.552†	-1320.2	49.4	0.2270	µg/L	0.2270	ppb	07:44:46
2	Sc 361.383	710889.0	710889.0	105.40	%			07:46:08
2	Y 371.029	611226.2	611226.2	105.24	%			07:46:08
2	Ag 328.068†	-599.3	59.0	0.3734	µg/L	0.3734	ppb	07:46:13
2	As 188.979†	-14.5	-5.6	-3.2027	µg/L	-3.2027	ppb	07:46:33
2	B 249.677†	130.4	41.9	1.1763	µg/L	1.1763	ppb	07:46:33
2	Ba 233.527†	-117.3	21.1	0.1782	µg/L	0.1782	ppb	07:46:33
2	Be 313.107†	-7779.8	269.5	0.1516	µg/L	0.1516	ppb	07:46:13
2	Cd 226.502†	-253.7	-13.9	-0.1988	µg/L	-0.1988	ppb	07:46:33
2	Co 228.616†	-28.8	3.7	0.0948	µg/L	0.0948	ppb	07:46:33
2	Cr 267.716†	217.1	-19.6	-0.3976	µg/L	-0.3976	ppb	07:46:33
2	Cu 324.752†	5646.1	-198.2	-0.8419	µg/L	-0.8419	ppb	07:46:13
2	Mn 257.610†	446.9	7.6	0.0106	µg/L	0.0106	ppb	07:46:33
2	Mo 202.031†	50.1	17.4	1.1746	µg/L	1.1746	ppb	07:46:33
2	Ni 231.604†	-34.2	-4.5	-0.1373	µg/L	-0.1373	ppb	07:46:33
2	P 214.914†	126.3	-7.0	-5.2736	µg/L	-5.2736	ppb	07:46:33
2	Pb 220.353†	145.6	-27.3	-4.4364	µg/L	-4.4364	ppb	07:46:33

2	S 181.975 Axial†	58.5	-1.8	-3.1177 µg/L	-3.1177 ppb	07:46:33
2	Sb 206.836†	98.5	29.4	9.6383 µg/L	9.6383 ppb	07:46:33
2	Se 196.026†	-8.3	-1.5	-1.2066 µg/L	-1.2066 ppb	07:46:33
2	SiO2†	2927.1	-43.5	-5.1951 µg/L	-5.1951 ppb	07:46:13
2	Si 251.611†	220.6	13.7	0.6268 µg/L	0.6268 ppb	07:46:33
2	Sn 189.927†	26.9	-0.9	-0.1982 µg/L	-0.1982 ppb	07:46:33
2	Ti 334.940†	-196.2	24.1	0.0605 µg/L	0.0605 ppb	07:46:13
2	Tl 190.801†	-40.2	3.2	1.1254 µg/L	1.1254 ppb	07:46:33
2	U 367.007†	352.0	-7.3	-1.977 µg/L	-1.977 ppb	07:46:13
2	V 292.402†	-229.2	-26.4	-0.2393 µg/L	-0.2393 ppb	07:46:13
2	Zn 213.857†	1245.5	-76.7	-0.7279 µg/L	-0.7279 ppb	07:46:33
3	Sc RADIAL	21557.5	21557.5	103 %		07:45:11
3	Al 396.153Radial†	-89.4	-6.6	-1.9240 µg/L	-1.9240 ppb	07:45:11
3	Ca 317.933Radial†	110.6	-6.0	-2.7272 µg/L	-2.7272 ppb	07:45:31
3	Fe 238.204 Radial†	34.8	0.9	0.4793 µg/L	0.4793 ppb	07:45:31
3	K 766.490 Radial†	920.6	31.1	14.357 µg/L	14.357 ppb	07:45:11
3	Mg 279.077 IEC†	5.4	3.7	17.179 µg/L	17.179 ppb	07:45:31
3	Na 589.592 Radial†	-165.7	-16.0	-25.834 µg/L	-25.834 ppb	07:45:11
3	Sr 421.552†	-1301.4	51.9	0.2384 µg/L	0.2384 ppb	07:45:11
3	Sc 361.383	707104.0	707104.0	104.83 %		07:46:38
3	Y 371.029	607905.2	607905.2	104.67 %		07:46:38
3	Ag 328.068†	-544.4	108.3	0.6866 µg/L	0.6866 ppb	07:46:43
3	As 188.979†	-9.8	-1.2	-0.6828 µg/L	-0.6828 ppb	07:47:03
3	B 249.677†	94.3	8.1	0.2265 µg/L	0.2265 ppb	07:47:03
3	Ba 233.527†	-132.6	5.9	0.0494 µg/L	0.0494 ppb	07:47:03
3	Be 313.107†	-7645.7	357.8	0.2004 µg/L	0.2004 ppb	07:46:43
3	Cd 226.502†	-221.7	15.3	0.2187 µg/L	0.2187 ppb	07:47:03
3	Co 228.616†	-20.1	11.9	0.3012 µg/L	0.3012 ppb	07:47:03
3	Cr 267.716†	236.9	0.4	0.0148 µg/L	0.0148 ppb	07:47:03
3	Cu 324.752†	5629.0	-185.9	-0.7845 µg/L	-0.7845 ppb	07:46:43
3	Mn 257.610†	436.1	-0.5	-0.0011 µg/L	-0.0011 ppb	07:47:03
3	Mo 202.031†	49.2	16.7	1.1291 µg/L	1.1291 ppb	07:47:03
3	Ni 231.604†	-10.3	18.2	0.5597 µg/L	0.5597 ppb	07:47:03
3	P 214.914†	127.2	-5.5	-4.1173 µg/L	-4.1173 ppb	07:47:03
3	Pb 220.353†	158.7	-14.1	-2.2795 µg/L	-2.2795 ppb	07:47:03
3	S 181.975 Axial†	56.8	-3.0	-5.2799 µg/L	-5.2799 ppb	07:47:03
3	Sb 206.836†	94.0	25.7	8.4063 µg/L	8.4063 ppb	07:47:03
3	Se 196.026†	-8.2	-1.5	-1.2002 µg/L	-1.2002 ppb	07:47:03
3	SiO2†	2843.8	-108.1	-12.920 µg/L	-12.920 ppb	07:46:43
3	Si 251.611†	202.1	-2.9	-0.1508 µg/L	-0.1508 ppb	07:47:03
3	Sn 189.927†	31.3	3.5	0.7642 µg/L	0.7642 ppb	07:47:03
3	Ti 334.940†	-65.8	147.5	0.3681 µg/L	0.3681 ppb	07:46:43
3	Tl 190.801†	-38.7	4.5	1.5645 µg/L	1.5645 ppb	07:47:03
3	U 367.007†	328.3	-28.2	-7.582 µg/L	-7.582 ppb	07:46:43
3	V 292.402†	-218.0	-16.9	-0.1537 µg/L	-0.1537 ppb	07:46:43
3	Zn 213.857†	1246.0	-69.8	-0.6668 µg/L	-0.6668 ppb	07:47:03

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	710399.9	105.32	%	0.457				0.43%
Sc RADIAL	21691.3	104	%	0.6				0.62%
Y 371.029	610808.9	105.17	%	0.468				0.45%
Ag 328.068†	58.2	0.3695	µg/L	0.31902	0.3695	ppb	0.31902	86.33%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	16.4	4.6530	µg/L	6.15486	4.6530	ppb	6.15486	132.28%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-5.0	-2.8550	µg/L	2.02083	-2.8550	ppb	2.02083	70.78%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	24.2	0.6779	µg/L	0.47661	0.6779	ppb	0.47661	70.31%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	21.6	0.1833	µg/L	0.13649	0.1833	ppb	0.13649	74.47%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	345.9	0.1948	µg/L	0.04061	0.1948	ppb	0.04061	20.85%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-1.1	-0.4957	µg/L	2.46092	-0.4957	ppb	2.46092	496.42%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	-0.8	-0.0110	µg/L	0.21186	-0.0110	ppb	0.21186	>999.9%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	3.9	0.0993	µg/L	0.19963	0.0993	ppb	0.19963	200.96%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -14.0     -0.2827 µg/L       0.25985     -0.2827 ppb        0.25985  91.91%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              -235.7    -1.0014 µg/L       0.32725     -1.0014 ppb        0.32725  32.68%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         2.7      1.4102 µg/L       0.87353      1.4102 ppb        0.87353  61.94%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†          2.3      1.0642 µg/L      11.63248      1.0642 ppb       11.63248 >999.9%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            5.1      24.186 µg/L        6.1541      24.186 ppb         6.1541  25.45%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†                1.0      0.0008 µg/L       0.00894      0.0008 ppb        0.00894 >999.9%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               16.2      1.0902 µg/L       0.10912      1.0902 ppb        0.10912  10.01%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -12.5     -20.134 µg/L        6.1524     -20.134 ppb         6.1524  30.56%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               15.0      0.4609 µg/L       0.55552      0.4609 ppb        0.55552 120.52%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -5.9     -4.4238 µg/L       0.74536     -4.4238 ppb        0.74536  16.85%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              -11.5     -1.8649 µg/L       2.80198     -1.8649 ppb        2.80198 150.25%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -2.9     -5.0944 µg/L       1.89081     -5.0944 ppb        1.89081  37.12%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               24.0      7.8762 µg/L       2.07845      7.8762 ppb        2.07845  26.39%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -0.8     -0.6210 µg/L       1.00880     -0.6210 ppb        1.00880 162.46%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    -86.1     -10.251 µg/L        4.3805     -10.251 ppb         4.3805  42.73%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               3.3      0.1400 µg/L       0.42427      0.1400 ppb        0.42427 303.13%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               2.5      0.5403 µg/L       0.65586      0.5403 ppb        0.65586 121.39%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              53.0      0.2433 µg/L       0.01914      0.2433 ppb        0.01914   7.87%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              82.6      0.2053 µg/L       0.15459      0.2053 ppb        0.15459  75.31%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               4.6      1.6148 µg/L       0.51638      1.6148 ppb        0.51638  31.98%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                -8.0     -2.154 µg/L        5.3416     -2.154 ppb         5.3416 248.02%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                -6.0     -0.0474 µg/L       0.26174     -0.0474 ppb        0.26174 552.03%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -69.1     -0.6600 µg/L       0.07158     -0.6600 ppb        0.07158  10.85%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
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Analysis Begun

Start Time: 6/13/2012 7:54:38 **Plasma On Time: 6/12/2012 10:37:26**
Logged In Analyst: optima3 **Technique: ICP Continuous**
Spectrometer Model: Optima 5300 DV, S/N 077C7090601Autosampler Model: AS-93plus

Sample Information File: C:\pe\Optima3\Sample Information\061312.sif
Batch ID:
Results Data Set: 061312
Results Library: C:\pe\Optima3\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 301**
Sample ID: 1202676785|1220620|1 **Date Collected: 6/13/2012 7:54:39**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202676785|1220620|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21234.6	21234.6	102	%			07:55:09
1	Al 396.153Radial†	-53.0	27.8	7.9653	µg/L	7.9653	ppb	07:55:09
1	Ca 317.933Radial†	207.5	90.9	41.364	µg/L	41.364	ppb	07:55:30
1	Fe 238.204 Radial†	141.9	106.7	55.784	µg/L	55.784	ppb	07:55:30
1	K 766.490 Radial†	878.7	3.4	1.5970	µg/L	1.5970	ppb	07:55:09
1	Mg 279.077 IEC†	5.1	3.4	16.132	µg/L	16.132	ppb	07:55:30
1	Na 589.592 Radial†	-113.2	33.1	53.387	µg/L	53.387	ppb	07:55:09
1	Sr 421.552†	-1317.5	16.9	0.0773	µg/L	0.0773	ppb	07:55:09
1	Sc 361.383	698791.6	698791.6	103.60	%			07:56:26
1	Y 371.029	599854.5	599854.5	103.28	%			07:56:26
1	Ag 328.068†	-534.3	111.9	0.7273	µg/L	0.7273	ppb	07:56:31
1	As 188.979†	-6.6	1.8	1.0315	µg/L	1.0315	ppb	07:56:51
1	B 249.677†	123.5	37.4	1.0423	µg/L	1.0423	ppb	07:56:51
1	Ba 233.527†	-64.5	70.1	0.5933	µg/L	0.5933	ppb	07:56:51
1	Be 313.107†	-7714.6	204.6	0.1164	µg/L	0.1164	ppb	07:56:31
1	Cd 226.502†	-243.3	-8.0	-0.1235	µg/L	-0.1235	ppb	07:56:51
1	Co 228.616†	-25.0	6.9	0.1731	µg/L	0.1731	ppb	07:56:51
1	Cr 267.716†	236.3	2.5	0.0482	µg/L	0.0482	ppb	07:56:51
1	Cu 324.752†	6019.5	255.0	1.0921	µg/L	1.0921	ppb	07:56:31
1	Mn 257.610†	2650.6	2142.0	3.1917	µg/L	3.1917	ppb	07:56:51
1	Mo 202.031†	25.2	-5.8	-0.3918	µg/L	-0.3918	ppb	07:56:51
1	Ni 231.604†	-25.7	3.2	0.0998	µg/L	0.0998	ppb	07:56:51
1	P 214.914†	136.6	5.0	3.6810	µg/L	3.6810	ppb	07:56:51
1	Pb 220.353†	195.3	23.0	3.7434	µg/L	3.7434	ppb	07:56:51
1	S 181.975 Axial†	93.8	33.3	57.990	µg/L	57.990	ppb	07:56:51
1	Sb 206.836†	60.4	-5.6	-1.8324	µg/L	-1.8324	ppb	07:56:51
1	Se 196.026†	-14.1	-7.3	-5.8955	µg/L	-5.8955	ppb	07:56:51
1	SiO2†	3175.3	244.2	29.008	µg/L	29.008	ppb	07:56:31
1	Si 251.611†	546.4	331.8	15.523	µg/L	15.523	ppb	07:56:51
1	Sn 189.927†	54.9	26.6	5.8087	µg/L	5.8087	ppb	07:56:51
1	Ti 334.940†	30.4	239.7	0.5923	µg/L	0.5923	ppb	07:56:31
1	Tl 190.801†	-39.4	3.4	1.1916	µg/L	1.1916	ppb	07:56:51
1	U 367.007†	366.8	12.8	3.163	µg/L	3.163	ppb	07:56:31
1	V 292.402†	-148.0	48.2	0.4547	µg/L	0.4547	ppb	07:56:31
1	Zn 213.857†	2662.6	1311.6	12.464	µg/L	12.464	ppb	07:56:51
2	Sc RADIAL	21446.4	21446.4	103	%			07:55:35
2	Al 396.153Radial†	-9.6	70.6	20.190	µg/L	20.190	ppb	07:55:35
2	Ca 317.933Radial†	203.6	85.1	38.706	µg/L	38.706	ppb	07:55:55
2	Fe 238.204 Radial†	144.0	107.3	56.133	µg/L	56.133	ppb	07:55:55
2	K 766.490 Radial†	873.0	-10.6	-4.8951	µg/L	-4.8951	ppb	07:55:35
2	Mg 279.077 IEC†	0.5	-1.1	-5.2571	µg/L	-5.2571	ppb	07:55:55
2	Na 589.592 Radial†	-113.6	33.8	54.517	µg/L	54.517	ppb	07:55:35
2	Sr 421.552†	-1289.3	57.1	0.2622	µg/L	0.2622	ppb	07:55:35
2	Sc 361.383	696062.6	696062.6	103.20	%			07:56:56
2	Y 371.029	597790.5	597790.5	102.93	%			07:56:56
2	Ag 328.068†	-465.3	176.7	1.1361	µg/L	1.1361	ppb	07:57:01
2	As 188.979†	-7.1	1.3	0.7365	µg/L	0.7365	ppb	07:57:21

2	B 249.677†	137.5	51.4	1.4353 µg/L	1.4353 ppb	07:57:21
2	Ba 233.527†	-90.9	44.2	0.3734 µg/L	0.3734 ppb	07:57:21
2	Be 313.107†	-7745.9	145.0	0.0814 µg/L	0.0814 ppb	07:57:01
2	Cd 226.502†	-214.7	18.7	0.2583 µg/L	0.2583 ppb	07:57:21
2	Co 228.616†	-22.4	9.4	0.2347 µg/L	0.2347 ppb	07:57:21
2	Cr 267.716†	244.4	11.2	0.2325 µg/L	0.2325 ppb	07:57:21
2	Cu 324.752†	6072.8	329.4	1.4149 µg/L	1.4149 ppb	07:57:01
2	Mn 257.610†	2663.3	2164.3	3.2256 µg/L	3.2256 ppb	07:57:21
2	Mo 202.031†	23.5	-7.4	-0.4982 µg/L	-0.4982 ppb	07:57:21
2	Ni 231.604†	-24.2	4.5	0.1401 µg/L	0.1401 ppb	07:57:21
2	P 214.914†	121.3	-9.3	-7.0254 µg/L	-7.0254 ppb	07:57:21
2	Pb 220.353†	200.8	29.1	4.7380 µg/L	4.7380 ppb	07:57:21
2	S 181.975 Axial†	91.7	31.6	55.164 µg/L	55.164 ppb	07:57:21
2	Sb 206.836†	58.2	-7.6	-2.4735 µg/L	-2.4735 ppb	07:57:21
2	Se 196.026†	3.1	9.3	7.6424 µg/L	7.6424 ppb	07:57:21
2	SiO2†	3145.6	227.4	26.944 µg/L	26.944 ppb	07:57:01
2	Si 251.611†	553.9	341.0	15.962 µg/L	15.962 ppb	07:57:21
2	Sn 189.927†	50.4	22.4	4.8978 µg/L	4.8978 ppb	07:57:21
2	Ti 334.940†	-12.7	198.0	0.4925 µg/L	0.4925 ppb	07:57:01
2	Tl 190.801†	-43.3	-0.5	-0.1855 µg/L	-0.1855 ppb	07:57:21
2	U 367.007†	338.5	-13.3	-3.855 µg/L	-3.855 ppb	07:57:01
2	V 292.402†	-189.7	7.3	0.0611 µg/L	0.0611 ppb	07:57:01
2	Zn 213.857†	2659.4	1318.6	12.530 µg/L	12.530 ppb	07:57:21
3	Sc RADIAL	21347.8	21347.8	102 %		07:56:00
3	Al 396.153Radial†	-31.4	49.3	14.095 µg/L	14.095 ppb	07:56:00
3	Ca 317.933Radial†	198.3	80.8	36.752 µg/L	36.752 ppb	07:56:20
3	Fe 238.204 Radial†	142.0	106.1	55.493 µg/L	55.493 ppb	07:56:20
3	K 766.490 Radial†	898.3	18.1	8.3791 µg/L	8.3791 ppb	07:56:00
3	Mg 279.077 IEC†	6.4	4.6	21.821 µg/L	21.821 ppb	07:56:20
3	Na 589.592 Radial†	-129.1	18.2	29.335 µg/L	29.335 ppb	07:56:00
3	Sr 421.552†	-1302.1	38.9	0.1783 µg/L	0.1783 ppb	07:56:00
3	Sc 361.383	703142.5	703142.5	104.25 %		07:57:27
3	Y 371.029	603909.8	603909.8	103.98 %		07:57:27
3	Ag 328.068†	-504.7	143.5	0.9262 µg/L	0.9262 ppb	07:57:32
3	As 188.979†	-4.2	4.2	2.3874 µg/L	2.3874 ppb	07:57:52
3	B 249.677†	126.5	39.5	1.1025 µg/L	1.1025 ppb	07:57:52
3	Ba 233.527†	-80.8	54.8	0.4636 µg/L	0.4636 ppb	07:57:52
3	Be 313.107†	-7751.4	215.4	0.1222 µg/L	0.1222 ppb	07:57:32
3	Cd 226.502†	-219.5	16.3	0.2235 µg/L	0.2235 ppb	07:57:52
3	Co 228.616†	-20.8	11.1	0.2796 µg/L	0.2796 ppb	07:57:52
3	Cr 267.716†	250.1	14.3	0.2902 µg/L	0.2902 ppb	07:57:52
3	Cu 324.752†	6013.1	212.9	0.9141 µg/L	0.9141 ppb	07:57:32
3	Mn 257.610†	2674.3	2148.9	3.2018 µg/L	3.2018 ppb	07:57:52
3	Mo 202.031†	28.5	-2.8	-0.1898 µg/L	-0.1898 ppb	07:57:52
3	Ni 231.604†	-33.8	-4.4	-0.1355 µg/L	-0.1355 ppb	07:57:52
3	P 214.914†	133.0	0.8	0.5451 µg/L	0.5451 ppb	07:57:52
3	Pb 220.353†	204.9	31.1	5.0517 µg/L	5.0517 ppb	07:57:52
3	S 181.975 Axial†	91.2	30.3	52.776 µg/L	52.776 ppb	07:57:52
3	Sb 206.836†	64.4	-2.2	-0.7067 µg/L	-0.7067 ppb	07:57:52
3	Se 196.026†	-1.9	4.5	3.7234 µg/L	3.7234 ppb	07:57:52
3	SiO2†	3175.2	225.1	26.739 µg/L	26.739 ppb	07:57:32
3	Si 251.611†	565.4	346.7	16.221 µg/L	16.221 ppb	07:57:52
3	Sn 189.927†	54.3	25.7	5.5956 µg/L	5.5956 ppb	07:57:52
3	Ti 334.940†	16.8	226.4	0.5598 µg/L	0.5598 ppb	07:57:32
3	Tl 190.801†	-40.0	3.1	1.0811 µg/L	1.0811 ppb	07:57:52
3	U 367.007†	363.4	7.3	1.686 µg/L	1.686 ppb	07:57:32
3	V 292.402†	-172.8	25.4	0.2400 µg/L	0.2400 ppb	07:57:32
3	Zn 213.857†	2666.5	1299.4	12.350 µg/L	12.350 ppb	07:57:52

Mean Data: 1202676785|1220620|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	699332.2	103.68	%	0.529				0.51%
Sc RADIAL	21342.9	102	%	0.5				0.50%
Y 371.029	600518.3	103.40	%	0.536				0.52%
Ag 328.068†	144.0	0.9299	µg/L	0.20446	0.9299	ppb	0.20446	21.99%
Al 396.153Radial†	49.2	14.083	µg/L	6.1125	14.083	ppb	6.1125	43.40%
As 188.979†	2.4	1.3851	µg/L	0.88045	1.3851	ppb	0.88045	63.56%
B 249.677†	42.8	1.1934	µg/L	0.21166	1.1934	ppb	0.21166	17.74%
Ba 233.527†	56.4	0.4768	µg/L	0.11052	0.4768	ppb	0.11052	23.18%

Be 313.107†	188.3	0.1067 µg/L	0.02207	0.1067 ppb	0.02207	20.69%
Ca 317.933Radial†	85.6	38.941 µg/L	2.3148	38.941 ppb	2.3148	5.94%
Cd 226.502†	9.0	0.1194 µg/L	0.21110	0.1194 ppb	0.21110	176.74%
Co 228.616†	9.1	0.2291 µg/L	0.05350	0.2291 ppb	0.05350	23.35%
Cr 267.716†	9.3	0.1903 µg/L	0.12640	0.1903 ppb	0.12640	66.43%
Cu 324.752†	265.7	1.1403 µg/L	0.25386	1.1403 ppb	0.25386	22.26%
Fe 238.204 Radial†	106.7	55.804 µg/L	0.3204	55.804 ppb	0.3204	0.57%
K 766.490 Radial†	3.6	1.6937 µg/L	6.63763	1.6937 ppb	6.63763	391.90%
Mg 279.077 IEC†	2.3	10.899 µg/L	14.2776	10.899 ppb	14.2776	131.00%
Mn 257.610†	2151.7	3.2064 µg/L	0.01739	3.2064 ppb	0.01739	0.54%
Mo 202.031†	-5.4	-0.3599 µg/L	0.15668	-0.3599 ppb	0.15668	43.53%
Na 589.592 Radial†	28.4	45.747 µg/L	14.2238	45.747 ppb	14.2238	31.09%
Ni 231.604†	1.1	0.0348 µg/L	0.14884	0.0348 ppb	0.14884	427.45%
P 214.914†	-1.2	-0.9331 µg/L	5.50413	-0.9331 ppb	5.50413	589.88%
Pb 220.353†	27.7	4.5110 µg/L	0.68305	4.5110 ppb	0.68305	15.14%
S 181.975 Axial†	31.7	55.310 µg/L	2.6100	55.310 ppb	2.6100	4.72%
Sb 206.836†	-5.1	-1.6709 µg/L	0.89440	-1.6709 ppb	0.89440	53.53%
Se 196.026†	2.2	1.8234 µg/L	6.96606	1.8234 ppb	6.96606	382.03%
SiO2†	232.2	27.564 µg/L	1.2553	27.564 ppb	1.2553	4.55%
Si 251.611†	339.8	15.902 µg/L	0.3527	15.902 ppb	0.3527	2.22%
Sn 189.927†	24.9	5.4341 µg/L	0.47646	5.4341 ppb	0.47646	8.77%
Sr 421.552†	37.6	0.1726 µg/L	0.09263	0.1726 ppb	0.09263	53.66%
Ti 334.940†	221.4	0.5482 µg/L	0.05092	0.5482 ppb	0.05092	9.29%
Tl 190.801†	2.0	0.6957 µg/L	0.76515	0.6957 ppb	0.76515	109.98%
U 367.007†	2.2	0.331 µg/L	3.6996	0.331 ppb	3.6996	>999.9%
V 292.402†	27.0	0.2519 µg/L	0.19706	0.2519 ppb	0.19706	78.22%
Zn 213.857†	1309.9	12.448 µg/L	0.0909	12.448 ppb	0.0909	0.73%

Sequence No.: 2 **Autosampler Location: 302**
Sample ID: 1202676786|1220620|1 **Date Collected: 6/13/2012 7:57:59**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202676786|1220620|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21242.3	21242.3	102	%			07:58:48
1	Al 396.153Radial†	16405.7	16207.7	4612.4	µg/L	4612.4	ppb	07:58:28
1	Ca 317.933Radial†	11105.3	10804.0	4914.6	µg/L	4914.6	ppb	07:58:48
1	Fe 238.204 Radial†	9553.8	9359.1	4898.8	µg/L	4898.8	ppb	07:58:48
1	K 766.490 Radial†	11490.3	10435.0	4819.3	µg/L	4819.3	ppb	07:58:28
1	Mg 279.077 IEC†	1054.7	1035.3	4871.7	µg/L	4871.7	ppb	07:58:48
1	Na 589.592 Radial†	2844.0	2940.3	4738.0	µg/L	4738.0	ppb	07:58:48
1	Sr 421.552†	104928.9	104463.6	479.79	µg/L	479.79	ppb	07:58:28
1	Sc 361.383	704334.1	704334.1	104.42	%			07:59:45
1	Y 371.029	602393.5	602393.5	103.72	%			07:59:45
1	Ag 328.068†	78675.0	75969.7	486.42	µg/L	486.42	ppb	07:59:50
1	As 188.979†	884.5	855.2	489.60	µg/L	489.60	ppb	08:00:10
1	B 249.677†	18068.6	17221.3	482.66	µg/L	482.66	ppb	07:59:50
1	Ba 233.527†	60112.9	57698.7	489.86	µg/L	489.86	ppb	07:59:50
1	Be 313.107†	919692.5	888382.5	501.68	µg/L	501.68	ppb	07:59:45
1	Cd 226.502†	36325.5	35013.5	499.02	µg/L	499.02	ppb	07:59:50
1	Co 228.616†	20457.4	19621.8	494.66	µg/L	494.66	ppb	07:59:50
1	Cr 267.716†	26097.5	24766.3	504.56	µg/L	504.56	ppb	07:59:50
1	Cu 324.752†	128392.3	117398.0	501.35	µg/L	501.35	ppb	07:59:50
1	Mn 257.610†	347997.2	332838.5	495.54	µg/L	495.54	ppb	07:59:50
1	Mo 202.031†	7511.1	7162.7	483.44	µg/L	483.44	ppb	08:00:10
1	Ni 231.604†	17214.2	16512.9	507.67	µg/L	507.67	ppb	07:59:50
1	P 214.914†	840.4	678.0	491.52	µg/L	491.52	ppb	08:00:10
1	Pb 220.353†	3350.7	3043.3	495.13	µg/L	495.13	ppb	08:00:10
1	S 181.975 Axial†	3077.3	2889.7	5041.3	µg/L	5041.3	ppb	08:00:10
1	Sb 206.836†	1589.4	1458.0	472.40	µg/L	472.40	ppb	08:00:10
1	Se 196.026†	644.8	623.8	512.37	µg/L	512.37	ppb	08:00:10
1	SiO2†	90887.8	84216.8	10040	µg/L	10040	ppb	07:59:50
1	Si 251.611†	104281.9	99668.5	4661.2	µg/L	4661.2	ppb	07:59:50
1	Sn 189.927†	2478.2	2346.8	513.16	µg/L	513.16	ppb	08:00:10
1	Ti 334.940†	208571.7	199946.3	494.27	µg/L	494.27	ppb	07:59:50
1	Tl 190.801†	302.0	330.7	117.88	µg/L	117.88	ppb	08:00:10
1	U 367.007†	2308.9	1869.8	480.3	µg/L	480.3	ppb	07:59:50
1	V 292.402†	54681.8	52556.4	504.07	µg/L	504.07	ppb	07:59:50
1	Zn 213.857†	60632.9	56805.9	535.88	µg/L	535.88	ppb	07:59:50
2	Sc RADIAL	21249.5	21249.5	102	%			07:59:13
2	Al 396.153Radial†	16512.5	16307.2	4640.7	µg/L	4640.7	ppb	07:58:53
2	Ca 317.933Radial†	11154.7	10848.8	4934.9	µg/L	4934.9	ppb	07:59:13
2	Fe 238.204 Radial†	9578.2	9379.9	4909.7	µg/L	4909.7	ppb	07:59:13
2	K 766.490 Radial†	11432.2	10374.0	4791.1	µg/L	4791.1	ppb	07:58:53
2	Mg 279.077 IEC†	1066.5	1046.5	4924.4	µg/L	4924.4	ppb	07:59:13
2	Na 589.592 Radial†	2889.2	2983.8	4808.0	µg/L	4808.0	ppb	07:59:13
2	Sr 421.552†	105125.5	104621.7	480.52	µg/L	480.52	ppb	07:58:53
2	Sc 361.383	707639.7	707639.7	104.91	%			08:00:16
2	Y 371.029	605197.5	605197.5	104.20	%			08:00:16
2	Ag 328.068†	78478.0	75430.0	482.97	µg/L	482.97	ppb	08:00:21
2	As 188.979†	883.1	849.9	486.59	µg/L	486.59	ppb	08:00:41
2	B 249.677†	18102.6	17172.9	481.31	µg/L	481.31	ppb	08:00:21
2	Ba 233.527†	60063.7	57382.9	487.17	µg/L	487.17	ppb	08:00:21
2	Be 313.107†	924545.4	888893.9	501.97	µg/L	501.97	ppb	08:00:16
2	Cd 226.502†	36374.5	34897.7	497.36	µg/L	497.36	ppb	08:00:21
2	Co 228.616†	20380.6	19457.1	490.51	µg/L	490.51	ppb	08:00:21
2	Cr 267.716†	26190.0	24737.8	503.99	µg/L	503.99	ppb	08:00:21
2	Cu 324.752†	127944.5	116396.7	497.10	µg/L	497.10	ppb	08:00:21
2	Mn 257.610†	347628.3	330930.2	492.70	µg/L	492.70	ppb	08:00:21
2	Mo 202.031†	7563.6	7179.2	484.54	µg/L	484.54	ppb	08:00:41
2	Ni 231.604†	17117.3	16343.5	502.46	µg/L	502.46	ppb	08:00:21
2	P 214.914†	841.9	675.6	489.84	µg/L	489.84	ppb	08:00:41
2	Pb 220.353†	3358.3	3035.5	493.88	µg/L	493.88	ppb	08:00:41

2	S 181.975 Axial†	3117.0	2913.8	5083.3 µg/L	5083.3 ppb	08:00:41
2	Sb 206.836†	1598.3	1459.4	472.86 µg/L	472.86 ppb	08:00:41
2	Se 196.026†	653.6	629.4	516.84 µg/L	516.84 ppb	08:00:41
2	SiO2†	90785.5	83712.7	9979.7 µg/L	9979.7 ppb	08:00:21
2	Si 251.611†	104152.3	99078.6	4633.5 µg/L	4633.5 ppb	08:00:21
2	Sn 189.927†	2478.8	2336.3	510.87 µg/L	510.87 ppb	08:00:41
2	Ti 334.940†	208142.1	198603.8	490.96 µg/L	490.96 ppb	08:00:21
2	Tl 190.801†	298.0	325.5	116.04 µg/L	116.04 ppb	08:00:41
2	U 367.007†	2246.1	1799.6	461.4 µg/L	461.4 ppb	08:00:21
2	V 292.402†	54486.0	52125.2	499.99 µg/L	499.99 ppb	08:00:21
2	Zn 213.857†	60498.1	56406.2	532.12 µg/L	532.12 ppb	08:00:21
3	Sc RADIAL	21273.5	21273.5	102 %		07:59:38
3	Al 396.153Radial†	16473.3	16250.3	4624.5 µg/L	4624.5 ppb	07:59:18
3	Ca 317.933Radial†	11114.4	10796.9	4911.3 µg/L	4911.3 ppb	07:59:38
3	Fe 238.204 Radial†	9584.4	9375.3	4907.3 µg/L	4907.3 ppb	07:59:38
3	K 766.490 Radial†	11474.5	10402.8	4804.4 µg/L	4804.4 ppb	07:59:18
3	Mg 279.077 IEC†	1054.4	1033.4	4862.9 µg/L	4862.9 ppb	07:59:38
3	Na 589.592 Radial†	2880.0	2971.5	4788.2 µg/L	4788.2 ppb	07:59:38
3	Sr 421.552†	104926.5	104309.5	479.08 µg/L	479.08 ppb	07:59:18
3	Sc 361.383	705773.9	705773.9	104.64 %		08:00:46
3	Y 371.029	603121.8	603121.8	103.84 %		08:00:46
3	Ag 328.068†	78803.5	75938.8	486.24 µg/L	486.24 ppb	08:00:52
3	As 188.979†	884.3	853.2	488.49 µg/L	488.49 ppb	08:01:12
3	B 249.677†	18169.2	17282.2	484.37 µg/L	484.37 ppb	08:00:52
3	Ba 233.527†	60558.5	58007.1	492.48 µg/L	492.48 ppb	08:00:52
3	Be 313.107†	922036.5	888825.9	501.93 µg/L	501.93 ppb	08:00:46
3	Cd 226.502†	36653.2	35255.7	502.47 µg/L	502.47 ppb	08:00:52
3	Co 228.616†	20546.6	19667.1	495.80 µg/L	495.80 ppb	08:00:52
3	Cr 267.716†	26227.0	24839.1	506.05 µg/L	506.05 ppb	08:00:52
3	Cu 324.752†	128807.4	117543.8	501.99 µg/L	501.99 ppb	08:00:52
3	Mn 257.610†	350099.8	334168.0	497.52 µg/L	497.52 ppb	08:00:52
3	Mo 202.031†	7555.3	7190.3	485.30 µg/L	485.30 ppb	08:01:12
3	Ni 231.604†	17273.4	16535.9	508.37 µg/L	508.37 ppb	08:00:52
3	P 214.914†	837.6	673.6	488.22 µg/L	488.22 ppb	08:01:12
3	Pb 220.353†	3362.3	3047.9	495.89 µg/L	495.89 ppb	08:01:12
3	S 181.975 Axial†	3097.2	2902.7	5064.0 µg/L	5064.0 ppb	08:01:12
3	Sb 206.836†	1585.7	1451.5	470.24 µg/L	470.24 ppb	08:01:12
3	Se 196.026†	646.3	624.0	512.52 µg/L	512.52 ppb	08:01:12
3	SiO2†	91620.5	84739.4	10102 µg/L	10102 ppb	08:00:52
3	Si 251.611†	105048.0	100197.0	4685.9 µg/L	4685.9 ppb	08:00:52
3	Sn 189.927†	2494.6	2357.7	515.53 µg/L	515.53 ppb	08:01:12
3	Ti 334.940†	209589.8	200511.8	495.67 µg/L	495.67 ppb	08:00:52
3	Tl 190.801†	306.4	334.2	119.11 µg/L	119.11 ppb	08:01:12
3	U 367.007†	2264.8	1823.2	467.8 µg/L	467.8 ppb	08:00:52
3	V 292.402†	54999.2	52752.9	505.94 µg/L	505.94 ppb	08:00:52
3	Zn 213.857†	60989.2	57028.0	537.99 µg/L	537.99 ppb	08:00:52

Mean Data: 1202676786|1220620|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	705915.9	104.66	%	0.246				0.23%
Sc RADIAL	21255.1	102	%	0.1				0.08%
Y 371.029	603570.9	103.92	%	0.251				0.24%
Ag 328.068†	75779.5	485.21	µg/L	1.940	485.21	ppb	1.940	0.40%
Al 396.153Radial†	16255.1	4625.9	µg/L	14.24	4625.9	ppb	14.24	0.31%
As 188.979†	852.8	488.23	µg/L	1.519	488.23	ppb	1.519	0.31%
B 249.677†	17225.5	482.78	µg/L	1.532	482.78	ppb	1.532	0.32%
Ba 233.527†	57696.2	489.84	µg/L	2.651	489.84	ppb	2.651	0.54%
Be 313.107†	888700.8	501.86	µg/L	0.155	501.86	ppb	0.155	0.03%
Ca 317.933Radial†	10816.5	4920.3	µg/L	12.80	4920.3	ppb	12.80	0.26%
Cd 226.502†	35055.6	499.62	µg/L	2.607	499.62	ppb	2.607	0.52%
Co 228.616†	19582.0	493.66	µg/L	2.784	493.66	ppb	2.784	0.56%
Cr 267.716†	24781.0	504.87	µg/L	1.065	504.87	ppb	1.065	0.21%
Cu 324.752†	117112.9	500.14	µg/L	2.659	500.14	ppb	2.659	0.53%
Fe 238.204 Radial†	9371.4	4905.3	µg/L	5.69	4905.3	ppb	5.69	0.12%
K 766.490 Radial†	10404.0	4804.9	µg/L	14.08	4804.9	ppb	14.08	0.29%
Mg 279.077 IEC†	1038.4	4886.3	µg/L	33.27	4886.3	ppb	33.27	0.68%
Mn 257.610†	332645.6	495.25	µg/L	2.422	495.25	ppb	2.422	0.49%
Mo 202.031†	7177.4	484.43	µg/L	0.937	484.43	ppb	0.937	0.19%
Na 589.592 Radial†	2965.2	4778.1	µg/L	36.11	4778.1	ppb	36.11	0.76%

Ni 231.604†	16464.1	506.17 µg/L	3.229	506.17 ppb	3.229	0.64%
P 214.914†	675.7	489.86 µg/L	1.651	489.86 ppb	1.651	0.34%
Pb 220.353†	3042.2	494.97 µg/L	1.015	494.97 ppb	1.015	0.21%
S 181.975 Axial†	2902.1	5062.8 µg/L	21.00	5062.8 ppb	21.00	0.41%
Sb 206.836†	1456.3	471.83 µg/L	1.399	471.83 ppb	1.399	0.30%
Se 196.026†	625.8	513.91 µg/L	2.542	513.91 ppb	2.542	0.49%
SiO2†	84223.0	10040 µg/L	61.1	10040 ppb	61.1	0.61%
Si 251.611†	99648.0	4660.2 µg/L	26.20	4660.2 ppb	26.20	0.56%
Sn 189.927†	2346.9	513.19 µg/L	2.333	513.19 ppb	2.333	0.45%
Sr 421.552†	104464.9	479.80 µg/L	0.717	479.80 ppb	0.717	0.15%
Ti 334.940†	199687.3	493.63 µg/L	2.421	493.63 ppb	2.421	0.49%
Tl 190.801†	330.1	117.68 µg/L	1.542	117.68 ppb	1.542	1.31%
U 367.007†	1830.9	469.8 µg/L	9.65	469.8 ppb	9.65	2.05%
V 292.402†	52478.2	503.33 µg/L	3.045	503.33 ppb	3.045	0.60%
Zn 213.857†	56746.7	535.33 µg/L	2.975	535.33 ppb	2.975	0.56%

Sequence No.: 3 **Autosampler Location: 303**
Sample ID: 305844001|1220620|1 **Date Collected: 6/13/2012 8:01:19**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305844001|1220620|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	23268.2	23268.2	111	%			08:01:53
1	Al 396.153Radial†	734620.0	659373.4	188390	µg/L	188390	ppb	08:01:48
1	Ca 317.933Radial†	319791.1	286887.2	130500	µg/L	130500	ppb	08:01:48
1	Fe 238.204 Radial†	508721.1	456525.0	238720	µg/L	238720	ppb	08:01:48
1	K 766.490 Radial†	118158.9	105182.4	48701	µg/L	48701	ppb	08:01:48
1	Mg 279.077 IEC†	21220.5	19043.0	89492	µg/L	89492	ppb	08:01:53
1	Na 589.592 Radial†	758.7	825.4	1330.0	µg/L	1330.0	ppb	08:01:53
1	Sr 421.552†	183565.8	166055.8	762.12	µg/L	762.12	ppb	08:01:48
1	Sc 361.383	743230.6	743230.6	110.19	%			08:02:22
1	Y 371.029	767438.4	767438.4	132.14	%			08:02:22
1	Ag 328.068†	-9814.2	-8279.0	10.884	µg/L	10.884	ppb	08:02:27
1	As 188.979†	251.2	236.1	142.76	µg/L	142.76	ppb	08:02:47
1	B 249.677†	6571.0	5881.5	130.68	µg/L	130.68	ppb	08:02:27
1	Ba 233.527†	206490.1	187526.2	1583.8	µg/L	1583.8	ppb	08:02:27
1	Be 313.107†	26841.4	32010.0	17.840	µg/L	17.840	ppb	08:02:27
1	Cd 226.502†	6999.0	6578.6	56.126	µg/L	56.126	ppb	08:02:47
1	Co 228.616†	5752.8	5251.8	120.70	µg/L	120.70	ppb	08:02:47
1	Cr 267.716†	8883.6	7836.4	163.58	µg/L	163.58	ppb	08:02:47
1	Cu 324.752†	550332.3	493882.1	2143.0	µg/L	2143.0	ppb	08:02:27
1	Mn 257.610†	7721139.2	7006669.3	10445	µg/L	10445	ppb	08:02:22
1	Mo 202.031†	650.2	559.9	47.533	µg/L	47.533	ppb	08:02:47
1	Ni 231.604†	7224.3	6584.2	206.41	µg/L	206.41	ppb	08:02:47
1	P 214.914†	11852.7	10629.8	7825.0	µg/L	7825.0	ppb	08:02:47
1	Pb 220.353†	84571.9	76585.2	12409	µg/L	12409	ppb	08:02:27
1	S 181.975 Axial†	8499.6	7656.3	13255	µg/L	13255	ppb	08:02:47
1	Sb 206.836†	118.0	43.1	3.8062	µg/L	3.8062	ppb	08:02:47
1	Se 196.026†	-119.0	-101.7	37.939	µg/L	37.939	ppb	08:02:47
1	SiO2†	196719.7	175706.3	20925	µg/L	20925	ppb	08:02:27
1	Si 251.611†	228798.9	207443.8	9714.7	µg/L	9714.7	ppb	08:02:27
1	Sn 189.927†	-211.3	-218.1	4.5636	µg/L	4.5636	ppb	08:02:47
1	Ti 334.940†	2696960.7	2447755.3	6056.9	µg/L	6056.9	ppb	08:02:22
1	Tl 190.801†	-160.4	-104.2	4.5889	µg/L	4.5889	ppb	08:02:47
1	U 367.007†	4758.9	3977.5	-90.74	µg/L	-90.74	ppb	08:02:27
1	V 292.402†	46218.3	42135.1	395.70	µg/L	395.70	ppb	08:02:27
1	Zn 213.857†	1737683.3	1575723.4	14949	µg/L	14949	ppb	08:02:22
2	Sc RADIAL	23136.5	23136.5	111	%			08:02:03
2	Al 396.153Radial†	740463.4	668400.8	190970	µg/L	190970	ppb	08:01:58
2	Ca 317.933Radial†	323052.8	291464.9	132580	µg/L	132580	ppb	08:01:58
2	Fe 238.204 Radial†	512461.7	462500.3	241840	µg/L	241840	ppb	08:01:58
2	K 766.490 Radial†	119123.7	106656.9	49384	µg/L	49384	ppb	08:01:58
2	Mg 279.077 IEC†	21212.3	19144.0	89966	µg/L	89966	ppb	08:02:03
2	Na 589.592 Radial†	752.3	823.5	1326.9	µg/L	1326.9	ppb	08:02:03
2	Sr 421.552†	184806.7	168113.7	771.56	µg/L	771.56	ppb	08:01:58
2	Sc 361.383	738355.8	738355.8	109.47	%			08:02:54
2	Y 371.029	762325.9	762325.9	131.26	%			08:02:54
2	Ag 328.068†	-9571.3	-8115.9	12.707	µg/L	12.707	ppb	08:02:59
2	As 188.979†	251.6	238.0	143.92	µg/L	143.92	ppb	08:03:19
2	B 249.677†	6427.6	5789.9	127.65	µg/L	127.65	ppb	08:02:59
2	Ba 233.527†	204792.3	187212.4	1581.0	µg/L	1581.0	ppb	08:02:59
2	Be 313.107†	26519.7	31877.1	17.780	µg/L	17.780	ppb	08:02:59
2	Cd 226.502†	6983.1	6606.0	56.022	µg/L	56.022	ppb	08:03:19
2	Co 228.616†	5752.4	5286.0	121.54	µg/L	121.54	ppb	08:03:19
2	Cr 267.716†	8875.4	7882.2	164.57	µg/L	164.57	ppb	08:03:19
2	Cu 324.752†	546907.2	494050.6	2144.2	µg/L	2144.2	ppb	08:02:59
2	Mn 257.610†	7680537.5	7015841.0	10459	µg/L	10459	ppb	08:02:54
2	Mo 202.031†	658.6	571.5	48.443	µg/L	48.443	ppb	08:03:19
2	Ni 231.604†	7203.8	6608.7	207.21	µg/L	207.21	ppb	08:03:19
2	P 214.914†	11840.3	10689.4	7868.4	µg/L	7868.4	ppb	08:03:19
2	Pb 220.353†	83898.2	76476.5	12391	µg/L	12391	ppb	08:02:59

2	S 181.975 Axial†	8467.3	7677.7	13292 µg/L	13292 ppb		08:03:19
2	Sb 206.836†	111.9	38.3	2.0916 µg/L	2.0916 ppb		08:03:19
2	Se 196.026†	-129.6	-112.1	31.000 µg/L	31.000 ppb		08:03:19
2	SiO2†	194996.5	175310.8	20878 µg/L	20878 ppb		08:02:59
2	Si 251.611†	226720.6	206916.2	9690.0 µg/L	9690.0 ppb		08:02:59
2	Sn 189.927†	-219.6	-227.0	3.1363 µg/L	3.1363 ppb		08:03:19
2	Ti 334.940†	2681642.7	2449921.1	6062.3 µg/L	6062.3 ppb		08:02:54
2	Tl 190.801†	-166.5	-110.7	2.5223 µg/L	2.5223 ppb		08:03:19
2	U 367.007†	4688.3	3941.6	-115.7 µg/L	-115.7 ppb		08:02:59
2	V 292.402†	45733.7	41969.3	394.13 µg/L	394.13 ppb		08:02:59
2	Zn 213.857†	1726152.4	1575601.3	14947 µg/L	14947 ppb		08:02:54
3	Sc RADIAL	23154.0	23154.0	111 %			08:02:14
3	Al 396.153Radial†	741379.6	668721.2	191060 µg/L	191060 ppb		08:02:09
3	Ca 317.933Radial†	322726.7	290950.2	132350 µg/L	132350 ppb		08:02:09
3	Fe 238.204 Radial†	512500.5	462185.2	241680 µg/L	241680 ppb		08:02:09
3	K 766.490 Radial†	119295.8	106730.8	49418 µg/L	49418 ppb		08:02:09
3	Mg 279.077 IEC†	21142.3	19066.4	89602 µg/L	89602 ppb		08:02:14
3	Na 589.592 Radial†	743.7	815.2	1313.7 µg/L	1313.7 ppb		08:02:14
3	Sr 421.552†	185232.2	168371.2	772.75 µg/L	772.75 ppb		08:02:09
3	Sc 361.383	739057.5	739057.5	109.57 %			08:03:26
3	Y 371.029	764311.1	764311.1	131.60 %			08:03:26
3	Ag 328.068†	-9574.8	-8110.7	12.699 µg/L	12.699 ppb		08:03:32
3	As 188.979†	246.4	233.0	141.06 µg/L	141.06 ppb		08:03:52
3	B 249.677†	6459.3	5813.2	128.33 µg/L	128.33 ppb		08:03:32
3	Ba 233.527†	204660.0	186914.0	1578.5 µg/L	1578.5 ppb		08:03:32
3	Be 313.107†	26402.8	31747.3	17.703 µg/L	17.703 ppb		08:03:32
3	Cd 226.502†	6978.3	6595.5	55.899 µg/L	55.899 ppb		08:03:52
3	Co 228.616†	5740.4	5270.0	121.12 µg/L	121.12 ppb		08:03:52
3	Cr 267.716†	8847.6	7849.1	163.89 µg/L	163.89 ppb		08:03:52
3	Cu 324.752†	547468.8	494088.8	2144.3 µg/L	2144.3 ppb		08:03:32
3	Mn 257.610†	7684371.6	7012678.4	10454 µg/L	10454 ppb		08:03:26
3	Mo 202.031†	639.3	553.3	47.209 µg/L	47.209 ppb		08:03:52
3	Ni 231.604†	7267.6	6660.7	208.81 µg/L	208.81 ppb		08:03:52
3	P 214.914†	11830.8	10670.5	7854.3 µg/L	7854.3 ppb		08:03:52
3	Pb 220.353†	83816.9	76329.5	12367 µg/L	12367 ppb		08:03:32
3	S 181.975 Axial†	8474.1	7676.6	13290 µg/L	13290 ppb		08:03:52
3	Sb 206.836†	108.2	34.8	0.9638 µg/L	0.9638 ppb		08:03:52
3	Se 196.026†	-122.1	-105.1	36.604 µg/L	36.604 ppb		08:03:52
3	SiO2†	195178.6	175307.8	20878 µg/L	20878 ppb		08:03:32
3	Si 251.611†	227018.1	206991.0	9693.5 µg/L	9693.5 ppb		08:03:32
3	Sn 189.927†	-215.7	-223.3	3.9425 µg/L	3.9425 ppb		08:03:52
3	Ti 334.940†	2687995.2	2453392.7	6070.9 µg/L	6070.9 ppb		08:03:26
3	Tl 190.801†	-160.1	-104.7	4.6619 µg/L	4.6619 ppb		08:03:52
3	U 367.007†	4708.7	3956.0	-111.0 µg/L	-111.0 ppb		08:03:32
3	V 292.402†	45800.0	41990.2	394.31 µg/L	394.31 ppb		08:03:32
3	Zn 213.857†	1727853.2	1575656.3	14948 µg/L	14948 ppb		08:03:26

Mean Data: 305844001|1220620|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	740214.6	109.74	%	0.391				0.36%
Sc RADIAL	23186.3	111	%	0.3				0.31%
Y 371.029	764691.8	131.66	%	0.444				0.34%
Ag 328.068†	-8168.5	12.097	µg/L	1.0504	12.097	ppb	1.0504	8.68%
Al 396.153Radial†	665498.5	190140	µg/L	1516.2	190140	ppb	1516.2	0.80%
As 188.979†	235.7	142.58	µg/L	1.438	142.58	ppb	1.438	1.01%
B 249.677†	5828.2	128.89	µg/L	1.589	128.89	ppb	1.589	1.23%
Ba 233.527†	187217.5	1581.1	µg/L	2.64	1581.1	ppb	2.64	0.17%
Be 313.107†	31878.1	17.774	µg/L	0.0686	17.774	ppb	0.0686	0.39%
Ca 317.933Radial†	289767.4	131810	µg/L	1140.7	131810	ppb	1140.7	0.87%
Cd 226.502†	6593.3	56.016	µg/L	0.1135	56.016	ppb	0.1135	0.20%
Co 228.616†	5269.2	121.12	µg/L	0.422	121.12	ppb	0.422	0.35%
Cr 267.716†	7855.9	164.01	µg/L	0.509	164.01	ppb	0.509	0.31%
Cu 324.752†	494007.2	2143.8	µg/L	0.74	2143.8	ppb	0.74	0.03%
Fe 238.204 Radial†	460403.5	240750	µg/L	1758.3	240750	ppb	1758.3	0.73%
K 766.490 Radial†	106190.1	49168	µg/L	404.5	49168	ppb	404.5	0.82%
Mg 279.077 IEC†	19084.5	89687	µg/L	248.4	89687	ppb	248.4	0.28%
Mn 257.610†	7011729.6	10453	µg/L	7.1	10453	ppb	7.1	0.07%
Mo 202.031†	561.6	47.728	µg/L	0.6397	47.728	ppb	0.6397	1.34%
Na 589.592 Radial†	821.3	1323.5	µg/L	8.68	1323.5	ppb	8.68	0.66%

Ni 231.604†	6617.9	207.48 µg/L	1.223	207.48 ppb	1.223	0.59%
P 214.914†	10663.2	7849.2 µg/L	22.13	7849.2 ppb	22.13	0.28%
Pb 220.353†	76463.7	12389 µg/L	21.1	12389 ppb	21.1	0.17%
S 181.975 Axial†	7670.2	13279 µg/L	20.6	13279 ppb	20.6	0.16%
Sb 206.836†	38.7	2.2872 µg/L	1.43125	2.2872 ppb	1.43125	62.58%
Se 196.026†	-106.3	35.181 µg/L	3.6819	35.181 ppb	3.6819	10.47%
SiO2†	175441.6	20893 µg/L	27.0	20893 ppb	27.0	0.13%
Si 251.611†	207117.0	9699.4 µg/L	13.39	9699.4 ppb	13.39	0.14%
Sn 189.927†	-222.8	3.8808 µg/L	0.71566	3.8808 ppb	0.71566	18.44%
Sr 421.552†	167513.6	768.81 µg/L	5.824	768.81 ppb	5.824	0.76%
Ti 334.940†	2450356.4	6063.4 µg/L	7.06	6063.4 ppb	7.06	0.12%
Tl 190.801†	-106.5	3.9244 µg/L	1.21477	3.9244 ppb	1.21477	30.95%
U 367.007†	3958.4	-105.8 µg/L	13.28	-105.8 ppb	13.28	12.55%
V 292.402†	42031.6	394.71 µg/L	0.856	394.71 ppb	0.856	0.22%
Zn 213.857†	1575660.3	14948 µg/L	0.8	14948 ppb	0.8	0.01%

Sequence No.: 4 **Autosampler Location: 304**
Sample ID: 305844002|1220620|1 **Date Collected: 6/13/2012 8:03:59**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305844002|1220620|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22699.7	22699.7	109	%			08:04:33
1	Al 396.153Radial†	571206.5	525554.8	150160	µg/L	150160	ppb	08:04:28
1	Ca 317.933Radial†	275001.0	252870.8	115030	µg/L	115030	ppb	08:04:28
1	Fe 238.204 Radial†	392040.0	360619.8	188570	µg/L	188570	ppb	08:04:28
1	K 766.490 Radial†	92947.3	84645.1	39182	µg/L	39182	ppb	08:04:28
1	Mg 279.077 IEC†	18348.3	16877.7	79315	µg/L	79315	ppb	08:04:33
1	Na 589.592 Radial†	647.7	740.3	1192.9	µg/L	1192.9	ppb	08:04:33
1	Sr 421.552†	208867.6	193457.8	888.05	µg/L	888.05	ppb	08:04:28
1	Sc 361.383	729024.0	729024.0	108.08	%			08:05:01
1	Y 371.029	739373.7	739373.7	127.30	%			08:05:01
1	Ag 328.068†	-8391.9	-7136.6	4.9551	µg/L	4.9551	ppb	08:05:27
1	As 188.979†	114.5	114.0	71.368	µg/L	71.368	ppb	08:05:27
1	B 249.677†	5235.5	4762.0	106.45	µg/L	106.45	ppb	08:05:07
1	Ba 233.527†	235944.2	218429.0	1847.3	µg/L	1847.3	ppb	08:05:07
1	Be 313.107†	19555.3	25743.6	14.336	µg/L	14.336	ppb	08:05:07
1	Cd 226.502†	2492.2	2532.6	6.3332	µg/L	6.3332	ppb	08:05:27
1	Co 228.616†	4935.1	4597.0	106.16	µg/L	106.16	ppb	08:05:27
1	Cr 267.716†	6838.2	6101.1	127.52	µg/L	127.52	ppb	08:05:27
1	Cu 324.752†	105254.3	91826.5	422.73	µg/L	422.73	ppb	08:05:07
1	Mn 257.610†	5603922.3	5184358.2	7729.1	µg/L	7729.1	ppb	08:05:01
1	Mo 202.031†	150.4	109.0	15.060	µg/L	15.060	ppb	08:05:27
1	Ni 231.604†	6342.5	5896.1	184.42	µg/L	184.42	ppb	08:05:27
1	P 214.914†	10443.4	9535.4	7067.5	µg/L	7067.5	ppb	08:05:27
1	Pb 220.353†	6400.2	5756.0	905.82	µg/L	905.82	ppb	08:05:27
1	S 181.975 Axial†	726.0	614.4	992.98	µg/L	992.98	ppb	08:05:27
1	Sb 206.836†	81.9	11.8	-4.6083	µg/L	-4.6083	ppb	08:05:27
1	Se 196.026†	-100.3	-86.4	25.007	µg/L	25.007	ppb	08:05:27
1	SiO2†	205560.9	187365.1	22298	µg/L	22298	ppb	08:05:07
1	Si 251.611†	239220.5	221132.2	10357	µg/L	10357	ppb	08:05:07
1	Sn 189.927†	-207.6	-218.5	-4.7233	µg/L	-4.7233	ppb	08:05:27
1	Ti 334.940†	2282225.6	2111736.0	5225.5	µg/L	5225.5	ppb	08:05:01
1	Tl 190.801†	-140.5	-88.6	3.2294	µg/L	3.2294	ppb	08:05:27
1	U 367.007†	3733.0	3112.5	-80.54	µg/L	-80.54	ppb	08:05:07
1	V 292.402†	38477.0	35790.2	335.64	µg/L	335.64	ppb	08:05:07
1	Zn 213.857†	147530.5	135237.5	1257.9	µg/L	1257.9	ppb	08:05:07
2	Sc RADIAL	22715.9	22715.9	109	%			08:04:43
2	Al 396.153Radial†	580637.3	533849.5	152530	µg/L	152530	ppb	08:04:38
2	Ca 317.933Radial†	278617.4	256014.9	116460	µg/L	116460	ppb	08:04:38
2	Fe 238.204 Radial†	397480.3	365363.7	191050	µg/L	191050	ppb	08:04:38
2	K 766.490 Radial†	94528.6	86037.8	39827	µg/L	39827	ppb	08:04:38
2	Mg 279.077 IEC†	18415.3	16927.2	79548	µg/L	79548	ppb	08:04:43
2	Na 589.592 Radial†	674.5	764.5	1231.9	µg/L	1231.9	ppb	08:04:43
2	Sr 421.552†	212337.0	196510.1	902.06	µg/L	902.06	ppb	08:04:38
2	Sc 361.383	732664.3	732664.3	108.62	%			08:05:33
2	Y 371.029	743019.8	743019.8	127.93	%			08:05:33
2	Ag 328.068†	-8472.1	-7171.9	5.3530	µg/L	5.3530	ppb	08:05:59
2	As 188.979†	102.0	102.0	64.568	µg/L	64.568	ppb	08:05:59
2	B 249.677†	5255.1	4756.0	105.92	µg/L	105.92	ppb	08:05:39
2	Ba 233.527†	235753.4	217168.7	1836.5	µg/L	1836.5	ppb	08:05:39
2	Be 313.107†	19455.2	25561.6	14.246	µg/L	14.246	ppb	08:05:39
2	Cd 226.502†	2503.4	2531.5	5.9241	µg/L	5.9241	ppb	08:05:59
2	Co 228.616†	4962.6	4599.7	106.22	µg/L	106.22	ppb	08:05:59
2	Cr 267.716†	6830.1	6062.2	126.76	µg/L	126.76	ppb	08:05:59
2	Cu 324.752†	104918.9	91033.8	419.73	µg/L	419.73	ppb	08:05:39
2	Mn 257.610†	5634336.6	5186596.8	7732.6	µg/L	7732.6	ppb	08:05:33
2	Mo 202.031†	139.1	97.9	14.415	µg/L	14.415	ppb	08:05:59
2	Ni 231.604†	6377.0	5898.7	184.54	µg/L	184.54	ppb	08:05:59
2	P 214.914†	10493.0	9533.1	7064.8	µg/L	7064.8	ppb	08:05:59
2	Pb 220.353†	6408.2	5733.9	901.67	µg/L	901.67	ppb	08:05:59

2	S 181.975 Axial†	728.5	613.4	990.61 µg/L	990.61 ppb	08:05:59
2	Sb 206.836†	88.6	17.6	-2.8029 µg/L	-2.8029 ppb	08:05:59
2	Se 196.026†	-109.7	-94.6	19.556 µg/L	19.556 ppb	08:05:59
2	SiO2†	205191.7	186080.3	22146 µg/L	22146 ppb	08:05:39
2	Si 251.611†	238749.5	219599.0	10285 µg/L	10285 ppb	08:05:39
2	Sn 189.927†	-215.5	-224.8	-5.7243 µg/L	-5.7243 ppb	08:05:59
2	Ti 334.940†	2292563.1	2110761.4	5223.2 µg/L	5223.2 ppb	08:05:33
2	Tl 190.801†	-146.0	-92.9	1.8560 µg/L	1.8560 ppb	08:05:59
2	U 367.007†	3753.0	3113.8	-92.35 µg/L	-92.35 ppb	08:05:39
2	V 292.402†	38444.5	35583.4	333.68 µg/L	333.68 ppb	08:05:39
2	Zn 213.857†	147125.6	134186.6	1247.6 µg/L	1247.6 ppb	08:05:39
3	Sc RADIAL	22660.5	22660.5	109 %		08:04:54
3	Al 396.153Radial†	579186.9	533818.9	152520 µg/L	152520 ppb	08:04:49
3	Ca 317.933Radial†	277342.7	255466.9	116210 µg/L	116210 ppb	08:04:49
3	Fe 238.204 Radial†	395670.3	364589.8	190640 µg/L	190640 ppb	08:04:49
3	K 766.490 Radial†	94200.5	85948.1	39785 µg/L	39785 ppb	08:04:49
3	Mg 279.077 IEC†	18350.8	16909.2	79463 µg/L	79463 ppb	08:04:54
3	Na 589.592 Radial†	661.2	753.8	1214.6 µg/L	1214.6 ppb	08:04:54
3	Sr 421.552†	211658.0	196362.1	901.38 µg/L	901.38 ppb	08:04:49
3	Sc 361.383	725459.7	725459.7	107.56 %		08:06:05
3	Y 371.029	736071.2	736071.2	126.73 %		08:06:05
3	Ag 328.068†	-8412.5	-7193.9	5.1222 µg/L	5.1222 ppb	08:06:31
3	As 188.979†	111.3	111.6	70.051 µg/L	70.051 ppb	08:06:31
3	B 249.677†	5197.4	4750.5	105.82 µg/L	105.82 ppb	08:06:10
3	Ba 233.527†	234716.6	218360.2	1846.6 µg/L	1846.6 ppb	08:06:10
3	Be 313.107†	19297.4	25592.8	14.260 µg/L	14.260 ppb	08:06:10
3	Cd 226.502†	2491.6	2543.4	6.1582 µg/L	6.1582 ppb	08:06:31
3	Co 228.616†	4962.4	4644.8	107.33 µg/L	107.33 ppb	08:06:31
3	Cr 267.716†	6869.4	6161.2	128.76 µg/L	128.76 ppb	08:06:31
3	Cu 324.752†	104647.2	91740.5	422.68 µg/L	422.68 ppb	08:06:10
3	Mn 257.610†	5593093.9	5199764.3	7752.2 µg/L	7752.2 ppb	08:06:05
3	Mo 202.031†	138.1	98.3	14.421 µg/L	14.421 ppb	08:06:31
3	Ni 231.604†	6370.9	5951.3	186.15 µg/L	186.15 ppb	08:06:31
3	P 214.914†	10463.5	9601.6	7116.5 µg/L	7116.5 ppb	08:06:31
3	Pb 220.353†	6322.8	5713.2	898.20 µg/L	898.20 ppb	08:06:31
3	S 181.975 Axial†	739.5	630.3	1020.1 µg/L	1020.1 ppb	08:06:31
3	Sb 206.836†	87.2	17.1	-3.0120 µg/L	-3.0120 ppb	08:06:31
3	Se 196.026†	-114.3	-99.9	15.064 µg/L	15.064 ppb	08:06:31
3	SiO2†	204489.4	187303.4	22292 µg/L	22292 ppb	08:06:10
3	Si 251.611†	237789.7	220889.4	10346 µg/L	10346 ppb	08:06:10
3	Sn 189.927†	-226.0	-236.5	-8.2837 µg/L	-8.2837 ppb	08:06:31
3	Ti 334.940†	2277239.7	2117474.6	5239.8 µg/L	5239.8 ppb	08:06:05
3	Tl 190.801†	-144.0	-92.5	2.0641 µg/L	2.0641 ppb	08:06:31
3	U 367.007†	3768.4	3162.4	-77.28 µg/L	-77.28 ppb	08:06:10
3	V 292.402†	38295.8	35796.6	335.70 µg/L	335.70 ppb	08:06:10
3	Zn 213.857†	146216.0	134686.0	1252.4 µg/L	1252.4 ppb	08:06:10

Mean Data: 305844002|1220620|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	729049.3	108.09	%	0.534				0.49%
Sc RADIAL	22692.0	109	%	0.1				0.13%
Y 371.029	739488.2	127.32	%	0.598				0.47%
Ag 328.068†	-7167.5	5.1434	µg/L	0.19977	5.1434	ppb	0.19977	3.88%
Al 396.153Radial†	531074.4	151730	µg/L	1365.8	151730	ppb	1365.8	0.90%
As 188.979†	109.2	68.662	µg/L	3.6066	68.662	ppb	3.6066	5.25%
B 249.677†	4756.2	106.06	µg/L	0.337	106.06	ppb	0.337	0.32%
Ba 233.527†	217986.0	1843.5	µg/L	6.04	1843.5	ppb	6.04	0.33%
Be 313.107†	25632.7	14.281	µg/L	0.0482	14.281	ppb	0.0482	0.34%
Ca 317.933Radial†	254784.2	115900	µg/L	764.0	115900	ppb	764.0	0.66%
Cd 226.502†	2535.8	6.1385	µg/L	0.20525	6.1385	ppb	0.20525	3.34%
Co 228.616†	4613.9	106.57	µg/L	0.660	106.57	ppb	0.660	0.62%
Cr 267.716†	6108.2	127.68	µg/L	1.009	127.68	ppb	1.009	0.79%
Cu 324.752†	91533.6	421.71	µg/L	1.721	421.71	ppb	1.721	0.41%
Fe 238.204 Radial†	363524.4	190090	µg/L	1330.8	190090	ppb	1330.8	0.70%
K 766.490 Radial†	85543.7	39598	µg/L	360.9	39598	ppb	360.9	0.91%
Mg 279.077 IEC†	16904.7	79442	µg/L	117.8	79442	ppb	117.8	0.15%
Mn 257.610†	5190239.8	7738.0	µg/L	12.45	7738.0	ppb	12.45	0.16%
Mo 202.031†	101.7	14.632	µg/L	0.3712	14.632	ppb	0.3712	2.54%
Na 589.592 Radial†	752.8	1213.1	µg/L	19.56	1213.1	ppb	19.56	1.61%

Ni 231.604†	5915.4	185.04 µg/L	0.967	185.04 ppb	0.967	0.52%
P 214.914†	9556.7	7082.9 µg/L	29.11	7082.9 ppb	29.11	0.41%
Pb 220.353†	5734.4	901.90 µg/L	3.815	901.90 ppb	3.815	0.42%
S 181.975 Axial†	619.4	1001.2 µg/L	16.39	1001.2 ppb	16.39	1.64%
Sb 206.836†	15.5	-3.4744 µg/L	0.98751	-3.4744 ppb	0.98751	28.42%
Se 196.026†	-93.6	19.876 µg/L	4.9791	19.876 ppb	4.9791	25.05%
SiO2†	186916.3	22245 µg/L	86.1	22245 ppb	86.1	0.39%
Si 251.611†	220540.2	10329 µg/L	38.6	10329 ppb	38.6	0.37%
Sn 189.927†	-226.6	-6.2438 µg/L	1.83614	-6.2438 ppb	1.83614	29.41%
Sr 421.552†	195443.3	897.17 µg/L	7.902	897.17 ppb	7.902	0.88%
Ti 334.940†	2113324.0	5229.5 µg/L	8.97	5229.5 ppb	8.97	0.17%
Tl 190.801†	-91.3	2.3832 µg/L	0.74017	2.3832 ppb	0.74017	31.06%
U 367.007†	3129.5	-83.39 µg/L	7.931	-83.39 ppb	7.931	9.51%
V 292.402†	35723.4	335.01 µg/L	1.149	335.01 ppb	1.149	0.34%
Zn 213.857†	134703.4	1252.6 µg/L	5.18	1252.6 ppb	5.18	0.41%

Sequence No.: 5 **Autosampler Location: 305**
Sample ID: 305844003|1220620|1 **Date Collected: 6/13/2012 8:06:38**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305844003|1220620|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	23190.0	23190.0	111	%			08:07:12
1	Al 396.153Radial†	625796.3	563601.6	161030	µg/L	161030	ppb	08:07:07
1	Ca 317.933Radial†	322220.6	290042.4	131940	µg/L	131940	ppb	08:07:07
1	Fe 238.204 Radial†	493742.6	444576.1	232470	µg/L	232470	ppb	08:07:07
1	K 766.490 Radial†	156584.8	140142.0	64862	µg/L	64862	ppb	08:07:07
1	Mg 279.077 IEC†	19355.0	17427.3	81899	µg/L	81899	ppb	08:07:12
1	Na 589.592 Radial†	2006.3	1951.1	3144.1	µg/L	3144.1	ppb	08:07:12
1	Sr 421.552†	184853.5	167770.8	769.99	µg/L	769.99	ppb	08:07:07
1	Sc 361.383	740475.8	740475.8	109.78	%			08:07:41
1	Y 371.029	767503.1	767503.1	132.15	%			08:07:41
1	Ag 328.068†	-10016.7	-8496.6	8.0052	µg/L	8.0052	ppb	08:07:46
1	As 188.979†	199.0	189.4	115.93	µg/L	115.93	ppb	08:08:06
1	B 249.677†	5944.9	5333.4	116.20	µg/L	116.20	ppb	08:07:46
1	Ba 233.527†	172020.2	156824.8	1323.6	µg/L	1323.6	ppb	08:07:46
1	Be 313.107†	24145.6	29645.1	16.637	µg/L	16.637	ppb	08:07:46
1	Cd 226.502†	6033.4	5722.6	44.897	µg/L	44.897	ppb	08:08:06
1	Co 228.616†	5337.6	4893.0	112.41	µg/L	112.41	ppb	08:08:06
1	Cr 267.716†	8759.2	7753.1	161.75	µg/L	161.75	ppb	08:08:06
1	Cu 324.752†	441230.7	396360.0	1726.4	µg/L	1726.4	ppb	08:07:46
1	Mn 257.610†	6563258.9	5978029.4	8914.0	µg/L	8914.0	ppb	08:07:41
1	Mo 202.031†	230.2	179.5	21.615	µg/L	21.615	ppb	08:08:06
1	Ni 231.604†	6740.4	6167.8	193.50	µg/L	193.50	ppb	08:08:06
1	P 214.914†	11564.7	10407.4	7664.0	µg/L	7664.0	ppb	08:08:06
1	Pb 220.353†	51526.1	46769.5	7574.4	µg/L	7574.4	ppb	08:07:46
1	S 181.975 Axial†	11717.2	10615.9	18431	µg/L	18431	ppb	08:08:06
1	Sb 206.836†	95.4	22.9	-2.0446	µg/L	-2.0446	ppb	08:08:06
1	Se 196.026†	-115.4	-98.7	37.150	µg/L	37.150	ppb	08:08:06
1	SiO2†	219211.8	196858.4	23436	µg/L	23436	ppb	08:07:46
1	Si 251.611†	255045.4	232124.2	10871	µg/L	10871	ppb	08:07:46
1	Sn 189.927†	-222.2	-228.8	-0.6047	µg/L	-0.6047	ppb	08:08:06
1	Ti 334.940†	2477529.7	2256982.0	5585.2	µg/L	5585.2	ppb	08:07:41
1	Tl 190.801†	-163.1	-107.2	1.1731	µg/L	1.1731	ppb	08:08:06
1	U 367.007†	4584.4	3834.6	-99.86	µg/L	-99.86	ppb	08:07:46
1	V 292.402†	47905.7	43828.3	411.79	µg/L	411.79	ppb	08:07:46
1	Zn 213.857†	1182789.1	1076139.4	10199	µg/L	10199	ppb	08:07:41
2	Sc RADIAL	23191.1	23191.1	111	%			08:07:22
2	Al 396.153Radial†	635151.3	572000.4	163430	µg/L	163430	ppb	08:07:17
2	Ca 317.933Radial†	326623.2	293993.9	133730	µg/L	133730	ppb	08:07:17
2	Fe 238.204 Radial†	500012.7	450202.3	235410	µg/L	235410	ppb	08:07:17
2	K 766.490 Radial†	158784.2	142116.2	65776	µg/L	65776	ppb	08:07:17
2	Mg 279.077 IEC†	19428.8	17493.1	82208	µg/L	82208	ppb	08:07:22
2	Na 589.592 Radial†	1981.1	1928.4	3107.4	µg/L	3107.4	ppb	08:07:22
2	Sr 421.552†	187752.7	170374.0	781.94	µg/L	781.94	ppb	08:07:17
2	Sc 361.383	742857.7	742857.7	110.14	%			08:08:13
2	Y 371.029	769880.5	769880.5	132.56	%			08:08:13
2	Ag 328.068†	-10017.8	-8468.3	8.9432	µg/L	8.9432	ppb	08:08:18
2	As 188.979†	187.8	178.7	109.89	µg/L	109.89	ppb	08:08:38
2	B 249.677†	5996.5	5362.9	116.60	µg/L	116.60	ppb	08:08:18
2	Ba 233.527†	173207.2	157400.2	1328.4	µg/L	1328.4	ppb	08:08:18
2	Be 313.107†	24293.5	29708.9	16.689	µg/L	16.689	ppb	08:08:18
2	Cd 226.502†	6064.1	5732.9	44.578	µg/L	44.578	ppb	08:08:38
2	Co 228.616†	5375.9	4912.2	112.89	µg/L	112.89	ppb	08:08:38
2	Cr 267.716†	8809.4	7773.1	162.20	µg/L	162.20	ppb	08:08:38
2	Cu 324.752†	442722.9	396426.1	1727.1	µg/L	1727.1	ppb	08:08:18
2	Mn 257.610†	6590026.8	5983164.6	8922.0	µg/L	8922.0	ppb	08:08:13
2	Mo 202.031†	229.9	178.5	21.667	µg/L	21.667	ppb	08:08:38
2	Ni 231.604†	6800.4	6202.5	194.62	µg/L	194.62	ppb	08:08:38
2	P 214.914†	11604.1	10409.4	7664.1	µg/L	7664.1	ppb	08:08:38
2	Pb 220.353†	51918.5	46975.3	7607.3	µg/L	7607.3	ppb	08:08:18

2	S 181.975 Axial†	11767.3	10627.1	18450 µg/L	18450 ppb		08:08:38
2	Sb 206.836†	100.3	27.1	-0.7903 µg/L	-0.7903 ppb		08:08:38
2	Se 196.026†	-125.0	-107.2	31.757 µg/L	31.757 ppb		08:08:38
2	SiO2†	220226.6	197139.6	23470 µg/L	23470 ppb		08:08:18
2	Si 251.611†	256500.3	232700.2	10898 µg/L	10898 ppb		08:08:18
2	Sn 189.927†	-230.3	-235.5	-1.6192 µg/L	-1.6192 ppb		08:08:38
2	Ti 334.940†	2486497.0	2257888.0	5587.4 µg/L	5587.4 ppb		08:08:13
2	Tl 190.801†	-159.8	-103.7	2.6080 µg/L	2.6080 ppb		08:08:38
2	U 367.007†	4626.9	3859.8	-107.5 µg/L	-107.5 ppb		08:08:18
2	V 292.402†	48187.6	43944.2	412.90 µg/L	412.90 ppb		08:08:18
2	Zn 213.857†	1188246.4	1077639.9	10213 µg/L	10213 ppb		08:08:13
3	Sc RADIAL	23154.0	23154.0	111 %			08:07:33
3	Al 396.153Radial†	636565.7	574192.7	164050 µg/L	164050 ppb		08:07:28
3	Ca 317.933Radial†	327402.5	295168.2	134270 µg/L	134270 ppb		08:07:28
3	Fe 238.204 Radial†	500751.3	451590.2	236140 µg/L	236140 ppb		08:07:28
3	K 766.490 Radial†	159248.9	142764.5	66076 µg/L	66076 ppb		08:07:28
3	Mg 279.077 IEC†	19376.7	17474.1	82119 µg/L	82119 ppb		08:07:33
3	Na 589.592 Radial†	1963.7	1915.5	3086.7 µg/L	3086.7 ppb		08:07:33
3	Sr 421.552†	187839.4	170723.2	783.54 µg/L	783.54 ppb		08:07:28
3	Sc 361.383	741679.2	741679.2	109.96 %			08:08:45
3	Y 371.029	768779.5	768779.5	132.37 %			08:08:45
3	Ag 328.068†	-10149.5	-8602.5	8.2886 µg/L	8.2886 ppb		08:08:50
3	As 188.979†	193.1	183.7	112.80 µg/L	112.80 ppb		08:09:11
3	B 249.677†	6015.6	5388.9	117.23 µg/L	117.23 ppb		08:08:50
3	Ba 233.527†	173592.1	158000.1	1333.5 µg/L	1333.5 ppb		08:08:50
3	Be 313.107†	24298.8	29748.7	16.716 µg/L	16.716 ppb		08:08:50
3	Cd 226.502†	6035.4	5715.5	44.216 µg/L	44.216 ppb		08:09:11
3	Co 228.616†	5385.7	4928.9	113.30 µg/L	113.30 ppb		08:09:11
3	Cr 267.716†	8794.2	7771.9	162.19 µg/L	162.19 ppb		08:09:11
3	Cu 324.752†	442060.1	396462.2	1727.4 µg/L	1727.4 ppb		08:08:50
3	Mn 257.610†	6588489.9	5991274.6	8934.1 µg/L	8934.1 ppb		08:08:45
3	Mo 202.031†	222.2	172.0	21.252 µg/L	21.252 ppb		08:09:11
3	Ni 231.604†	6781.2	6194.9	194.40 µg/L	194.40 ppb		08:09:11
3	P 214.914†	11633.1	10452.5	7696.2 µg/L	7696.2 ppb		08:09:11
3	Pb 220.353†	52191.3	47298.3	7659.7 µg/L	7659.7 ppb		08:08:50
3	S 181.975 Axial†	11771.8	10648.2	18487 µg/L	18487 ppb		08:09:11
3	Sb 206.836†	116.4	41.9	4.0272 µg/L	4.0272 ppb		08:09:11
3	Se 196.026†	-121.2	-103.8	34.823 µg/L	34.823 ppb		08:09:11
3	SiO2†	220497.9	197704.0	23537 µg/L	23537 ppb		08:08:50
3	Si 251.611†	256832.1	233372.0	10930 µg/L	10930 ppb		08:08:50
3	Sn 189.927†	-223.9	-230.0	-0.3104 µg/L	-0.3104 ppb		08:09:11
3	Ti 334.940†	2483494.4	2258744.7	5589.6 µg/L	5589.6 ppb		08:08:45
3	Tl 190.801†	-146.7	-92.0	6.7194 µg/L	6.7194 ppb		08:09:11
3	U 367.007†	4623.8	3863.7	-110.0 µg/L	-110.0 ppb		08:08:50
3	V 292.402†	48337.1	44149.8	414.84 µg/L	414.84 ppb		08:08:50
3	Zn 213.857†	1189208.9	1080229.5	10237 µg/L	10237 ppb		08:08:45

Mean Data: 305844003|1220620|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	741670.9	109.96	%	0.177				0.16%
Sc RADIAL	23178.4	111	%	0.1				0.09%
Y 371.029	768721.0	132.36	%	0.205				0.15%
Ag 328.068†	-8522.5	8.4123	µg/L	0.48107	8.4123	ppb	0.48107	5.72%
Al 396.153Radial†	569931.6	162830	µg/L	1597.3	162830	ppb	1597.3	0.98%
As 188.979†	183.9	112.88	µg/L	3.023	112.88	ppb	3.023	2.68%
B 249.677†	5361.7	116.68	µg/L	0.518	116.68	ppb	0.518	0.44%
Ba 233.527†	157408.4	1328.5	µg/L	4.93	1328.5	ppb	4.93	0.37%
Be 313.107†	29700.9	16.681	µg/L	0.0405	16.681	ppb	0.0405	0.24%
Ca 317.933Radial†	293068.2	133310	µg/L	1221.5	133310	ppb	1221.5	0.92%
Cd 226.502†	5723.7	44.564	µg/L	0.3409	44.564	ppb	0.3409	0.76%
Co 228.616†	4911.4	112.87	µg/L	0.448	112.87	ppb	0.448	0.40%
Cr 267.716†	7766.0	162.05	µg/L	0.257	162.05	ppb	0.257	0.16%
Cu 324.752†	396416.1	1726.9	µg/L	0.51	1726.9	ppb	0.51	0.03%
Fe 238.204 Radial†	448789.5	234670	µg/L	1942.2	234670	ppb	1942.2	0.83%
K 766.490 Radial†	141674.2	65572	µg/L	632.2	65572	ppb	632.2	0.96%
Mg 279.077 IEC†	17464.8	82076	µg/L	158.9	82076	ppb	158.9	0.19%
Mn 257.610†	5984156.2	8923.4	µg/L	10.10	8923.4	ppb	10.10	0.11%
Mo 202.031†	176.7	21.511	µg/L	0.2260	21.511	ppb	0.2260	1.05%
Na 589.592 Radial†	1931.7	3112.7	µg/L	29.06	3112.7	ppb	29.06	0.93%

Ni 231.604†	6188.4	194.17 µg/L	0.591	194.17 ppb	0.591	0.30%
P 214.914†	10423.1	7674.8 µg/L	18.56	7674.8 ppb	18.56	0.24%
Pb 220.353†	47014.3	7613.8 µg/L	43.03	7613.8 ppb	43.03	0.57%
S 181.975 Axial†	10630.4	18456 µg/L	28.2	18456 ppb	28.2	0.15%
Sb 206.836†	30.6	0.3974 µg/L	3.20539	0.3974 ppb	3.20539	806.50%
Se 196.026†	-103.2	34.577 µg/L	2.7048	34.577 ppb	2.7048	7.82%
SiO2†	197234.0	23481 µg/L	51.4	23481 ppb	51.4	0.22%
Si 251.611†	232732.2	10900 µg/L	29.2	10900 ppb	29.2	0.27%
Sn 189.927†	-231.4	-0.8448 µg/L	0.68662	-0.8448 ppb	0.68662	81.28%
Sr 421.552†	169622.6	778.49 µg/L	7.404	778.49 ppb	7.404	0.95%
Ti 334.940†	2257871.6	5587.4 µg/L	2.21	5587.4 ppb	2.21	0.04%
Tl 190.801†	-101.0	3.5001 µg/L	2.87876	3.5001 ppb	2.87876	82.25%
U 367.007†	3852.7	-105.8 µg/L	5.28	-105.8 ppb	5.28	5.00%
V 292.402†	43974.1	413.17 µg/L	1.543	413.17 ppb	1.543	0.37%
Zn 213.857†	1078002.9	10216 µg/L	19.4	10216 ppb	19.4	0.19%

Sequence No.: 6 **Autosampler Location: 306**
Sample ID: 305844004|1220620|1 **Date Collected: 6/13/2012 8:09:18**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305844004|1220620|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22981.5	22981.5	110	%			08:09:52
1	Al 396.153Radial†	809494.4	735635.6	210180	µg/L	210180	ppb	08:09:47
1	Ca 317.933Radial†	869327.1	789810.1	359270	µg/L	359270	ppb	08:09:47
1	Fe 238.204 Radial†	523143.6	475327.1	248550	µg/L	248550	ppb	08:09:47
1	K 766.490 Radial†	103066.9	92792.2	42933	µg/L	42933	ppb	08:09:47
1	Mg 279.077 IEC†	25603.2	23263.0	109320	µg/L	109320	ppb	08:09:52
1	Na 589.592 Radial†	685.9	767.7	1237.1	µg/L	1237.1	ppb	08:09:52
1	Sr 421.552†	329561.7	300772.2	1379.8	µg/L	1379.8	ppb	08:09:47
1	Sc 361.383	729780.4	729780.4	108.20	%			08:10:21
1	Y 371.029	750651.6	750651.6	129.25	%			08:10:21
1	Ag 328.068†	-11046.8	-9582.4	5.4531	µg/L	5.4531	ppb	08:10:26
1	As 188.979†	476.6	448.7	264.54	µg/L	264.54	ppb	08:10:46
1	B 249.677†	6184.3	5633.9	122.30	µg/L	122.30	ppb	08:10:26
1	Ba 233.527†	486471.9	449751.9	3807.5	µg/L	3807.5	ppb	08:10:26
1	Be 313.107†	25232.5	30972.0	19.705	µg/L	19.705	ppb	08:10:26
1	Cd 226.502†	4576.9	4457.0	24.302	µg/L	24.302	ppb	08:10:46
1	Co 228.616†	5486.8	5102.2	121.83	µg/L	121.83	ppb	08:10:46
1	Cr 267.716†	8458.8	7592.4	158.96	µg/L	158.96	ppb	08:10:46
1	Cu 324.752†	250712.0	226164.2	1003.0	µg/L	1003.0	ppb	08:10:26
1	Mn 257.610†	7003337.8	6472388.4	9650.3	µg/L	9650.3	ppb	08:10:21
1	Mo 202.031†	1266.6	1140.5	87.103	µg/L	87.103	ppb	08:10:46
1	Ni 231.604†	7586.3	7039.5	220.58	µg/L	220.58	ppb	08:10:46
1	P 214.914†	12014.4	10977.4	8112.6	µg/L	8112.6	ppb	08:10:46
1	Pb 220.353†	50328.6	46350.5	7510.9	µg/L	7510.9	ppb	08:10:26
1	S 181.975 Axial†	4566.2	4163.0	7136.6	µg/L	7136.6	ppb	08:10:46
1	Sb 206.836†	139.6	65.0	10.734	µg/L	10.734	ppb	08:10:46
1	Se 196.026†	-137.6	-120.8	27.333	µg/L	27.333	ppb	08:10:46
1	SiO2†	195733.6	178085.1	21210	µg/L	21210	ppb	08:10:26
1	Si 251.611†	228096.6	210621.7	9863.0	µg/L	9863.0	ppb	08:10:26
1	Sn 189.927†	-236.0	-244.5	4.2486	µg/L	4.2486	ppb	08:10:46
1	Ti 334.940†	1973976.0	1824649.1	4521.5	µg/L	4521.5	ppb	08:10:21
1	Tl 190.801†	-148.7	-96.1	1.7771	µg/L	1.7771	ppb	08:10:46
1	U 367.007†	4896.8	4184.6	-95.47	µg/L	-95.47	ppb	08:10:26
1	V 292.402†	51516.0	47804.6	451.16	µg/L	451.16	ppb	08:10:26
1	Zn 213.857†	2988269.7	2760637.1	26215	µg/L	26215	ppb	08:10:21
2	Sc RADIAL	23012.9	23012.9	110	%			08:10:02
2	Al 396.153Radial†	809459.3	734600.3	209880	µg/L	209880	ppb	08:09:57
2	Ca 317.933Radial†	867875.0	787414.8	358180	µg/L	358180	ppb	08:09:57
2	Fe 238.204 Radial†	522365.5	473972.6	247840	µg/L	247840	ppb	08:09:57
2	K 766.490 Radial†	103155.6	92744.9	42910	µg/L	42910	ppb	08:09:57
2	Mg 279.077 IEC†	25603.3	23231.4	109170	µg/L	109170	ppb	08:10:02
2	Na 589.592 Radial†	704.2	783.4	1262.4	µg/L	1262.4	ppb	08:10:02
2	Sr 421.552†	328998.0	299852.2	1375.6	µg/L	1375.6	ppb	08:09:57
2	Sc 361.383	728877.0	728877.0	108.06	%			08:10:53
2	Y 371.029	749046.3	749046.3	128.97	%			08:10:53
2	Ag 328.068†	-10967.2	-9521.3	5.6651	µg/L	5.6651	ppb	08:10:58
2	As 188.979†	473.2	446.0	262.99	µg/L	262.99	ppb	08:11:18
2	B 249.677†	6266.1	5716.7	124.73	µg/L	124.73	ppb	08:10:58
2	Ba 233.527†	486673.8	450496.0	3813.8	µg/L	3813.8	ppb	08:10:58
2	Be 313.107†	25239.3	31007.2	19.720	µg/L	19.720	ppb	08:10:58
2	Cd 226.502†	4581.6	4466.6	24.550	µg/L	24.550	ppb	08:11:18
2	Co 228.616†	5462.7	5086.2	121.45	µg/L	121.45	ppb	08:11:18
2	Cr 267.716†	8440.0	7584.7	158.77	µg/L	158.77	ppb	08:11:18
2	Cu 324.752†	251993.1	227636.9	1009.2	µg/L	1009.2	ppb	08:10:58
2	Mn 257.610†	6977118.5	6456147.6	9626.1	µg/L	9626.1	ppb	08:10:53
2	Mo 202.031†	1273.7	1148.5	87.616	µg/L	87.616	ppb	08:11:18
2	Ni 231.604†	7504.5	6972.6	218.51	µg/L	218.51	ppb	08:11:18
2	P 214.914†	11960.3	10941.1	8085.6	µg/L	8085.6	ppb	08:11:18
2	Pb 220.353†	50295.1	46377.2	7515.2	µg/L	7515.2	ppb	08:10:58

2	S 181.975 Axial†	4540.7	4144.7	7104.8 µg/L	7104.8 ppb		08:11:18
2	Sb 206.836†	142.5	67.8	11.680 µg/L	11.680 ppb		08:11:18
2	Se 196.026†	-146.2	-128.9	20.363 µg/L	20.363 ppb		08:11:18
2	SiO2†	196025.1	178579.2	21268 µg/L	21268 ppb		08:10:58
2	Si 251.611†	228311.7	211082.0	9884.6 µg/L	9884.6 ppb		08:10:58
2	Sn 189.927†	-252.4	-259.9	0.7408 µg/L	0.7408 ppb		08:11:18
2	Ti 334.940†	1968857.5	1822173.7	4515.3 µg/L	4515.3 ppb		08:10:53
2	Tl 190.801†	-143.6	-91.4	3.3296 µg/L	3.3296 ppb		08:11:18
2	U 367.007†	4950.7	4240.0	-77.06 µg/L	-77.06 ppb		08:10:58
2	V 292.402†	51554.4	47899.1	452.08 µg/L	452.08 ppb		08:10:58
2	Zn 213.857†	2973559.6	2750447.6	26118 µg/L	26118 ppb		08:10:53
3	Sc RADIAL	23178.1	23178.1	111 %			08:10:13
3	Al 396.153Radial†	812831.3	732400.0	209250 µg/L	209250 ppb		08:10:08
3	Ca 317.933Radial†	873658.3	787008.9	358000 µg/L	358000 ppb		08:10:08
3	Fe 238.204 Radial†	525360.8	473290.8	247480 µg/L	247480 ppb		08:10:08
3	K 766.490 Radial†	103600.3	92478.0	42787 µg/L	42787 ppb		08:10:08
3	Mg 279.077 IEC†	25781.5	23226.2	109150 µg/L	109150 ppb		08:10:13
3	Na 589.592 Radial†	674.9	752.5	1212.6 µg/L	1212.6 ppb		08:10:13
3	Sr 421.552†	331071.5	299591.3	1374.4 µg/L	1374.4 ppb		08:10:08
3	Sc 361.383	730869.0	730869.0	108.36 %			08:11:25
3	Y 371.029	751840.5	751840.5	129.45 %			08:11:25
3	Ag 328.068†	-10881.6	-9414.7	6.2501 µg/L	6.2501 ppb		08:11:30
3	As 188.979†	474.7	446.3	263.12 µg/L	263.12 ppb		08:11:51
3	B 249.677†	6324.0	5754.4	125.84 µg/L	125.84 ppb		08:11:30
3	Ba 233.527†	487482.4	450014.7	3809.7 µg/L	3809.7 ppb		08:11:30
3	Be 313.107†	25324.4	31022.1	19.723 µg/L	19.723 ppb		08:11:30
3	Cd 226.502†	4608.5	4479.8	24.796 µg/L	24.796 ppb		08:11:51
3	Co 228.616†	5479.9	5088.3	121.48 µg/L	121.48 ppb		08:11:51
3	Cr 267.716†	8458.8	7580.8	158.69 µg/L	158.69 ppb		08:11:51
3	Cu 324.752†	252528.9	227495.8	1008.5 µg/L	1008.5 ppb		08:11:30
3	Mn 257.610†	6999679.0	6459370.3	9630.8 µg/L	9630.8 ppb		08:11:25
3	Mo 202.031†	1264.6	1136.9	86.816 µg/L	86.816 ppb		08:11:51
3	Ni 231.604†	7594.1	7036.4	220.46 µg/L	220.46 ppb		08:11:51
3	P 214.914†	12040.8	10985.3	8118.9 µg/L	8118.9 ppb		08:11:51
3	Pb 220.353†	50486.6	46427.1	7523.5 µg/L	7523.5 ppb		08:11:30
3	S 181.975 Axial†	4565.8	4156.4	7125.3 µg/L	7125.3 ppb		08:11:51
3	Sb 206.836†	157.4	81.2	16.077 µg/L	16.077 ppb		08:11:51
3	Se 196.026†	-143.9	-126.4	22.247 µg/L	22.247 ppb		08:11:51
3	SiO2†	196430.4	178458.8	21254 µg/L	21254 ppb		08:11:30
3	Si 251.611†	228747.5	210908.3	9876.5 µg/L	9876.5 ppb		08:11:30
3	Sn 189.927†	-248.2	-255.5	1.6831 µg/L	1.6831 ppb		08:11:51
3	Ti 334.940†	1978588.7	1826188.5	4525.3 µg/L	4525.3 ppb		08:11:25
3	Tl 190.801†	-141.9	-89.6	3.9948 µg/L	3.9948 ppb		08:11:51
3	U 367.007†	4939.2	4216.9	-81.52 µg/L	-81.52 ppb		08:11:30
3	V 292.402†	51687.0	47891.5	451.99 µg/L	451.99 ppb		08:11:30
3	Zn 213.857†	2982826.6	2751499.8	26128 µg/L	26128 ppb		08:11:25

Mean Data: 305844004|1220620|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	729842.1	108.21	%	0.148				0.14%
Sc RADIAL	23057.5	110	%	0.5				0.46%
Y 371.029	750512.8	129.22	%	0.241				0.19%
Ag 328.068†	-9506.1	5.7894	µg/L	0.41277	5.7894	ppb	0.41277	7.13%
Al 396.153Radial†	734212.0	209770	µg/L	472.1	209770	ppb	472.1	0.23%
As 188.979†	447.0	263.55	µg/L	0.858	263.55	ppb	0.858	0.33%
B 249.677†	5701.7	124.29	µg/L	1.811	124.29	ppb	1.811	1.46%
Ba 233.527†	450087.5	3810.3	µg/L	3.21	3810.3	ppb	3.21	0.08%
Be 313.107†	31000.4	19.716	µg/L	0.0095	19.716	ppb	0.0095	0.05%
Ca 317.933Radial†	788077.9	358480	µg/L	688.6	358480	ppb	688.6	0.19%
Cd 226.502†	4467.8	24.549	µg/L	0.2473	24.549	ppb	0.2473	1.01%
Co 228.616†	5092.2	121.59	µg/L	0.214	121.59	ppb	0.214	0.18%
Cr 267.716†	7585.9	158.81	µg/L	0.135	158.81	ppb	0.135	0.09%
Cu 324.752†	227099.0	1006.9	µg/L	3.38	1006.9	ppb	3.38	0.34%
Fe 238.204 Radial†	474196.8	247960	µg/L	542.0	247960	ppb	542.0	0.22%
K 766.490 Radial†	92671.7	42877	µg/L	78.5	42877	ppb	78.5	0.18%
Mg 279.077 IEC†	23240.2	109220	µg/L	93.6	109220	ppb	93.6	0.09%
Mn 257.610†	6462635.4	9635.7	µg/L	12.84	9635.7	ppb	12.84	0.13%
Mo 202.031†	1142.0	87.178	µg/L	0.4057	87.178	ppb	0.4057	0.47%
Na 589.592 Radial†	767.9	1237.4	µg/L	24.93	1237.4	ppb	24.93	2.01%

Ni 231.604†	7016.2	219.85 µg/L	1.164	219.85 ppb	1.164	0.53%
P 214.914†	10967.9	8105.7 µg/L	17.69	8105.7 ppb	17.69	0.22%
Pb 220.353†	46384.9	7516.5 µg/L	6.39	7516.5 ppb	6.39	0.09%
S 181.975 Axial†	4154.7	7122.2 µg/L	16.12	7122.2 ppb	16.12	0.23%
Sb 206.836†	71.4	12.830 µg/L	2.8514	12.830 ppb	2.8514	22.22%
Se 196.026†	-125.4	23.314 µg/L	3.6058	23.314 ppb	3.6058	15.47%
SiO2†	178374.4	21244 µg/L	30.6	21244 ppb	30.6	0.14%
Si 251.611†	210870.7	9874.7 µg/L	10.90	9874.7 ppb	10.90	0.11%
Sn 189.927†	-253.3	2.2242 µg/L	1.81541	2.2242 ppb	1.81541	81.62%
Sr 421.552†	300071.9	1376.6 µg/L	2.85	1376.6 ppb	2.85	0.21%
Ti 334.940†	1824337.1	4520.7 µg/L	5.01	4520.7 ppb	5.01	0.11%
Tl 190.801†	-92.3	3.0339 µg/L	1.13803	3.0339 ppb	1.13803	37.51%
U 367.007†	4213.9	-84.69 µg/L	9.605	-84.69 ppb	9.605	11.34%
V 292.402†	47865.1	451.74 µg/L	0.504	451.74 ppb	0.504	0.11%
Zn 213.857†	2754194.8	26154 µg/L	53.2	26154 ppb	53.2	0.20%

Sequence No.: 7 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/13/2012 8:11:58**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21709.0	21709.0	104	%			08:12:48
1	Al 396.153Radial†	18144.4	17533.4	4990.4	µg/L	4990.4	ppb	08:12:28
1	Ca 317.933Radial†	11633.0	11076.9	5038.7	µg/L	5038.7	ppb	08:12:48
1	Fe 238.204 Radial†	10254.2	9831.0	5145.7	µg/L	5145.7	ppb	08:12:48
1	K 766.490 Radial†	12301.1	10972.1	5067.4	µg/L	5067.4	ppb	08:12:28
1	Mg 279.077 IEC†	1141.7	1096.6	5160.0	µg/L	5160.0	ppb	08:12:48
1	Na 589.592 Radial†	6158.9	6068.9	9779.4	µg/L	9779.4	ppb	08:12:48
1	Sr 421.552†	111699.3	108758.6	499.52	µg/L	499.52	ppb	08:12:28
1	Sc 361.383	722913.8	722913.8	107.18	%			08:13:45
1	Y 371.029	616741.7	616741.7	106.19	%			08:13:45
1	Ag 328.068†	85559.7	80456.9	515.00	µg/L	515.00	ppb	08:13:51
1	As 188.979†	942.1	887.2	507.85	µg/L	507.85	ppb	08:14:11
1	B 249.677†	19204.9	17836.8	499.87	µg/L	499.87	ppb	08:13:51
1	Ba 233.527†	63931.9	59782.4	507.53	µg/L	507.53	ppb	08:13:51
1	Be 313.107†	955884.4	899514.5	507.97	µg/L	507.97	ppb	08:13:45
1	Cd 226.502†	38383.6	36039.7	513.63	µg/L	513.63	ppb	08:13:51
1	Co 228.616†	21786.9	20358.8	513.26	µg/L	513.26	ppb	08:13:51
1	Cr 267.716†	26889.2	24862.6	506.54	µg/L	506.54	ppb	08:13:51
1	Cu 324.752†	131728.9	117351.0	501.23	µg/L	501.23	ppb	08:13:51
1	Mn 257.610†	361449.2	336824.5	501.48	µg/L	501.48	ppb	08:13:51
1	Mo 202.031†	8006.8	7440.4	502.18	µg/L	502.18	ppb	08:14:11
1	Ni 231.604†	18105.4	16920.8	520.21	µg/L	520.21	ppb	08:13:51
1	P 214.914†	3711.0	3335.7	2488.3	µg/L	2488.3	ppb	08:14:11
1	Pb 220.353†	3535.2	3132.9	509.67	µg/L	509.67	ppb	08:14:11
1	S 181.975 Axial†	681.9	579.0	1010.6	µg/L	1010.6	ppb	08:14:11
1	Sb 206.836†	1708.8	1530.4	496.19	µg/L	496.19	ppb	08:14:11
1	Se 196.026†	657.7	620.0	509.36	µg/L	509.36	ppb	08:14:11
1	SiO2†	51530.1	45258.1	5411.9	µg/L	5411.9	ppb	08:13:51
1	Si 251.611†	57883.5	53811.1	2512.7	µg/L	2512.7	ppb	08:13:51
1	Sn 189.927†	2515.9	2321.0	507.60	µg/L	507.60	ppb	08:14:11
1	Ti 334.940†	219147.9	204680.7	505.99	µg/L	505.99	ppb	08:13:51
1	Tl 190.801†	1500.3	1441.2	505.17	µg/L	505.17	ppb	08:14:11
1	U 367.007†	2317.4	1820.9	466.0	µg/L	466.0	ppb	08:13:51
1	V 292.402†	56945.3	53322.4	511.51	µg/L	511.51	ppb	08:13:51
1	Zn 213.857†	59757.2	54496.6	513.80	µg/L	513.80	ppb	08:13:51
2	Sc RADIAL	21658.1	21658.1	104	%			08:13:13
2	Al 396.153Radial†	17843.6	17284.5	4919.2	µg/L	4919.2	ppb	08:12:53
2	Ca 317.933Radial†	11566.8	11039.4	5021.6	µg/L	5021.6	ppb	08:13:13
2	Fe 238.204 Radial†	10216.9	9818.1	5139.0	µg/L	5139.0	ppb	08:13:13
2	K 766.490 Radial†	12207.6	10909.7	5038.6	µg/L	5038.6	ppb	08:12:53
2	Mg 279.077 IEC†	1145.1	1102.5	5188.0	µg/L	5188.0	ppb	08:13:13
2	Na 589.592 Radial†	6133.8	6058.6	9762.8	µg/L	9762.8	ppb	08:13:13
2	Sr 421.552†	111304.1	108630.0	498.93	µg/L	498.93	ppb	08:12:53
2	Sc 361.383	722480.1	722480.1	107.11	%			08:14:16
2	Y 371.029	616673.9	616673.9	106.18	%			08:14:16
2	Ag 328.068†	85467.7	80418.9	514.75	µg/L	514.75	ppb	08:14:21
2	As 188.979†	947.3	892.6	510.92	µg/L	510.92	ppb	08:14:41
2	B 249.677†	19115.5	17764.1	497.83	µg/L	497.83	ppb	08:14:21
2	Ba 233.527†	63871.0	59761.4	507.35	µg/L	507.35	ppb	08:14:21
2	Be 313.107†	951846.2	896280.0	506.14	µg/L	506.14	ppb	08:14:16
2	Cd 226.502†	38219.4	35907.9	511.75	µg/L	511.75	ppb	08:14:21
2	Co 228.616†	21674.9	20266.4	510.94	µg/L	510.94	ppb	08:14:21
2	Cr 267.716†	26779.8	24775.6	504.76	µg/L	504.76	ppb	08:14:21
2	Cu 324.752†	131473.0	117185.9	500.52	µg/L	500.52	ppb	08:14:21
2	Mn 257.610†	360484.0	336125.9	500.44	µg/L	500.44	ppb	08:14:21
2	Mo 202.031†	8052.6	7487.6	505.37	µg/L	505.37	ppb	08:14:41
2	Ni 231.604†	18015.4	16846.9	517.93	µg/L	517.93	ppb	08:14:21
2	P 214.914†	3720.4	3346.5	2496.5	µg/L	2496.5	ppb	08:14:41
2	Pb 220.353†	3529.8	3129.9	509.21	µg/L	509.21	ppb	08:14:41

2	S 181.975 Axial†	685.7	582.9	1017.5 µg/L	1017.5 ppb	08:14:41
2	Sb 206.836†	1714.7	1536.8	498.39 µg/L	498.39 ppb	08:14:41
2	Se 196.026†	661.1	623.5	512.22 µg/L	512.22 ppb	08:14:41
2	SiO2†	51486.6	45246.3	5410.5 µg/L	5410.5 ppb	08:14:21
2	Si 251.611†	57787.7	53754.0	2510.0 µg/L	2510.0 ppb	08:14:21
2	Sn 189.927†	2521.9	2328.0	509.14 µg/L	509.14 ppb	08:14:41
2	Ti 334.940†	218806.7	204484.9	505.50 µg/L	505.50 ppb	08:14:21
2	Tl 190.801†	1495.0	1437.1	503.74 µg/L	503.74 ppb	08:14:41
2	U 367.007†	2351.7	1854.2	475.0 µg/L	475.0 ppb	08:14:21
2	V 292.402†	56771.0	53191.7	510.31 µg/L	510.31 ppb	08:14:21
2	Zn 213.857†	59466.8	54258.9	511.56 µg/L	511.56 ppb	08:14:21
3	Sc RADIAL	21641.8	21641.8	104 %		08:13:39
3	Al 396.153Radial†	17759.0	17215.8	4899.7 µg/L	4899.7 ppb	08:13:18
3	Ca 317.933Radial†	11506.5	10989.5	4999.0 µg/L	4999.0 ppb	08:13:39
3	Fe 238.204 Radial†	10176.7	9786.7	5122.6 µg/L	5122.6 ppb	08:13:39
3	K 766.490 Radial†	12166.1	10878.5	5024.2 µg/L	5024.2 ppb	08:13:18
3	Mg 279.077 IEC†	1136.9	1095.4	5154.6 µg/L	5154.6 ppb	08:13:39
3	Na 589.592 Radial†	6176.0	6103.7	9835.5 µg/L	9835.5 ppb	08:13:39
3	Sr 421.552†	110505.8	107940.6	495.76 µg/L	495.76 ppb	08:13:18
3	Sc 361.383	723985.2	723985.2	107.34 %		08:14:47
3	Y 371.029	618702.6	618702.6	106.53 %		08:14:47
3	Ag 328.068†	85322.8	80118.0	512.83 µg/L	512.83 ppb	08:14:52
3	As 188.979†	940.7	884.6	506.35 µg/L	506.35 ppb	08:15:12
3	B 249.677†	19089.1	17702.4	496.10 µg/L	496.10 ppb	08:14:52
3	Ba 233.527†	63697.3	59475.6	504.93 µg/L	504.93 ppb	08:14:52
3	Be 313.107†	957463.3	899665.7	508.05 µg/L	508.05 ppb	08:14:47
3	Cd 226.502†	38327.3	35934.2	512.12 µg/L	512.12 ppb	08:14:52
3	Co 228.616†	21753.3	20297.4	511.71 µg/L	511.71 ppb	08:14:52
3	Cr 267.716†	26827.2	24767.8	504.60 µg/L	504.60 ppb	08:14:52
3	Cu 324.752†	131273.9	116745.3	498.64 µg/L	498.64 ppb	08:14:52
3	Mn 257.610†	360174.8	335138.2	498.97 µg/L	498.97 ppb	08:14:52
3	Mo 202.031†	8025.8	7447.1	502.63 µg/L	502.63 ppb	08:15:12
3	Ni 231.604†	17988.0	16786.4	516.07 µg/L	516.07 ppb	08:14:52
3	P 214.914†	3732.1	3350.1	2499.3 µg/L	2499.3 ppb	08:15:12
3	Pb 220.353†	3546.2	3138.4	510.58 µg/L	510.58 ppb	08:15:12
3	S 181.975 Axial†	684.2	580.1	1012.6 µg/L	1012.6 ppb	08:15:12
3	Sb 206.836†	1703.8	1523.4	493.98 µg/L	493.98 ppb	08:15:12
3	Se 196.026†	660.4	621.6	510.69 µg/L	510.69 ppb	08:15:12
3	SiO2†	51428.3	45092.1	5392.2 µg/L	5392.2 ppb	08:14:52
3	Si 251.611†	57894.6	53741.5	2509.5 µg/L	2509.5 ppb	08:14:52
3	Sn 189.927†	2534.6	2334.9	510.63 µg/L	510.63 ppb	08:15:12
3	Ti 334.940†	218507.3	203781.3	503.76 µg/L	503.76 ppb	08:14:52
3	Tl 190.801†	1488.8	1428.5	500.72 µg/L	500.72 ppb	08:15:12
3	U 367.007†	2364.9	1861.9	477.1 µg/L	477.1 ppb	08:14:52
3	V 292.402†	56754.8	53066.4	509.10 µg/L	509.10 ppb	08:14:52
3	Zn 213.857†	59448.6	54126.5	510.32 µg/L	510.32 ppb	08:14:52

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	723126.4	107.21	%	0.115				0.11%
Sc RADIAL	21669.6	104	%	0.2				0.16%
Y 371.029	617372.7	106.30	%	0.198				0.19%
Ag 328.068†	80331.3	514.20	µg/L	1.188	514.20	ppb	1.188	0.23%
QC value within limits for Ag 328.068 Recovery = 102.84%								
Al 396.153Radial†	17344.6	4936.4	µg/L	47.78	4936.4	ppb	47.78	0.97%
QC value within limits for Al 396.153Radial Recovery = 98.73%								
As 188.979†	888.1	508.37	µg/L	2.332	508.37	ppb	2.332	0.46%
QC value within limits for As 188.979 Recovery = 101.67%								
B 249.677†	17767.8	497.93	µg/L	1.889	497.93	ppb	1.889	0.38%
QC value within limits for B 249.677 Recovery = 99.59%								
Ba 233.527†	59673.1	506.60	µg/L	1.455	506.60	ppb	1.455	0.29%
QC value within limits for Ba 233.527 Recovery = 101.32%								
Be 313.107†	898486.7	507.39	µg/L	1.080	507.39	ppb	1.080	0.21%
QC value within limits for Be 313.107 Recovery = 101.48%								
Ca 317.933Radial†	11035.3	5019.8	µg/L	19.93	5019.8	ppb	19.93	0.40%
QC value within limits for Ca 317.933Radial Recovery = 100.40%								
Cd 226.502†	35960.6	512.50	µg/L	0.995	512.50	ppb	0.995	0.19%
QC value within limits for Cd 226.502 Recovery = 102.50%								
Co 228.616†	20307.5	511.97	µg/L	1.182	511.97	ppb	1.182	0.23%

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   QC value within limits for Co 228.616  Recovery = 102.39%
Cr 267.716†           24802.0      505.30 µg/L         1.080      505.30 ppb          1.080   0.21%
   QC value within limits for Cr 267.716  Recovery = 101.06%
Cu 324.752†          117094.1      500.13 µg/L         1.341      500.13 ppb          1.341   0.27%
   QC value within limits for Cu 324.752  Recovery = 100.03%
Fe 238.204 Radial†      9811.9      5135.8 µg/L         11.90      5135.8 ppb          11.90   0.23%
   QC value within limits for Fe 238.204 Radial  Recovery = 102.72%
K 766.490 Radial†      10920.1      5043.4 µg/L         22.01      5043.4 ppb          22.01   0.44%
   QC value within limits for K 766.490 Radial  Recovery = 100.87%
Mg 279.077 IEC†         1098.2      5167.5 µg/L         17.91      5167.5 ppb          17.91   0.35%
   QC value within limits for Mg 279.077 IEC  Recovery = 103.35%
Mn 257.610†           336029.5      500.30 µg/L         1.262      500.30 ppb          1.262   0.25%
   QC value within limits for Mn 257.610  Recovery = 100.06%
Mo 202.031†             7458.4      503.39 µg/L         1.725      503.39 ppb          1.725   0.34%
   QC value within limits for Mo 202.031  Recovery = 100.68%
Na 589.592 Radial†      6077.0      9792.6 µg/L         38.12      9792.6 ppb          38.12   0.39%
   QC value within limits for Na 589.592 Radial  Recovery = 97.93%
Ni 231.604†            16851.3      518.07 µg/L         2.070      518.07 ppb          2.070   0.40%
   QC value within limits for Ni 231.604  Recovery = 103.61%
P 214.914†              3344.1      2494.7 µg/L          5.68      2494.7 ppb           5.68   0.23%
   QC value within limits for P 214.914  Recovery = 99.79%
Pb 220.353†             3133.7      509.82 µg/L         0.696      509.82 ppb          0.696   0.14%
   QC value within limits for Pb 220.353  Recovery = 101.96%
S 181.975 Axial†         580.7      1013.6 µg/L          3.54      1013.6 ppb           3.54   0.35%
   QC value within limits for S 181.975 Axial  Recovery = 101.36%
Sb 206.836†             1530.2      496.19 µg/L         2.202      496.19 ppb          2.202   0.44%
   QC value within limits for Sb 206.836  Recovery = 99.24%
Se 196.026†              621.7      510.76 µg/L         1.431      510.76 ppb          1.431   0.28%
   QC value within limits for Se 196.026  Recovery = 102.15%
SiO2†                  45198.8      5404.9 µg/L         11.01      5404.9 ppb          11.01   0.20%
   QC value within limits for SiO2  Recovery = 101.07%
Si 251.611†            53768.9      2510.7 µg/L          1.75      2510.7 ppb           1.75   0.07%
   QC value within limits for Si 251.611  Recovery = 100.43%
Sn 189.927†             2328.0      509.12 µg/L         1.513      509.12 ppb          1.513   0.30%
   QC value within limits for Sn 189.927  Recovery = 101.82%
Sr 421.552†           108443.1      498.07 µg/L         2.020      498.07 ppb          2.020   0.41%
   QC value within limits for Sr 421.552  Recovery = 99.61%
Ti 334.940†           204315.6      505.08 µg/L         1.172      505.08 ppb          1.172   0.23%
   QC value within limits for Ti 334.940  Recovery = 101.02%
Tl 190.801†             1435.6      503.21 µg/L         2.272      503.21 ppb          2.272   0.45%
   QC value within limits for Tl 190.801  Recovery = 100.64%
U 367.007†              1845.7       472.7 µg/L          5.91       472.7 ppb           5.91   1.25%
   QC value within limits for U 367.007  Recovery = 94.54%
V 292.402†             53193.5      510.31 µg/L         1.206      510.31 ppb          1.206   0.24%
   QC value within limits for V 292.402  Recovery = 102.06%
Zn 213.857†            54294.0      511.89 µg/L         1.767      511.89 ppb          1.767   0.35%
   QC value within limits for Zn 213.857  Recovery = 102.38%
All analyte(s) passed QC.
```

Sequence No.: 8 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/13/2012 8:15:20**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21608.3	21608.3	103	%			08:15:48
1	Al 396.153Radial†	-60.3	21.7	6.1800	µg/L	6.1800	ppb	08:15:48
1	Ca 317.933Radial†	125.5	8.2	3.7190	µg/L	3.7190	ppb	08:16:08
1	Fe 238.204 Radial†	45.4	11.0	5.7633	µg/L	5.7633	ppb	08:16:08
1	K 766.490 Radial†	957.2	64.4	29.758	µg/L	29.758	ppb	08:15:48
1	Mg 279.077 IEC†	4.2	2.5	11.748	µg/L	11.748	ppb	08:16:08
1	Na 589.592 Radial†	-153.0	-3.4	-5.4479	µg/L	-5.4479	ppb	08:15:48
1	Sr 421.552†	-1259.1	95.7	0.4396	µg/L	0.4396	ppb	08:15:48
1	Sc 361.383	711886.0	711886.0	105.54	%			08:17:04
1	Y 371.029	611690.5	611690.5	105.32	%			08:17:04
1	Ag 328.068†	-557.6	99.3	0.6310	µg/L	0.6310	ppb	08:17:10
1	As 188.979†	-4.3	4.1	2.3515	µg/L	2.3515	ppb	08:17:30
1	B 249.677†	120.9	32.7	0.9162	µg/L	0.9162	ppb	08:17:30
1	Ba 233.527†	-115.1	23.3	0.1975	µg/L	0.1975	ppb	08:17:30
1	Be 313.107†	-7709.7	346.2	0.1958	µg/L	0.1958	ppb	08:17:10
1	Cd 226.502†	-224.0	14.6	0.2075	µg/L	0.2075	ppb	08:17:30
1	Co 228.616†	-11.8	19.8	0.5006	µg/L	0.5006	ppb	08:17:30
1	Cr 267.716†	232.9	-5.0	-0.1038	µg/L	-0.1038	ppb	08:17:30
1	Cu 324.752†	5764.3	-93.7	-0.3988	µg/L	-0.3988	ppb	08:17:10
1	Mn 257.610†	484.7	42.7	0.0638	µg/L	0.0638	ppb	08:17:30
1	Mo 202.031†	43.2	10.8	0.7286	µg/L	0.7286	ppb	08:17:30
1	Ni 231.604†	-30.0	-0.5	-0.0149	µg/L	-0.0149	ppb	08:17:30
1	P 214.914†	126.6	-6.9	-5.1683	µg/L	-5.1683	ppb	08:17:30
1	Pb 220.353†	190.5	15.0	2.4398	µg/L	2.4398	ppb	08:17:30
1	S 181.975 Axial†	62.0	1.4	2.5132	µg/L	2.5132	ppb	08:17:30
1	Sb 206.836†	95.5	26.5	8.6679	µg/L	8.6679	ppb	08:17:30
1	Se 196.026†	-4.9	1.8	1.4362	µg/L	1.4362	ppb	08:17:30
1	SiO2†	2885.7	-86.6	-10.262	µg/L	-10.262	ppb	08:17:10
1	Si 251.611†	202.6	-3.7	-0.1834	µg/L	-0.1834	ppb	08:17:30
1	Sn 189.927†	27.7	-0.1	-0.0236	µg/L	-0.0236	ppb	08:17:30
1	Ti 334.940†	-78.1	136.3	0.3362	µg/L	0.3362	ppb	08:17:10
1	Tl 190.801†	-33.1	10.1	3.5174	µg/L	3.5174	ppb	08:17:30
1	U 367.007†	367.9	7.2	1.922	µg/L	1.922	ppb	08:17:10
1	V 292.402†	-212.3	-10.1	-0.0862	µg/L	-0.0862	ppb	08:17:10
1	Zn 213.857†	1533.8	194.9	1.8527	µg/L	1.8527	ppb	08:17:30
2	Sc RADIAL	21518.7	21518.7	103	%			08:16:13
2	Al 396.153Radial†	-63.9	17.9	5.0923	µg/L	5.0923	ppb	08:16:13
2	Ca 317.933Radial†	121.6	4.9	2.2144	µg/L	2.2144	ppb	08:16:33
2	Fe 238.204 Radial†	39.4	5.4	2.8503	µg/L	2.8503	ppb	08:16:33
2	K 766.490 Radial†	883.1	-3.7	-1.6904	µg/L	-1.6904	ppb	08:16:13
2	Mg 279.077 IEC†	6.5	4.7	22.105	µg/L	22.105	ppb	08:16:33
2	Na 589.592 Radial†	-191.7	-41.6	-67.030	µg/L	-67.030	ppb	08:16:13
2	Sr 421.552†	-1237.4	111.7	0.5132	µg/L	0.5132	ppb	08:16:13
2	Sc 361.383	709542.6	709542.6	105.20	%			08:17:35
2	Y 371.029	610228.1	610228.1	105.07	%			08:17:35
2	Ag 328.068†	-606.7	50.9	0.3217	µg/L	0.3217	ppb	08:17:40
2	As 188.979†	-15.5	-6.6	-3.7726	µg/L	-3.7726	ppb	08:18:00
2	B 249.677†	134.4	45.9	1.2881	µg/L	1.2881	ppb	08:18:00
2	Ba 233.527†	-115.3	22.7	0.1925	µg/L	0.1925	ppb	08:18:00
2	Be 313.107†	-7683.9	346.6	0.1951	µg/L	0.1951	ppb	08:17:40
2	Cd 226.502†	-225.0	13.0	0.1844	µg/L	0.1844	ppb	08:18:00
2	Co 228.616†	-17.8	14.1	0.3571	µg/L	0.3571	ppb	08:18:00
2	Cr 267.716†	227.3	-9.6	-0.1935	µg/L	-0.1935	ppb	08:18:00
2	Cu 324.752†	5777.2	-63.4	-0.2669	µg/L	-0.2669	ppb	08:17:40
2	Mn 257.610†	489.4	48.7	0.0721	µg/L	0.0721	ppb	08:18:00
2	Mo 202.031†	46.0	13.6	0.9173	µg/L	0.9173	ppb	08:18:00
2	Ni 231.604†	-33.4	-3.8	-0.1160	µg/L	-0.1160	ppb	08:18:00
2	P 214.914†	132.1	-1.2	-0.9406	µg/L	-0.9406	ppb	08:18:00
2	Pb 220.353†	200.1	24.7	4.0200	µg/L	4.0200	ppb	08:18:00

2	S 181.975 Axial†	53.7	-6.3	-10.896 µg/L	-10.896 ppb	08:18:00
2	Sb 206.836†	80.9	12.9	4.2207 µg/L	4.2207 ppb	08:18:00
2	Se 196.026†	-7.7	-0.9	-0.7748 µg/L	-0.7748 ppb	08:18:00
2	SiO2†	2912.0	-52.6	-6.2625 µg/L	-6.2625 ppb	08:17:40
2	Si 251.611†	214.2	7.9	0.3605 µg/L	0.3605 ppb	08:18:00
2	Sn 189.927†	27.2	-0.5	-0.1079 µg/L	-0.1079 ppb	08:18:00
2	Ti 334.940†	-20.0	191.3	0.4740 µg/L	0.4740 ppb	08:17:40
2	Tl 190.801†	-32.8	10.2	3.5635 µg/L	3.5635 ppb	08:18:00
2	U 367.007†	350.7	-7.9	-2.145 µg/L	-2.145 ppb	08:17:40
2	V 292.402†	-232.1	-29.5	-0.2718 µg/L	-0.2718 ppb	08:17:40
2	Zn 213.857†	1506.8	174.0	1.6553 µg/L	1.6553 ppb	08:18:00
3	Sc RADIAL	21744.1	21744.1	104 %		08:16:38
3	Al 396.153Radial†	-47.6	34.3	9.7609 µg/L	9.7609 ppb	08:16:38
3	Ca 317.933Radial†	118.1	0.3	0.1292 µg/L	0.1292 ppb	08:16:58
3	Fe 238.204 Radial†	40.9	6.5	3.3861 µg/L	3.3861 ppb	08:16:58
3	K 766.490 Radial†	904.9	8.4	3.8680 µg/L	3.8680 ppb	08:16:38
3	Mg 279.077 IEC†	8.5	6.6	30.981 µg/L	30.981 ppb	08:16:58
3	Na 589.592 Radial†	-180.8	-29.2	-47.066 µg/L	-47.066 ppb	08:16:38
3	Sr 421.552†	-1357.2	9.1	0.0417 µg/L	0.0417 ppb	08:16:38
3	Sc 361.383	714404.3	714404.3	105.92 %		08:18:05
3	Y 371.029	614477.4	614477.4	105.80 %		08:18:05
3	Ag 328.068†	-603.3	58.0	0.3700 µg/L	0.3700 ppb	08:18:10
3	As 188.979†	-11.0	-2.3	-1.3006 µg/L	-1.3006 ppb	08:18:30
3	B 249.677†	93.6	6.5	0.1805 µg/L	0.1805 ppb	08:18:30
3	Ba 233.527†	-123.7	15.5	0.1319 µg/L	0.1319 ppb	08:18:30
3	Be 313.107†	-7826.8	261.4	0.1461 µg/L	0.1461 ppb	08:18:10
3	Cd 226.502†	-225.3	14.1	0.2001 µg/L	0.2001 ppb	08:18:30
3	Co 228.616†	-20.7	11.5	0.2918 µg/L	0.2918 ppb	08:18:30
3	Cr 267.716†	230.4	-8.1	-0.1573 µg/L	-0.1573 ppb	08:18:30
3	Cu 324.752†	5807.1	-72.5	-0.3020 µg/L	-0.3020 ppb	08:18:10
3	Mn 257.610†	452.1	10.4	0.0148 µg/L	0.0148 ppb	08:18:30
3	Mo 202.031†	47.3	14.5	0.9759 µg/L	0.9759 ppb	08:18:30
3	Ni 231.604†	-36.3	-6.3	-0.1933 µg/L	-0.1933 ppb	08:18:30
3	P 214.914†	130.4	-3.7	-2.7983 µg/L	-2.7983 ppb	08:18:30
3	Pb 220.353†	195.0	18.6	3.0343 µg/L	3.0343 ppb	08:18:30
3	S 181.975 Axial†	60.4	-0.2	-0.3233 µg/L	-0.3233 ppb	08:18:30
3	Sb 206.836†	85.4	16.6	5.4364 µg/L	5.4364 ppb	08:18:30
3	Se 196.026†	-5.2	1.5	1.1901 µg/L	1.1901 ppb	08:18:30
3	SiO2†	2878.9	-102.7	-12.273 µg/L	-12.273 ppb	08:18:10
3	Si 251.611†	214.5	6.9	0.3125 µg/L	0.3125 ppb	08:18:30
3	Sn 189.927†	27.3	-0.7	-0.1413 µg/L	-0.1413 ppb	08:18:30
3	Ti 334.940†	-78.4	136.3	0.3402 µg/L	0.3402 ppb	08:18:10
3	Tl 190.801†	-25.1	17.7	6.1616 µg/L	6.1616 ppb	08:18:30
3	U 367.007†	334.4	-25.6	-6.901 µg/L	-6.901 ppb	08:18:10
3	V 292.402†	-181.2	20.0	0.1937 µg/L	0.1937 ppb	08:18:10
3	Zn 213.857†	1504.7	162.3	1.5444 µg/L	1.5444 ppb	08:18:30

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	711944.3	105.55	%	0.360				0.34%
Sc RADIAL	21623.7	104	%	0.5				0.52%
Y 371.029	612132.0	105.40	%	0.372				0.35%
Ag 328.068†	69.4	0.4409	µg/L	0.16639	0.4409	ppb	0.16639	37.74%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	24.7	7.0111	µg/L	2.44273	7.0111	ppb	2.44273	34.84%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.6	-0.9072	µg/L	3.08097	-0.9072	ppb	3.08097	339.60%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	28.4	0.7949	µg/L	0.56370	0.7949	ppb	0.56370	70.91%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	20.5	0.1739	µg/L	0.03650	0.1739	ppb	0.03650	20.98%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	318.1	0.1790	µg/L	0.02848	0.1790	ppb	0.02848	15.91%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	4.4	2.0209	µg/L	1.80273	2.0209	ppb	1.80273	89.21%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	13.9	0.1973	µg/L	0.01176	0.1973	ppb	0.01176	5.96%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	15.2	0.3832	µg/L	0.10684	0.3832	ppb	0.10684	27.88%

```
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -7.6     -0.1515 µg/L       0.04511     -0.1515 ppb        0.04511  29.77%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -76.5     -0.3226 µg/L       0.06829     -0.3226 ppb        0.06829  21.17%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        7.6      3.9999 µg/L       1.55047      3.9999 ppb        1.55047  38.76%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        23.0      10.645 µg/L       16.7839      10.645 ppb        16.7839 157.67%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           4.6      21.611 µg/L        9.6258      21.611 ppb         9.6258  44.54%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              33.9      0.0502 µg/L       0.03097      0.0502 ppb        0.03097  61.66%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              13.0      0.8740 µg/L       0.12925      0.8740 ppb        0.12925  14.79%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -24.7     -39.848 µg/L       31.4191     -39.848 ppb        31.4191  78.85%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -3.5     -0.1081 µg/L       0.08948     -0.1081 ppb        0.08948  82.81%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -4.0     -2.9691 µg/L       2.11898     -2.9691 ppb        2.11898  71.37%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              19.5      3.1647 µg/L       0.79813      3.1647 ppb        0.79813  25.22%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -1.7     -2.9021 µg/L       7.06686     -2.9021 ppb        7.06686 243.51%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              18.7      6.1083 µg/L       2.29849      6.1083 ppb        2.29849  37.63%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               0.8      0.6172 µg/L       1.21173      0.6172 ppb        1.21173 196.33%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -80.6     -9.5993 µg/L       3.05971     -9.5993 ppb        3.05971  31.87%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               3.7      0.1632 µg/L       0.30114      0.1632 ppb        0.30114 184.55%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†              -0.4     -0.0909 µg/L       0.06066     -0.0909 ppb        0.06066  66.70%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              72.2      0.3315 µg/L       0.25363      0.3315 ppb        0.25363  76.51%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             154.6      0.3835 µg/L       0.07843      0.3835 ppb        0.07843  20.45%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†              12.7      4.4141 µg/L       1.51350      4.4141 ppb        1.51350  34.29%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -8.8      -2.375 µg/L        4.4163      -2.375 ppb         4.4163 185.97%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -6.5     -0.0548 µg/L       0.23433     -0.0548 ppb        0.23433 427.95%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             177.0      1.6841 µg/L       0.15614      1.6841 ppb        0.15614   9.27%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 9 **Autosampler Location: 307**
Sample ID: 305844005|1220620|1 **Date Collected: 6/13/2012 8:18:38**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305844005|1220620|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22788.2	22788.2	109	%			08:19:14
1	Al 396.153Radial†	739343.0	677588.6	193580	µg/L	193580	ppb	08:19:09
1	Ca 317.933Radial†	143209.1	131118.7	59644	µg/L	59644	ppb	08:19:14
1	Fe 238.204 Radial†	683789.7	626568.6	327630	µg/L	327630	ppb	08:19:09
1	K 766.490 Radial†	67320.1	60829.2	28254	µg/L	28254	ppb	08:19:14
1	Mg 279.077 IEC†	9159.6	8392.0	39447	µg/L	39447	ppb	08:19:14
1	Na 589.592 Radial†	133.7	267.0	430.23	µg/L	430.23	ppb	08:19:14
1	Sr 421.552†	60703.5	56939.1	261.26	µg/L	261.26	ppb	08:19:09
1	Sc 361.383	735693.4	735693.4	109.07	%			08:19:49
1	Y 371.029	763689.9	763689.9	131.49	%			08:19:49
1	Ag 328.068†	-11173.3	-9616.3	26.188	µg/L	26.188	ppb	08:19:49
1	As 188.979†	1827.6	1683.7	972.81	µg/L	972.81	ppb	08:20:09
1	B 249.677†	4635.8	4168.4	69.778	µg/L	69.778	ppb	08:19:49
1	Ba 233.527†	94871.6	87112.3	729.81	µg/L	729.81	ppb	08:19:49
1	Be 313.107†	36221.0	40859.0	22.283	µg/L	22.283	ppb	08:19:49
1	Cd 226.502†	10591.0	9936.8	89.924	µg/L	89.924	ppb	08:20:09
1	Co 228.616†	4740.4	4377.1	98.198	µg/L	98.198	ppb	08:20:09
1	Cr 267.716†	9888.1	8839.9	184.62	µg/L	184.62	ppb	08:20:09
1	Cu 324.752†	797341.7	725461.4	3142.2	µg/L	3142.2	ppb	08:19:49
1	Mn 257.610†	11383847.5	10436490.9	15558	µg/L	15558	ppb	08:19:42
1	Mo 202.031†	5575.0	5081.1	356.19	µg/L	356.19	ppb	08:20:09
1	Ni 231.604†	4397.2	4059.4	130.25	µg/L	130.25	ppb	08:20:09
1	P 214.914†	8338.3	7517.9	5399.0	µg/L	5399.0	ppb	08:20:09
1	Pb 220.353†	199672.6	182897.8	29691	µg/L	29691	ppb	08:19:49
1	S 181.975 Axial†	21634.9	19778.0	34387	µg/L	34387	ppb	08:20:09
1	Sb 206.836†	344.4	251.8	75.494	µg/L	75.494	ppb	08:20:09
1	Se 196.026†	-177.2	-156.1	38.457	µg/L	38.457	ppb	08:20:09
1	SiO2†	224179.8	202711.1	24154	µg/L	24154	ppb	08:19:49
1	Si 251.611†	260539.8	238671.8	11173	µg/L	11173	ppb	08:19:49
1	Sn 189.927†	-128.9	-144.6	27.184	µg/L	27.184	ppb	08:20:09
1	Ti 334.940†	2683826.7	2460788.9	6087.5	µg/L	6087.5	ppb	08:19:49
1	Tl 190.801†	-174.2	-118.3	5.7890	µg/L	5.7890	ppb	08:20:09
1	U 367.007†	6321.2	5454.1	-118.6	µg/L	-118.6	ppb	08:19:49
1	V 292.402†	66010.9	60711.1	575.41	µg/L	575.41	ppb	08:19:49
1	Zn 213.857†	9063510.0	8308323.6	78966	µg/L	78966	ppb	08:19:42
2	Sc RADIAL	22840.4	22840.4	109	%			08:19:24
2	Al 396.153Radial†	746804.1	682861.2	195090	µg/L	195090	ppb	08:19:19
2	Ca 317.933Radial†	143586.3	131163.6	59664	µg/L	59664	ppb	08:19:24
2	Fe 238.204 Radial†	686066.2	627217.4	327970	µg/L	327970	ppb	08:19:19
2	K 766.490 Radial†	67394.1	60755.8	28220	µg/L	28220	ppb	08:19:24
2	Mg 279.077 IEC†	9236.8	8443.4	39689	µg/L	39689	ppb	08:19:24
2	Na 589.592 Radial†	131.8	264.9	426.91	µg/L	426.91	ppb	08:19:24
2	Sr 421.552†	61225.1	57288.8	262.86	µg/L	262.86	ppb	08:19:19
2	Sc 361.383	736531.6	736531.6	109.20	%			08:20:23
2	Y 371.029	763328.8	763328.8	131.43	%			08:20:23
2	Ag 328.068†	-11226.5	-9653.3	26.040	µg/L	26.040	ppb	08:20:23
2	As 188.979†	1818.8	1673.8	967.14	µg/L	967.14	ppb	08:20:43
2	B 249.677†	4844.6	4354.7	74.968	µg/L	74.968	ppb	08:20:23
2	Ba 233.527†	95028.9	87157.3	730.18	µg/L	730.18	ppb	08:20:23
2	Be 313.107†	36414.0	40997.9	22.358	µg/L	22.358	ppb	08:20:23
2	Cd 226.502†	10576.7	9912.7	89.525	µg/L	89.525	ppb	08:20:43
2	Co 228.616†	4706.7	4341.3	97.279	µg/L	97.279	ppb	08:20:43
2	Cr 267.716†	9859.0	8802.9	183.88	µg/L	183.88	ppb	08:20:43
2	Cu 324.752†	799929.7	726999.4	3148.8	µg/L	3148.8	ppb	08:20:23
2	Mn 257.610†	11405181.3	10444149.5	15569	µg/L	15569	ppb	08:20:16
2	Mo 202.031†	5550.3	5052.7	354.29	µg/L	354.29	ppb	08:20:43
2	Ni 231.604†	4361.6	4022.2	129.11	µg/L	129.11	ppb	08:20:43
2	P 214.914†	8300.2	7474.2	5366.3	µg/L	5366.3	ppb	08:20:43
2	Pb 220.353†	199935.8	182930.5	29696	µg/L	29696	ppb	08:20:23

2	S 181.975 Axial†	21614.4	19736.7	34315 µg/L	34315 ppb		08:20:43
2	Sb 206.836†	348.3	255.0	76.485 µg/L	76.485 ppb		08:20:43
2	Se 196.026†	-169.4	-148.8	44.609 µg/L	44.609 ppb		08:20:43
2	SiO2†	224649.3	202907.2	24177 µg/L	24177 ppb		08:20:23
2	Si 251.611†	261073.3	238888.4	11183 µg/L	11183 ppb		08:20:23
2	Sn 189.927†	-127.0	-142.7	27.691 µg/L	27.691 ppb		08:20:43
2	Ti 334.940†	2689592.9	2463269.0	6093.7 µg/L	6093.7 ppb		08:20:23
2	Tl 190.801†	-182.6	-125.8	3.2292 µg/L	3.2292 ppb		08:20:43
2	U 367.007†	6301.5	5429.4	-126.9 µg/L	-126.9 ppb		08:20:23
2	V 292.402†	66085.2	60710.2	575.37 µg/L	575.37 ppb		08:20:23
2	Zn 213.857†	9081807.5	8315622.9	79035 µg/L	79035 ppb		08:20:16
3	Sc RADIAL	22845.4	22845.4	109 %			08:19:34
3	Al 396.153Radial†	748285.9	684068.5	195430 µg/L	195430 ppb		08:19:29
3	Ca 317.933Radial†	143303.4	130876.8	59534 µg/L	59534 ppb		08:19:34
3	Fe 238.204 Radial†	687039.0	627971.6	328370 µg/L	328370 ppb		08:19:29
3	K 766.490 Radial†	67381.6	60731.1	28209 µg/L	28209 ppb		08:19:34
3	Mg 279.077 IEC†	9180.7	8390.3	39439 µg/L	39439 ppb		08:19:34
3	Na 589.592 Radial†	127.4	260.9	420.46 µg/L	420.46 ppb		08:19:34
3	Sr 421.552†	61353.4	57394.1	263.35 µg/L	263.35 ppb		08:19:29
3	Sc 361.383	737354.5	737354.5	109.32 %			08:20:57
3	Y 371.029	764620.7	764620.7	131.65 %			08:20:57
3	Ag 328.068†	-11286.5	-9696.7	25.855 µg/L	25.855 ppb		08:20:57
3	As 188.979†	1819.5	1672.6	966.46 µg/L	966.46 ppb		08:21:17
3	B 249.677†	4723.9	4239.3	71.663 µg/L	71.663 ppb		08:20:57
3	Ba 233.527†	94816.3	86865.8	727.69 µg/L	727.69 ppb		08:20:57
3	Be 313.107†	36217.3	40780.8	22.238 µg/L	22.238 ppb		08:20:57
3	Cd 226.502†	10654.6	9973.2	90.326 µg/L	90.326 ppb		08:21:17
3	Co 228.616†	4770.0	4394.4	98.641 µg/L	98.641 ppb		08:21:17
3	Cr 267.716†	9876.5	8808.9	184.01 µg/L	184.01 ppb		08:21:17
3	Cu 324.752†	801002.3	727163.1	3149.5 µg/L	3149.5 ppb		08:20:57
3	Mn 257.610†	11346758.8	10379052.1	15473 µg/L	15473 ppb		08:20:50
3	Mo 202.031†	5598.7	5091.3	356.90 µg/L	356.90 ppb		08:21:17
3	Ni 231.604†	4401.2	4054.0	130.09 µg/L	130.09 ppb		08:21:17
3	P 214.914†	8335.1	7497.7	5383.7 µg/L	5383.7 ppb		08:21:17
3	Pb 220.353†	199245.4	182094.6	29560 µg/L	29560 ppb		08:20:57
3	S 181.975 Axial†	21684.0	19778.3	34388 µg/L	34388 ppb		08:21:17
3	Sb 206.836†	336.9	244.2	72.951 µg/L	72.951 ppb		08:21:17
3	Se 196.026†	-171.5	-150.5	43.366 µg/L	43.366 ppb		08:21:17
3	SiO2†	224325.9	202381.8	24115 µg/L	24115 ppb		08:20:57
3	Si 251.611†	260723.8	238301.9	11156 µg/L	11156 ppb		08:20:57
3	Sn 189.927†	-136.0	-150.8	25.953 µg/L	25.953 ppb		08:21:17
3	Ti 334.940†	2687773.6	2458856.2	6082.7 µg/L	6082.7 ppb		08:20:57
3	Tl 190.801†	-178.6	-121.9	4.5584 µg/L	4.5584 ppb		08:21:17
3	U 367.007†	6310.2	5430.9	-128.5 µg/L	-128.5 ppb		08:20:57
3	V 292.402†	65973.1	60540.1	573.80 µg/L	573.80 ppb		08:20:57
3	Zn 213.857†	9011562.8	8242085.3	78336 µg/L	78336 ppb		08:20:50

Mean Data: 305844005|1220620|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	736526.5	109.20	%	0.123				0.11%
Sc RADIAL	22824.7	109	%	0.2				0.14%
Y 371.029	763879.8	131.52	%	0.115				0.09%
Ag 328.068†	-9655.4	26.028	µg/L	0.1669	26.028	ppb	0.1669	0.64%
Al 396.153Radial†	681506.1	194700	µg/L	984.5	194700	ppb	984.5	0.51%
As 188.979†	1676.7	968.80	µg/L	3.489	968.80	ppb	3.489	0.36%
B 249.677†	4254.1	72.136	µg/L	2.6271	72.136	ppb	2.6271	3.64%
Ba 233.527†	87045.1	729.23	µg/L	1.341	729.23	ppb	1.341	0.18%
Be 313.107†	40879.3	22.293	µg/L	0.0610	22.293	ppb	0.0610	0.27%
Ca 317.933Radial†	131053.0	59614	µg/L	70.2	59614	ppb	70.2	0.12%
Cd 226.502†	9940.9	89.925	µg/L	0.4006	89.925	ppb	0.4006	0.45%
Co 228.616†	4371.0	98.039	µg/L	0.6944	98.039	ppb	0.6944	0.71%
Cr 267.716†	8817.3	184.17	µg/L	0.396	184.17	ppb	0.396	0.22%
Cu 324.752†	726541.3	3146.8	µg/L	4.05	3146.8	ppb	4.05	0.13%
Fe 238.204 Radial†	627252.5	327990	µg/L	367.2	327990	ppb	367.2	0.11%
K 766.490 Radial†	60772.0	28227	µg/L	23.4	28227	ppb	23.4	0.08%
Mg 279.077 IEC†	8408.5	39525	µg/L	141.8	39525	ppb	141.8	0.36%
Mn 257.610†	10419897.5	15533	µg/L	52.9	15533	ppb	52.9	0.34%
Mo 202.031†	5075.0	355.79	µg/L	1.353	355.79	ppb	1.353	0.38%
Na 589.592 Radial†	264.3	425.87	µg/L	4.969	425.87	ppb	4.969	1.17%

Ni 231.604†	4045.2	129.82 µg/L	0.617	129.82 ppb	0.617	0.48%
P 214.914†	7496.6	5383.0 µg/L	16.37	5383.0 ppb	16.37	0.30%
Pb 220.353†	182641.0	29649 µg/L	77.2	29649 ppb	77.2	0.26%
S 181.975 Axial†	19764.3	34364 µg/L	42.0	34364 ppb	42.0	0.12%
Sb 206.836†	250.3	74.977 µg/L	1.8230	74.977 ppb	1.8230	2.43%
Se 196.026†	-151.8	42.144 µg/L	3.2532	42.144 ppb	3.2532	7.72%
SiO2†	202666.7	24149 µg/L	31.5	24149 ppb	31.5	0.13%
Si 251.611†	238620.7	11170 µg/L	13.9	11170 ppb	13.9	0.12%
Sn 189.927†	-146.0	26.943 µg/L	0.8939	26.943 ppb	0.8939	3.32%
Sr 421.552†	57207.3	262.49 µg/L	1.094	262.49 ppb	1.094	0.42%
Ti 334.940†	2460971.4	6088.0 µg/L	5.47	6088.0 ppb	5.47	0.09%
Tl 190.801†	-122.0	4.5255 µg/L	1.28021	4.5255 ppb	1.28021	28.29%
U 367.007†	5438.2	-124.7 µg/L	5.30	-124.7 ppb	5.30	4.25%
V 292.402†	60653.8	574.86 µg/L	0.918	574.86 ppb	0.918	0.16%
Zn 213.857†	8288677.3	78779 µg/L	385.3	78779 ppb	385.3	0.49%

Sequence No.: 10 **Autosampler Location: 308**
Sample ID: 1202676787|1220620|1 **Date Collected: 6/13/2012 8:21:24**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202676787|1220620|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22647.7	22647.7	108	%			08:21:58
1	Al 396.153Radial†	718075.4	662181.3	189180	µg/L	189180	ppb	08:21:53
1	Ca 317.933Radial†	142163.7	130968.9	59576	µg/L	59576	ppb	08:21:58
1	Fe 238.204 Radial†	665790.8	613859.5	320990	µg/L	320990	ppb	08:21:53
1	K 766.490 Radial†	65906.1	59908.1	27825	µg/L	27825	ppb	08:21:58
1	Mg 279.077 IEC†	9087.7	8377.7	39380	µg/L	39380	ppb	08:21:58
1	Na 589.592 Radial†	115.0	250.5	403.63	µg/L	403.63	ppb	08:21:58
1	Sr 421.552†	59329.1	56016.9	257.02	µg/L	257.02	ppb	08:21:53
1	Sc 361.383	739477.6	739477.6	109.63	%			08:22:33
1	Y 371.029	741671.7	741671.7	127.70	%			08:22:33
1	Ag 328.068†	-11097.5	-9494.7	24.949	µg/L	24.949	ppb	08:22:33
1	As 188.979†	1768.0	1620.8	936.43	µg/L	936.43	ppb	08:22:53
1	B 249.677†	4519.1	4040.1	67.141	µg/L	67.141	ppb	08:22:33
1	Ba 233.527†	92967.3	84930.2	711.43	µg/L	711.43	ppb	08:22:33
1	Be 313.107†	35759.2	40267.8	22.055	µg/L	22.055	ppb	08:22:33
1	Cd 226.502†	10574.1	9871.7	90.047	µg/L	90.047	ppb	08:22:53
1	Co 228.616†	4529.7	4162.7	93.724	µg/L	93.724	ppb	08:22:53
1	Cr 267.716†	9625.5	8554.0	178.70	µg/L	178.70	ppb	08:22:53
1	Cu 324.752†	778553.6	704583.3	3052.0	µg/L	3052.0	ppb	08:22:33
1	Mn 257.610†	10771588.1	9824623.2	14647	µg/L	14647	ppb	08:22:26
1	Mo 202.031†	6057.5	5495.1	383.85	µg/L	383.85	ppb	08:22:53
1	Ni 231.604†	4337.9	3984.7	127.84	µg/L	127.84	ppb	08:22:53
1	P 214.914†	8366.9	7504.8	5394.4	µg/L	5394.4	ppb	08:22:53
1	Pb 220.353†	201112.9	183274.7	29753	µg/L	29753	ppb	08:22:33
1	S 181.975 Axial†	20457.3	18602.4	32343	µg/L	32343	ppb	08:22:53
1	Sb 206.836†	330.7	237.6	71.510	µg/L	71.510	ppb	08:22:53
1	Se 196.026†	-165.4	-144.5	44.549	µg/L	44.549	ppb	08:22:53
1	SiO2†	229454.6	206470.6	24600	µg/L	24600	ppb	08:22:33
1	Si 251.611†	266531.6	242914.6	11371	µg/L	11371	ppb	08:22:33
1	Sn 189.927†	-151.4	-164.5	20.804	µg/L	20.804	ppb	08:22:53
1	Ti 334.940†	2505883.8	2285890.7	5654.9	µg/L	5654.9	ppb	08:22:33
1	Tl 190.801†	-166.7	-110.6	6.2482	µg/L	6.2482	ppb	08:22:53
1	U 367.007†	6177.8	5293.7	-130.2	µg/L	-130.2	ppb	08:22:33
1	V 292.402†	60438.4	55318.5	525.01	µg/L	525.01	ppb	08:22:33
1	Zn 213.857†	8905188.9	8121391.1	77189	µg/L	77189	ppb	08:22:26
2	Sc RADIAL	22834.8	22834.8	109	%			08:22:08
2	Al 396.153Radial†	723631.3	661836.8	189080	µg/L	189080	ppb	08:22:03
2	Ca 317.933Radial†	142856.1	130528.0	59375	µg/L	59375	ppb	08:22:08
2	Fe 238.204 Radial†	669536.2	612254.3	320150	µg/L	320150	ppb	08:22:03
2	K 766.490 Radial†	66316.1	59785.0	27768	µg/L	27768	ppb	08:22:08
2	Mg 279.077 IEC†	9100.0	8320.3	39111	µg/L	39111	ppb	08:22:08
2	Na 589.592 Radial†	113.7	248.4	400.33	µg/L	400.33	ppb	08:22:08
2	Sr 421.552†	59771.8	55973.5	256.82	µg/L	256.82	ppb	08:22:03
2	Sc 361.383	739812.9	739812.9	109.68	%			08:23:07
2	Y 371.029	741798.6	741798.6	127.72	%			08:23:07
2	Ag 328.068†	-11377.5	-9745.4	23.156	µg/L	23.156	ppb	08:23:07
2	As 188.979†	1779.8	1630.8	942.13	µg/L	942.13	ppb	08:23:27
2	B 249.677†	4510.7	4030.6	66.994	µg/L	66.994	ppb	08:23:07
2	Ba 233.527†	93173.0	85079.3	712.72	µg/L	712.72	ppb	08:23:07
2	Be 313.107†	35796.6	40287.2	22.062	µg/L	22.062	ppb	08:23:07
2	Cd 226.502†	10692.8	9975.6	91.663	µg/L	91.663	ppb	08:23:27
2	Co 228.616†	4577.3	4204.2	94.755	µg/L	94.755	ppb	08:23:27
2	Cr 267.716†	9705.8	8623.2	180.09	µg/L	180.09	ppb	08:23:27
2	Cu 324.752†	780991.8	706484.4	3059.9	µg/L	3059.9	ppb	08:23:07
2	Mn 257.610†	10872647.0	9912307.5	14777	µg/L	14777	ppb	08:23:00
2	Mo 202.031†	6125.9	5554.9	387.85	µg/L	387.85	ppb	08:23:27
2	Ni 231.604†	4408.9	4047.6	129.76	µg/L	129.76	ppb	08:23:27
2	P 214.914†	8493.4	7616.7	5478.8	µg/L	5478.8	ppb	08:23:27
2	Pb 220.353†	201920.0	183927.4	29859	µg/L	29859	ppb	08:23:07

2	S 181.975 Axial†	20723.0	18836.1	32750 µg/L	32750 ppb		08:23:27
2	Sb 206.836†	336.4	242.7	73.198 µg/L	73.198 ppb		08:23:27
2	Se 196.026†	-165.0	-144.1	44.469 µg/L	44.469 ppb		08:23:27
2	SiO2†	230088.4	206953.7	24657 µg/L	24657 ppb		08:23:07
2	Si 251.611†	267347.2	243548.0	11401 µg/L	11401 ppb		08:23:07
2	Sn 189.927†	-151.0	-164.1	20.831 µg/L	20.831 ppb		08:23:27
2	Ti 334.940†	2512043.9	2290471.2	5666.2 µg/L	5666.2 ppb		08:23:07
2	Tl 190.801†	-170.6	-114.1	5.0221 µg/L	5.0221 ppb		08:23:27
2	U 367.007†	6180.5	5293.5	-126.0 µg/L	-126.0 ppb		08:23:07
2	V 292.402†	60705.6	55537.2	527.11 µg/L	527.11 ppb		08:23:07
2	Zn 213.857†	8976274.1	8182519.5	77771 µg/L	77771 ppb		08:23:00
3	Sc RADIAL	22811.3	22811.3	109 %			08:22:18
3	Al 396.153Radial†	731714.8	669919.2	191390 µg/L	191390 ppb		08:22:13
3	Ca 317.933Radial†	142648.8	130472.9	59350 µg/L	59350 ppb		08:22:18
3	Fe 238.204 Radial†	676737.8	619478.3	323930 µg/L	323930 ppb		08:22:13
3	K 766.490 Radial†	66144.5	59690.5	27726 µg/L	27726 ppb		08:22:18
3	Mg 279.077 IEC†	9113.3	8341.0	39208 µg/L	39208 ppb		08:22:18
3	Na 589.592 Radial†	86.1	223.3	359.83 µg/L	359.83 ppb		08:22:18
3	Sr 421.552†	60424.6	56627.5	259.83 µg/L	259.83 ppb		08:22:13
3	Sc 361.383	743459.6	743459.6	110.22 %			08:23:41
3	Y 371.029	744746.6	744746.6	128.23 %			08:23:41
3	Ag 328.068†	-11149.4	-9487.6	25.749 µg/L	25.749 ppb		08:23:41
3	As 188.979†	1776.4	1619.8	935.97 µg/L	935.97 ppb		08:24:01
3	B 249.677†	4586.5	4079.2	67.817 µg/L	67.817 ppb		08:23:41
3	Ba 233.527†	93508.6	84967.1	711.66 µg/L	711.66 ppb		08:23:41
3	Be 313.107†	36094.1	40397.0	22.125 µg/L	22.125 ppb		08:23:41
3	Cd 226.502†	10632.6	9873.1	89.603 µg/L	89.603 ppb		08:24:01
3	Co 228.616†	4514.1	4126.5	92.789 µg/L	92.789 ppb		08:24:01
3	Cr 267.716†	9646.9	8526.4	178.18 µg/L	178.18 ppb		08:24:01
3	Cu 324.752†	784003.3	705724.0	3057.3 µg/L	3057.3 ppb		08:23:41
3	Mn 257.610†	10799828.3	9797621.5	14607 µg/L	14607 ppb		08:23:34
3	Mo 202.031†	6066.1	5473.3	382.50 µg/L	382.50 ppb		08:24:01
3	Ni 231.604†	4389.0	4009.9	128.67 µg/L	128.67 ppb		08:24:01
3	P 214.914†	8401.6	7495.4	5385.8 µg/L	5385.8 ppb		08:24:01
3	Pb 220.353†	202584.8	183627.6	29810 µg/L	29810 ppb		08:23:41
3	S 181.975 Axial†	20570.6	18605.2	32348 µg/L	32348 ppb		08:24:01
3	Sb 206.836†	322.9	229.0	68.602 µg/L	68.602 ppb		08:24:01
3	Se 196.026†	-178.6	-155.7	36.925 µg/L	36.925 ppb		08:24:01
3	SiO2†	231013.4	206763.9	24635 µg/L	24635 ppb		08:23:41
3	Si 251.611†	268390.3	243298.8	11389 µg/L	11389 ppb		08:23:41
3	Sn 189.927†	-149.1	-161.7	21.793 µg/L	21.793 ppb		08:24:01
3	Ti 334.940†	2522264.5	2288510.0	5661.4 µg/L	5661.4 ppb		08:23:41
3	Tl 190.801†	-176.2	-118.4	3.7561 µg/L	3.7561 ppb		08:24:01
3	U 367.007†	6216.9	5299.0	-143.1 µg/L	-143.1 ppb		08:23:41
3	V 292.402†	60866.8	55411.9	525.88 µg/L	525.88 ppb		08:23:41
3	Zn 213.857†	8929406.4	8099857.7	76984 µg/L	76984 ppb		08:23:34

Mean Data: 1202676787|1220620|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	740916.7	109.85	%	0.327				0.30%
Sc RADIAL	22764.6	109	%	0.5				0.45%
Y 371.029	742738.9	127.88	%	0.300				0.23%
Ag 328.068†	-9575.9	24.618	µg/L	1.3279	24.618	ppb	1.3279	5.39%
Al 396.153Radial†	664645.8	189880	µg/L	1305.8	189880	ppb	1305.8	0.69%
As 188.979†	1623.8	938.17	µg/L	3.436	938.17	ppb	3.436	0.37%
B 249.677†	4050.0	67.317	µg/L	0.4393	67.317	ppb	0.4393	0.65%
Ba 233.527†	84992.2	711.94	µg/L	0.690	711.94	ppb	0.690	0.10%
Be 313.107†	40317.3	22.081	µg/L	0.0383	22.081	ppb	0.0383	0.17%
Ca 317.933Radial†	130656.6	59434	µg/L	123.7	59434	ppb	123.7	0.21%
Cd 226.502†	9906.8	90.438	µg/L	1.0845	90.438	ppb	1.0845	1.20%
Co 228.616†	4164.5	93.756	µg/L	0.9830	93.756	ppb	0.9830	1.05%
Cr 267.716†	8567.9	178.99	µg/L	0.990	178.99	ppb	0.990	0.55%
Cu 324.752†	705597.3	3056.4	µg/L	4.06	3056.4	ppb	4.06	0.13%
Fe 238.204 Radial†	615197.4	321690	µg/L	1983.5	321690	ppb	1983.5	0.62%
K 766.490 Radial†	59794.5	27773	µg/L	49.8	27773	ppb	49.8	0.18%
Mg 279.077 IEC†	8346.3	39233	µg/L	136.6	39233	ppb	136.6	0.35%
Mn 257.610†	9844850.7	14677	µg/L	89.1	14677	ppb	89.1	0.61%
Mo 202.031†	5507.7	384.73	µg/L	2.782	384.73	ppb	2.782	0.72%
Na 589.592 Radial†	240.7	387.93	µg/L	24.391	387.93	ppb	24.391	6.29%

Ni 231.604†	4014.1	128.76 µg/L	0.964	128.76 ppb	0.964	0.75%
P 214.914†	7539.0	5419.7 µg/L	51.40	5419.7 ppb	51.40	0.95%
Pb 220.353†	183609.9	29808 µg/L	53.0	29808 ppb	53.0	0.18%
S 181.975 Axial†	18681.2	32480 µg/L	233.6	32480 ppb	233.6	0.72%
Sb 206.836†	236.5	71.103 µg/L	2.3250	71.103 ppb	2.3250	3.27%
Se 196.026†	-148.1	41.981 µg/L	4.3788	41.981 ppb	4.3788	10.43%
SiO2†	206729.4	24631 µg/L	28.9	24631 ppb	28.9	0.12%
Si 251.611†	243253.8	11387 µg/L	14.9	11387 ppb	14.9	0.13%
Sn 189.927†	-163.4	21.143 µg/L	0.5636	21.143 ppb	0.5636	2.67%
Sr 421.552†	56206.0	257.89 µg/L	1.680	257.89 ppb	1.680	0.65%
Ti 334.940†	2288290.6	5660.9 µg/L	5.68	5660.9 ppb	5.68	0.10%
Tl 190.801†	-114.4	5.0088 µg/L	1.24611	5.0088 ppb	1.24611	24.88%
U 367.007†	5295.4	-133.1 µg/L	8.89	-133.1 ppb	8.89	6.68%
V 292.402†	55422.5	526.00 µg/L	1.058	526.00 ppb	1.058	0.20%
Zn 213.857†	8134589.4	77315 µg/L	408.0	77315 ppb	408.0	0.53%

Sequence No.: 11 **Autosampler Location: 309**
Sample ID: 1202676788|1220620|1 **Date Collected: 6/13/2012 8:24:09**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202676788|1220620|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22748.2	22748.2	109	%			08:24:43
1	Al 396.153Radial†	873540.6	801969.4	229100	µg/L	229100	ppb	08:24:38
1	Ca 317.933Radial†	159619.4	146413.7	66601	µg/L	66601	ppb	08:24:38
1	Fe 238.204 Radial†	689270.5	632701.0	330840	µg/L	330840	ppb	08:24:38
1	K 766.490 Radial†	83273.5	75582.4	35069	µg/L	35069	ppb	08:24:38
1	Mg 279.077 IEC†	10998.6	10094.8	47456	µg/L	47456	ppb	08:24:43
1	Na 589.592 Radial†	3054.6	2948.5	4751.2	µg/L	4751.2	ppb	08:24:43
1	Sr 421.552†	166230.9	153908.6	706.62	µg/L	706.62	ppb	08:24:38
1	Sc 361.383	732991.4	732991.4	108.67	%			08:25:20
1	Y 371.029	734199.2	734199.2	126.41	%			08:25:20
1	Ag 328.068†	67055.2	62331.6	486.40	µg/L	486.40	ppb	08:25:20
1	As 188.979†	2842.9	2624.2	1511.2	µg/L	1511.2	ppb	08:25:40
1	B 249.677†	22225.3	20369.8	524.15	µg/L	524.15	ppb	08:25:20
1	Ba 233.527†	153829.5	141685.8	1193.2	µg/L	1193.2	ppb	08:25:20
1	Be 313.107†	924557.5	858425.8	483.78	µg/L	483.78	ppb	08:25:20
1	Cd 226.502†	44992.2	41628.5	541.79	µg/L	541.79	ppb	08:25:20
1	Co 228.616†	23643.1	21787.3	535.49	µg/L	535.49	ppb	08:25:40
1	Cr 267.716†	35218.3	32182.1	660.20	µg/L	660.20	ppb	08:25:20
1	Cu 324.752†	964963.8	882401.3	3812.2	µg/L	3812.2	ppb	08:25:20
1	Mn 257.610†	11609980.3	10683049.9	15925	µg/L	15925	ppb	08:25:13
1	Mo 202.031†	13004.9	11936.9	818.85	µg/L	818.85	ppb	08:25:40
1	Ni 231.604†	20332.5	18737.9	581.50	µg/L	581.50	ppb	08:25:40
1	P 214.914†	9094.5	8241.9	5932.1	µg/L	5932.1	ppb	08:25:40
1	Pb 220.353†	205717.5	189135.1	30691	µg/L	30691	ppb	08:25:20
1	S 181.975 Axial†	25483.1	23392.2	40686	µg/L	40686	ppb	08:25:40
1	Sb 206.836†	1655.1	1459.1	464.94	µg/L	464.94	ppb	08:25:40
1	Se 196.026†	437.3	408.7	501.73	µg/L	501.73	ppb	08:25:40
1	SiO2†	231232.2	209958.4	25048	µg/L	25048	ppb	08:25:20
1	Si 251.611†	269361.0	247669.4	11587	µg/L	11587	ppb	08:25:20
1	Sn 189.927†	2096.5	1902.8	478.27	µg/L	478.27	ppb	08:25:40
1	Ti 334.940†	3223162.1	2966153.6	7337.3	µg/L	7337.3	ppb	08:25:20
1	Tl 190.801†	584.8	579.6	254.67	µg/L	254.67	ppb	08:25:40
1	U 367.007†	8101.7	7113.8	313.1	µg/L	313.1	ppb	08:25:20
1	V 292.402†	118147.2	108909.8	1037.2	µg/L	1037.2	ppb	08:25:20
1	Zn 213.857†	9092704.0	8365818.4	79509	µg/L	79509	ppb	08:25:13
2	Sc RADIAL	23008.0	23008.0	110	%			08:24:54
2	Al 396.153Radial†	882812.5	801332.0	228920	µg/L	228920	ppb	08:24:49
2	Ca 317.933Radial†	161191.6	146186.5	66498	µg/L	66498	ppb	08:24:49
2	Fe 238.204 Radial†	695066.9	630818.9	329860	µg/L	329860	ppb	08:24:49
2	K 766.490 Radial†	84114.4	75482.6	35022	µg/L	35022	ppb	08:24:49
2	Mg 279.077 IEC†	11164.2	10131.2	47627	µg/L	47627	ppb	08:24:54
2	Na 589.592 Radial†	3094.9	2953.5	4759.2	µg/L	4759.2	ppb	08:24:54
2	Sr 421.552†	168252.8	154020.9	707.13	µg/L	707.13	ppb	08:24:49
2	Sc 361.383	735649.4	735649.4	109.07	%			08:25:54
2	Y 371.029	737152.5	737152.5	126.92	%			08:25:54
2	Ag 328.068†	67291.4	62325.2	486.10	µg/L	486.10	ppb	08:25:54
2	As 188.979†	2851.0	2622.2	1510.0	µg/L	1510.0	ppb	08:26:14
2	B 249.677†	22278.7	20344.9	523.59	µg/L	523.59	ppb	08:25:54
2	Ba 233.527†	153972.1	141305.0	1190.0	µg/L	1190.0	ppb	08:25:54
2	Be 313.107†	926789.0	857397.9	483.20	µg/L	483.20	ppb	08:25:54
2	Cd 226.502†	45025.1	41509.0	540.24	µg/L	540.24	ppb	08:25:54
2	Co 228.616†	23696.0	21757.3	534.75	µg/L	534.75	ppb	08:26:14
2	Cr 267.716†	35279.6	32121.2	658.94	µg/L	658.94	ppb	08:25:54
2	Cu 324.752†	967027.0	881084.8	3806.5	µg/L	3806.5	ppb	08:25:54
2	Mn 257.610†	11559626.9	10598282.1	15799	µg/L	15799	ppb	08:25:47
2	Mo 202.031†	13017.2	11905.0	816.66	µg/L	816.66	ppb	08:26:14
2	Ni 231.604†	20397.7	18730.0	581.24	µg/L	581.24	ppb	08:26:14
2	P 214.914†	9116.5	8231.9	5925.3	µg/L	5925.3	ppb	08:26:14
2	Pb 220.353†	205956.9	188670.6	30616	µg/L	30616	ppb	08:25:54

2	S 181.975 Axial†	25518.3	23339.8	40595 µg/L	40595 ppb		08:26:14
2	Sb 206.836†	1678.5	1475.0	470.15 µg/L	470.15 ppb		08:26:14
2	Se 196.026†	432.1	402.5	496.21 µg/L	496.21 ppb		08:26:14
2	SiO2†	231659.8	209581.6	25003 µg/L	25003 ppb		08:25:54
2	Si 251.611†	269741.3	247122.6	11561 µg/L	11561 ppb		08:25:54
2	Sn 189.927†	2092.4	1892.1	475.78 µg/L	475.78 ppb		08:26:14
2	Ti 334.940†	3229240.8	2961010.9	7324.6 µg/L	7324.6 ppb		08:25:54
2	Tl 190.801†	582.0	575.0	252.97 µg/L	252.97 ppb		08:26:14
2	U 367.007†	8139.0	7121.1	319.8 µg/L	319.8 ppb		08:25:54
2	V 292.402†	118346.0	108699.2	1035.2 µg/L	1035.2 ppb		08:25:54
2	Zn 213.857†	9039234.9	8286563.3	78755 µg/L	78755 ppb		08:25:47
3	Sc RADIAL	22754.1	22754.1	109 %			08:25:05
3	Al 396.153Radial†	886205.9	813385.6	232360 µg/L	232360 ppb		08:24:59
3	Ca 317.933Radial†	161732.7	148315.3	67466 µg/L	67466 ppb		08:24:59
3	Fe 238.204 Radial†	697341.5	639944.6	334630 µg/L	334630 ppb		08:24:59
3	K 766.490 Radial†	84477.1	76667.3	35572 µg/L	35572 ppb		08:24:59
3	Mg 279.077 IEC†	11014.0	10106.4	47510 µg/L	47510 ppb		08:25:05
3	Na 589.592 Radial†	3115.1	3003.3	4839.5 µg/L	4839.5 ppb		08:25:05
3	Sr 421.552†	168739.0	156170.9	717.00 µg/L	717.00 ppb		08:24:59
3	Sc 361.383	735335.6	735335.6	109.02 %			08:26:28
3	Y 371.029	737156.3	737156.3	126.92 %			08:26:28
3	Ag 328.068†	67271.6	62333.4	487.39 µg/L	487.39 ppb		08:26:28
3	As 188.979†	2830.0	2604.0	1499.8 µg/L	1499.8 ppb		08:26:48
3	B 249.677†	22229.6	20308.6	521.89 µg/L	521.89 ppb		08:26:28
3	Ba 233.527†	154365.4	141726.0	1193.4 µg/L	1193.4 ppb		08:26:28
3	Be 313.107†	929886.3	860601.5	485.02 µg/L	485.02 ppb		08:26:28
3	Cd 226.502†	45145.8	41637.4	541.32 µg/L	541.32 ppb		08:26:28
3	Co 228.616†	23649.7	21724.1	533.88 µg/L	533.88 ppb		08:26:48
3	Cr 267.716†	35366.4	32214.7	660.92 µg/L	660.92 ppb		08:26:28
3	Cu 324.752†	968918.6	883198.2	3816.2 µg/L	3816.2 ppb		08:26:28
3	Mn 257.610†	11654253.7	10689602.3	15935 µg/L	15935 ppb		08:26:21
3	Mo 202.031†	13028.2	11920.2	817.87 µg/L	817.87 ppb		08:26:48
3	Ni 231.604†	20354.3	18698.3	580.34 µg/L	580.34 ppb		08:26:48
3	P 214.914†	9114.0	8233.1	5923.6 µg/L	5923.6 ppb		08:26:48
3	Pb 220.353†	206767.7	189494.9	30749 µg/L	30749 ppb		08:26:28
3	S 181.975 Axial†	25512.8	23344.7	40602 µg/L	40602 ppb		08:26:48
3	Sb 206.836†	1645.2	1445.1	460.20 µg/L	460.20 ppb		08:26:48
3	Se 196.026†	436.6	406.9	502.12 µg/L	502.12 ppb		08:26:48
3	SiO2†	232233.8	210198.8	25077 µg/L	25077 ppb		08:26:28
3	Si 251.611†	270218.1	247665.5	11587 µg/L	11587 ppb		08:26:28
3	Sn 189.927†	2074.5	1876.5	473.07 µg/L	473.07 ppb		08:26:48
3	Ti 334.940†	3235171.8	2967714.5	7341.2 µg/L	7341.2 ppb		08:26:28
3	Tl 190.801†	559.5	554.6	246.24 µg/L	246.24 ppb		08:26:48
3	U 367.007†	8148.0	7132.6	299.7 µg/L	299.7 ppb		08:26:28
3	V 292.402†	118695.1	109065.8	1038.7 µg/L	1038.7 ppb		08:26:28
3	Zn 213.857†	9120315.3	8364471.8	79496 µg/L	79496 ppb		08:26:21

Mean Data: 1202676788|1220620|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	734658.8	108.92	%	0.215				0.20%
Sc RADIAL	22836.8	109	%	0.7				0.65%
Y 371.029	736169.3	126.75	%	0.294				0.23%
Ag 328.068†	62330.1	486.63	µg/L	0.675	486.63	ppb	0.675	0.14%
Al 396.153Radial†	805562.3	230130	µg/L	1937.9	230130	ppb	1937.9	0.84%
As 188.979†	2616.8	1507.0	µg/L	6.29	1507.0	ppb	6.29	0.42%
B 249.677†	20341.1	523.21	µg/L	1.179	523.21	ppb	1.179	0.23%
Ba 233.527†	141572.3	1192.2	µg/L	1.92	1192.2	ppb	1.92	0.16%
Be 313.107†	858808.4	484.00	µg/L	0.927	484.00	ppb	0.927	0.19%
Ca 317.933Radial†	146971.8	66855	µg/L	531.8	66855	ppb	531.8	0.80%
Cd 226.502†	41591.7	541.12	µg/L	0.794	541.12	ppb	0.794	0.15%
Co 228.616†	21756.2	534.71	µg/L	0.807	534.71	ppb	0.807	0.15%
Cr 267.716†	32172.7	660.02	µg/L	1.001	660.02	ppb	1.001	0.15%
Cu 324.752†	882228.1	3811.6	µg/L	4.89	3811.6	ppb	4.89	0.13%
Fe 238.204 Radial†	634488.2	331780	µg/L	2519.4	331780	ppb	2519.4	0.76%
K 766.490 Radial†	75910.8	35221	µg/L	304.8	35221	ppb	304.8	0.87%
Mg 279.077 IEC†	10110.8	47531	µg/L	87.4	47531	ppb	87.4	0.18%
Mn 257.610†	10656978.1	15886	µg/L	76.0	15886	ppb	76.0	0.48%
Mo 202.031†	11920.7	817.79	µg/L	1.100	817.79	ppb	1.100	0.13%
Na 589.592 Radial†	2968.4	4783.3	µg/L	48.82	4783.3	ppb	48.82	1.02%

Ni 231.604†	18722.1	581.03 µg/L	0.606	581.03 ppb	0.606	0.10%
P 214.914†	8235.6	5927.0 µg/L	4.46	5927.0 ppb	4.46	0.08%
Pb 220.353†	189100.2	30685 µg/L	66.8	30685 ppb	66.8	0.22%
S 181.975 Axial†	23358.9	40627 µg/L	50.5	40627 ppb	50.5	0.12%
Sb 206.836†	1459.7	465.10 µg/L	4.976	465.10 ppb	4.976	1.07%
Se 196.026†	406.0	500.02 µg/L	3.305	500.02 ppb	3.305	0.66%
SiO2†	209912.9	25043 µg/L	37.3	25043 ppb	37.3	0.15%
Si 251.611†	247485.8	11578 µg/L	14.7	11578 ppb	14.7	0.13%
Sn 189.927†	1890.5	475.71 µg/L	2.596	475.71 ppb	2.596	0.55%
Sr 421.552†	154700.1	710.25 µg/L	5.854	710.25 ppb	5.854	0.82%
Ti 334.940†	2964959.7	7334.4 µg/L	8.69	7334.4 ppb	8.69	0.12%
Tl 190.801†	569.7	251.29 µg/L	4.458	251.29 ppb	4.458	1.77%
U 367.007†	7122.5	310.9 µg/L	10.24	310.9 ppb	10.24	3.30%
V 292.402†	108891.6	1037.1 µg/L	1.75	1037.1 ppb	1.75	0.17%
Zn 213.857†	8338951.2	79253 µg/L	431.3	79253 ppb	431.3	0.54%

Sequence No.: 12 **Autosampler Location: 310**
Sample ID: 1202676790|1220620|1 **Date Collected: 6/13/2012 8:26:56**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202676790|1220620|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22619.6	22619.6	108	%			08:27:30
1	Al 396.153Radial†	856309.1	790621.4	225860	µg/L	225860	ppb	08:27:25
1	Ca 317.933Radial†	153174.8	141297.3	64274	µg/L	64274	ppb	08:27:30
1	Fe 238.204 Radial†	697510.5	643906.3	336700	µg/L	336700	ppb	08:27:25
1	K 766.490 Radial†	81947.3	74792.8	34707	µg/L	34707	ppb	08:27:25
1	Mg 279.077 IEC†	10801.4	9970.2	46870	µg/L	46870	ppb	08:27:30
1	Na 589.592 Radial†	3036.2	2947.4	4749.5	µg/L	4749.5	ppb	08:27:30
1	Sr 421.552†	163873.5	152599.9	700.62	µg/L	700.62	ppb	08:27:25
1	Sc 361.383	734087.1	734087.1	108.83	%			08:28:07
1	Y 371.029	735218.5	735218.5	126.59	%			08:28:07
1	Ag 328.068†	66843.5	62044.9	486.06	µg/L	486.06	ppb	08:28:07
1	As 188.979†	2812.2	2592.1	1493.3	µg/L	1493.3	ppb	08:28:27
1	B 249.677†	22189.3	20306.2	521.54	µg/L	521.54	ppb	08:28:07
1	Ba 233.527†	153005.4	140717.3	1184.8	µg/L	1184.8	ppb	08:28:07
1	Be 313.107†	928164.8	860470.4	484.96	µg/L	484.96	ppb	08:28:07
1	Cd 226.502†	45057.7	41626.8	540.84	µg/L	540.84	ppb	08:28:07
1	Co 228.616†	23560.9	21679.4	532.92	µg/L	532.92	ppb	08:28:27
1	Cr 267.716†	35608.7	32492.5	666.57	µg/L	666.57	ppb	08:28:07
1	Cu 324.752†	950801.6	868063.4	3751.9	µg/L	3751.9	ppb	08:28:07
1	Mn 257.610†	11456843.3	10526398.0	15692	µg/L	15692	ppb	08:28:00
1	Mo 202.031†	12279.6	11252.6	772.92	µg/L	772.92	ppb	08:28:27
1	Ni 231.604†	20435.3	18804.4	583.64	µg/L	583.64	ppb	08:28:27
1	P 214.914†	9055.7	8193.8	5892.5	µg/L	5892.5	ppb	08:28:27
1	Pb 220.353†	204061.2	187330.7	30400	µg/L	30400	ppb	08:28:07
1	S 181.975 Axial†	24563.8	22512.5	39153	µg/L	39153	ppb	08:28:27
1	Sb 206.836†	1687.0	1486.1	473.19	µg/L	473.19	ppb	08:28:27
1	Se 196.026†	432.5	403.8	500.68	µg/L	500.68	ppb	08:28:27
1	SiO2†	216563.1	196162.5	23410	µg/L	23410	ppb	08:28:07
1	Si 251.611†	251861.2	231220.3	10817	µg/L	10817	ppb	08:28:07
1	Sn 189.927†	2147.8	1947.0	487.96	µg/L	487.96	ppb	08:28:27
1	Ti 334.940†	3178340.9	2920543.9	7224.4	µg/L	7224.4	ppb	08:28:07
1	Tl 190.801†	593.4	586.6	257.06	µg/L	257.06	ppb	08:28:27
1	U 367.007†	8275.3	7262.2	324.5	µg/L	324.5	ppb	08:28:07
1	V 292.402†	118040.2	108649.2	1034.4	µg/L	1034.4	ppb	08:28:07
1	Zn 213.857†	9030041.3	8295753.9	78842	µg/L	78842	ppb	08:28:00
2	Sc RADIAL	22805.1	22805.1	109	%			08:27:41
2	Al 396.153Radial†	867093.7	794065.4	226840	µg/L	226840	ppb	08:27:36
2	Ca 317.933Radial†	154834.7	141666.8	64442	µg/L	64442	ppb	08:27:41
2	Fe 238.204 Radial†	705681.6	646149.9	337880	µg/L	337880	ppb	08:27:36
2	K 766.490 Radial†	83111.4	75243.2	34915	µg/L	34915	ppb	08:27:36
2	Mg 279.077 IEC†	10884.7	9965.4	46847	µg/L	46847	ppb	08:27:41
2	Na 589.592 Radial†	3040.4	2928.5	4719.0	µg/L	4719.0	ppb	08:27:41
2	Sr 421.552†	165533.5	152889.2	701.94	µg/L	701.94	ppb	08:27:36
2	Sc 361.383	731358.1	731358.1	108.43	%			08:28:41
2	Y 371.029	733187.5	733187.5	126.24	%			08:28:41
2	Ag 328.068†	66688.8	62131.5	486.91	µg/L	486.91	ppb	08:28:41
2	As 188.979†	2811.8	2601.3	1498.6	µg/L	1498.6	ppb	08:29:01
2	B 249.677†	22250.0	20438.3	525.07	µg/L	525.07	ppb	08:28:41
2	Ba 233.527†	152131.5	140435.9	1182.3	µg/L	1182.3	ppb	08:28:41
2	Be 313.107†	923345.8	859208.4	484.24	µg/L	484.24	ppb	08:28:41
2	Cd 226.502†	44695.7	41447.5	538.10	µg/L	538.10	ppb	08:28:41
2	Co 228.616†	23482.8	21688.1	533.13	µg/L	533.13	ppb	08:29:01
2	Cr 267.716†	35285.1	32316.1	662.99	µg/L	662.99	ppb	08:28:41
2	Cu 324.752†	950258.9	870822.8	3763.9	µg/L	3763.9	ppb	08:28:41
2	Mn 257.610†	11372355.4	10487759.7	15635	µg/L	15635	ppb	08:28:34
2	Mo 202.031†	12250.9	11268.3	774.03	µg/L	774.03	ppb	08:29:01
2	Ni 231.604†	20340.1	18786.6	583.12	µg/L	583.12	ppb	08:29:01
2	P 214.914†	9030.4	8201.4	5897.5	µg/L	5897.5	ppb	08:29:01
2	Pb 220.353†	202656.4	186734.7	30303	µg/L	30303	ppb	08:28:41

2	S 181.975 Axial†	24536.6	22571.7	39257 µg/L	39257 ppb		08:29:01
2	Sb 206.836†	1687.0	1491.9	475.14 µg/L	475.14 ppb		08:29:01
2	Se 196.026†	442.0	414.0	509.58 µg/L	509.58 ppb		08:29:01
2	SiO2†	215700.4	196109.4	23404 µg/L	23404 ppb		08:28:41
2	Si 251.611†	250755.2	231063.8	10809 µg/L	10809 ppb		08:28:41
2	Sn 189.927†	2145.2	1952.0	489.22 µg/L	489.22 ppb		08:29:01
2	Ti 334.940†	3168375.9	2922251.0	7228.7 µg/L	7228.7 ppb		08:28:41
2	Tl 190.801†	602.0	596.7	260.66 µg/L	260.66 ppb		08:29:01
2	U 367.007†	8244.3	7262.1	318.7 µg/L	318.7 ppb		08:28:41
2	V 292.402†	117537.4	108590.2	1033.9 µg/L	1033.9 ppb		08:28:41
2	Zn 213.857†	8969400.6	8270788.2	78604 µg/L	78604 ppb		08:28:34
3	Sc RADIAL	22539.3	22539.3	108 %			08:27:52
3	Al 396.153Radial†	863441.0	800045.2	228550 µg/L	228550 ppb		08:27:46
3	Ca 317.933Radial†	153482.6	142086.2	64633 µg/L	64633 ppb		08:27:52
3	Fe 238.204 Radial†	702433.2	650761.0	340290 µg/L	340290 ppb		08:27:46
3	K 766.490 Radial†	82782.2	75835.8	35190 µg/L	35190 ppb		08:27:46
3	Mg 279.077 IEC†	10843.1	10044.3	47218 µg/L	47218 ppb		08:27:52
3	Na 589.592 Radial†	3074.9	2993.3	4823.5 µg/L	4823.5 ppb		08:27:52
3	Sr 421.552†	165213.4	154380.3	708.79 µg/L	708.79 ppb		08:27:46
3	Sc 361.383	737284.5	737284.5	109.31 %			08:29:15
3	Y 371.029	739309.1	739309.1	127.29 %			08:29:15
3	Ag 328.068†	67065.9	61982.1	486.58 µg/L	486.58 ppb		08:29:15
3	As 188.979†	2805.6	2574.8	1483.5 µg/L	1483.5 ppb		08:29:35
3	B 249.677†	22267.0	20288.8	520.53 µg/L	520.53 ppb		08:29:15
3	Ba 233.527†	153785.2	140821.0	1185.5 µg/L	1185.5 ppb		08:29:15
3	Be 313.107†	932031.1	860309.1	484.87 µg/L	484.87 ppb		08:29:15
3	Cd 226.502†	45210.7	41587.3	539.71 µg/L	539.71 ppb		08:29:15
3	Co 228.616†	23634.6	21652.9	532.24 µg/L	532.24 ppb		08:29:35
3	Cr 267.716†	35705.7	32439.4	665.54 µg/L	665.54 ppb		08:29:15
3	Cu 324.752†	954623.7	867771.4	3751.2 µg/L	3751.2 ppb		08:29:15
3	Mn 257.610†	11441664.2	10466860.7	15604 µg/L	15604 ppb		08:29:08
3	Mo 202.031†	12318.8	11239.5	772.19 µg/L	772.19 ppb		08:29:35
3	Ni 231.604†	20510.7	18792.0	583.32 µg/L	583.32 ppb		08:29:35
3	P 214.914†	9087.8	8187.0	5885.7 µg/L	5885.7 ppb		08:29:35
3	Pb 220.353†	204806.2	187199.2	30378 µg/L	30378 ppb		08:29:15
3	S 181.975 Axial†	24683.0	22523.7	39173 µg/L	39173 ppb		08:29:35
3	Sb 206.836†	1707.0	1497.7	476.90 µg/L	476.90 ppb		08:29:35
3	Se 196.026†	431.3	400.9	500.12 µg/L	500.12 ppb		08:29:35
3	SiO2†	217238.8	195917.7	23381 µg/L	23381 ppb		08:29:15
3	Si 251.611†	252987.2	231246.8	10818 µg/L	10818 ppb		08:29:15
3	Sn 189.927†	2161.6	1951.1	489.32 µg/L	489.32 ppb		08:29:35
3	Ti 334.940†	3192690.9	2921007.5	7225.6 µg/L	7225.6 ppb		08:29:15
3	Tl 190.801†	588.4	579.7	254.90 µg/L	254.90 ppb		08:29:35
3	U 367.007†	8307.9	7259.1	306.1 µg/L	306.1 ppb		08:29:15
3	V 292.402†	118586.1	108678.3	1034.7 µg/L	1034.7 ppb		08:29:15
3	Zn 213.857†	8997771.9	8230251.6	78218 µg/L	78218 ppb		08:29:08

Mean Data: 1202676790|1220620|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	734243.2	108.86	%	0.440				0.40%
Sc RADIAL	22654.7	108	%	0.7				0.60%
Y 371.029	735905.0	126.71	%	0.537				0.42%
Ag 328.068†	62052.8	486.52	µg/L	0.426	486.52	ppb	0.426	0.09%
Al 396.153Radial†	794910.7	227090	µg/L	1362.4	227090	ppb	1362.4	0.60%
As 188.979†	2589.4	1491.8	µg/L	7.66	1491.8	ppb	7.66	0.51%
B 249.677†	20344.4	522.38	µg/L	2.386	522.38	ppb	2.386	0.46%
Ba 233.527†	140658.1	1184.2	µg/L	1.67	1184.2	ppb	1.67	0.14%
Be 313.107†	859996.0	484.69	µg/L	0.389	484.69	ppb	0.389	0.08%
Ca 317.933Radial†	141683.4	64450	µg/L	179.5	64450	ppb	179.5	0.28%
Cd 226.502†	41553.9	539.55	µg/L	1.379	539.55	ppb	1.379	0.26%
Co 228.616†	21673.5	532.76	µg/L	0.463	532.76	ppb	0.463	0.09%
Cr 267.716†	32416.0	665.03	µg/L	1.841	665.03	ppb	1.841	0.28%
Cu 324.752†	868885.9	3755.7	µg/L	7.10	3755.7	ppb	7.10	0.19%
Fe 238.204 Radial†	646939.1	338290	µg/L	1827.4	338290	ppb	1827.4	0.54%
K 766.490 Radial†	75290.6	34937	µg/L	242.6	34937	ppb	242.6	0.69%
Mg 279.077 IEC†	9993.3	46979	µg/L	207.9	46979	ppb	207.9	0.44%
Mn 257.610†	10493672.8	15644	µg/L	44.8	15644	ppb	44.8	0.29%
Mo 202.031†	11253.5	773.05	µg/L	0.925	773.05	ppb	0.925	0.12%
Na 589.592 Radial†	2956.4	4764.0	µg/L	53.73	4764.0	ppb	53.73	1.13%

Ni 231.604†	18794.3	583.36 µg/L	0.266	583.36 ppb	0.266	0.05%
P 214.914†	8194.1	5891.9 µg/L	5.88	5891.9 ppb	5.88	0.10%
Pb 220.353†	187088.2	30360 µg/L	50.9	30360 ppb	50.9	0.17%
S 181.975 Axial†	22536.0	39194 µg/L	54.9	39194 ppb	54.9	0.14%
Sb 206.836†	1491.9	475.08 µg/L	1.857	475.08 ppb	1.857	0.39%
Se 196.026†	406.2	503.46 µg/L	5.309	503.46 ppb	5.309	1.05%
SiO2†	196063.2	23398 µg/L	15.1	23398 ppb	15.1	0.06%
Si 251.611†	231177.0	10815 µg/L	4.6	10815 ppb	4.6	0.04%
Sn 189.927†	1950.0	488.83 µg/L	0.760	488.83 ppb	0.760	0.16%
Sr 421.552†	153289.8	703.78 µg/L	4.387	703.78 ppb	4.387	0.62%
Ti 334.940†	2921267.5	7226.2 µg/L	2.19	7226.2 ppb	2.19	0.03%
Tl 190.801†	587.7	257.54 µg/L	2.911	257.54 ppb	2.911	1.13%
U 367.007†	7261.1	316.4 µg/L	9.39	316.4 ppb	9.39	2.97%
V 292.402†	108639.2	1034.3 µg/L	0.42	1034.3 ppb	0.42	0.04%
Zn 213.857†	8265597.9	78555 µg/L	314.6	78555 ppb	314.6	0.40%

Sequence No.: 13 **Autosampler Location: 311**
Sample ID: 1202676789|1220620|5 **Date Collected: 6/13/2012 8:29:43**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202676789|1220620|5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21862.5	21862.5	105	%			08:30:32
1	Al 396.153Radial†	148415.1	141841.2	40523	µg/L	40523	ppb	08:30:12
1	Ca 317.933Radial†	28867.7	27460.3	12491	µg/L	12491	ppb	08:30:32
1	Fe 238.204 Radial†	144958.0	138426.2	72383	µg/L	72383	ppb	08:30:12
1	K 766.490 Radial†	13841.0	12359.8	5743.4	µg/L	5743.4	ppb	08:30:12
1	Mg 279.077 IEC†	1865.1	1779.9	8366.5	µg/L	8366.5	ppb	08:30:32
1	Na 589.592 Radial†	-102.6	46.5	74.908	µg/L	74.908	ppb	08:30:32
1	Sr 421.552†	11248.3	12056.5	55.320	µg/L	55.320	ppb	08:30:12
1	Sc 361.383	725469.9	725469.9	107.56	%			08:31:29
1	Y 371.029	646112.7	646112.7	111.25	%			08:31:29
1	Ag 328.068†	-2938.4	-2104.4	5.8660	µg/L	5.8660	ppb	08:31:34
1	As 188.979†	358.1	341.1	197.25	µg/L	197.25	ppb	08:31:54
1	B 249.677†	1116.4	956.1	16.401	µg/L	16.401	ppb	08:31:34
1	Ba 233.527†	19383.2	18153.6	151.96	µg/L	151.96	ppb	08:31:34
1	Be 313.107†	1419.5	8970.7	4.9470	µg/L	4.9470	ppb	08:31:34
1	Cd 226.502†	2037.7	2121.3	18.810	µg/L	18.810	ppb	08:31:54
1	Co 228.616†	988.8	950.3	21.779	µg/L	21.779	ppb	08:31:54
1	Cr 267.716†	2197.2	1817.2	38.038	µg/L	38.038	ppb	08:31:54
1	Cu 324.752†	159671.4	142897.2	620.01	µg/L	620.01	ppb	08:31:34
1	Mn 257.610†	2457305.9	2284232.4	3405.2	µg/L	3405.2	ppb	08:31:29
1	Mo 202.031†	1175.0	1062.3	74.626	µg/L	74.626	ppb	08:31:54
1	Ni 231.604†	913.4	877.2	28.172	µg/L	28.172	ppb	08:31:54
1	P 214.914†	1797.4	1544.3	1106.3	µg/L	1106.3	ppb	08:31:54
1	Pb 220.353†	42545.7	39390.8	6395.3	µg/L	6395.3	ppb	08:31:34
1	S 181.975 Axial†	4481.1	4109.0	7143.5	µg/L	7143.5	ppb	08:31:54
1	Sb 206.836†	123.0	50.4	15.030	µg/L	15.030	ppb	08:31:54
1	Se 196.026†	-50.9	-41.0	3.1578	µg/L	3.1578	ppb	08:31:54
1	SiO2†	48053.5	41856.3	4988.0	µg/L	4988.0	ppb	08:31:34
1	Si 251.611†	53298.5	49357.9	2310.5	µg/L	2310.5	ppb	08:31:34
1	Sn 189.927†	-31.2	-55.4	0.0883	µg/L	0.0883	ppb	08:31:54
1	Ti 334.940†	475838.2	442614.8	1095.0	µg/L	1095.0	ppb	08:31:34
1	Tl 190.801†	-58.0	-12.5	5.0060	µg/L	5.0060	ppb	08:31:54
1	U 367.007†	1564.1	1112.9	-50.99	µg/L	-50.99	ppb	08:31:34
1	V 292.402†	13344.9	12598.3	119.56	µg/L	119.56	ppb	08:31:34
1	Zn 213.857†	3056239.0	2840240.9	27001	µg/L	27001	ppb	08:31:29
2	Sc RADIAL	21810.3	21810.3	104	%			08:30:57
2	Al 396.153Radial†	148664.4	142419.5	40688	µg/L	40688	ppb	08:30:37
2	Ca 317.933Radial†	28807.6	27468.9	12495	µg/L	12495	ppb	08:30:57
2	Fe 238.204 Radial†	144917.4	138719.2	72536	µg/L	72536	ppb	08:30:37
2	K 766.490 Radial†	13936.5	12482.9	5800.3	µg/L	5800.3	ppb	08:30:37
2	Mg 279.077 IEC†	1852.1	1771.7	8327.9	µg/L	8327.9	ppb	08:30:57
2	Na 589.592 Radial†	-105.0	44.0	70.867	µg/L	70.867	ppb	08:30:57
2	Sr 421.552†	11172.7	12009.9	55.106	µg/L	55.106	ppb	08:30:37
2	Sc 361.383	721229.4	721229.4	106.93	%			08:32:00
2	Y 371.029	642455.9	642455.9	110.62	%			08:32:00
2	Ag 328.068†	-2829.8	-2018.9	6.4525	µg/L	6.4525	ppb	08:32:05
2	As 188.979†	362.0	346.6	200.43	µg/L	200.43	ppb	08:32:25
2	B 249.677†	1051.4	901.4	14.844	µg/L	14.844	ppb	08:32:05
2	Ba 233.527†	19589.8	18452.8	154.50	µg/L	154.50	ppb	08:32:05
2	Be 313.107†	1298.4	8865.3	4.8863	µg/L	4.8863	ppb	08:32:05
2	Cd 226.502†	2053.8	2147.6	19.161	µg/L	19.161	ppb	08:32:25
2	Co 228.616†	985.6	952.8	21.825	µg/L	21.825	ppb	08:32:25
2	Cr 267.716†	2231.1	1860.9	38.925	µg/L	38.925	ppb	08:32:25
2	Cu 324.752†	160518.0	144561.8	627.13	µg/L	627.13	ppb	08:32:05
2	Mn 257.610†	2450849.8	2291627.1	3416.3	µg/L	3416.3	ppb	08:32:00
2	Mo 202.031†	1184.9	1078.0	75.691	µg/L	75.691	ppb	08:32:25
2	Ni 231.604†	903.1	872.5	28.030	µg/L	28.030	ppb	08:32:25
2	P 214.914†	1793.5	1550.4	1110.6	µg/L	1110.6	ppb	08:32:25
2	Pb 220.353†	42844.9	39903.2	6478.5	µg/L	6478.5	ppb	08:32:05

2	S 181.975 Axial†	4467.7	4120.9	7164.3 µg/L	7164.3 ppb	08:32:25
2	Sb 206.836†	115.7	44.2	13.012 µg/L	13.012 ppb	08:32:25
2	Se 196.026†	-49.7	-40.1	3.9540 µg/L	3.9540 ppb	08:32:25
2	SiO2†	48412.2	42454.5	5059.2 µg/L	5059.2 ppb	08:32:05
2	Si 251.611†	53697.8	50022.7	2341.7 µg/L	2341.7 ppb	08:32:05
2	Sn 189.927†	-28.0	-52.6	0.7548 µg/L	0.7548 ppb	08:32:25
2	Ti 334.940†	477122.7	446417.2	1104.4 µg/L	1104.4 ppb	08:32:05
2	Tl 190.801†	-58.5	-13.3	4.7778 µg/L	4.7778 ppb	08:32:25
2	U 367.007†	1578.7	1135.1	-45.75 µg/L	-45.75 ppb	08:32:05
2	V 292.402†	13352.7	12678.6	120.33 µg/L	120.33 ppb	08:32:05
2	Zn 213.857†	3043790.4	2845305.4	27049 µg/L	27049 ppb	08:32:00
3	Sc RADIAL	21922.9	21922.9	105 %		08:31:22
3	Al 396.153Radial†	147838.2	140900.8	40254 µg/L	40254 ppb	08:31:02
3	Ca 317.933Radial†	29113.4	27618.3	12563 µg/L	12563 ppb	08:31:22
3	Fe 238.204 Radial†	144739.4	137836.3	72075 µg/L	72075 ppb	08:31:02
3	K 766.490 Radial†	13775.5	12261.0	5697.6 µg/L	5697.6 ppb	08:31:02
3	Mg 279.077 IEC†	1868.8	1778.5	8359.9 µg/L	8359.9 ppb	08:31:22
3	Na 589.592 Radial†	-105.2	44.3	71.331 µg/L	71.331 ppb	08:31:22
3	Sr 421.552†	11129.8	11914.0	54.665 µg/L	54.665 ppb	08:31:02
3	Sc 361.383	723047.2	723047.2	107.20 %		08:32:31
3	Y 371.029	644520.5	644520.5	110.97 %		08:32:31
3	Ag 328.068†	-2810.3	-1994.0	6.4865 µg/L	6.4865 ppb	08:32:36
3	As 188.979†	362.3	346.1	200.10 µg/L	200.10 ppb	08:32:56
3	B 249.677†	1063.0	909.7	15.144 µg/L	15.144 ppb	08:32:36
3	Ba 233.527†	19333.5	18167.7	152.09 µg/L	152.09 ppb	08:32:36
3	Be 313.107†	1361.4	8920.9	4.9191 µg/L	4.9191 ppb	08:32:36
3	Cd 226.502†	2050.9	2140.0	19.125 µg/L	19.125 ppb	08:32:56
3	Co 228.616†	991.2	955.7	21.911 µg/L	21.911 ppb	08:32:56
3	Cr 267.716†	2250.6	1873.8	39.187 µg/L	39.187 ppb	08:32:56
3	Cu 324.752†	158550.2	142348.7	617.63 µg/L	617.63 ppb	08:32:36
3	Mn 257.610†	2455662.8	2290354.6	3414.3 µg/L	3414.3 ppb	08:32:31
3	Mo 202.031†	1169.0	1060.3	74.483 µg/L	74.483 ppb	08:32:56
3	Ni 231.604†	893.9	861.8	27.694 µg/L	27.694 ppb	08:32:56
3	P 214.914†	1832.0	1582.2	1134.9 µg/L	1134.9 ppb	08:32:56
3	Pb 220.353†	42376.1	39365.2	6391.2 µg/L	6391.2 ppb	08:32:36
3	S 181.975 Axial†	4475.0	4117.3	7158.0 µg/L	7158.0 ppb	08:32:56
3	Sb 206.836†	115.0	43.3	12.703 µg/L	12.703 ppb	08:32:56
3	Se 196.026†	-44.9	-35.6	7.4313 µg/L	7.4313 ppb	08:32:56
3	SiO2†	47846.5	41813.0	4982.9 µg/L	4982.9 ppb	08:32:36
3	Si 251.611†	53013.8	49258.4	2305.9 µg/L	2305.9 ppb	08:32:36
3	Sn 189.927†	-27.6	-52.2	0.7597 µg/L	0.7597 ppb	08:32:56
3	Ti 334.940†	474954.0	443272.3	1096.6 µg/L	1096.6 ppb	08:32:36
3	Tl 190.801†	-60.7	-15.2	4.0467 µg/L	4.0467 ppb	08:32:56
3	U 367.007†	1553.7	1108.0	-50.79 µg/L	-50.79 ppb	08:32:36
3	V 292.402†	13277.1	12576.7	119.35 µg/L	119.35 ppb	08:32:36
3	Zn 213.857†	3052838.5	2846589.5	27061 µg/L	27061 ppb	08:32:31

Mean Data: 1202676789|1220620|5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	723248.8	107.23	%	0.315				0.29%
Sc RADIAL	21865.2	105	%	0.3				0.26%
Y 371.029	644363.0	110.94	%	0.316				0.28%
Ag 328.068†	-2039.1	6.2683	µg/L	0.34883	6.2683	ppb	0.34883	5.56%
Al 396.153Radial†	141720.5	40488	µg/L	219.0	40488	ppb	219.0	0.54%
As 188.979†	344.6	199.26	µg/L	1.749	199.26	ppb	1.749	0.88%
B 249.677†	922.4	15.463	µg/L	0.8262	15.463	ppb	0.8262	5.34%
Ba 233.527†	18258.0	152.85	µg/L	1.427	152.85	ppb	1.427	0.93%
Be 313.107†	8919.0	4.9175	µg/L	0.03038	4.9175	ppb	0.03038	0.62%
Ca 317.933Radial†	27515.8	12517	µg/L	40.4	12517	ppb	40.4	0.32%
Cd 226.502†	2136.3	19.032	µg/L	0.1929	19.032	ppb	0.1929	1.01%
Co 228.616†	953.0	21.839	µg/L	0.0668	21.839	ppb	0.0668	0.31%
Cr 267.716†	1850.7	38.717	µg/L	0.6023	38.717	ppb	0.6023	1.56%
Cu 324.752†	143269.2	621.59	µg/L	4.940	621.59	ppb	4.940	0.79%
Fe 238.204 Radial†	138327.2	72331	µg/L	235.1	72331	ppb	235.1	0.33%
K 766.490 Radial†	12367.9	5747.1	µg/L	51.49	5747.1	ppb	51.49	0.90%
Mg 279.077 IEC†	1776.7	8351.4	µg/L	20.69	8351.4	ppb	20.69	0.25%
Mn 257.610†	2288738.0	3411.9	µg/L	5.88	3411.9	ppb	5.88	0.17%
Mo 202.031†	1066.9	74.933	µg/L	0.6602	74.933	ppb	0.6602	0.88%
Na 589.592 Radial†	44.9	72.369	µg/L	2.2110	72.369	ppb	2.2110	3.06%

Ni 231.604†	870.5	27.966 µg/L	0.2458	27.966 ppb	0.2458	0.88%
P 214.914†	1559.0	1117.3 µg/L	15.43	1117.3 ppb	15.43	1.38%
Pb 220.353†	39553.1	6421.7 µg/L	49.27	6421.7 ppb	49.27	0.77%
S 181.975 Axial†	4115.7	7155.3 µg/L	10.65	7155.3 ppb	10.65	0.15%
Sb 206.836†	45.9	13.582 µg/L	1.2635	13.582 ppb	1.2635	9.30%
Se 196.026†	-38.9	4.8477 µg/L	2.27262	4.8477 ppb	2.27262	46.88%
SiO2†	42041.3	5010.0 µg/L	42.68	5010.0 ppb	42.68	0.85%
Si 251.611†	49546.4	2319.4 µg/L	19.45	2319.4 ppb	19.45	0.84%
Sn 189.927†	-53.4	0.5343 µg/L	0.38624	0.5343 ppb	0.38624	72.29%
Sr 421.552†	11993.5	55.031 µg/L	0.3339	55.031 ppb	0.3339	0.61%
Ti 334.940†	444101.5	1098.6 µg/L	5.03	1098.6 ppb	5.03	0.46%
Tl 190.801†	-13.7	4.6102 µg/L	0.50113	4.6102 ppb	0.50113	10.87%
U 367.007†	1118.7	-49.18 µg/L	2.966	-49.18 ppb	2.966	6.03%
V 292.402†	12617.9	119.75 µg/L	0.515	119.75 ppb	0.515	0.43%
Zn 213.857†	2844045.3	27037 µg/L	31.9	27037 ppb	31.9	0.12%

Sequence No.: 14 **Autosampler Location: 312**
Sample ID: 305844006|1220620|5 **Date Collected: 6/13/2012 8:33:04**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305844006|1220620|5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21585.5	21585.5	103	%			08:33:53
1	Al 396.153Radial†	98863.3	95722.5	27302	µg/L	27302	ppb	08:33:33
1	Ca 317.933Radial†	67117.0	64817.4	29484	µg/L	29484	ppb	08:33:33
1	Fe 238.204 Radial†	288725.8	279287.1	146040	µg/L	146040	ppb	08:33:33
1	K 766.490 Radial†	9889.1	8706.3	4086.6	µg/L	4086.6	ppb	08:33:33
1	Mg 279.077 IEC†	1700.0	1643.1	7734.0	µg/L	7734.0	ppb	08:33:53
1	Na 589.592 Radial†	55.2	197.9	318.89	µg/L	318.89	ppb	08:33:53
1	Sr 421.552†	20136.0	20792.6	95.369	µg/L	95.369	ppb	08:33:33
1	Sc 361.383	711752.2	711752.2	105.52	%			08:34:57
1	Y 371.029	626195.1	626195.1	107.82	%			08:34:57
1	Ag 328.068†	32.6	658.5	42.525	µg/L	42.525	ppb	08:35:17
1	As 188.979†	3746.9	3558.9	2036.0	µg/L	2036.0	ppb	08:35:17
1	B 249.677†	2683.6	2461.3	47.997	µg/L	47.997	ppb	08:34:57
1	Ba 233.527†	18071.3	17257.8	142.24	µg/L	142.24	ppb	08:35:17
1	Be 313.107†	5364.5	12734.6	7.3038	µg/L	7.3038	ppb	08:34:57
1	Cd 226.502†	9186.1	8932.0	104.32	µg/L	104.32	ppb	08:35:17
1	Co 228.616†	1756.8	1695.9	42.215	µg/L	42.215	ppb	08:35:17
1	Cr 267.716†	1878.9	1555.0	33.569	µg/L	33.569	ppb	08:35:17
1	Cu 324.752†	825448.7	776686.4	3329.9	µg/L	3329.9	ppb	08:34:57
1	Mn 257.610†	11426819.3	10828279.5	16125	µg/L	16125	ppb	08:34:51
1	Mo 202.031†	19534.9	18482.2	1252.9	µg/L	1252.9	ppb	08:35:17
1	Ni 231.604†	723.1	713.2	24.344	µg/L	24.344	ppb	08:35:17
1	P 214.914†	2381.8	2130.3	1416.3	µg/L	1416.3	ppb	08:35:17
1	Pb 220.353†	559453.1	530003.7	86157	µg/L	86157	ppb	08:34:57
1	S 181.975 Axial†	45583.9	43140.6	75179	µg/L	75179	ppb	08:34:57
1	Sb 206.836†	319.3	238.6	92.547	µg/L	92.547	ppb	08:35:17
1	Se 196.026†	-73.2	-63.0	22.459	µg/L	22.459	ppb	08:35:17
1	SiO2†	57343.0	51520.7	6167.5	µg/L	6167.5	ppb	08:34:57
1	Si 251.611†	64333.0	60769.9	2830.2	µg/L	2830.2	ppb	08:34:57
1	Sn 189.927†	-86.8	-108.7	-4.2574	µg/L	-4.2574	ppb	08:35:17
1	Ti 334.940†	435771.0	413171.4	1022.4	µg/L	1022.4	ppb	08:34:57
1	Tl 190.801†	-96.8	-50.3	-3.5196	µg/L	-3.5196	ppb	08:35:17
1	U 367.007†	2769.7	2283.5	-86.73	µg/L	-86.73	ppb	08:34:57
1	V 292.402†	18753.4	17962.9	183.90	µg/L	183.90	ppb	08:35:17
1	Zn 213.857†	10383771.1	9838986.5	93549	µg/L	93549	ppb	08:34:51
2	Sc RADIAL	21739.2	21739.2	104	%			08:34:18
2	Al 396.153Radial†	99921.8	96063.5	27399	µg/L	27399	ppb	08:33:58
2	Ca 317.933Radial†	67802.4	65016.9	29575	µg/L	29575	ppb	08:33:58
2	Fe 238.204 Radial†	291702.0	280172.0	146500	µg/L	146500	ppb	08:33:58
2	K 766.490 Radial†	9965.4	8712.0	4089.4	µg/L	4089.4	ppb	08:33:58
2	Mg 279.077 IEC†	1718.9	1649.5	7764.5	µg/L	7764.5	ppb	08:34:18
2	Na 589.592 Radial†	58.0	200.2	322.52	µg/L	322.52	ppb	08:34:18
2	Sr 421.552†	20335.3	20846.3	95.615	µg/L	95.615	ppb	08:33:58
2	Sc 361.383	706327.0	706327.0	104.72	%			08:35:29
2	Y 371.029	621583.3	621583.3	107.02	%			08:35:29
2	Ag 328.068†	27.7	654.1	42.622	µg/L	42.622	ppb	08:35:49
2	As 188.979†	3754.3	3593.3	2055.6	µg/L	2055.6	ppb	08:35:49
2	B 249.677†	2616.4	2416.7	46.674	µg/L	46.674	ppb	08:35:29
2	Ba 233.527†	18082.0	17399.4	143.43	µg/L	143.43	ppb	08:35:49
2	Be 313.107†	5327.4	12738.3	7.3107	µg/L	7.3107	ppb	08:35:29
2	Cd 226.502†	9192.8	9005.3	105.29	µg/L	105.29	ppb	08:35:49
2	Co 228.616†	1750.8	1703.0	42.408	µg/L	42.408	ppb	08:35:49
2	Cr 267.716†	1870.8	1560.8	33.679	µg/L	33.679	ppb	08:35:49
2	Cu 324.752†	819996.7	777488.3	3333.4	µg/L	3333.4	ppb	08:35:29
2	Mn 257.610†	11465193.9	10948097.8	16303	µg/L	16303	ppb	08:35:23
2	Mo 202.031†	19523.0	18613.0	1261.7	µg/L	1261.7	ppb	08:35:49
2	Ni 231.604†	746.7	741.0	25.206	µg/L	25.206	ppb	08:35:49
2	P 214.914†	2394.5	2159.8	1438.0	µg/L	1438.0	ppb	08:35:49
2	Pb 220.353†	552463.5	527401.2	85734	µg/L	85734	ppb	08:35:29

2	S 181.975 Axial†	45143.8	43052.1	75024 µg/L	75024 ppb		08:35:29
2	Sb 206.836†	316.4	238.1	92.520 µg/L	92.520 ppb		08:35:49
2	Se 196.026†	-59.9	-50.9	32.604 µg/L	32.604 ppb		08:35:49
2	SiO2†	56891.0	51506.5	6166.2 µg/L	6166.2 ppb		08:35:29
2	Si 251.611†	63907.4	60831.7	2833.0 µg/L	2833.0 ppb		08:35:29
2	Sn 189.927†	-94.4	-116.6	-5.9252 µg/L	-5.9252 ppb		08:35:49
2	Ti 334.940†	432178.1	412912.3	1021.8 µg/L	1021.8 ppb		08:35:29
2	Tl 190.801†	-98.0	-52.1	-4.1044 µg/L	-4.1044 ppb		08:35:49
2	U 367.007†	2822.9	2354.4	-69.78 µg/L	-69.78 ppb		08:35:29
2	V 292.402†	18744.1	18090.5	185.22 µg/L	185.22 ppb		08:35:49
2	Zn 213.857†	10378451.8	9909488.0	94219 µg/L	94219 ppb		08:35:23
3	Sc RADIAL	21762.7	21762.7	104 %			08:34:43
3	Al 396.153Radial†	99199.7	95266.9	27171 µg/L	27171 ppb		08:34:23
3	Ca 317.933Radial†	67583.6	64736.5	29448 µg/L	29448 ppb		08:34:23
3	Fe 238.204 Radial†	290239.2	278465.7	145610 µg/L	145610 ppb		08:34:23
3	K 766.490 Radial†	9898.1	8637.1	4054.4 µg/L	4054.4 ppb		08:34:23
3	Mg 279.077 IEC†	1719.6	1648.4	7759.1 µg/L	7759.1 ppb		08:34:43
3	Na 589.592 Radial†	50.8	193.2	311.32 µg/L	311.32 ppb		08:34:43
3	Sr 421.552†	20194.1	20689.8	94.897 µg/L	94.897 ppb		08:34:23
3	Sc 361.383	712725.5	712725.5	105.67 %			08:36:02
3	Y 371.029	626787.4	626787.4	107.92 %			08:36:02
3	Ag 328.068†	-55.1	575.5	41.888 µg/L	41.888 ppb		08:36:22
3	As 188.979†	3770.5	3576.4	2046.0 µg/L	2046.0 ppb		08:36:22
3	B 249.677†	2610.5	2388.6	46.016 µg/L	46.016 ppb		08:36:02
3	Ba 233.527†	18109.1	17270.1	142.36 µg/L	142.36 ppb		08:36:22
3	Be 313.107†	5333.9	12698.7	7.2844 µg/L	7.2844 ppb		08:36:02
3	Cd 226.502†	9234.7	8966.2	104.87 µg/L	104.87 ppb		08:36:22
3	Co 228.616†	1752.1	1689.1	42.049 µg/L	42.049 ppb		08:36:22
3	Cr 267.716†	1876.2	1549.9	33.455 µg/L	33.455 ppb		08:36:22
3	Cu 324.752†	825662.6	775820.5	3326.2 µg/L	3326.2 ppb		08:36:02
3	Mn 257.610†	11565075.9	10944332.7	16297 µg/L	16297 ppb		08:35:56
3	Mo 202.031†	19571.7	18491.8	1253.5 µg/L	1253.5 ppb		08:36:22
3	Ni 231.604†	721.4	710.7	24.258 µg/L	24.258 ppb		08:36:22
3	P 214.914†	2374.6	2120.4	1409.2 µg/L	1409.2 ppb		08:36:22
3	Pb 220.353†	559993.7	529791.3	86122 µg/L	86122 ppb		08:36:02
3	S 181.975 Axial†	45738.9	43228.3	75331 µg/L	75331 ppb		08:36:02
3	Sb 206.836†	321.6	240.4	93.165 µg/L	93.165 ppb		08:36:22
3	Se 196.026†	-68.5	-58.5	25.929 µg/L	25.929 ppb		08:36:22
3	SiO2†	57468.2	51565.0	6172.8 µg/L	6172.8 ppb		08:36:02
3	Si 251.611†	64395.6	60745.9	2829.1 µg/L	2829.1 ppb		08:36:02
3	Sn 189.927†	-86.2	-108.0	-4.1548 µg/L	-4.1548 ppb		08:36:22
3	Ti 334.940†	436056.9	412878.0	1021.7 µg/L	1021.7 ppb		08:36:02
3	Tl 190.801†	-102.0	-55.1	-5.2075 µg/L	-5.2075 ppb		08:36:22
3	U 367.007†	2794.1	2303.0	-79.28 µg/L	-79.28 ppb		08:36:02
3	V 292.402†	18781.9	17965.6	183.93 µg/L	183.93 ppb		08:36:22
3	Zn 213.857†	10479855.0	9916478.9	94286 µg/L	94286 ppb		08:35:56

Mean Data: 305844006|1220620|5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	710268.2	105.30	%	0.511				0.49%
Sc RADIAL	21695.8	104	%	0.5				0.44%
Y 371.029	624855.3	107.59	%	0.491				0.46%
Ag 328.068†	629.3	42.345	µg/L	0.3987	42.345	ppb	0.3987	0.94%
Al 396.153Radial†	95684.3	27291	µg/L	114.0	27291	ppb	114.0	0.42%
As 188.979†	3576.2	2045.9	µg/L	9.82	2045.9	ppb	9.82	0.48%
B 249.677†	2422.2	46.896	µg/L	1.0086	46.896	ppb	1.0086	2.15%
Ba 233.527†	17309.1	142.68	µg/L	0.655	142.68	ppb	0.655	0.46%
Be 313.107†	12723.9	7.2996	µg/L	0.01361	7.2996	ppb	0.01361	0.19%
Ca 317.933Radial†	64856.9	29502	µg/L	65.6	29502	ppb	65.6	0.22%
Cd 226.502†	8967.9	104.83	µg/L	0.488	104.83	ppb	0.488	0.47%
Co 228.616†	1696.0	42.224	µg/L	0.1799	42.224	ppb	0.1799	0.43%
Cr 267.716†	1555.2	33.568	µg/L	0.1120	33.568	ppb	0.1120	0.33%
Cu 324.752†	776665.0	3329.8	µg/L	3.61	3329.8	ppb	3.61	0.11%
Fe 238.204 Radial†	279308.2	146050	µg/L	446.2	146050	ppb	446.2	0.31%
K 766.490 Radial†	8685.1	4076.8	µg/L	19.45	4076.8	ppb	19.45	0.48%
Mg 279.077 IEC†	1647.0	7752.5	µg/L	16.27	7752.5	ppb	16.27	0.21%
Mn 257.610†	10906903.4	16242	µg/L	101.3	16242	ppb	101.3	0.62%
Mo 202.031†	18529.0	1256.0	µg/L	4.93	1256.0	ppb	4.93	0.39%
Na 589.592 Radial†	197.1	317.58	µg/L	5.713	317.58	ppb	5.713	1.80%

Ni 231.604†	721.6	24.602 µg/L	0.5241	24.602 ppb	0.5241	2.13%
P 214.914†	2136.8	1421.2 µg/L	15.01	1421.2 ppb	15.01	1.06%
Pb 220.353†	529065.4	86004 µg/L	234.8	86004 ppb	234.8	0.27%
S 181.975 Axial†	43140.3	75178 µg/L	153.7	75178 ppb	153.7	0.20%
Sb 206.836†	239.0	92.744 µg/L	0.3645	92.744 ppb	0.3645	0.39%
Se 196.026†	-57.4	26.997 µg/L	5.1566	26.997 ppb	5.1566	19.10%
SiO2†	51530.7	6168.8 µg/L	3.47	6168.8 ppb	3.47	0.06%
Si 251.611†	60782.5	2830.8 µg/L	2.02	2830.8 ppb	2.02	0.07%
Sn 189.927†	-111.1	-4.7791 µg/L	0.99383	-4.7791 ppb	0.99383	20.80%
Sr 421.552†	20776.2	95.293 µg/L	0.3651	95.293 ppb	0.3651	0.38%
Ti 334.940†	412987.2	1022.0 µg/L	0.40	1022.0 ppb	0.40	0.04%
Tl 190.801†	-52.5	-4.2772 µg/L	0.85713	-4.2772 ppb	0.85713	20.04%
U 367.007†	2313.6	-78.60 µg/L	8.498	-78.60 ppb	8.498	10.81%
V 292.402†	18006.3	184.35 µg/L	0.754	184.35 ppb	0.754	0.41%
Zn 213.857†	9888317.8	94018 µg/L	407.7	94018 ppb	407.7	0.43%

Sequence No.: 15 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/13/2012 8:36:29**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21771.8	21771.8	104	%			08:37:18
1	Al 396.153Radial†	17828.2	17179.9	4889.1	µg/L	4889.1	ppb	08:36:58
1	Ca 317.933Radial†	11493.5	10910.8	4963.2	µg/L	4963.2	ppb	08:37:18
1	Fe 238.204 Radial†	10272.9	9820.4	5140.2	µg/L	5140.2	ppb	08:37:18
1	K 766.490 Radial†	12223.6	10863.6	5017.3	µg/L	5017.3	ppb	08:36:58
1	Mg 279.077 IEC†	1140.1	1091.9	5138.2	µg/L	5138.2	ppb	08:37:18
1	Na 589.592 Radial†	6159.3	6052.2	9752.5	µg/L	9752.5	ppb	08:37:18
1	Sr 421.552†	111597.0	108350.6	497.64	µg/L	497.64	ppb	08:36:58
1	Sc 361.383	722455.8	722455.8	107.11	%			08:38:15
1	Y 371.029	616830.4	616830.4	106.20	%			08:38:15
1	Ag 328.068†	85373.1	80333.3	514.21	µg/L	514.21	ppb	08:38:21
1	As 188.979†	942.2	887.8	508.17	µg/L	508.17	ppb	08:38:41
1	B 249.677†	19106.6	17756.3	497.61	µg/L	497.61	ppb	08:38:21
1	Ba 233.527†	63707.5	59610.7	506.08	µg/L	506.08	ppb	08:38:21
1	Be 313.107†	956864.6	900995.2	508.80	µg/L	508.80	ppb	08:38:15
1	Cd 226.502†	38313.8	35997.2	513.02	µg/L	513.02	ppb	08:38:21
1	Co 228.616†	21728.1	20316.7	512.21	µg/L	512.21	ppb	08:38:21
1	Cr 267.716†	26813.1	24807.5	505.42	µg/L	505.42	ppb	08:38:21
1	Cu 324.752†	131690.8	117393.4	501.41	µg/L	501.41	ppb	08:38:21
1	Mn 257.610†	361209.1	336814.2	501.47	µg/L	501.47	ppb	08:38:21
1	Mo 202.031†	8118.9	7549.7	509.56	µg/L	509.56	ppb	08:38:41
1	Ni 231.604†	18057.1	16886.4	519.15	µg/L	519.15	ppb	08:38:21
1	P 214.914†	3728.6	3354.3	2502.2	µg/L	2502.2	ppb	08:38:41
1	Pb 220.353†	3735.2	3321.7	540.42	µg/L	540.42	ppb	08:38:41
1	S 181.975 Axial†	700.7	596.9	1042.0	µg/L	1042.0	ppb	08:38:41
1	Sb 206.836†	1728.7	1549.9	502.72	µg/L	502.72	ppb	08:38:41
1	Se 196.026†	664.1	626.4	514.55	µg/L	514.55	ppb	08:38:41
1	SiO2†	51312.6	45085.6	5391.4	µg/L	5391.4	ppb	08:38:21
1	Si 251.611†	57596.4	53577.3	2501.7	µg/L	2501.7	ppb	08:38:21
1	Sn 189.927†	2534.9	2340.2	511.79	µg/L	511.79	ppb	08:38:41
1	Ti 334.940†	218575.3	204275.8	504.99	µg/L	504.99	ppb	08:38:21
1	Tl 190.801†	1502.6	1444.3	506.23	µg/L	506.23	ppb	08:38:41
1	U 367.007†	2299.6	1805.6	461.9	µg/L	461.9	ppb	08:38:21
1	V 292.402†	56763.6	53186.6	510.30	µg/L	510.30	ppb	08:38:21
1	Zn 213.857†	68861.2	63031.6	594.98	µg/L	594.98	ppb	08:38:21
2	Sc RADIAL	21723.5	21723.5	104	%			08:37:43
2	Al 396.153Radial†	17903.8	17290.5	4920.7	µg/L	4920.7	ppb	08:37:23
2	Ca 317.933Radial†	11525.1	10965.7	4988.1	µg/L	4988.1	ppb	08:37:43
2	Fe 238.204 Radial†	10252.0	9822.2	5141.3	µg/L	5141.3	ppb	08:37:43
2	K 766.490 Radial†	12250.1	10915.1	5041.0	µg/L	5041.0	ppb	08:37:23
2	Mg 279.077 IEC†	1146.9	1100.9	5180.4	µg/L	5180.4	ppb	08:37:43
2	Na 589.592 Radial†	6138.3	6045.1	9741.1	µg/L	9741.1	ppb	08:37:43
2	Sr 421.552†	111942.9	108920.9	500.26	µg/L	500.26	ppb	08:37:23
2	Sc 361.383	719778.2	719778.2	106.71	%			08:38:46
2	Y 371.029	615006.2	615006.2	105.89	%			08:38:46
2	Ag 328.068†	86265.0	81465.6	521.44	µg/L	521.44	ppb	08:38:51
2	As 188.979†	948.8	897.2	513.61	µg/L	513.61	ppb	08:39:12
2	B 249.677†	19383.1	18081.8	506.75	µg/L	506.75	ppb	08:38:51
2	Ba 233.527†	64470.5	60546.9	514.02	µg/L	514.02	ppb	08:38:51
2	Be 313.107†	954377.1	901987.4	509.36	µg/L	509.36	ppb	08:38:46
2	Cd 226.502†	38765.4	36553.5	520.96	µg/L	520.96	ppb	08:38:51
2	Co 228.616†	22040.2	20684.7	521.48	µg/L	521.48	ppb	08:38:51
2	Cr 267.716†	27241.9	25302.4	515.50	µg/L	515.50	ppb	08:38:51
2	Cu 324.752†	132983.5	119062.1	508.53	µg/L	508.53	ppb	08:38:51
2	Mn 257.610†	364618.6	341263.6	508.09	µg/L	508.09	ppb	08:38:51
2	Mo 202.031†	8120.4	7579.4	511.56	µg/L	511.56	ppb	08:39:12
2	Ni 231.604†	18214.4	17096.5	525.60	µg/L	525.60	ppb	08:38:51
2	P 214.914†	3739.9	3377.8	2519.7	µg/L	2519.7	ppb	08:39:12
2	Pb 220.353†	3687.4	3290.0	535.25	µg/L	535.25	ppb	08:39:12

2	S 181.975 Axial†	710.8	608.8	1062.7 µg/L	1062.7 ppb	08:39:12
2	Sb 206.836†	1721.1	1548.8	502.15 µg/L	502.15 ppb	08:39:12
2	Se 196.026†	662.3	627.0	515.09 µg/L	515.09 ppb	08:39:12
2	SiO2†	51938.0	45849.8	5482.7 µg/L	5482.7 ppb	08:38:51
2	Si 251.611†	58271.0	54409.4	2540.6 µg/L	2540.6 ppb	08:38:51
2	Sn 189.927†	2547.5	2360.8	516.30 µg/L	516.30 ppb	08:39:12
2	Ti 334.940†	221014.4	207320.5	512.51 µg/L	512.51 ppb	08:38:51
2	Tl 190.801†	1510.8	1457.2	510.76 µg/L	510.76 ppb	08:39:12
2	U 367.007†	2318.8	1831.7	468.9 µg/L	468.9 ppb	08:38:51
2	V 292.402†	57330.6	53915.0	517.24 µg/L	517.24 ppb	08:38:51
2	Zn 213.857†	67333.9	61839.5	583.60 µg/L	583.60 ppb	08:38:51
3	Sc RADIAL	21704.4	21704.4	104 %		08:38:09
3	Al 396.153Radial†	17889.3	17291.7	4921.0 µg/L	4921.0 ppb	08:37:49
3	Ca 317.933Radial†	11500.2	10951.5	4981.7 µg/L	4981.7 ppb	08:38:09
3	Fe 238.204 Radial†	10223.2	9803.1	5131.2 µg/L	5131.2 ppb	08:38:09
3	K 766.490 Radial†	12275.3	10949.7	5057.0 µg/L	5057.0 ppb	08:37:49
3	Mg 279.077 IEC†	1144.7	1099.7	5174.8 µg/L	5174.8 ppb	08:38:09
3	Na 589.592 Radial†	6196.4	6106.2	9839.5 µg/L	9839.5 ppb	08:38:09
3	Sr 421.552†	112563.2	109612.5	503.44 µg/L	503.44 ppb	08:37:49
3	Sc 361.383	716425.0	716425.0	106.22 %		08:39:17
3	Y 371.029	611925.1	611925.1	105.36 %		08:39:17
3	Ag 328.068†	85402.9	81032.3	518.67 µg/L	518.67 ppb	08:39:22
3	As 188.979†	952.3	904.7	517.88 µg/L	517.88 ppb	08:39:42
3	B 249.677†	19147.6	17945.2	502.92 µg/L	502.92 ppb	08:39:22
3	Ba 233.527†	63602.5	60012.5	509.49 µg/L	509.49 ppb	08:39:22
3	Be 313.107†	951265.8	903244.1	510.07 µg/L	510.07 ppb	08:39:17
3	Cd 226.502†	38209.5	36200.1	515.92 µg/L	515.92 ppb	08:39:22
3	Co 228.616†	21718.5	20478.5	516.29 µg/L	516.29 ppb	08:39:22
3	Cr 267.716†	26888.9	25089.6	511.17 µg/L	511.17 ppb	08:39:22
3	Cu 324.752†	131486.7	118236.2	505.01 µg/L	505.01 ppb	08:39:22
3	Mn 257.610†	360075.3	338585.5	504.10 µg/L	504.10 ppb	08:39:22
3	Mo 202.031†	8085.7	7582.3	511.75 µg/L	511.75 ppb	08:39:42
3	Ni 231.604†	18039.0	17011.2	522.99 µg/L	522.99 ppb	08:39:22
3	P 214.914†	3736.7	3391.2	2529.9 µg/L	2529.9 ppb	08:39:42
3	Pb 220.353†	3635.3	3257.1	529.90 µg/L	529.90 ppb	08:39:42
3	S 181.975 Axial†	697.5	599.4	1046.3 µg/L	1046.3 ppb	08:39:42
3	Sb 206.836†	1712.3	1548.1	502.03 µg/L	502.03 ppb	08:39:42
3	Se 196.026†	671.4	638.5	524.40 µg/L	524.40 ppb	08:39:42
3	SiO2†	51424.1	45593.8	5452.1 µg/L	5452.1 ppb	08:39:22
3	Si 251.611†	57643.0	54073.8	2524.9 µg/L	2524.9 ppb	08:39:22
3	Sn 189.927†	2516.9	2343.2	512.44 µg/L	512.44 ppb	08:39:42
3	Ti 334.940†	218181.8	205623.0	508.32 µg/L	508.32 ppb	08:39:22
3	Tl 190.801†	1495.4	1449.3	507.99 µg/L	507.99 ppb	08:39:42
3	U 367.007†	2288.2	1813.0	463.9 µg/L	463.9 ppb	08:39:22
3	V 292.402†	56716.3	53588.1	514.14 µg/L	514.14 ppb	08:39:22
3	Zn 213.857†	65664.4	60563.0	571.48 µg/L	571.48 ppb	08:39:22

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	719553.0	106.68	%	0.448				0.42%
Sc RADIAL	21733.2	104	%	0.2				0.16%
Y 371.029	614587.2	105.82	%	0.427				0.40%
Ag 328.068†	80943.7	518.10	µg/L	3.647	518.10	ppb	3.647	0.70%
QC value within limits for Ag 328.068 Recovery = 103.62%								
Al 396.153Radial†	17254.1	4910.3	µg/L	18.31	4910.3	ppb	18.31	0.37%
QC value within limits for Al 396.153Radial Recovery = 98.21%								
As 188.979†	896.6	513.22	µg/L	4.867	513.22	ppb	4.867	0.95%
QC value within limits for As 188.979 Recovery = 102.64%								
B 249.677†	17927.8	502.43	µg/L	4.588	502.43	ppb	4.588	0.91%
QC value within limits for B 249.677 Recovery = 100.49%								
Ba 233.527†	60056.7	509.86	µg/L	3.988	509.86	ppb	3.988	0.78%
QC value within limits for Ba 233.527 Recovery = 101.97%								
Be 313.107†	902075.6	509.41	µg/L	0.637	509.41	ppb	0.637	0.12%
QC value within limits for Be 313.107 Recovery = 101.88%								
Ca 317.933Radial†	10942.7	4977.7	µg/L	12.96	4977.7	ppb	12.96	0.26%
QC value within limits for Ca 317.933Radial Recovery = 99.55%								
Cd 226.502†	36250.3	516.63	µg/L	4.018	516.63	ppb	4.018	0.78%
QC value within limits for Cd 226.502 Recovery = 103.33%								
Co 228.616†	20493.3	516.66	µg/L	4.646	516.66	ppb	4.646	0.90%

```
   QC value within limits for Co 228.616  Recovery = 103.33%
Cr 267.716†          25066.5      510.70 µg/L         5.057      510.70 ppb          5.057   0.99%
   QC value within limits for Cr 267.716  Recovery = 102.14%
Cu 324.752†         118230.6      504.98 µg/L         3.560      504.98 ppb          3.560   0.70%
   QC value within limits for Cu 324.752  Recovery = 101.00%
Fe 238.204 Radial†    9815.3      5137.6 µg/L          5.51      5137.6 ppb           5.51   0.11%
   QC value within limits for Fe 238.204 Radial  Recovery = 102.75%
K 766.490 Radial†    10909.5      5038.4 µg/L         20.00      5038.4 ppb          20.00   0.40%
   QC value within limits for K 766.490 Radial  Recovery = 100.77%
Mg 279.077 IEC†       1097.5      5164.5 µg/L         22.92      5164.5 ppb          22.92   0.44%
   QC value within limits for Mg 279.077 IEC  Recovery = 103.29%
Mn 257.610†         338887.8      504.55 µg/L         3.332      504.55 ppb          3.332   0.66%
   QC value within limits for Mn 257.610  Recovery = 100.91%
Mo 202.031†           7570.5      510.96 µg/L         1.216      510.96 ppb          1.216   0.24%
   QC value within limits for Mo 202.031  Recovery = 102.19%
Na 589.592 Radial†    6067.8      9777.7 µg/L         53.84      9777.7 ppb          53.84   0.55%
   QC value within limits for Na 589.592 Radial  Recovery = 97.78%
Ni 231.604†          16998.0      522.58 µg/L         3.247      522.58 ppb          3.247   0.62%
   QC value within limits for Ni 231.604  Recovery = 104.52%
P 214.914†            3374.4      2517.3 µg/L         13.98      2517.3 ppb          13.98   0.56%
   QC value within limits for P 214.914  Recovery = 100.69%
Pb 220.353†           3289.6      535.19 µg/L         5.260      535.19 ppb          5.260   0.98%
   QC value within limits for Pb 220.353  Recovery = 107.04%
S 181.975 Axial†       601.7      1050.4 µg/L         10.94      1050.4 ppb          10.94   1.04%
   QC value within limits for S 181.975 Axial  Recovery = 105.04%
Sb 206.836†           1549.0      502.30 µg/L         0.371      502.30 ppb          0.371   0.07%
   QC value within limits for Sb 206.836  Recovery = 100.46%
Se 196.026†            630.6      518.01 µg/L         5.538      518.01 ppb          5.538   1.07%
   QC value within limits for Se 196.026  Recovery = 103.60%
SiO2†                45509.7      5442.1 µg/L         46.50      5442.1 ppb          46.50   0.85%
   QC value within limits for SiO2  Recovery = 101.77%
Si 251.611†          54020.2      2522.4 µg/L         19.59      2522.4 ppb          19.59   0.78%
   QC value within limits for Si 251.611  Recovery = 100.90%
Sn 189.927†           2348.1      513.51 µg/L         2.439      513.51 ppb          2.439   0.47%
   QC value within limits for Sn 189.927  Recovery = 102.70%
Sr 421.552†         108961.3      500.45 µg/L         2.902      500.45 ppb          2.902   0.58%
   QC value within limits for Sr 421.552  Recovery = 100.09%
Ti 334.940†         205739.8      508.60 µg/L         3.771      508.60 ppb          3.771   0.74%
   QC value within limits for Ti 334.940  Recovery = 101.72%
Tl 190.801†           1450.3      508.32 µg/L         2.284      508.32 ppb          2.284   0.45%
   QC value within limits for Tl 190.801  Recovery = 101.66%
U 367.007†            1816.8       464.9 µg/L          3.61       464.9 ppb           3.61   0.78%
   QC value within limits for U 367.007  Recovery = 92.98%
V 292.402†           53563.2      513.89 µg/L         3.478      513.89 ppb          3.478   0.68%
   QC value within limits for V 292.402  Recovery = 102.78%
Zn 213.857†          61811.4      583.35 µg/L        11.753      583.35 ppb         11.753   2.01%
   QC value greater than the upper limit for Zn 213.857  Recovery = 116.67%
QC Failed.  Continue with analysis.
```

Sequence No.: 16 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/13/2012 8:39:50**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21670.0	21670.0	104	%			08:40:18
1	Al 396.153Radial†	-55.7	26.3	7.4694	µg/L	7.4694	ppb	08:40:18
1	Ca 317.933Radial†	117.0	-0.4	-0.1600	µg/L	-0.1600	ppb	08:40:38
1	Fe 238.204 Radial†	38.3	4.1	2.1600	µg/L	2.1600	ppb	08:40:38
1	K 766.490 Radial†	935.0	40.3	18.651	µg/L	18.651	ppb	08:40:18
1	Mg 279.077 IEC†	1.8	0.2	0.7305	µg/L	0.7305	ppb	08:40:38
1	Na 589.592 Radial†	-152.6	-2.6	-4.1629	µg/L	-4.1629	ppb	08:40:18
1	Sr 421.552†	-1294.0	65.5	0.3009	µg/L	0.3009	ppb	08:40:18
1	Sc 361.383	715232.3	715232.3	106.04	%			08:41:35
1	Y 371.029	614366.3	614366.3	105.78	%			08:41:35
1	Ag 328.068†	-653.1	11.7	0.0754	µg/L	0.0754	ppb	08:41:40
1	As 188.979†	-6.6	2.0	1.1116	µg/L	1.1116	ppb	08:42:00
1	B 249.677†	145.2	55.1	1.5458	µg/L	1.5458	ppb	08:42:00
1	Ba 233.527†	-126.1	13.4	0.1137	µg/L	0.1137	ppb	08:42:00
1	Be 313.107†	-7611.5	472.9	0.2668	µg/L	0.2668	ppb	08:41:40
1	Cd 226.502†	-222.9	16.6	0.2373	µg/L	0.2373	ppb	08:42:00
1	Co 228.616†	-14.6	17.3	0.4374	µg/L	0.4374	ppb	08:42:00
1	Cr 267.716†	229.4	-9.3	-0.1881	µg/L	-0.1881	ppb	08:42:00
1	Cu 324.752†	5785.2	-99.6	-0.4226	µg/L	-0.4226	ppb	08:41:40
1	Mn 257.610†	539.3	92.1	0.1373	µg/L	0.1373	ppb	08:42:00
1	Mo 202.031†	47.4	14.5	0.9794	µg/L	0.9794	ppb	08:42:00
1	Ni 231.604†	-13.0	15.7	0.4832	µg/L	0.4832	ppb	08:42:00
1	P 214.914†	131.4	-2.9	-2.1573	µg/L	-2.1573	ppb	08:42:00
1	Pb 220.353†	246.0	66.6	10.819	µg/L	10.819	ppb	08:42:00
1	S 181.975 Axial†	62.3	1.5	2.6735	µg/L	2.6735	ppb	08:42:00
1	Sb 206.836†	77.3	8.9	2.9407	µg/L	2.9407	ppb	08:42:00
1	Se 196.026†	-8.2	-1.4	-1.1007	µg/L	-1.1007	ppb	08:42:00
1	SiO2†	2884.0	-101.0	-11.994	µg/L	-11.994	ppb	08:41:40
1	Si 251.611†	188.6	-17.8	-0.8463	µg/L	-0.8463	ppb	08:42:00
1	Sn 189.927†	28.6	0.6	0.1226	µg/L	0.1226	ppb	08:42:00
1	Ti 334.940†	-94.3	121.4	0.3005	µg/L	0.3005	ppb	08:41:40
1	Tl 190.801†	-36.0	7.4	2.5977	µg/L	2.5977	ppb	08:42:00
1	U 367.007†	360.9	-1.0	-0.274	µg/L	-0.274	ppb	08:41:40
1	V 292.402†	-189.6	12.3	0.1266	µg/L	0.1266	ppb	08:41:40
1	Zn 213.857†	5120.7	3570.7	33.955	µg/L	33.955	ppb	08:42:00
2	Sc RADIAL	21614.4	21614.4	104	%			08:40:43
2	Al 396.153Radial†	-25.4	55.5	15.792	µg/L	15.792	ppb	08:40:43
2	Ca 317.933Radial†	125.2	7.8	3.5458	µg/L	3.5458	ppb	08:41:03
2	Fe 238.204 Radial†	36.3	2.2	1.1556	µg/L	1.1556	ppb	08:41:03
2	K 766.490 Radial†	948.7	55.9	25.841	µg/L	25.841	ppb	08:40:43
2	Mg 279.077 IEC†	3.1	1.4	6.4614	µg/L	6.4614	ppb	08:41:03
2	Na 589.592 Radial†	-176.4	-26.0	-41.833	µg/L	-41.833	ppb	08:40:43
2	Sr 421.552†	-1314.8	42.3	0.1942	µg/L	0.1942	ppb	08:40:43
2	Sc 361.383	712906.3	712906.3	105.69	%			08:42:05
2	Y 371.029	613092.6	613092.6	105.56	%			08:42:05
2	Ag 328.068†	-562.9	95.0	0.6059	µg/L	0.6059	ppb	08:42:10
2	As 188.979†	-1.6	6.6	3.7863	µg/L	3.7863	ppb	08:42:30
2	B 249.677†	102.8	15.4	0.4331	µg/L	0.4331	ppb	08:42:30
2	Ba 233.527†	-131.3	8.1	0.0696	µg/L	0.0696	ppb	08:42:30
2	Be 313.107†	-7712.4	354.1	0.1978	µg/L	0.1978	ppb	08:42:10
2	Cd 226.502†	-214.2	24.2	0.3452	µg/L	0.3452	ppb	08:42:30
2	Co 228.616†	-33.0	-0.2	-0.0027	µg/L	-0.0027	ppb	08:42:30
2	Cr 267.716†	216.1	-21.2	-0.4219	µg/L	-0.4219	ppb	08:42:30
2	Cu 324.752†	5717.4	-145.9	-0.6124	µg/L	-0.6124	ppb	08:42:10
2	Mn 257.610†	516.3	72.0	0.1071	µg/L	0.1071	ppb	08:42:30
2	Mo 202.031†	55.1	22.0	1.4835	µg/L	1.4835	ppb	08:42:30
2	Ni 231.604†	-11.3	17.3	0.5308	µg/L	0.5308	ppb	08:42:30
2	P 214.914†	137.8	3.5	2.6536	µg/L	2.6536	ppb	08:42:30
2	Pb 220.353†	242.3	63.8	10.374	µg/L	10.374	ppb	08:42:30

2	S 181.975 Axial†	62.1	1.5	2.6263 µg/L	2.6263 ppb	08:42:30
2	Sb 206.836†	89.4	20.6	6.7709 µg/L	6.7709 ppb	08:42:30
2	Se 196.026†	-4.1	2.4	1.9711 µg/L	1.9711 ppb	08:42:30
2	SiO2†	2908.7	-68.8	-8.2877 µg/L	-8.2877 ppb	08:42:10
2	Si 251.611†	197.1	-9.2	-0.4494 µg/L	-0.4494 ppb	08:42:30
2	Sn 189.927†	29.7	1.7	0.3733 µg/L	0.3733 ppb	08:42:30
2	Ti 334.940†	-27.5	184.3	0.4605 µg/L	0.4605 ppb	08:42:10
2	Tl 190.801†	-33.1	10.1	3.5192 µg/L	3.5192 ppb	08:42:30
2	U 367.007†	322.2	-36.5	-9.818 µg/L	-9.818 ppb	08:42:10
2	V 292.402†	-153.2	46.2	0.4436 µg/L	0.4436 ppb	08:42:10
2	Zn 213.857†	4857.8	3337.7	31.739 µg/L	31.739 ppb	08:42:30
3	Sc RADIAL	21726.3	21726.3	104 %		08:41:08
3	Al 396.153Radial†	-56.7	25.5	7.2278 µg/L	7.2278 ppb	08:41:08
3	Ca 317.933Radial†	123.8	5.9	2.6666 µg/L	2.6666 ppb	08:41:28
3	Fe 238.204 Radial†	40.8	6.4	3.3472 µg/L	3.3472 ppb	08:41:28
3	K 766.490 Radial†	890.1	-5.2	-2.3962 µg/L	-2.3962 ppb	08:41:08
3	Mg 279.077 IEC†	4.3	2.5	11.853 µg/L	11.853 ppb	08:41:28
3	Na 589.592 Radial†	-147.1	3.0	4.9037 µg/L	4.9037 ppb	08:41:08
3	Sr 421.552†	-1279.8	82.5	0.3787 µg/L	0.3787 ppb	08:41:08
3	Sc 361.383	713212.0	713212.0	105.74 %		08:42:35
3	Y 371.029	613227.9	613227.9	105.58 %		08:42:35
3	Ag 328.068†	-559.5	98.5	0.6255 µg/L	0.6255 ppb	08:42:40
3	As 188.979†	-8.5	0.1	0.0353 µg/L	0.0353 ppb	08:43:00
3	B 249.677†	113.4	25.4	0.7121 µg/L	0.7121 ppb	08:43:00
3	Ba 233.527†	-121.0	17.9	0.1516 µg/L	0.1516 ppb	08:43:00
3	Be 313.107†	-7722.1	348.0	0.1964 µg/L	0.1964 ppb	08:42:40
3	Cd 226.502†	-224.5	14.5	0.2065 µg/L	0.2065 ppb	08:43:00
3	Co 228.616†	-24.4	8.0	0.2030 µg/L	0.2030 ppb	08:43:00
3	Cr 267.716†	235.0	-3.4	-0.0686 µg/L	-0.0686 ppb	08:43:00
3	Cu 324.752†	5707.5	-157.6	-0.6702 µg/L	-0.6702 ppb	08:42:40
3	Mn 257.610†	531.2	85.9	0.1278 µg/L	0.1278 ppb	08:43:00
3	Mo 202.031†	53.2	20.1	1.3578 µg/L	1.3578 ppb	08:43:00
3	Ni 231.604†	-14.6	14.2	0.4366 µg/L	0.4366 ppb	08:43:00
3	P 214.914†	126.6	-7.1	-5.3484 µg/L	-5.3484 ppb	08:43:00
3	Pb 220.353†	236.1	57.8	9.3919 µg/L	9.3919 ppb	08:43:00
3	S 181.975 Axial†	66.6	5.8	10.047 µg/L	10.047 ppb	08:43:00
3	Sb 206.836†	93.5	24.4	8.0068 µg/L	8.0068 ppb	08:43:00
3	Se 196.026†	-3.8	2.8	2.2537 µg/L	2.2537 ppb	08:43:00
3	SiO2†	2886.7	-90.8	-10.774 µg/L	-10.774 ppb	08:42:40
3	Si 251.611†	211.9	4.7	0.2006 µg/L	0.2006 ppb	08:43:00
3	Sn 189.927†	33.9	5.6	1.2297 µg/L	1.2297 ppb	08:43:00
3	Ti 334.940†	-118.4	98.4	0.2434 µg/L	0.2434 ppb	08:42:40
3	Tl 190.801†	-36.9	6.5	2.2681 µg/L	2.2681 ppb	08:43:00
3	U 367.007†	360.4	-0.4	-0.137 µg/L	-0.137 ppb	08:42:40
3	V 292.402†	-205.6	-3.3	-0.0165 µg/L	-0.0165 ppb	08:42:40
3	Zn 213.857†	4662.1	3150.7	29.961 µg/L	29.961 ppb	08:43:00

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	713783.5	105.82	%	0.187				0.18%
Sc RADIAL	21670.2	104	%	0.3				0.26%
Y 371.029	613562.3	105.64	%	0.120				0.11%
Ag 328.068†	68.4	0.4356	µg/L	0.31211	0.4356	ppb	0.31211	71.65%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	35.7	10.163	µg/L	4.8762	10.163	ppb	4.8762	47.98%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	2.9	1.6444	µg/L	1.93147	1.6444	ppb	1.93147	117.46%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	32.0	0.8970	µg/L	0.57890	0.8970	ppb	0.57890	64.54%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	13.1	0.1116	µg/L	0.04104	0.1116	ppb	0.04104	36.76%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	391.7	0.2203	µg/L	0.04027	0.2203	ppb	0.04027	18.28%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	4.4	2.0175	µg/L	1.93632	2.0175	ppb	1.93632	95.98%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	18.4	0.2630	µg/L	0.07288	0.2630	ppb	0.07288	27.71%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	8.4	0.2126	µg/L	0.22022	0.2126	ppb	0.22022	103.60%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -11.3     -0.2262 µg/L       0.17967     -0.2262 ppb        0.17967  79.42%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -134.3     -0.5684 µg/L       0.12952     -0.5684 ppb        0.12952  22.79%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         4.2      2.2209 µg/L       1.09707      2.2209 ppb        1.09707  49.40%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         30.4      14.032 µg/L       14.6744      14.032 ppb        14.6744 104.58%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            1.4      6.3483 µg/L       5.56214      6.3483 ppb        5.56214  87.62%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               83.4      0.1241 µg/L       0.01542      0.1241 ppb        0.01542  12.43%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               18.9      1.2736 µg/L       0.26237      1.2736 ppb        0.26237  20.60%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        -8.5     -13.697 µg/L       24.7842     -13.697 ppb        24.7842 180.94%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               15.7      0.4835 µg/L       0.04710      0.4835 ppb        0.04710   9.74%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -2.2     -1.6174 µg/L       4.02821     -1.6174 ppb        4.02821 249.06%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               62.7      10.195 µg/L        0.7302      10.195 ppb         0.7302   7.16%
   QC value greater than the upper limit for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†           2.9      5.1157 µg/L       4.27100      5.1157 ppb        4.27100  83.49%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               18.0      5.9061 µg/L       2.64144      5.9061 ppb        2.64144  44.72%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                1.3      1.0414 µg/L       1.86045      1.0414 ppb        1.86045 178.65%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    -86.8     -10.352 µg/L        1.8890     -10.352 ppb         1.8890  18.25%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               -7.4     -0.3650 µg/L       0.52852     -0.3650 ppb        0.52852 144.79%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                2.6      0.5752 µg/L       0.58052      0.5752 ppb        0.58052 100.92%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               63.4      0.2913 µg/L       0.09266      0.2913 ppb        0.09266  31.81%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              134.7      0.3348 µg/L       0.11257      0.3348 ppb        0.11257  33.62%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                8.0      2.7950 µg/L       0.64844      2.7950 ppb        0.64844  23.20%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -12.6      -3.410 µg/L        5.5502      -3.410 ppb         5.5502 162.78%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                18.4      0.1846 µg/L       0.23546      0.1846 ppb        0.23546 127.58%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             3353.0      31.885 µg/L        2.0011      31.885 ppb         2.0011   6.28%
   QC value greater than the upper limit for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
```

==========

Analysis Begun

Start Time: 6/13/2012 8:43:46 **Plasma On Time: 6/12/2012 10:37:26**
Logged In Analyst: optima3 **Technique: ICP Continuous**
Spectrometer Model: Optima 5300 DV, S/N 077C7090601Autosampler Model: AS-93plus

Sample Information File: C:\pe\Optima3\Sample Information\061312.sif
Batch ID:
Results Data Set: 061312
Results Library: C:\pe\Optima3\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 307**
Sample ID: 305844005|1220620|5 **Date Collected: 6/13/2012 8:43:46**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305844005|1220620|5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21800.6	21800.6	104	%			08:44:39
1	Al 396.153Radial†	143554.6	137587.7	39308	µg/L	39308	ppb	08:44:19
1	Ca 317.933Radial†	28151.0	26852.1	12215	µg/L	12215	ppb	08:44:39
1	Fe 238.204 Radial†	140475.4	134525.3	70343	µg/L	70343	ppb	08:44:19
1	K 766.490 Radial†	13433.1	12006.6	5579.3	µg/L	5579.3	ppb	08:44:19
1	Mg 279.077 IEC†	1814.9	1736.9	8164.3	µg/L	8164.3	ppb	08:44:39
1	Na 589.592 Radial†	-100.5	48.2	77.614	µg/L	77.614	ppb	08:44:39
1	Sr 421.552†	10812.8	11669.9	53.545	µg/L	53.545	ppb	08:44:19
1	Sc 361.383	724466.7	724466.7	107.41	%			08:45:36
1	Y 371.029	645250.1	645250.1	111.10	%			08:45:36
1	Ag 328.068†	-2713.7	-1898.9	6.6298	µg/L	6.6298	ppb	08:45:42
1	As 188.979†	364.1	347.1	200.64	µg/L	200.64	ppb	08:46:02
1	B 249.677†	1019.7	867.6	14.209	µg/L	14.209	ppb	08:45:42
1	Ba 233.527†	18835.8	17668.9	147.91	µg/L	147.91	ppb	08:45:42
1	Be 313.107†	997.6	8579.8	4.7251	µg/L	4.7251	ppb	08:45:42
1	Cd 226.502†	1990.6	2080.1	18.546	µg/L	18.546	ppb	08:46:02
1	Co 228.616†	952.6	918.0	20.981	µg/L	20.981	ppb	08:46:02
1	Cr 267.716†	2161.7	1787.0	37.392	µg/L	37.392	ppb	08:46:02
1	Cu 324.752†	155552.4	139267.8	604.25	µg/L	604.25	ppb	08:45:42
1	Mn 257.610†	2403002.5	2236838.2	3334.5	µg/L	3334.5	ppb	08:45:36
1	Mo 202.031†	1138.2	1029.6	72.336	µg/L	72.336	ppb	08:46:02
1	Ni 231.604†	884.2	851.2	27.338	µg/L	27.338	ppb	08:46:02
1	P 214.914†	1756.9	1508.9	1081.1	µg/L	1081.1	ppb	08:46:02
1	Pb 220.353†	41274.7	38262.3	6212.1	µg/L	6212.1	ppb	08:45:42
1	S 181.975 Axial†	4359.0	4001.1	6955.9	µg/L	6955.9	ppb	08:46:02
1	Sb 206.836†	134.8	61.5	18.703	µg/L	18.703	ppb	08:46:02
1	Se 196.026†	-39.7	-30.6	10.623	µg/L	10.623	ppb	08:46:02
1	SiO2†	46800.4	40751.6	4856.4	µg/L	4856.4	ppb	08:45:42
1	Si 251.611†	51936.7	48158.7	2254.4	µg/L	2254.4	ppb	08:45:42
1	Sn 189.927†	-28.5	-52.9	0.3415	µg/L	0.3415	ppb	08:46:02
1	Ti 334.940†	470992.3	438715.8	1085.3	µg/L	1085.3	ppb	08:45:42
1	Tl 190.801†	-69.5	-23.2	1.0789	µg/L	1.0789	ppb	08:46:02
1	U 367.007†	1536.4	1089.2	-47.49	µg/L	-47.49	ppb	08:45:42
1	V 292.402†	12975.7	12271.8	116.44	µg/L	116.44	ppb	08:45:42
1	Zn 213.857†	2994467.3	2786664.6	26492	µg/L	26492	ppb	08:45:36
2	Sc RADIAL	21862.0	21862.0	105	%			08:45:04
2	Al 396.153Radial†	144878.8	138466.9	39559	µg/L	39559	ppb	08:44:44
2	Ca 317.933Radial†	28285.2	26904.6	12239	µg/L	12239	ppb	08:45:04
2	Fe 238.204 Radial†	141447.2	135076.3	70631	µg/L	70631	ppb	08:44:44
2	K 766.490 Radial†	13479.6	12014.9	5583.2	µg/L	5583.2	ppb	08:44:44
2	Mg 279.077 IEC†	1812.8	1729.9	8131.6	µg/L	8131.6	ppb	08:45:04
2	Na 589.592 Radial†	-99.9	49.1	79.101	µg/L	79.101	ppb	08:45:04
2	Sr 421.552†	10862.7	11688.5	53.631	µg/L	53.631	ppb	08:44:44
2	Sc 361.383	724416.4	724416.4	107.40	%			08:46:07
2	Y 371.029	644100.9	644100.9	110.90	%			08:46:07
2	Ag 328.068†	-2883.2	-2056.9	5.7057	µg/L	5.7057	ppb	08:46:13
2	As 188.979†	355.3	338.9	195.97	µg/L	195.97	ppb	08:46:33

2	B 249.677†	1000.6	849.8	13.669 µg/L	13.669 ppb	08:46:13
2	Ba 233.527†	19093.7	17910.3	149.95 µg/L	149.95 ppb	08:46:13
2	Be 313.107†	1108.2	8682.8	4.7817 µg/L	4.7817 ppb	08:46:13
2	Cd 226.502†	1967.3	2058.5	18.192 µg/L	18.192 ppb	08:46:33
2	Co 228.616†	953.8	919.1	21.005 µg/L	21.005 ppb	08:46:33
2	Cr 267.716†	2177.5	1801.8	37.703 µg/L	37.703 ppb	08:46:33
2	Cu 324.752†	156388.2	140056.1	607.65 µg/L	607.65 ppb	08:46:13
2	Mn 257.610†	2407629.2	2241301.2	3341.2 µg/L	3341.2 ppb	08:46:07
2	Mo 202.031†	1138.3	1029.7	72.357 µg/L	72.357 ppb	08:46:33
2	Ni 231.604†	876.9	844.4	27.135 µg/L	27.135 ppb	08:46:33
2	P 214.914†	1769.5	1520.8	1089.8 µg/L	1089.8 ppb	08:46:33
2	Pb 220.353†	41719.6	38679.2	6279.8 µg/L	6279.8 ppb	08:46:13
2	S 181.975 Axial†	4340.7	3984.3	6926.5 µg/L	6926.5 ppb	08:46:33
2	Sb 206.836†	108.4	36.9	10.651 µg/L	10.651 ppb	08:46:33
2	Se 196.026†	-42.6	-33.3	8.5439 µg/L	8.5439 ppb	08:46:33
2	SiO2†	47146.6	41077.0	4895.0 µg/L	4895.0 ppb	08:46:13
2	Si 251.611†	52237.2	48441.8	2267.7 µg/L	2267.7 ppb	08:46:13
2	Sn 189.927†	-24.0	-48.8	1.2955 µg/L	1.2955 ppb	08:46:33
2	Ti 334.940†	472222.3	439891.4	1088.2 µg/L	1088.2 ppb	08:46:13
2	Tl 190.801†	-72.1	-25.7	0.2443 µg/L	0.2443 ppb	08:46:33
2	U 367.007†	1516.3	1070.5	-53.91 µg/L	-53.91 ppb	08:46:13
2	V 292.402†	13062.6	12353.5	117.21 µg/L	117.21 ppb	08:46:13
2	Zn 213.857†	2998060.9	2790203.9	26525 µg/L	26525 ppb	08:46:07
3	Sc RADIAL	21844.7	21844.7	105 %		08:45:29
3	Al 396.153Radial†	144664.1	138371.3	39531 µg/L	39531 ppb	08:45:09
3	Ca 317.933Radial†	28314.7	26954.2	12261 µg/L	12261 ppb	08:45:29
3	Fe 238.204 Radial†	140680.1	134449.9	70304 µg/L	70304 ppb	08:45:09
3	K 766.490 Radial†	13480.9	12026.4	5588.4 µg/L	5588.4 ppb	08:45:09
3	Mg 279.077 IEC†	1824.3	1742.3	8190.0 µg/L	8190.0 ppb	08:45:29
3	Na 589.592 Radial†	-107.0	42.2	67.972 µg/L	67.972 ppb	08:45:29
3	Sr 421.552†	10828.9	11664.4	53.520 µg/L	53.520 ppb	08:45:09
3	Sc 361.383	721521.3	721521.3	106.97 %		08:46:38
3	Y 371.029	642409.8	642409.8	110.61 %		08:46:38
3	Ag 328.068†	-2801.9	-1991.7	6.0289 µg/L	6.0289 ppb	08:46:44
3	As 188.979†	348.1	333.6	192.90 µg/L	192.90 ppb	08:47:04
3	B 249.677†	1061.2	910.2	15.413 µg/L	15.413 ppb	08:46:44
3	Ba 233.527†	18827.0	17732.3	148.45 µg/L	148.45 ppb	08:46:44
3	Be 313.107†	996.0	8582.0	4.7247 µg/L	4.7247 ppb	08:46:44
3	Cd 226.502†	1988.0	2085.2	18.624 µg/L	18.624 ppb	08:47:04
3	Co 228.616†	964.6	932.8	21.341 µg/L	21.341 ppb	08:47:04
3	Cr 267.716†	2176.8	1809.3	37.847 µg/L	37.847 ppb	08:47:04
3	Cu 324.752†	155637.9	139939.0	607.11 µg/L	607.11 ppb	08:46:44
3	Mn 257.610†	2404136.3	2247031.0	3349.7 µg/L	3349.7 ppb	08:46:38
3	Mo 202.031†	1139.2	1034.8	72.688 µg/L	72.688 ppb	08:47:04
3	Ni 231.604†	869.7	841.0	27.025 µg/L	27.025 ppb	08:47:04
3	P 214.914†	1759.1	1517.6	1087.7 µg/L	1087.7 ppb	08:47:04
3	Pb 220.353†	41262.0	38407.3	6235.6 µg/L	6235.6 ppb	08:46:44
3	S 181.975 Axial†	4353.1	4012.1	6975.0 µg/L	6975.0 ppb	08:47:04
3	Sb 206.836†	117.6	46.0	13.622 µg/L	13.622 ppb	08:47:04
3	Se 196.026†	-49.0	-39.5	3.3637 µg/L	3.3637 ppb	08:47:04
3	SiO2†	46790.5	40920.2	4876.4 µg/L	4876.4 ppb	08:46:44
3	Si 251.611†	51835.6	48261.6	2259.2 µg/L	2259.2 ppb	08:46:44
3	Sn 189.927†	-28.3	-52.9	0.3794 µg/L	0.3794 ppb	08:47:04
3	Ti 334.940†	471766.0	441229.1	1091.5 µg/L	1091.5 ppb	08:46:44
3	Tl 190.801†	-77.7	-31.2	-1.6670 µg/L	-1.6670 ppb	08:47:04
3	U 367.007†	1520.9	1080.5	-49.62 µg/L	-49.62 ppb	08:46:44
3	V 292.402†	12882.6	12234.1	116.08 µg/L	116.08 ppb	08:46:44
3	Zn 213.857†	2991569.1	2795336.1	26574 µg/L	26574 ppb	08:46:38

Mean Data: 305844005|1220620|5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	723468.1	107.26	%	0.250				0.23%
Sc RADIAL	21835.7	105	%	0.2				0.14%
Y 371.029	643920.3	110.87	%	0.246				0.22%
Ag 328.068†	-1982.5	6.1215	µg/L	0.46897	6.1215	ppb	0.46897	7.66%
Al 396.153Radial†	138141.9	39466	µg/L	137.8	39466	ppb	137.8	0.35%
As 188.979†	339.9	196.50	µg/L	3.895	196.50	ppb	3.895	1.98%
B 249.677†	875.9	14.430	µg/L	0.8925	14.430	ppb	0.8925	6.19%
Ba 233.527†	17770.5	148.77	µg/L	1.057	148.77	ppb	1.057	0.71%

Be 313.107†	8614.9	4.7438 µg/L	0.03282	4.7438 ppb	0.03282	0.69%
Ca 317.933Radial†	26903.6	12238 µg/L	23.2	12238 ppb	23.2	0.19%
Cd 226.502†	2074.6	18.454 µg/L	0.2302	18.454 ppb	0.2302	1.25%
Co 228.616†	923.3	21.109 µg/L	0.2015	21.109 ppb	0.2015	0.95%
Cr 267.716†	1799.4	37.647 µg/L	0.2328	37.647 ppb	0.2328	0.62%
Cu 324.752†	139754.3	606.34 µg/L	1.829	606.34 ppb	1.829	0.30%
Fe 238.204 Radial†	134683.9	70426 µg/L	178.8	70426 ppb	178.8	0.25%
K 766.490 Radial†	12016.0	5583.6 µg/L	4.57	5583.6 ppb	4.57	0.08%
Mg 279.077 IEC†	1736.4	8162.0 µg/L	29.24	8162.0 ppb	29.24	0.36%
Mn 257.610†	2241723.5	3341.8 µg/L	7.60	3341.8 ppb	7.60	0.23%
Mo 202.031†	1031.4	72.460 µg/L	0.1976	72.460 ppb	0.1976	0.27%
Na 589.592 Radial†	46.5	74.896 µg/L	6.0420	74.896 ppb	6.0420	8.07%
Ni 231.604†	845.6	27.166 µg/L	0.1590	27.166 ppb	0.1590	0.59%
P 214.914†	1515.7	1086.2 µg/L	4.53	1086.2 ppb	4.53	0.42%
Pb 220.353†	38449.6	6242.5 µg/L	34.38	6242.5 ppb	34.38	0.55%
S 181.975 Axial†	3999.2	6952.5 µg/L	24.43	6952.5 ppb	24.43	0.35%
Sb 206.836†	48.1	14.325 µg/L	4.0717	14.325 ppb	4.0717	28.42%
Se 196.026†	-34.4	7.5103 µg/L	3.73852	7.5103 ppb	3.73852	49.78%
SiO2†	40916.3	4875.9 µg/L	19.32	4875.9 ppb	19.32	0.40%
Si 251.611†	48287.4	2260.4 µg/L	6.71	2260.4 ppb	6.71	0.30%
Sn 189.927†	-51.5	0.6722 µg/L	0.54016	0.6722 ppb	0.54016	80.36%
Sr 421.552†	11674.3	53.566 µg/L	0.0580	53.566 ppb	0.0580	0.11%
Ti 334.940†	439945.4	1088.4 µg/L	3.11	1088.4 ppb	3.11	0.29%
Tl 190.801†	-26.7	-0.1146 µg/L	1.40770	-0.1146 ppb	1.40770	>999.9%
U 367.007†	1080.0	-50.34 µg/L	3.273	-50.34 ppb	3.273	6.50%
V 292.402†	12286.5	116.58 µg/L	0.576	116.58 ppb	0.576	0.49%
Zn 213.857†	2790734.9	26530 µg/L	41.5	26530 ppb	41.5	0.16%

Sequence No.: 2 **Autosampler Location: 308**
Sample ID: 1202676787|1220620|5 **Date Collected: 6/13/2012 8:47:11**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202676787|1220620|5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21877.7	21877.7	105	%			08:48:00
1	Al 396.153Radial†	142484.3	136081.7	38877	µg/L	38877	ppb	08:47:40
1	Ca 317.933Radial†	28745.5	27324.5	12429	µg/L	12429	ppb	08:48:00
1	Fe 238.204 Radial†	139862.0	133465.8	69789	µg/L	69789	ppb	08:47:40
1	K 766.490 Radial†	13486.3	12012.1	5581.5	µg/L	5581.5	ppb	08:47:40
1	Mg 279.077 IEC†	1840.8	1755.5	8251.7	µg/L	8251.7	ppb	08:48:00
1	Na 589.592 Radial†	-101.7	47.4	76.328	µg/L	76.328	ppb	08:48:00
1	Sr 421.552†	10809.1	11629.9	53.361	µg/L	53.361	ppb	08:47:40
1	Sc 361.383	727146.4	727146.4	107.81	%			08:48:57
1	Y 371.029	642861.0	642861.0	110.69	%			08:48:57
1	Ag 328.068†	-2858.1	-2023.5	5.6610	µg/L	5.6610	ppb	08:49:02
1	As 188.979†	355.1	337.6	195.13	µg/L	195.13	ppb	08:49:22
1	B 249.677†	1063.8	904.9	15.340	µg/L	15.340	ppb	08:49:02
1	Ba 233.527†	19158.4	17903.6	149.91	µg/L	149.91	ppb	08:49:02
1	Be 313.107†	1206.6	8770.2	4.8405	µg/L	4.8405	ppb	08:49:02
1	Cd 226.502†	2053.3	2131.4	19.365	µg/L	19.365	ppb	08:49:22
1	Co 228.616†	943.7	906.4	20.746	µg/L	20.746	ppb	08:49:22
1	Cr 267.716†	2190.7	1806.4	37.773	µg/L	37.773	ppb	08:49:22
1	Cu 324.752†	156397.7	139518.2	605.21	µg/L	605.21	ppb	08:49:02
1	Mn 257.610†	2350031.7	2179457.9	3249.1	µg/L	3249.1	ppb	08:48:57
1	Mo 202.031†	1275.2	1152.7	80.620	µg/L	80.620	ppb	08:49:22
1	Ni 231.604†	906.2	868.6	27.863	µg/L	27.863	ppb	08:49:22
1	P 214.914†	1838.1	1578.2	1133.4	µg/L	1133.4	ppb	08:49:22
1	Pb 220.353†	43199.3	39905.9	6479.4	µg/L	6479.4	ppb	08:49:02
1	S 181.975 Axial†	4268.1	3901.8	6783.2	µg/L	6783.2	ppb	08:49:22
1	Sb 206.836†	126.7	53.5	16.222	µg/L	16.222	ppb	08:49:22
1	Se 196.026†	-49.2	-39.3	3.2256	µg/L	3.2256	ppb	08:49:22
1	SiO2†	49369.5	42974.1	5120.5	µg/L	5120.5	ppb	08:49:02
1	Si 251.611†	54814.6	50650.0	2371.0	µg/L	2371.0	ppb	08:49:02
1	Sn 189.927†	-29.9	-54.1	-0.0296	µg/L	-0.0296	ppb	08:49:22
1	Ti 334.940†	463792.0	430420.8	1064.8	µg/L	1064.8	ppb	08:49:02
1	Tl 190.801†	-66.8	-20.5	1.9034	µg/L	1.9034	ppb	08:49:22
1	U 367.007†	1550.1	1096.5	-42.88	µg/L	-42.88	ppb	08:49:02
1	V 292.402†	12348.3	11645.3	110.63	µg/L	110.63	ppb	08:49:02
1	Zn 213.857†	3007188.8	2788190.6	26506	µg/L	26506	ppb	08:48:57
2	Sc RADIAL	21752.9	21752.9	104	%			08:48:25
2	Al 396.153Radial†	144419.8	138719.9	39631	µg/L	39631	ppb	08:48:05
2	Ca 317.933Radial†	28726.3	27463.5	12493	µg/L	12493	ppb	08:48:25
2	Fe 238.204 Radial†	141455.1	135761.0	70990	µg/L	70990	ppb	08:48:05
2	K 766.490 Radial†	13582.2	12177.9	5658.7	µg/L	5658.7	ppb	08:48:05
2	Mg 279.077 IEC†	1843.5	1768.1	8311.3	µg/L	8311.3	ppb	08:48:25
2	Na 589.592 Radial†	-118.3	30.9	49.857	µg/L	49.857	ppb	08:48:25
2	Sr 421.552†	10905.4	11781.5	54.057	µg/L	54.057	ppb	08:48:05
2	Sc 361.383	725095.6	725095.6	107.50	%			08:49:28
2	Y 371.029	640374.0	640374.0	110.26	%			08:49:28
2	Ag 328.068†	-2890.8	-2061.4	5.7227	µg/L	5.7227	ppb	08:49:33
2	As 188.979†	352.7	336.3	194.41	µg/L	194.41	ppb	08:49:53
2	B 249.677†	1023.1	869.8	14.180	µg/L	14.180	ppb	08:49:33
2	Ba 233.527†	19055.2	17857.8	149.48	µg/L	149.48	ppb	08:49:33
2	Be 313.107†	1202.2	8769.2	4.8394	µg/L	4.8394	ppb	08:49:33
2	Cd 226.502†	2055.8	2139.1	19.286	µg/L	19.286	ppb	08:49:53
2	Co 228.616†	947.8	912.7	20.895	µg/L	20.895	ppb	08:49:53
2	Cr 267.716†	2170.7	1793.6	37.531	µg/L	37.531	ppb	08:49:53
2	Cu 324.752†	155957.2	139518.8	605.40	µg/L	605.40	ppb	08:49:33
2	Mn 257.610†	2350439.8	2186002.8	3259.0	µg/L	3259.0	ppb	08:49:28
2	Mo 202.031†	1278.3	1158.9	81.090	µg/L	81.090	ppb	08:49:53
2	Ni 231.604†	916.0	880.1	28.237	µg/L	28.237	ppb	08:49:53
2	P 214.914†	1834.7	1579.9	1134.0	µg/L	1134.0	ppb	08:49:53
2	Pb 220.353†	43035.0	39866.4	6472.8	µg/L	6472.8	ppb	08:49:33

2	S 181.975 Axial†	4244.0	3890.5	6763.5 µg/L	6763.5 ppb		08:49:53
2	Sb 206.836†	126.4	53.6	16.231 µg/L	16.231 ppb		08:49:53
2	Se 196.026†	-36.3	-27.4	13.538 µg/L	13.538 ppb		08:49:53
2	SiO2†	49243.4	42986.3	5122.1 µg/L	5122.1 ppb		08:49:33
2	Si 251.611†	54609.7	50603.2	2368.8 µg/L	2368.8 ppb		08:49:33
2	Sn 189.927†	-28.1	-52.6	0.4616 µg/L	0.4616 ppb		08:49:53
2	Ti 334.940†	463783.6	431629.8	1067.8 µg/L	1067.8 ppb		08:49:33
2	Tl 190.801†	-70.3	-24.0	0.7984 µg/L	0.7984 ppb		08:49:53
2	U 367.007†	1541.7	1092.9	-49.71 µg/L	-49.71 ppb		08:49:33
2	V 292.402†	12233.1	11570.5	109.92 µg/L	109.92 ppb		08:49:33
2	Zn 213.857†	3007156.1	2796049.6	26581 µg/L	26581 ppb		08:49:28
3	Sc RADIAL	21852.5	21852.5	105 %			08:48:50
3	Al 396.153Radial†	144358.1	138029.4	39433 µg/L	39433 ppb		08:48:30
3	Ca 317.933Radial†	28864.0	27469.4	12495 µg/L	12495 ppb		08:48:50
3	Fe 238.204 Radial†	141328.2	135021.2	70603 µg/L	70603 ppb		08:48:30
3	K 766.490 Radial†	13611.4	12146.4	5644.0 µg/L	5644.0 ppb		08:48:30
3	Mg 279.077 IEC†	1846.5	1762.9	8286.6 µg/L	8286.6 ppb		08:48:50
3	Na 589.592 Radial†	-96.9	51.8	83.515 µg/L	83.515 ppb		08:48:50
3	Sr 421.552†	10908.7	11737.0	53.852 µg/L	53.852 ppb		08:48:30
3	Sc 361.383	728147.4	728147.4	107.95 %			08:49:59
3	Y 371.029	643580.1	643580.1	110.81 %			08:49:59
3	Ag 328.068†	-2851.1	-2013.4	5.9329 µg/L	5.9329 ppb		08:50:04
3	As 188.979†	368.3	349.3	201.85 µg/L	201.85 ppb		08:50:24
3	B 249.677†	1009.8	853.6	13.778 µg/L	13.778 ppb		08:50:04
3	Ba 233.527†	19138.8	17861.0	149.52 µg/L	149.52 ppb		08:50:04
3	Be 313.107†	1221.1	8782.1	4.8484 µg/L	4.8484 ppb		08:50:04
3	Cd 226.502†	2060.7	2135.7	19.297 µg/L	19.297 ppb		08:50:24
3	Co 228.616†	959.9	920.3	21.095 µg/L	21.095 ppb		08:50:24
3	Cr 267.716†	2199.8	1812.1	37.899 µg/L	37.899 ppb		08:50:24
3	Cu 324.752†	156625.7	139530.1	605.38 µg/L	605.38 ppb		08:50:04
3	Mn 257.610†	2364725.5	2190072.3	3265.0 µg/L	3265.0 ppb		08:49:59
3	Mo 202.031†	1302.1	1176.0	82.226 µg/L	82.226 ppb		08:50:24
3	Ni 231.604†	914.6	875.2	28.081 µg/L	28.081 ppb		08:50:24
3	P 214.914†	1852.2	1588.9	1141.0 µg/L	1141.0 ppb		08:50:24
3	Pb 220.353†	43029.5	39693.6	6444.8 µg/L	6444.8 ppb		08:50:04
3	S 181.975 Axial†	4288.7	3915.5	6806.9 µg/L	6806.9 ppb		08:50:24
3	Sb 206.836†	134.1	60.2	18.394 µg/L	18.394 ppb		08:50:24
3	Se 196.026†	-40.0	-30.7	10.645 µg/L	10.645 ppb		08:50:24
3	SiO2†	49332.8	42877.1	5109.2 µg/L	5109.2 ppb		08:50:04
3	Si 251.611†	54813.1	50578.7	2367.6 µg/L	2367.6 ppb		08:50:04
3	Sn 189.927†	-31.2	-55.3	-0.1986 µg/L	-0.1986 ppb		08:50:24
3	Ti 334.940†	464512.1	430496.4	1065.0 µg/L	1065.0 ppb		08:50:04
3	Tl 190.801†	-68.3	-21.8	1.5141 µg/L	1.5141 ppb		08:50:24
3	U 367.007†	1565.8	1109.1	-43.44 µg/L	-43.44 ppb		08:50:04
3	V 292.402†	12361.5	11641.8	110.62 µg/L	110.62 ppb		08:50:04
3	Zn 213.857†	3020937.6	2797091.8	26591 µg/L	26591 ppb		08:49:59

Mean Data: 1202676787|1220620|5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	726796.5	107.75	%	0.231				0.21%
Sc RADIAL	21827.7	105	%	0.3				0.30%
Y 371.029	642271.7	110.58	%	0.290				0.26%
Ag 328.068†	-2032.8	5.7722	µg/L	0.14254	5.7722	ppb	0.14254	2.47%
Al 396.153Radial†	137610.3	39314	µg/L	390.9	39314	ppb	390.9	0.99%
As 188.979†	341.0	197.13	µg/L	4.104	197.13	ppb	4.104	2.08%
B 249.677†	876.1	14.433	µg/L	0.8110	14.433	ppb	0.8110	5.62%
Ba 233.527†	17874.1	149.64	µg/L	0.235	149.64	ppb	0.235	0.16%
Be 313.107†	8773.8	4.8428	µg/L	0.00491	4.8428	ppb	0.00491	0.10%
Ca 317.933Radial†	27419.1	12473	µg/L	37.3	12473	ppb	37.3	0.30%
Cd 226.502†	2135.4	19.316	µg/L	0.0431	19.316	ppb	0.0431	0.22%
Co 228.616†	913.1	20.912	µg/L	0.1751	20.912	ppb	0.1751	0.84%
Cr 267.716†	1804.0	37.735	µg/L	0.1871	37.735	ppb	0.1871	0.50%
Cu 324.752†	139522.4	605.33	µg/L	0.103	605.33	ppb	0.103	0.02%
Fe 238.204 Radial†	134749.3	70461	µg/L	612.6	70461	ppb	612.6	0.87%
K 766.490 Radial†	12112.2	5628.1	µg/L	41.00	5628.1	ppb	41.00	0.73%
Mg 279.077 IEC†	1762.2	8283.2	µg/L	29.92	8283.2	ppb	29.92	0.36%
Mn 257.610†	2185177.7	3257.7	µg/L	8.01	3257.7	ppb	8.01	0.25%
Mo 202.031†	1162.6	81.312	µg/L	0.8259	81.312	ppb	0.8259	1.02%
Na 589.592 Radial†	43.4	69.900	µg/L	17.7261	69.900	ppb	17.7261	25.36%

Ni 231.604†	874.6	28.060 µg/L	0.1881	28.060 ppb	0.1881	0.67%
P 214.914†	1582.3	1136.1 µg/L	4.23	1136.1 ppb	4.23	0.37%
Pb 220.353†	39822.0	6465.7 µg/L	18.39	6465.7 ppb	18.39	0.28%
S 181.975 Axial†	3902.6	6784.5 µg/L	21.76	6784.5 ppb	21.76	0.32%
Sb 206.836†	55.8	16.949 µg/L	1.2514	16.949 ppb	1.2514	7.38%
Se 196.026†	-32.5	9.1363 µg/L	5.31930	9.1363 ppb	5.31930	58.22%
SiO2†	42945.8	5117.3 µg/L	7.05	5117.3 ppb	7.05	0.14%
Si 251.611†	50610.6	2369.2 µg/L	1.71	2369.2 ppb	1.71	0.07%
Sn 189.927†	-54.0	0.0778 µg/L	0.34294	0.0778 ppb	0.34294	440.94%
Sr 421.552†	11716.1	53.757 µg/L	0.3578	53.757 ppb	0.3578	0.67%
Ti 334.940†	430849.0	1065.9 µg/L	1.68	1065.9 ppb	1.68	0.16%
Tl 190.801†	-22.1	1.4053 µg/L	0.56052	1.4053 ppb	0.56052	39.89%
U 367.007†	1099.5	-45.35 µg/L	3.792	-45.35 ppb	3.792	8.36%
V 292.402†	11619.2	110.39 µg/L	0.404	110.39 ppb	0.404	0.37%
Zn 213.857†	2793777.4	26559 µg/L	46.2	26559 ppb	46.2	0.17%

Sequence No.: 3 **Autosampler Location: 309**
Sample ID: 1202676788|1220620|5 **Date Collected: 6/13/2012 8:50:32**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202676788|1220620|5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21884.7	21884.7	105	%			08:51:21
1	Al 396.153Radial†	179298.3	171166.3	48898	µg/L	48898	ppb	08:51:01
1	Ca 317.933Radial†	32574.9	30969.8	14088	µg/L	14088	ppb	08:51:21
1	Fe 238.204 Radial†	147088.3	140318.7	73374	µg/L	73374	ppb	08:51:01
1	K 766.490 Radial†	17701.5	16030.1	7439.1	µg/L	7439.1	ppb	08:51:01
1	Mg 279.077 IEC†	2263.3	2158.1	10145	µg/L	10145	ppb	08:51:21
1	Na 589.592 Radial†	522.0	642.6	1035.4	µg/L	1035.4	ppb	08:51:21
1	Sr 421.552†	32980.4	32782.4	150.51	µg/L	150.51	ppb	08:51:01
1	Sc 361.383	730153.2	730153.2	108.25	%			08:52:18
1	Y 371.029	645117.2	645117.2	111.07	%			08:52:18
1	Ag 328.068†	13356.9	12966.3	102.35	µg/L	102.35	ppb	08:52:23
1	As 188.979†	590.4	553.5	318.86	µg/L	318.86	ppb	08:52:43
1	B 249.677†	4665.4	4227.9	108.09	µg/L	108.09	ppb	08:52:23
1	Ba 233.527†	32359.0	30024.8	252.74	µg/L	252.74	ppb	08:52:23
1	Be 313.107†	187453.0	180815.1	101.90	µg/L	101.90	ppb	08:52:23
1	Cd 226.502†	9263.1	8783.8	113.76	µg/L	113.76	ppb	08:52:43
1	Co 228.616†	5115.5	4756.6	116.97	µg/L	116.97	ppb	08:52:43
1	Cr 267.716†	7408.2	6617.9	135.85	µg/L	135.85	ppb	08:52:43
1	Cu 324.752†	194111.6	173759.9	752.01	µg/L	752.01	ppb	08:52:23
1	Mn 257.610†	2571369.8	2374947.5	3540.2	µg/L	3540.2	ppb	08:52:18
1	Mo 202.031†	2743.5	2504.2	171.95	µg/L	171.95	ppb	08:52:43
1	Ni 231.604†	4378.6	4072.8	126.42	µg/L	126.42	ppb	08:52:43
1	P 214.914†	1999.3	1720.0	1236.3	µg/L	1236.3	ppb	08:52:43
1	Pb 220.353†	44992.3	41397.3	6718.3	µg/L	6718.3	ppb	08:52:23
1	S 181.975 Axial†	5341.8	4877.4	8481.9	µg/L	8481.9	ppb	08:52:43
1	Sb 206.836†	409.1	313.9	100.12	µg/L	100.12	ppb	08:52:43
1	Se 196.026†	93.4	92.7	112.87	µg/L	112.87	ppb	08:52:43
1	SiO2†	50549.0	43875.1	5234.7	µg/L	5234.7	ppb	08:52:23
1	Si 251.611†	56231.5	51749.5	2421.0	µg/L	2421.0	ppb	08:52:23
1	Sn 189.927†	448.6	388.0	98.409	µg/L	98.409	ppb	08:52:43
1	Ti 334.940†	683814.9	631900.6	1563.1	µg/L	1563.1	ppb	08:52:18
1	Tl 190.801†	83.4	118.4	52.684	µg/L	52.684	ppb	08:52:43
1	U 367.007†	1961.3	1470.5	40.61	µg/L	40.61	ppb	08:52:23
1	V 292.402†	24511.2	22834.0	217.44	µg/L	217.44	ppb	08:52:23
1	Zn 213.857†	3150002.3	2908631.2	27650	µg/L	27650	ppb	08:52:18
2	Sc RADIAL	21899.7	21899.7	105	%			08:51:46
2	Al 396.153Radial†	181145.0	172809.8	49367	µg/L	49367	ppb	08:51:26
2	Ca 317.933Radial†	32608.1	30980.1	14092	µg/L	14092	ppb	08:51:46
2	Fe 238.204 Radial†	148033.5	141123.6	73795	µg/L	73795	ppb	08:51:26
2	K 766.490 Radial†	17942.4	16248.3	7540.1	µg/L	7540.1	ppb	08:51:26
2	Mg 279.077 IEC†	2271.6	2164.5	10175	µg/L	10175	ppb	08:51:46
2	Na 589.592 Radial†	507.5	628.4	1012.6	µg/L	1012.6	ppb	08:51:46
2	Sr 421.552†	33266.2	33033.3	151.66	µg/L	151.66	ppb	08:51:26
2	Sc 361.383	725263.0	725263.0	107.53	%			08:52:49
2	Y 371.029	640593.8	640593.8	110.30	%			08:52:49
2	Ag 328.068†	13535.3	13215.5	104.05	µg/L	104.05	ppb	08:52:54
2	As 188.979†	579.5	547.1	315.21	µg/L	315.21	ppb	08:53:14
2	B 249.677†	4634.2	4228.0	108.03	µg/L	108.03	ppb	08:52:54
2	Ba 233.527†	32434.0	30296.1	255.03	µg/L	255.03	ppb	08:52:54
2	Be 313.107†	187458.3	181987.6	102.56	µg/L	102.56	ppb	08:52:54
2	Cd 226.502†	9320.7	8895.1	115.28	µg/L	115.28	ppb	08:53:14
2	Co 228.616†	5117.2	4790.1	117.80	µg/L	117.80	ppb	08:53:14
2	Cr 267.716†	7475.0	6726.1	138.06	µg/L	138.06	ppb	08:53:14
2	Cu 324.752†	194753.0	175565.5	759.78	µg/L	759.78	ppb	08:52:54
2	Mn 257.610†	2570965.7	2390587.8	3563.6	µg/L	3563.6	ppb	08:52:49
2	Mo 202.031†	2734.9	2513.4	172.58	µg/L	172.58	ppb	08:53:14
2	Ni 231.604†	4395.5	4115.8	127.75	µg/L	127.75	ppb	08:53:14
2	P 214.914†	1986.9	1721.0	1236.6	µg/L	1236.6	ppb	08:53:14
2	Pb 220.353†	44954.2	41642.0	6757.9	µg/L	6757.9	ppb	08:52:54

2	S 181.975 Axial†	5363.2	4930.5	8574.5 µg/L	8574.5 ppb	08:53:14
2	Sb 206.836†	407.0	314.5	100.24 µg/L	100.24 ppb	08:53:14
2	Se 196.026†	87.5	87.7	109.03 µg/L	109.03 ppb	08:53:14
2	SiO2†	50477.3	44123.3	5264.3 µg/L	5264.3 ppb	08:52:54
2	Si 251.611†	56273.5	52138.8	2439.2 µg/L	2439.2 ppb	08:52:54
2	Sn 189.927†	450.2	392.3	99.413 µg/L	99.413 ppb	08:53:14
2	Ti 334.940†	683456.2	635826.3	1572.8 µg/L	1572.8 ppb	08:52:49
2	Tl 190.801†	89.4	124.6	54.884 µg/L	54.884 ppb	08:53:14
2	U 367.007†	1949.4	1471.6	38.88 µg/L	38.88 ppb	08:52:54
2	V 292.402†	24534.7	23008.5	219.10 µg/L	219.10 ppb	08:52:54
2	Zn 213.857†	3146059.7	2924584.7	27802 µg/L	27802 ppb	08:52:49
3	Sc RADIAL	21961.5	21961.5	105 %		08:52:11
3	Al 396.153Radial†	181899.8	173041.6	49433 µg/L	49433 ppb	08:51:51
3	Ca 317.933Radial†	32782.9	31058.8	14128 µg/L	14128 ppb	08:52:11
3	Fe 238.204 Radial†	148882.3	141533.7	74009 µg/L	74009 ppb	08:51:51
3	K 766.490 Radial†	18009.1	16263.5	7547.2 µg/L	7547.2 ppb	08:51:51
3	Mg 279.077 IEC†	2281.1	2167.4	10189 µg/L	10189 ppb	08:52:11
3	Na 589.592 Radial†	502.0	621.8	1002.0 µg/L	1002.0 ppb	08:52:11
3	Sr 421.552†	33362.7	33035.9	151.67 µg/L	151.67 ppb	08:51:51
3	Sc 361.383	720753.1	720753.1	106.86 %		08:53:20
3	Y 371.029	637684.4	637684.4	109.79 %		08:53:20
3	Ag 328.068†	13341.0	13112.4	103.45 µg/L	103.45 ppb	08:53:26
3	As 188.979†	585.1	555.7	320.13 µg/L	320.13 ppb	08:53:46
3	B 249.677†	4651.3	4270.9	109.21 µg/L	109.21 ppb	08:53:26
3	Ba 233.527†	32212.6	30277.6	254.87 µg/L	254.87 ppb	08:53:26
3	Be 313.107†	186429.0	182115.2	102.63 µg/L	102.63 ppb	08:53:26
3	Cd 226.502†	9347.5	8974.4	116.38 µg/L	116.38 ppb	08:53:46
3	Co 228.616†	5121.4	4823.8	118.66 µg/L	118.66 ppb	08:53:46
3	Cr 267.716†	7472.8	6767.6	138.90 µg/L	138.90 ppb	08:53:46
3	Cu 324.752†	193189.0	175235.2	758.39 µg/L	758.39 ppb	08:53:26
3	Mn 257.610†	2546795.7	2382930.0	3552.2 µg/L	3552.2 ppb	08:53:20
3	Mo 202.031†	2745.5	2539.1	174.33 µg/L	174.33 ppb	08:53:46
3	Ni 231.604†	4422.1	4166.3	129.30 µg/L	129.30 ppb	08:53:46
3	P 214.914†	2009.3	1753.5	1261.0 µg/L	1261.0 ppb	08:53:46
3	Pb 220.353†	44766.8	41728.3	6771.9 µg/L	6771.9 ppb	08:53:26
3	S 181.975 Axial†	5367.1	4965.4	8635.4 µg/L	8635.4 ppb	08:53:46
3	Sb 206.836†	400.7	311.0	99.125 µg/L	99.125 ppb	08:53:46
3	Se 196.026†	82.0	83.1	105.41 µg/L	105.41 ppb	08:53:46
3	SiO2†	50200.1	44157.6	5268.7 µg/L	5268.7 ppb	08:53:26
3	Si 251.611†	55843.1	52063.5	2435.7 µg/L	2435.7 ppb	08:53:26
3	Sn 189.927†	456.9	401.1	101.36 µg/L	101.36 ppb	08:53:46
3	Ti 334.940†	677268.6	634012.9	1568.3 µg/L	1568.3 ppb	08:53:20
3	Tl 190.801†	87.7	123.5	54.527 µg/L	54.527 ppb	08:53:46
3	U 367.007†	1994.6	1525.3	52.26 µg/L	52.26 ppb	08:53:26
3	V 292.402†	24393.8	23019.4	219.24 µg/L	219.24 ppb	08:53:26
3	Zn 213.857†	3122168.3	2920534.2	27763 µg/L	27763 ppb	08:53:20

Mean Data: 1202676788|1220620|5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	725389.8	107.55	%	0.697				0.65%
Sc RADIAL	21915.3	105	%	0.2				0.19%
Y 371.029	641131.8	110.39	%	0.645				0.58%
Ag 328.068†	13098.1	103.29	µg/L	0.862	103.29	ppb	0.862	0.83%
Al 396.153Radial†	172339.2	49233	µg/L	292.1	49233	ppb	292.1	0.59%
As 188.979†	552.1	318.07	µg/L	2.554	318.07	ppb	2.554	0.80%
B 249.677†	4242.3	108.44	µg/L	0.662	108.44	ppb	0.662	0.61%
Ba 233.527†	30199.5	254.22	µg/L	1.278	254.22	ppb	1.278	0.50%
Be 313.107†	181639.3	102.36	µg/L	0.405	102.36	ppb	0.405	0.40%
Ca 317.933Radial†	31002.9	14103	µg/L	22.2	14103	ppb	22.2	0.16%
Cd 226.502†	8884.4	115.14	µg/L	1.316	115.14	ppb	1.316	1.14%
Co 228.616†	4790.1	117.81	µg/L	0.843	117.81	ppb	0.843	0.72%
Cr 267.716†	6703.9	137.60	µg/L	1.575	137.60	ppb	1.575	1.14%
Cu 324.752†	174853.5	756.73	µg/L	4.139	756.73	ppb	4.139	0.55%
Fe 238.204 Radial†	140992.0	73726	µg/L	323.2	73726	ppb	323.2	0.44%
K 766.490 Radial†	16180.6	7508.8	µg/L	60.50	7508.8	ppb	60.50	0.81%
Mg 279.077 IEC†	2163.3	10170	µg/L	22.5	10170	ppb	22.5	0.22%
Mn 257.610†	2382821.8	3552.0	µg/L	11.66	3552.0	ppb	11.66	0.33%
Mo 202.031†	2518.9	172.95	µg/L	1.233	172.95	ppb	1.233	0.71%
Na 589.592 Radial†	630.9	1016.7	µg/L	17.09	1016.7	ppb	17.09	1.68%

Ni 231.604†	4118.3	127.82 µg/L	1.444	127.82 ppb	1.444	1.13%
P 214.914†	1731.5	1244.6 µg/L	14.16	1244.6 ppb	14.16	1.14%
Pb 220.353†	41589.2	6749.4 µg/L	27.83	6749.4 ppb	27.83	0.41%
S 181.975 Axial†	4924.4	8563.9 µg/L	77.28	8563.9 ppb	77.28	0.90%
Sb 206.836†	313.1	99.830 µg/L	0.6137	99.830 ppb	0.6137	0.61%
Se 196.026†	87.8	109.10 µg/L	3.732	109.10 ppb	3.732	3.42%
SiO2†	44052.0	5255.9 µg/L	18.50	5255.9 ppb	18.50	0.35%
Si 251.611†	51984.0	2432.0 µg/L	9.66	2432.0 ppb	9.66	0.40%
Sn 189.927†	393.8	99.727 µg/L	1.4995	99.727 ppb	1.4995	1.50%
Sr 421.552†	32950.5	151.28 µg/L	0.669	151.28 ppb	0.669	0.44%
Ti 334.940†	633913.2	1568.1 µg/L	4.86	1568.1 ppb	4.86	0.31%
Tl 190.801†	122.2	54.031 µg/L	1.1807	54.031 ppb	1.1807	2.19%
U 367.007†	1489.1	43.92 µg/L	7.281	43.92 ppb	7.281	16.58%
V 292.402†	22953.9	218.59 µg/L	1.000	218.59 ppb	1.000	0.46%
Zn 213.857†	2917916.7	27739 µg/L	78.8	27739 ppb	78.8	0.28%

Sequence No.: 4 **Autosampler Location: 310**
Sample ID: 1202676790|1220620|5 **Date Collected: 6/13/2012 8:53:53**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202676790|1220620|5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21900.1	21900.1	105	%			08:54:42
1	Al 396.153Radial†	174922.9	166873.6	47671	µg/L	47671	ppb	08:54:22
1	Ca 317.933Radial†	31875.1	30280.6	13774	µg/L	13774	ppb	08:54:42
1	Fe 238.204 Radial†	149278.9	142308.5	74414	µg/L	74414	ppb	08:54:22
1	K 766.490 Radial†	17365.9	15698.2	7286.1	µg/L	7286.1	ppb	08:54:22
1	Mg 279.077 IEC†	2250.9	2144.7	10082	µg/L	10082	ppb	08:54:42
1	Na 589.592 Radial†	520.4	640.7	1032.4	µg/L	1032.4	ppb	08:54:42
1	Sr 421.552†	32319.2	32129.7	147.51	µg/L	147.51	ppb	08:54:22
1	Sc 361.383	721183.6	721183.6	106.92	%			08:55:39
1	Y 371.029	638103.8	638103.8	109.87	%			08:55:39
1	Ag 328.068†	13294.1	13061.1	103.23	µg/L	103.23	ppb	08:55:44
1	As 188.979†	580.0	550.6	317.27	µg/L	317.27	ppb	08:56:04
1	B 249.677†	4708.8	4322.1	110.59	µg/L	110.59	ppb	08:55:44
1	Ba 233.527†	32024.5	30083.7	253.21	µg/L	253.21	ppb	08:55:44
1	Be 313.107†	187436.7	182953.6	103.11	µg/L	103.11	ppb	08:55:44
1	Cd 226.502†	9320.9	8944.3	115.88	µg/L	115.88	ppb	08:56:04
1	Co 228.616†	5093.7	4795.0	117.96	µg/L	117.96	ppb	08:56:04
1	Cr 267.716†	7517.2	6805.0	139.66	µg/L	139.66	ppb	08:56:04
1	Cu 324.752†	191301.8	173362.2	750.45	µg/L	750.45	ppb	08:55:44
1	Mn 257.610†	2513644.4	2350502.2	3504.0	µg/L	3504.0	ppb	08:55:39
1	Mo 202.031†	2612.5	2413.3	165.85	µg/L	165.85	ppb	08:56:04
1	Ni 231.604†	4396.6	4139.9	128.50	µg/L	128.50	ppb	08:56:04
1	P 214.914†	1998.8	1742.6	1252.2	µg/L	1252.2	ppb	08:56:04
1	Pb 220.353†	44453.7	41410.4	6721.0	µg/L	6721.0	ppb	08:55:44
1	S 181.975 Axial†	5179.0	4786.5	8323.9	µg/L	8323.9	ppb	08:56:04
1	Sb 206.836†	414.8	323.9	103.29	µg/L	103.29	ppb	08:56:04
1	Se 196.026†	93.2	93.5	114.08	µg/L	114.08	ppb	08:56:04
1	SiO2†	47416.0	41525.7	4956.0	µg/L	4956.0	ppb	08:55:44
1	Si 251.611†	52547.6	48950.2	2289.9	µg/L	2289.9	ppb	08:55:44
1	Sn 189.927†	462.9	406.5	102.44	µg/L	102.44	ppb	08:56:04
1	Ti 334.940†	668474.9	625410.2	1547.1	µg/L	1547.1	ppb	08:55:39
1	Tl 190.801†	100.4	135.4	58.593	µg/L	58.593	ppb	08:56:04
1	U 367.007†	2005.8	1534.7	52.82	µg/L	52.82	ppb	08:55:44
1	V 292.402†	24430.4	23039.9	219.36	µg/L	219.36	ppb	08:55:44
1	Zn 213.857†	3087784.9	2886632.8	27441	µg/L	27441	ppb	08:55:39
2	Sc RADIAL	21928.1	21928.1	105	%			08:55:07
2	Al 396.153Radial†	178320.7	169896.8	48535	µg/L	48535	ppb	08:54:47
2	Ca 317.933Radial†	32080.1	30437.1	13845	µg/L	13845	ppb	08:55:07
2	Fe 238.204 Radial†	151703.1	144435.8	75527	µg/L	75527	ppb	08:54:47
2	K 766.490 Radial†	17704.1	15999.1	7425.8	µg/L	7425.8	ppb	08:54:47
2	Mg 279.077 IEC†	2262.0	2152.5	10119	µg/L	10119	ppb	08:55:07
2	Na 589.592 Radial†	511.6	631.6	1017.8	µg/L	1017.8	ppb	08:55:07
2	Sr 421.552†	32897.2	32640.9	149.86	µg/L	149.86	ppb	08:54:47
2	Sc 361.383	726074.6	726074.6	107.65	%			08:56:10
2	Y 371.029	641674.8	641674.8	110.48	%			08:56:10
2	Ag 328.068†	13220.2	12908.7	102.54	µg/L	102.54	ppb	08:56:15
2	As 188.979†	573.1	540.6	311.56	µg/L	311.56	ppb	08:56:36
2	B 249.677†	4675.2	4261.2	108.72	µg/L	108.72	ppb	08:56:15
2	Ba 233.527†	32073.5	29927.5	251.85	µg/L	251.85	ppb	08:56:15
2	Be 313.107†	186963.1	181332.7	102.19	µg/L	102.19	ppb	08:56:15
2	Cd 226.502†	9305.8	8871.5	114.67	µg/L	114.67	ppb	08:56:36
2	Co 228.616†	5117.4	4785.0	117.70	µg/L	117.70	ppb	08:56:36
2	Cr 267.716†	7553.1	6790.9	139.40	µg/L	139.40	ppb	08:56:36
2	Cu 324.752†	191383.3	172232.7	745.81	µg/L	745.81	ppb	08:56:15
2	Mn 257.610†	2534045.8	2353618.0	3508.7	µg/L	3508.7	ppb	08:56:10
2	Mo 202.031†	2602.3	2387.2	164.14	µg/L	164.14	ppb	08:56:36
2	Ni 231.604†	4417.4	4131.6	128.26	µg/L	128.26	ppb	08:56:36
2	P 214.914†	1997.2	1728.5	1241.2	µg/L	1241.2	ppb	08:56:36
2	Pb 220.353†	44320.4	41006.5	6655.2	µg/L	6655.2	ppb	08:56:15

2	S 181.975 Axial†	5181.5	4756.2	8270.8 µg/L	8270.8 ppb		08:56:36
2	Sb 206.836†	420.7	326.8	104.17 µg/L	104.17 ppb		08:56:36
2	Se 196.026†	77.8	78.6	102.53 µg/L	102.53 ppb		08:56:36
2	SiO2†	47235.3	41059.1	4900.6 µg/L	4900.6 ppb		08:56:15
2	Si 251.611†	52353.9	48439.2	2266.0 µg/L	2266.0 ppb		08:56:15
2	Sn 189.927†	456.6	397.7	100.68 µg/L	100.68 ppb		08:56:36
2	Ti 334.940†	674301.9	626611.8	1550.0 µg/L	1550.0 ppb		08:56:10
2	Tl 190.801†	94.8	129.5	56.621 µg/L	56.621 ppb		08:56:36
2	U 367.007†	1985.6	1503.3	38.94 µg/L	38.94 ppb		08:56:15
2	V 292.402†	24450.4	22904.6	218.06 µg/L	218.06 ppb		08:56:15
2	Zn 213.857†	3103986.5	2882229.8	27399 µg/L	27399 ppb		08:56:10
3	Sc RADIAL	21901.8	21901.8	105 %			08:55:32
3	Al 396.153Radial†	179357.8	171089.4	48876 µg/L	48876 ppb		08:55:12
3	Ca 317.933Radial†	32057.7	30452.4	13852 µg/L	13852 ppb		08:55:32
3	Fe 238.204 Radial†	153356.0	146185.1	76441 µg/L	76441 ppb		08:55:12
3	K 766.490 Radial†	17755.6	16068.5	7458.2 µg/L	7458.2 ppb		08:55:12
3	Mg 279.077 IEC†	2266.5	2159.4	10151 µg/L	10151 ppb		08:55:32
3	Na 589.592 Radial†	505.5	626.4	1009.5 µg/L	1009.5 ppb		08:55:32
3	Sr 421.552†	33151.1	32920.6	151.14 µg/L	151.14 ppb		08:55:12
3	Sc 361.383	720285.6	720285.6	106.79 %			08:56:41
3	Y 371.029	636776.6	636776.6	109.64 %			08:56:41
3	Ag 328.068†	13386.6	13163.2	104.40 µg/L	104.40 ppb		08:56:47
3	As 188.979†	575.1	546.7	315.09 µg/L	315.09 ppb		08:57:07
3	B 249.677†	4670.0	4291.3	109.43 µg/L	109.43 ppb		08:56:47
3	Ba 233.527†	32211.3	30296.0	254.96 µg/L	254.96 ppb		08:56:47
3	Be 313.107†	188038.5	183735.6	103.55 µg/L	103.55 ppb		08:56:47
3	Cd 226.502†	9362.8	8994.4	116.28 µg/L	116.28 ppb		08:57:07
3	Co 228.616†	5111.5	4817.6	118.53 µg/L	118.53 ppb		08:57:07
3	Cr 267.716†	7529.2	6825.0	140.10 µg/L	140.10 ppb		08:57:07
3	Cu 324.752†	191699.6	173957.8	753.29 µg/L	753.29 ppb		08:56:47
3	Mn 257.610†	2511105.5	2351055.7	3505.0 µg/L	3505.0 ppb		08:56:41
3	Mo 202.031†	2612.9	2416.6	166.16 µg/L	166.16 ppb		08:57:07
3	Ni 231.604†	4436.3	4182.3	129.83 µg/L	129.83 ppb		08:57:07
3	P 214.914†	2022.1	1766.7	1269.2 µg/L	1269.2 ppb		08:57:07
3	Pb 220.353†	44593.1	41592.8	6750.4 µg/L	6750.4 ppb		08:56:47
3	S 181.975 Axial†	5185.7	4798.8	8345.2 µg/L	8345.2 ppb		08:57:07
3	Sb 206.836†	426.5	335.4	106.99 µg/L	106.99 ppb		08:57:07
3	Se 196.026†	78.5	79.9	104.03 µg/L	104.03 ppb		08:57:07
3	SiO2†	47529.0	41686.8	4975.5 µg/L	4975.5 ppb		08:56:47
3	Si 251.611†	52782.4	49231.3	2303.0 µg/L	2303.0 ppb		08:56:47
3	Sn 189.927†	471.2	414.9	104.51 µg/L	104.51 ppb		08:57:07
3	Ti 334.940†	669008.1	626688.9	1550.2 µg/L	1550.2 ppb		08:56:41
3	Tl 190.801†	89.1	124.8	55.071 µg/L	55.071 ppb		08:57:07
3	U 367.007†	2029.5	1559.2	49.55 µg/L	49.55 ppb		08:56:47
3	V 292.402†	24502.1	23135.6	220.28 µg/L	220.28 ppb		08:56:47
3	Zn 213.857†	3080744.7	2883640.4	27412 µg/L	27412 ppb		08:56:41

Mean Data: 1202676790|1220620|5

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	722514.6	107.12	%	0.462				0.43%
Sc RADIAL	21910.0	105	%	0.1				0.07%
Y 371.029	638851.7	110.00	%	0.436				0.40%
Ag 328.068†	13044.3	103.39	µg/L	0.941	103.39	ppb	0.941	0.91%
Al 396.153Radial†	169286.6	48361	µg/L	620.9	48361	ppb	620.9	1.28%
As 188.979†	546.0	314.64	µg/L	2.880	314.64	ppb	2.880	0.92%
B 249.677†	4291.5	109.58	µg/L	0.945	109.58	ppb	0.945	0.86%
Ba 233.527†	30102.4	253.34	µg/L	1.554	253.34	ppb	1.554	0.61%
Be 313.107†	182674.0	102.95	µg/L	0.694	102.95	ppb	0.694	0.67%
Ca 317.933Radial†	30390.0	13824	µg/L	43.3	13824	ppb	43.3	0.31%
Cd 226.502†	8936.7	115.61	µg/L	0.839	115.61	ppb	0.839	0.73%
Co 228.616†	4799.2	118.06	µg/L	0.422	118.06	ppb	0.422	0.36%
Cr 267.716†	6807.0	139.72	µg/L	0.351	139.72	ppb	0.351	0.25%
Cu 324.752†	173184.2	749.85	µg/L	3.772	749.85	ppb	3.772	0.50%
Fe 238.204 Radial†	144309.8	75461	µg/L	1015.1	75461	ppb	1015.1	1.35%
K 766.490 Radial†	15922.0	7390.0	µg/L	91.43	7390.0	ppb	91.43	1.24%
Mg 279.077 IEC†	2152.2	10117	µg/L	34.6	10117	ppb	34.6	0.34%
Mn 257.610†	2351725.3	3505.9	µg/L	2.50	3505.9	ppb	2.50	0.07%
Mo 202.031†	2405.7	165.39	µg/L	1.088	165.39	ppb	1.088	0.66%
Na 589.592 Radial†	632.9	1019.9	µg/L	11.60	1019.9	ppb	11.60	1.14%

Ni 231.604†	4151.3	128.86 µg/L	0.849	128.86 ppb	0.849	0.66%
P 214.914†	1745.9	1254.2 µg/L	14.09	1254.2 ppb	14.09	1.12%
Pb 220.353†	41336.6	6708.9 µg/L	48.78	6708.9 ppb	48.78	0.73%
S 181.975 Axial†	4780.5	8313.3 µg/L	38.32	8313.3 ppb	38.32	0.46%
Sb 206.836†	328.7	104.82 µg/L	1.933	104.82 ppb	1.933	1.84%
Se 196.026†	84.0	106.88 µg/L	6.280	106.88 ppb	6.280	5.88%
SiO2†	41423.9	4944.0 µg/L	38.86	4944.0 ppb	38.86	0.79%
Si 251.611†	48873.6	2286.3 µg/L	18.79	2286.3 ppb	18.79	0.82%
Sn 189.927†	406.4	102.54 µg/L	1.919	102.54 ppb	1.919	1.87%
Sr 421.552†	32563.7	149.51 µg/L	1.842	149.51 ppb	1.842	1.23%
Ti 334.940†	626237.0	1549.1 µg/L	1.77	1549.1 ppb	1.77	0.11%
Tl 190.801†	129.9	56.762 µg/L	1.7650	56.762 ppb	1.7650	3.11%
U 367.007†	1532.4	47.10 µg/L	7.254	47.10 ppb	7.254	15.40%
V 292.402†	23026.7	219.23 µg/L	1.117	219.23 ppb	1.117	0.51%
Zn 213.857†	2884167.7	27417 µg/L	21.5	27417 ppb	21.5	0.08%

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Sequence No.: 5 **Autosampler Location: 311**
Sample ID: 1202676789|1220620|25 **Date Collected: 6/13/2012 8:57:14**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202676789|1220620|25

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21982.2	21982.2	105	%			08:57:43
1	Al 396.153Radial†	29508.1	28111.6	8031.2	µg/L	8031.2	ppb	08:57:43
1	Ca 317.933Radial†	5944.0	5533.5	2517.1	µg/L	2517.1	ppb	08:58:03
1	Fe 238.204 Radial†	29222.5	27727.5	14499	µg/L	14499	ppb	08:57:43
1	K 766.490 Radial†	3518.5	2481.8	1153.2	µg/L	1153.2	ppb	08:57:43
1	Mg 279.077 IEC†	375.8	355.4	1670.4	µg/L	1670.4	ppb	08:58:03
1	Na 589.592 Radial†	-150.4	1.6	2.5040	µg/L	2.5040	ppb	08:58:03
1	Sr 421.552†	1170.3	2424.3	11.124	µg/L	11.124	ppb	08:57:43
1	Sc 361.383	716887.5	716887.5	106.28	%			08:58:59
1	Y 371.029	619669.7	619669.7	106.69	%			08:58:59
1	Ag 328.068†	-1122.2	-428.2	1.1337	µg/L	1.1337	ppb	08:59:05
1	As 188.979†	69.1	73.2	42.300	µg/L	42.300	ppb	08:59:25
1	B 249.677†	294.3	195.1	3.3850	µg/L	3.3850	ppb	08:59:05
1	Ba 233.527†	3701.1	3614.6	30.255	µg/L	30.255	ppb	08:59:25
1	Be 313.107†	-5978.1	2026.4	1.1111	µg/L	1.1111	ppb	08:59:05
1	Cd 226.502†	223.1	436.7	3.9368	µg/L	3.9368	ppb	08:59:25
1	Co 228.616†	179.5	200.0	4.5339	µg/L	4.5339	ppb	08:59:25
1	Cr 267.716†	636.3	373.0	7.8054	µg/L	7.8054	ppb	08:59:25
1	Cu 324.752†	35253.6	27613.7	119.92	µg/L	119.92	ppb	08:59:05
1	Mn 257.610†	501766.0	471679.0	703.12	µg/L	703.12	ppb	08:58:59
1	Mo 202.031†	254.6	209.4	14.719	µg/L	14.719	ppb	08:59:25
1	Ni 231.604†	172.0	189.8	6.0768	µg/L	6.0768	ppb	08:59:25
1	P 214.914†	471.5	316.8	227.30	µg/L	227.30	ppb	08:59:25
1	Pb 220.353†	8736.0	8053.9	1307.7	µg/L	1307.7	ppb	08:59:05
1	S 181.975 Axial†	941.0	828.1	1439.5	µg/L	1439.5	ppb	08:59:25
1	Sb 206.836†	81.8	13.0	3.9465	µg/L	3.9465	ppb	08:59:25
1	Se 196.026†	-5.3	1.4	8.4407	µg/L	8.4407	ppb	08:59:25
1	SiO2†	11882.4	8359.0	996.14	µg/L	996.14	ppb	08:59:05
1	Si 251.611†	10745.4	9914.3	464.11	µg/L	464.11	ppb	08:59:05
1	Sn 189.927†	12.5	-14.7	-0.6686	µg/L	-0.6686	ppb	08:59:25
1	Ti 334.940†	108600.0	102388.6	253.29	µg/L	253.29	ppb	08:59:05
1	Tl 190.801†	-48.7	-4.4	0.4936	µg/L	0.4936	ppb	08:59:25
1	U 367.007†	590.8	214.6	-12.45	µg/L	-12.45	ppb	08:59:05
1	V 292.402†	2499.1	2542.4	24.094	µg/L	24.094	ppb	08:59:05
1	Zn 213.857†	684801.7	643049.5	6113.4	µg/L	6113.4	ppb	08:58:59
2	Sc RADIAL	21930.3	21930.3	105	%			08:58:08
2	Al 396.153Radial†	29674.7	28336.6	8095.5	µg/L	8095.5	ppb	08:58:08
2	Ca 317.933Radial†	5936.8	5539.9	2520.0	µg/L	2520.0	ppb	08:58:28
2	Fe 238.204 Radial†	29327.5	27893.2	14585	µg/L	14585	ppb	08:58:08
2	K 766.490 Radial†	3568.6	2537.4	1179.0	µg/L	1179.0	ppb	08:58:08
2	Mg 279.077 IEC†	371.8	352.4	1656.4	µg/L	1656.4	ppb	08:58:28
2	Na 589.592 Radial†	-150.9	0.8	1.2571	µg/L	1.2571	ppb	08:58:28
2	Sr 421.552†	1147.0	2404.7	11.034	µg/L	11.034	ppb	08:58:08
2	Sc 361.383	715594.9	715594.9	106.09	%			08:59:30
2	Y 371.029	618792.5	618792.5	106.54	%			08:59:30
2	Ag 328.068†	-1038.8	-351.5	1.6450	µg/L	1.6450	ppb	08:59:35
2	As 188.979†	66.6	70.9	40.997	µg/L	40.997	ppb	08:59:55
2	B 249.677†	277.0	179.3	2.9284	µg/L	2.9284	ppb	08:59:35
2	Ba 233.527†	3698.3	3618.2	30.284	µg/L	30.284	ppb	08:59:55
2	Be 313.107†	-5909.1	2081.2	1.1405	µg/L	1.1405	ppb	08:59:35
2	Cd 226.502†	219.0	433.2	3.8723	µg/L	3.8723	ppb	08:59:55
2	Co 228.616†	169.3	190.7	4.2949	µg/L	4.2949	ppb	08:59:55
2	Cr 267.716†	630.5	368.7	7.7230	µg/L	7.7230	ppb	08:59:55
2	Cu 324.752†	35550.8	27953.8	121.39	µg/L	121.39	ppb	08:59:35
2	Mn 257.610†	503093.5	473783.0	706.26	µg/L	706.26	ppb	08:59:30
2	Mo 202.031†	259.5	214.4	15.062	µg/L	15.062	ppb	08:59:55
2	Ni 231.604†	157.0	175.9	5.6511	µg/L	5.6511	ppb	08:59:55
2	P 214.914†	467.9	314.2	225.26	µg/L	225.26	ppb	08:59:55
2	Pb 220.353†	8782.2	8112.4	1317.2	µg/L	1317.2	ppb	08:59:35

2	S 181.975 Axial†	942.0	830.7	1444.0 µg/L	1444.0 ppb		08:59:55
2	Sb 206.836†	72.6	4.5	1.1646 µg/L	1.1646 ppb		08:59:55
2	Se 196.026†	-14.3	-7.2	1.5184 µg/L	1.5184 ppb		08:59:55
2	SiO2†	11938.2	8431.8	1004.7 µg/L	1004.7 ppb		08:59:35
2	Si 251.611†	10821.9	10004.7	468.34 µg/L	468.34 ppb		08:59:35
2	Sn 189.927†	12.1	-15.0	-0.7092 µg/L	-0.7092 ppb		08:59:55
2	Ti 334.940†	109444.4	103369.0	255.72 µg/L	255.72 ppb		08:59:35
2	Tl 190.801†	-46.4	-2.3	1.2076 µg/L	1.2076 ppb		08:59:55
2	U 367.007†	571.8	197.7	-17.42 µg/L	-17.42 ppb		08:59:35
2	V 292.402†	2542.2	2587.3	24.517 µg/L	24.517 ppb		08:59:35
2	Zn 213.857†	685439.3	644814.3	6130.2 µg/L	6130.2 ppb		08:59:30
3	Sc RADIAL	22042.5	22042.5	106 %			08:58:33
3	Al 396.153Radial†	29584.2	28107.1	8030.0 µg/L	8030.0 ppb		08:58:33
3	Ca 317.933Radial†	5943.3	5517.4	2509.8 µg/L	2509.8 ppb		08:58:53
3	Fe 238.204 Radial†	29466.8	27883.0	14580 µg/L	14580 ppb		08:58:33
3	K 766.490 Radial†	3428.9	2387.8	1109.8 µg/L	1109.8 ppb		08:58:33
3	Mg 279.077 IEC†	379.6	358.0	1682.8 µg/L	1682.8 ppb		08:58:53
3	Na 589.592 Radial†	-165.3	-12.1	-19.530 µg/L	-19.530 ppb		08:58:53
3	Sr 421.552†	1175.7	2426.4	11.133 µg/L	11.133 ppb		08:58:33
3	Sc 361.383	723265.1	723265.1	107.23 %			09:00:00
3	Y 371.029	625703.1	625703.1	107.73 %			09:00:00
3	Ag 328.068†	-973.5	-280.3	2.0895 µg/L	2.0895 ppb		09:00:05
3	As 188.979†	60.6	64.6	37.405 µg/L	37.405 ppb		09:00:25
3	B 249.677†	305.5	203.0	3.5973 µg/L	3.5973 ppb		09:00:05
3	Ba 233.527†	3696.8	3579.8	29.958 µg/L	29.958 ppb		09:00:25
3	Be 313.107†	-6010.5	2045.8	1.1223 µg/L	1.1223 ppb		09:00:05
3	Cd 226.502†	211.4	424.0	3.7421 µg/L	3.7421 ppb		09:00:25
3	Co 228.616†	171.5	191.0	4.3112 µg/L	4.3112 ppb		09:00:25
3	Cr 267.716†	637.0	368.4	7.7144 µg/L	7.7144 ppb		09:00:25
3	Cu 324.752†	35246.2	27314.3	118.66 µg/L	118.66 ppb		09:00:05
3	Mn 257.610†	507263.6	472643.0	704.56 µg/L	704.56 ppb		09:00:00
3	Mo 202.031†	255.4	208.0	14.631 µg/L	14.631 ppb		09:00:25
3	Ni 231.604†	168.9	185.5	5.9440 µg/L	5.9440 ppb		09:00:25
3	P 214.914†	460.7	302.8	216.77 µg/L	216.77 ppb		09:00:25
3	Pb 220.353†	8741.3	7986.4	1296.7 µg/L	1296.7 ppb		09:00:05
3	S 181.975 Axial†	943.4	822.5	1429.8 µg/L	1429.8 ppb		09:00:25
3	Sb 206.836†	82.3	12.7	3.8706 µg/L	3.8706 ppb		09:00:25
3	Se 196.026†	-14.7	-7.3	1.4010 µg/L	1.4010 ppb		09:00:25
3	SiO2†	11875.6	8254.1	983.66 µg/L	983.66 ppb		09:00:05
3	Si 251.611†	10740.3	9820.4	459.71 µg/L	459.71 ppb		09:00:05
3	Sn 189.927†	13.7	-13.6	-0.4406 µg/L	-0.4406 ppb		09:00:25
3	Ti 334.940†	108513.6	101407.0	250.86 µg/L	250.86 ppb		09:00:05
3	Tl 190.801†	-43.3	1.0	2.3554 µg/L	2.3554 ppb		09:00:25
3	U 367.007†	590.6	209.4	-14.22 µg/L	-14.22 ppb		09:00:05
3	V 292.402†	2454.3	2479.9	23.503 µg/L	23.503 ppb		09:00:05
3	Zn 213.857†	691967.8	644050.9	6123.0 µg/L	6123.0 ppb		09:00:00

Mean Data: 1202676789|1220620|25

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	718582.5	106.54	%	0.609				0.57%
Sc RADIAL	21985.0	105	%	0.3				0.26%
Y 371.029	621388.5	106.99	%	0.648				0.61%
Ag 328.068†	-353.3	1.6227	µg/L	0.47830	1.6227	ppb	0.47830	29.47%
Al 396.153Radial†	28185.1	8052.2	µg/L	37.48	8052.2	ppb	37.48	0.47%
As 188.979†	69.6	40.234	µg/L	2.5353	40.234	ppb	2.5353	6.30%
B 249.677†	192.5	3.3035	µg/L	0.34181	3.3035	ppb	0.34181	10.35%
Ba 233.527†	3604.2	30.166	µg/L	0.1808	30.166	ppb	0.1808	0.60%
Be 313.107†	2051.1	1.1246	µg/L	0.01484	1.1246	ppb	0.01484	1.32%
Ca 317.933Radial†	5530.2	2515.6	µg/L	5.29	2515.6	ppb	5.29	0.21%
Cd 226.502†	431.3	3.8504	µg/L	0.09918	3.8504	ppb	0.09918	2.58%
Co 228.616†	193.9	4.3800	µg/L	0.13352	4.3800	ppb	0.13352	3.05%
Cr 267.716†	370.1	7.7476	µg/L	0.05025	7.7476	ppb	0.05025	0.65%
Cu 324.752†	27627.3	119.99	µg/L	1.366	119.99	ppb	1.366	1.14%
Fe 238.204 Radial†	27834.6	14555	µg/L	48.5	14555	ppb	48.5	0.33%
K 766.490 Radial†	2469.0	1147.3	µg/L	34.95	1147.3	ppb	34.95	3.05%
Mg 279.077 IEC†	355.3	1669.9	µg/L	13.23	1669.9	ppb	13.23	0.79%
Mn 257.610†	472701.7	704.64	µg/L	1.571	704.64	ppb	1.571	0.22%
Mo 202.031†	210.6	14.804	µg/L	0.2277	14.804	ppb	0.2277	1.54%
Na 589.592 Radial†	-3.3	-5.2563	µg/L	12.37710	-5.2563	ppb	12.37710	235.47%

Ni 231.604†	183.7	5.8906 µg/L	0.21778	5.8906 ppb	0.21778	3.70%
P 214.914†	311.3	223.11 µg/L	5.588	223.11 ppb	5.588	2.50%
Pb 220.353†	8050.9	1307.2 µg/L	10.23	1307.2 ppb	10.23	0.78%
S 181.975 Axial†	827.1	1437.8 µg/L	7.26	1437.8 ppb	7.26	0.51%
Sb 206.836†	10.1	2.9939 µg/L	1.58470	2.9939 ppb	1.58470	52.93%
Se 196.026†	-4.4	3.7867 µg/L	4.03093	3.7867 ppb	4.03093	106.45%
SiO2†	8348.3	994.85 µg/L	10.599	994.85 ppb	10.599	1.07%
Si 251.611†	9913.1	464.06 µg/L	4.315	464.06 ppb	4.315	0.93%
Sn 189.927†	-14.4	-0.6061 µg/L	0.14478	-0.6061 ppb	0.14478	23.89%
Sr 421.552†	2418.5	11.097 µg/L	0.0550	11.097 ppb	0.0550	0.50%
Ti 334.940†	102388.2	253.29 µg/L	2.428	253.29 ppb	2.428	0.96%
Tl 190.801†	-1.9	1.3522 µg/L	0.93927	1.3522 ppb	0.93927	69.46%
U 367.007†	207.2	-14.70 µg/L	2.519	-14.70 ppb	2.519	17.14%
V 292.402†	2536.5	24.038 µg/L	0.5097	24.038 ppb	0.5097	2.12%
Zn 213.857†	643971.6	6122.2 µg/L	8.41	6122.2 ppb	8.41	0.14%

Sequence No.: 6 **Autosampler Location: 312**
Sample ID: 305844006|1220620|50 **Date Collected: 6/13/2012 9:00:33**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305844006|1220620|50

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22056.5	22056.5	106	%			09:01:02
1	Al 396.153Radial†	10069.1	9613.1	2741.8	µg/L	2741.8	ppb	09:01:02
1	Ca 317.933Radial†	6867.4	6388.7	2906.1	µg/L	2906.1	ppb	09:01:22
1	Fe 238.204 Radial†	30907.0	29228.8	15284	µg/L	15284	ppb	09:01:02
1	K 766.490 Radial†	1789.0	833.1	391.62	µg/L	391.62	ppb	09:01:02
1	Mg 279.077 IEC†	178.3	167.2	787.12	µg/L	787.12	ppb	09:01:22
1	Na 589.592 Radial†	-120.2	30.6	49.352	µg/L	49.352	ppb	09:01:02
1	Sr 421.552†	916.3	2180.0	9.9999	µg/L	9.9999	ppb	09:01:02
1	Sc 361.383	719641.0	719641.0	106.69	%			09:02:19
1	Y 371.029	616926.0	616926.0	106.22	%			09:02:19
1	Ag 328.068†	-659.6	9.4	4.0669	µg/L	4.0669	ppb	09:02:24
1	As 188.979†	374.0	358.7	205.22	µg/L	205.22	ppb	09:02:44
1	B 249.677†	359.5	255.1	4.9506	µg/L	4.9506	ppb	09:02:24
1	Ba 233.527†	1701.4	1727.0	14.214	µg/L	14.214	ppb	09:02:44
1	Be 313.107†	-6485.2	1572.6	0.8976	µg/L	0.8976	ppb	09:02:24
1	Cd 226.502†	723.3	904.8	10.489	µg/L	10.489	ppb	09:02:44
1	Co 228.616†	170.2	190.5	4.7503	µg/L	4.7503	ppb	09:02:44
1	Cr 267.716†	386.8	136.9	2.9956	µg/L	2.9956	ppb	09:02:44
1	Cu 324.752†	83299.4	72518.6	311.17	µg/L	311.17	ppb	09:02:24
1	Mn 257.610†	1226015.4	1148688.4	1710.5	µg/L	1710.5	ppb	09:02:19
1	Mo 202.031†	1999.1	1843.5	125.00	µg/L	125.00	ppb	09:02:44
1	Ni 231.604†	34.2	60.0	2.0984	µg/L	2.0984	ppb	09:02:44
1	P 214.914†	366.3	216.5	144.26	µg/L	144.26	ppb	09:02:44
1	Pb 220.353†	57850.8	54056.2	8787.4	µg/L	8787.4	ppb	09:02:24
1	S 181.975 Axial†	4597.4	4251.8	7408.8	µg/L	7408.8	ppb	09:02:44
1	Sb 206.836†	101.5	31.1	11.620	µg/L	11.620	ppb	09:02:44
1	Se 196.026†	-10.3	-3.3	4.9803	µg/L	4.9803	ppb	09:02:44
1	SiO2†	8320.6	4977.9	596.04	µg/L	596.04	ppb	09:02:24
1	Si 251.611†	6614.2	6003.6	279.58	µg/L	279.58	ppb	09:02:24
1	Sn 189.927†	10.4	-16.7	-1.6256	µg/L	-1.6256	ppb	09:02:44
1	Ti 334.940†	43454.3	40938.7	101.31	µg/L	101.31	ppb	09:02:24
1	Tl 190.801†	-47.5	-3.1	0.3556	µg/L	0.3556	ppb	09:02:44
1	U 367.007†	578.4	200.8	-19.33	µg/L	-19.33	ppb	09:02:24
1	V 292.402†	1697.4	1782.1	18.247	µg/L	18.247	ppb	09:02:24
1	Zn 213.857†	2245368.3	2103253.2	20000	µg/L	20000	ppb	09:02:19
2	Sc RADIAL	21885.3	21885.3	105	%			09:01:27
2	Al 396.153Radial†	10079.4	9697.4	2765.9	µg/L	2765.9	ppb	09:01:27
2	Ca 317.933Radial†	6851.2	6424.1	2922.2	µg/L	2922.2	ppb	09:01:47
2	Fe 238.204 Radial†	30745.9	29304.0	15323	µg/L	15323	ppb	09:01:27
2	K 766.490 Radial†	1777.6	835.4	392.72	µg/L	392.72	ppb	09:01:27
2	Mg 279.077 IEC†	180.1	170.2	801.17	µg/L	801.17	ppb	09:01:47
2	Na 589.592 Radial†	-177.2	-24.6	-39.609	µg/L	-39.609	ppb	09:01:27
2	Sr 421.552†	875.6	2148.0	9.8529	µg/L	9.8529	ppb	09:01:27
2	Sc 361.383	722932.4	722932.4	107.18	%			09:02:50
2	Y 371.029	619425.4	619425.4	106.65	%			09:02:50
2	Ag 328.068†	-585.6	81.2	4.5316	µg/L	4.5316	ppb	09:02:55
2	As 188.979†	373.7	356.8	204.15	µg/L	204.15	ppb	09:03:15
2	B 249.677†	349.3	244.1	4.6362	µg/L	4.6362	ppb	09:02:55
2	Ba 233.527†	1696.1	1714.8	14.109	µg/L	14.109	ppb	09:03:15
2	Be 313.107†	-6351.9	1724.6	0.9854	µg/L	0.9854	ppb	09:02:55
2	Cd 226.502†	720.6	899.1	10.402	µg/L	10.402	ppb	09:03:15
2	Co 228.616†	160.6	180.9	4.5081	µg/L	4.5081	ppb	09:03:15
2	Cr 267.716†	393.7	141.6	3.0849	µg/L	3.0849	ppb	09:03:15
2	Cu 324.752†	83505.4	72355.3	310.47	µg/L	310.47	ppb	09:02:55
2	Mn 257.610†	1231896.2	1148943.4	1710.9	µg/L	1710.9	ppb	09:02:50
2	Mo 202.031†	2009.4	1844.6	125.07	µg/L	125.07	ppb	09:03:15
2	Ni 231.604†	21.4	48.0	1.7282	µg/L	1.7282	ppb	09:03:15
2	P 214.914†	351.5	201.2	132.75	µg/L	132.75	ppb	09:03:15
2	Pb 220.353†	57812.5	53773.7	8741.4	µg/L	8741.4	ppb	09:02:55

2	S 181.975 Axial†	4609.2	4243.2	7393.8 µg/L	7393.8 ppb		09:03:15
2	Sb 206.836†	95.6	25.2	9.7018 µg/L	9.7018 ppb		09:03:15
2	Se 196.026†	-13.7	-6.4	2.5285 µg/L	2.5285 ppb		09:03:15
2	SiO2†	8350.7	4970.5	595.27 µg/L	595.27 ppb		09:02:55
2	Si 251.611†	6652.9	6011.5	279.95 µg/L	279.95 ppb		09:02:55
2	Sn 189.927†	10.9	-16.3	-1.5333 µg/L	-1.5333 ppb		09:03:15
2	Ti 334.940†	43531.9	40825.6	101.03 µg/L	101.03 ppb		09:02:55
2	Tl 190.801†	-50.2	-5.4	-0.4343 µg/L	-0.4343 ppb		09:03:15
2	U 367.007†	615.5	232.9	-10.87 µg/L	-10.87 ppb		09:02:55
2	V 292.402†	1679.2	1757.8	18.025 µg/L	18.025 ppb		09:02:55
2	Zn 213.857†	2250217.2	2098195.6	19952 µg/L	19952 ppb		09:02:50
3	Sc RADIAL	21879.1	21879.1	105 %			09:01:52
3	Al 396.153Radial†	10043.5	9666.0	2757.0 µg/L	2757.0 ppb		09:01:52
3	Ca 317.933Radial†	6846.0	6421.0	2920.8 µg/L	2920.8 ppb		09:02:12
3	Fe 238.204 Radial†	30923.8	29482.2	15416 µg/L	15416 ppb		09:01:52
3	K 766.490 Radial†	1808.1	865.1	406.46 µg/L	406.46 ppb		09:01:52
3	Mg 279.077 IEC†	171.2	161.8	761.36 µg/L	761.36 ppb		09:02:12
3	Na 589.592 Radial†	-164.4	-12.5	-20.071 µg/L	-20.071 ppb		09:01:52
3	Sr 421.552†	858.0	2131.4	9.7767 µg/L	9.7767 ppb		09:01:52
3	Sc 361.383	722483.0	722483.0	107.11 %			09:03:21
3	Y 371.029	619440.0	619440.0	106.65 %			09:03:21
3	Ag 328.068†	-683.8	-10.8	3.9752 µg/L	3.9752 ppb		09:03:26
3	As 188.979†	377.4	360.4	206.24 µg/L	206.24 ppb		09:03:46
3	B 249.677†	365.4	259.3	5.0519 µg/L	5.0519 ppb		09:03:26
3	Ba 233.527†	1697.6	1717.2	14.128 µg/L	14.128 ppb		09:03:46
3	Be 313.107†	-6449.7	1629.7	0.9307 µg/L	0.9307 ppb		09:03:26
3	Cd 226.502†	730.3	908.6	10.523 µg/L	10.523 ppb		09:03:46
3	Co 228.616†	159.4	179.9	4.4809 µg/L	4.4809 ppb		09:03:46
3	Cr 267.716†	397.9	145.9	3.1773 µg/L	3.1773 ppb		09:03:46
3	Cu 324.752†	83401.3	72306.6	310.28 µg/L	310.28 ppb		09:03:26
3	Mn 257.610†	1233409.4	1151071.1	1714.1 µg/L	1714.1 ppb		09:03:21
3	Mo 202.031†	1993.4	1830.8	124.15 µg/L	124.15 ppb		09:03:46
3	Ni 231.604†	61.0	85.0	2.8674 µg/L	2.8674 ppb		09:03:46
3	P 214.914†	364.3	213.3	141.79 µg/L	141.79 ppb		09:03:46
3	Pb 220.353†	58061.4	54039.6	8784.7 µg/L	8784.7 ppb		09:03:26
3	S 181.975 Axial†	4595.5	4233.0	7376.1 µg/L	7376.1 ppb		09:03:46
3	Sb 206.836†	84.5	14.9	6.3023 µg/L	6.3023 ppb		09:03:46
3	Se 196.026†	-8.8	-1.9	6.2568 µg/L	6.2568 ppb		09:03:46
3	SiO2†	8357.3	4981.5	596.51 µg/L	596.51 ppb		09:03:26
3	Si 251.611†	6608.6	5974.0	278.20 µg/L	278.20 ppb		09:03:26
3	Sn 189.927†	16.8	-10.7	-0.3098 µg/L	-0.3098 ppb		09:03:46
3	Ti 334.940†	43526.4	40845.8	101.08 µg/L	101.08 ppb		09:03:26
3	Tl 190.801†	-50.3	-5.6	-0.4969 µg/L	-0.4969 ppb		09:03:46
3	U 367.007†	594.1	213.3	-16.60 µg/L	-16.60 ppb		09:03:26
3	V 292.402†	1746.0	1821.1	18.611 µg/L	18.611 ppb		09:03:26
3	Zn 213.857†	2255496.2	2104430.0	20011 µg/L	20011 ppb		09:03:21

Mean Data: 305844006|1220620|50

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	721685.5	107.00	%	0.265				0.25%
Sc RADIAL	21940.3	105	%	0.5				0.46%
Y 371.029	618597.1	106.51	%	0.249				0.23%
Ag 328.068†	26.6	4.1912	µg/L	0.29829	4.1912	ppb	0.29829	7.12%
Al 396.153Radial†	9658.8	2754.9	µg/L	12.18	2754.9	ppb	12.18	0.44%
As 188.979†	358.6	205.20	µg/L	1.044	205.20	ppb	1.044	0.51%
B 249.677†	252.8	4.8796	µg/L	0.21676	4.8796	ppb	0.21676	4.44%
Ba 233.527†	1719.7	14.150	µg/L	0.0559	14.150	ppb	0.0559	0.40%
Be 313.107†	1642.3	0.9379	µg/L	0.04433	0.9379	ppb	0.04433	4.73%
Ca 317.933Radial†	6411.3	2916.4	µg/L	8.93	2916.4	ppb	8.93	0.31%
Cd 226.502†	904.2	10.471	µg/L	0.0626	10.471	ppb	0.0626	0.60%
Co 228.616†	183.8	4.5798	µg/L	0.14832	4.5798	ppb	0.14832	3.24%
Cr 267.716†	141.5	3.0859	µg/L	0.09089	3.0859	ppb	0.09089	2.95%
Cu 324.752†	72393.5	310.64	µg/L	0.467	310.64	ppb	0.467	0.15%
Fe 238.204 Radial†	29338.3	15341	µg/L	68.1	15341	ppb	68.1	0.44%
K 766.490 Radial†	844.5	396.93	µg/L	8.270	396.93	ppb	8.270	2.08%
Mg 279.077 IEC†	166.4	783.22	µg/L	20.193	783.22	ppb	20.193	2.58%
Mn 257.610†	1149567.6	1711.8	µg/L	1.95	1711.8	ppb	1.95	0.11%
Mo 202.031†	1839.6	124.74	µg/L	0.513	124.74	ppb	0.513	0.41%
Na 589.592 Radial†	-2.1	-3.4425	µg/L	46.75345	-3.4425	ppb	46.75345	>999.9%

Ni 231.604†	64.3	2.2313 µg/L	0.58110	2.2313 ppb	0.58110	26.04%
P 214.914†	210.3	139.60 µg/L	6.059	139.60 ppb	6.059	4.34%
Pb 220.353†	53956.5	8771.2 µg/L	25.78	8771.2 ppb	25.78	0.29%
S 181.975 Axial†	4242.7	7392.9 µg/L	16.36	7392.9 ppb	16.36	0.22%
Sb 206.836†	23.7	9.2080 µg/L	2.69302	9.2080 ppb	2.69302	29.25%
Se 196.026†	-3.9	4.5885 µg/L	1.89481	4.5885 ppb	1.89481	41.29%
SiO2†	4976.6	595.94 µg/L	0.626	595.94 ppb	0.626	0.10%
Si 251.611†	5996.4	279.25 µg/L	0.923	279.25 ppb	0.923	0.33%
Sn 189.927†	-14.6	-1.1562 µg/L	0.73448	-1.1562 ppb	0.73448	63.52%
Sr 421.552†	2153.2	9.8765 µg/L	0.11343	9.8765 ppb	0.11343	1.15%
Ti 334.940†	40870.0	101.14 µg/L	0.151	101.14 ppb	0.151	0.15%
Tl 190.801†	-4.7	-0.1919 µg/L	0.47514	-0.1919 ppb	0.47514	247.63%
U 367.007†	215.7	-15.60 µg/L	4.316	-15.60 ppb	4.316	27.67%
V 292.402†	1787.0	18.294 µg/L	0.2955	18.294 ppb	0.2955	1.62%
Zn 213.857†	2101959.6	19988 µg/L	31.5	19988 ppb	31.5	0.16%

Sequence No.: 7 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/13/2012 9:03:53**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21522.7	21522.7	103	%			09:04:42
1	Al 396.153Radial†	17697.4	17250.9	4909.5	µg/L	4909.5	ppb	09:04:22
1	Ca 317.933Radial†	11393.1	10941.0	4976.9	µg/L	4976.9	ppb	09:04:42
1	Fe 238.204 Radial†	10101.4	9768.1	5112.9	µg/L	5112.9	ppb	09:04:42
1	K 766.490 Radial†	12165.7	10943.2	5054.1	µg/L	5054.1	ppb	09:04:22
1	Mg 279.077 IEC†	1134.0	1098.6	5169.6	µg/L	5169.6	ppb	09:04:42
1	Na 589.592 Radial†	6102.1	6065.1	9773.3	µg/L	9773.3	ppb	09:04:42
1	Sr 421.552†	111201.9	109206.1	501.57	µg/L	501.57	ppb	09:04:22
1	Sc 361.383	725187.9	725187.9	107.52	%			09:05:39
1	Y 371.029	618929.8	618929.8	106.57	%			09:05:39
1	Ag 328.068†	85571.8	80217.9	513.46	µg/L	513.46	ppb	09:05:45
1	As 188.979†	938.7	881.3	504.44	µg/L	504.44	ppb	09:06:05
1	B 249.677†	19172.7	17750.7	497.45	µg/L	497.45	ppb	09:05:45
1	Ba 233.527†	63867.3	59535.2	505.43	µg/L	505.43	ppb	09:05:45
1	Be 313.107†	965614.1	905767.5	511.50	µg/L	511.50	ppb	09:05:39
1	Cd 226.502†	38453.4	35992.3	512.96	µg/L	512.96	ppb	09:05:45
1	Co 228.616†	21891.9	20392.7	514.12	µg/L	514.12	ppb	09:05:45
1	Cr 267.716†	26966.9	24856.3	506.40	µg/L	506.40	ppb	09:05:45
1	Cu 324.752†	131828.4	117058.2	499.97	µg/L	499.97	ppb	09:05:45
1	Mn 257.610†	361600.7	335907.9	500.11	µg/L	500.11	ppb	09:05:45
1	Mo 202.031†	8114.6	7517.2	507.36	µg/L	507.36	ppb	09:06:05
1	Ni 231.604†	18147.1	16906.6	519.77	µg/L	519.77	ppb	09:05:45
1	P 214.914†	3757.3	3367.9	2512.5	µg/L	2512.5	ppb	09:06:05
1	Pb 220.353†	3547.4	3134.0	509.87	µg/L	509.87	ppb	09:06:05
1	S 181.975 Axial†	701.6	595.3	1039.2	µg/L	1039.2	ppb	09:06:05
1	Sb 206.836†	1714.6	1530.7	496.39	µg/L	496.39	ppb	09:06:05
1	Se 196.026†	679.7	638.6	524.48	µg/L	524.48	ppb	09:06:05
1	SiO2†	51435.0	45018.9	5383.6	µg/L	5383.6	ppb	09:05:45
1	Si 251.611†	57709.7	53480.1	2497.2	µg/L	2497.2	ppb	09:05:45
1	Sn 189.927†	2540.5	2336.5	510.98	µg/L	510.98	ppb	09:06:05
1	Ti 334.940†	219116.8	204010.6	504.33	µg/L	504.33	ppb	09:05:45
1	Tl 190.801†	1514.3	1449.9	508.17	µg/L	508.17	ppb	09:06:05
1	U 367.007†	2352.0	1846.3	473.0	µg/L	473.0	ppb	09:05:45
1	V 292.402†	56818.4	53037.8	508.88	µg/L	508.88	ppb	09:05:45
1	Zn 213.857†	61061.7	55535.0	523.69	µg/L	523.69	ppb	09:05:45
2	Sc RADIAL	21652.1	21652.1	104	%			09:05:07
2	Al 396.153Radial†	17773.8	17221.8	4901.1	µg/L	4901.1	ppb	09:04:47
2	Ca 317.933Radial†	11530.8	11007.8	5007.3	µg/L	5007.3	ppb	09:05:07
2	Fe 238.204 Radial†	10221.0	9824.8	5142.5	µg/L	5142.5	ppb	09:05:07
2	K 766.490 Radial†	12165.1	10871.9	5021.1	µg/L	5021.1	ppb	09:04:47
2	Mg 279.077 IEC†	1137.0	1095.0	5152.6	µg/L	5152.6	ppb	09:05:07
2	Na 589.592 Radial†	6134.1	6060.5	9765.8	µg/L	9765.8	ppb	09:05:07
2	Sr 421.552†	111330.8	108685.3	499.18	µg/L	499.18	ppb	09:04:47
2	Sc 361.383	720019.8	720019.8	106.75	%			09:06:10
2	Y 371.029	614671.3	614671.3	105.83	%			09:06:10
2	Ag 328.068†	85502.6	80724.3	516.70	µg/L	516.70	ppb	09:06:15
2	As 188.979†	941.9	890.5	509.75	µg/L	509.75	ppb	09:06:36
2	B 249.677†	19150.4	17857.7	500.46	µg/L	500.46	ppb	09:06:15
2	Ba 233.527†	63835.5	59931.8	508.80	µg/L	508.80	ppb	09:06:15
2	Be 313.107†	955353.2	902601.7	509.71	µg/L	509.71	ppb	09:06:10
2	Cd 226.502†	38374.4	36175.0	515.56	µg/L	515.56	ppb	09:06:15
2	Co 228.616†	21760.9	20416.1	514.71	µg/L	514.71	ppb	09:06:15
2	Cr 267.716†	26880.5	24955.4	508.44	µg/L	508.44	ppb	09:06:15
2	Cu 324.752†	131411.0	117547.2	502.07	µg/L	502.07	ppb	09:06:15
2	Mn 257.610†	360723.3	337500.0	502.49	µg/L	502.49	ppb	09:06:15
2	Mo 202.031†	8086.2	7544.8	509.22	µg/L	509.22	ppb	09:06:36
2	Ni 231.604†	18110.7	16993.6	522.45	µg/L	522.45	ppb	09:06:15
2	P 214.914†	3752.5	3388.4	2527.9	µg/L	2527.9	ppb	09:06:36
2	Pb 220.353†	3578.8	3187.1	518.54	µg/L	518.54	ppb	09:06:36

2	S 181.975 Axial†	699.2	597.7	1043.4 µg/L	1043.4 ppb		09:06:36
2	Sb 206.836†	1716.6	1544.1	500.75 µg/L	500.75 ppb		09:06:36
2	Se 196.026†	667.6	631.7	518.92 µg/L	518.92 ppb		09:06:36
2	SiO2†	51356.2	45288.4	5415.6 µg/L	5415.6 ppb		09:06:15
2	Si 251.611†	57661.5	53820.1	2513.1 µg/L	2513.1 ppb		09:06:15
2	Sn 189.927†	2542.0	2354.9	514.99 µg/L	514.99 ppb		09:06:36
2	Ti 334.940†	218789.9	205167.2	507.19 µg/L	507.19 ppb		09:06:15
2	Tl 190.801†	1506.6	1452.7	509.18 µg/L	509.18 ppb		09:06:36
2	U 367.007†	2288.0	1802.0	460.9 µg/L	460.9 ppb		09:06:15
2	V 292.402†	56704.7	53310.7	511.48 µg/L	511.48 ppb		09:06:15
2	Zn 213.857†	60688.6	55593.2	524.22 µg/L	524.22 ppb		09:06:15
3	Sc RADIAL	21555.3	21555.3	103 %			09:05:33
3	Al 396.153Radial†	17861.7	17384.1	4947.4 µg/L	4947.4 ppb		09:05:13
3	Ca 317.933Radial†	11486.6	11014.8	5010.5 µg/L	5010.5 ppb		09:05:33
3	Fe 238.204 Radial†	10174.3	9823.9	5142.1 µg/L	5142.1 ppb		09:05:33
3	K 766.490 Radial†	12293.3	11048.8	5102.9 µg/L	5102.9 ppb		09:05:13
3	Mg 279.077 IEC†	1149.5	1112.0	5232.5 µg/L	5232.5 ppb		09:05:33
3	Na 589.592 Radial†	6160.5	6112.6	9849.9 µg/L	9849.9 ppb		09:05:33
3	Sr 421.552†	112239.2	110047.8	505.44 µg/L	505.44 ppb		09:05:13
3	Sc 361.383	718864.4	718864.4	106.58 %			09:06:41
3	Y 371.029	614339.3	614339.3	105.78 %			09:06:41
3	Ag 328.068†	84979.3	80362.0	514.40 µg/L	514.40 ppb		09:06:46
3	As 188.979†	950.9	900.3	515.36 µg/L	515.36 ppb		09:07:06
3	B 249.677†	19102.9	17842.0	500.02 µg/L	500.02 ppb		09:06:46
3	Ba 233.527†	63563.9	59773.1	507.45 µg/L	507.45 ppb		09:06:46
3	Be 313.107†	958176.4	906689.1	512.02 µg/L	512.02 ppb		09:06:41
3	Cd 226.502†	38299.6	36162.6	515.38 µg/L	515.38 ppb		09:06:46
3	Co 228.616†	21695.0	20387.0	513.98 µg/L	513.98 ppb		09:06:46
3	Cr 267.716†	26874.4	24990.1	509.14 µg/L	509.14 ppb		09:06:46
3	Cu 324.752†	130704.7	117082.4	500.08 µg/L	500.08 ppb		09:06:46
3	Mn 257.610†	359536.4	336929.5	501.64 µg/L	501.64 ppb		09:06:46
3	Mo 202.031†	8099.8	7569.8	510.91 µg/L	510.91 ppb		09:07:06
3	Ni 231.604†	18020.5	16936.3	520.68 µg/L	520.68 ppb		09:06:46
3	P 214.914†	3775.6	3415.7	2548.4 µg/L	2548.4 ppb		09:07:06
3	Pb 220.353†	3569.0	3183.2	517.88 µg/L	517.88 ppb		09:07:06
3	S 181.975 Axial†	702.2	601.6	1050.2 µg/L	1050.2 ppb		09:07:06
3	Sb 206.836†	1709.5	1540.0	499.44 µg/L	499.44 ppb		09:07:06
3	Se 196.026†	661.2	626.7	514.86 µg/L	514.86 ppb		09:07:06
3	SiO2†	51239.5	45256.3	5411.9 µg/L	5411.9 ppb		09:06:46
3	Si 251.611†	57606.9	53855.7	2514.7 µg/L	2514.7 ppb		09:06:46
3	Sn 189.927†	2556.2	2372.1	518.73 µg/L	518.73 ppb		09:07:06
3	Ti 334.940†	217857.1	204621.3	505.84 µg/L	505.84 ppb		09:06:46
3	Tl 190.801†	1517.8	1465.5	513.63 µg/L	513.63 ppb		09:07:06
3	U 367.007†	2322.7	1838.1	470.6 µg/L	470.6 ppb		09:06:46
3	V 292.402†	56655.1	53349.5	511.87 µg/L	511.87 ppb		09:06:46
3	Zn 213.857†	60328.5	55346.7	521.89 µg/L	521.89 ppb		09:06:46

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	721357.3	106.95	%	0.499				0.47%
Sc RADIAL	21576.7	103	%	0.3				0.31%
Y 371.029	615980.1	106.06	%	0.441				0.42%
Ag 328.068†	80434.7	514.85	µg/L	1.665	514.85	ppb	1.665	0.32%
QC value within limits for Ag 328.068 Recovery = 102.97%								
Al 396.153Radial†	17285.6	4919.3	µg/L	24.66	4919.3	ppb	24.66	0.50%
QC value within limits for Al 396.153Radial Recovery = 98.39%								
As 188.979†	890.7	509.85	µg/L	5.464	509.85	ppb	5.464	1.07%
QC value within limits for As 188.979 Recovery = 101.97%								
B 249.677†	17816.8	499.31	µg/L	1.624	499.31	ppb	1.624	0.33%
QC value within limits for B 249.677 Recovery = 99.86%								
Ba 233.527†	59746.7	507.23	µg/L	1.694	507.23	ppb	1.694	0.33%
QC value within limits for Ba 233.527 Recovery = 101.45%								
Be 313.107†	905019.4	511.07	µg/L	1.212	511.07	ppb	1.212	0.24%
QC value within limits for Be 313.107 Recovery = 102.21%								
Ca 317.933Radial†	10987.9	4998.2	µg/L	18.52	4998.2	ppb	18.52	0.37%
QC value within limits for Ca 317.933Radial Recovery = 99.96%								
Cd 226.502†	36109.9	514.63	µg/L	1.454	514.63	ppb	1.454	0.28%
QC value within limits for Cd 226.502 Recovery = 102.93%								
Co 228.616†	20398.6	514.27	µg/L	0.387	514.27	ppb	0.387	0.08%

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   QC value within limits for Co 228.616  Recovery = 102.85%
Cr 267.716†           24933.9      507.99 µg/L         1.419      507.99 ppb          1.419   0.28%
   QC value within limits for Cr 267.716  Recovery = 101.60%
Cu 324.752†          117229.3      500.71 µg/L         1.182      500.71 ppb          1.182   0.24%
   QC value within limits for Cu 324.752  Recovery = 100.14%
Fe 238.204 Radial†     9805.6      5132.5 µg/L         16.98      5132.5 ppb          16.98   0.33%
   QC value within limits for Fe 238.204 Radial  Recovery = 102.65%
K 766.490 Radial†     10954.6      5059.4 µg/L         41.16      5059.4 ppb          41.16   0.81%
   QC value within limits for K 766.490 Radial  Recovery = 101.19%
Mg 279.077 IEC†        1101.9      5184.9 µg/L         42.08      5184.9 ppb          42.08   0.81%
   QC value within limits for Mg 279.077 IEC  Recovery = 103.70%
Mn 257.610†          336779.1      501.41 µg/L         1.202      501.41 ppb          1.202   0.24%
   QC value within limits for Mn 257.610  Recovery = 100.28%
Mo 202.031†            7543.9      509.16 µg/L         1.773      509.16 ppb          1.773   0.35%
   QC value within limits for Mo 202.031  Recovery = 101.83%
Na 589.592 Radial†     6079.4      9796.3 µg/L         46.55      9796.3 ppb          46.55   0.48%
   QC value within limits for Na 589.592 Radial  Recovery = 97.96%
Ni 231.604†           16945.5      520.97 µg/L         1.361      520.97 ppb          1.361   0.26%
   QC value within limits for Ni 231.604  Recovery = 104.19%
P 214.914†             3390.7      2529.6 µg/L         18.02      2529.6 ppb          18.02   0.71%
   QC value within limits for P 214.914  Recovery = 101.18%
Pb 220.353†            3168.1      515.43 µg/L         4.824      515.43 ppb          4.824   0.94%
   QC value within limits for Pb 220.353  Recovery = 103.09%
S 181.975 Axial†        598.2      1044.3 µg/L          5.54      1044.3 ppb           5.54   0.53%
   QC value within limits for S 181.975 Axial  Recovery = 104.43%
Sb 206.836†            1538.3      498.86 µg/L         2.234      498.86 ppb          2.234   0.45%
   QC value within limits for Sb 206.836  Recovery = 99.77%
Se 196.026†             632.4      519.42 µg/L         4.828      519.42 ppb          4.828   0.93%
   QC value within limits for Se 196.026  Recovery = 103.88%
SiO2†                 45187.9      5403.7 µg/L         17.50      5403.7 ppb          17.50   0.32%
   QC value within limits for SiO2  Recovery = 101.05%
Si 251.611†           53718.7      2508.3 µg/L          9.68      2508.3 ppb           9.68   0.39%
   QC value within limits for Si 251.611  Recovery = 100.33%
Sn 189.927†            2354.5      514.90 µg/L         3.876      514.90 ppb          3.876   0.75%
   QC value within limits for Sn 189.927  Recovery = 102.98%
Sr 421.552†          109313.1      502.06 µg/L         3.158      502.06 ppb          3.158   0.63%
   QC value within limits for Sr 421.552  Recovery = 100.41%
Ti 334.940†          204599.7      505.78 µg/L         1.434      505.78 ppb          1.434   0.28%
   QC value within limits for Ti 334.940  Recovery = 101.16%
Tl 190.801†            1456.0      510.33 µg/L         2.906      510.33 ppb          2.906   0.57%
   QC value within limits for Tl 190.801  Recovery = 102.07%
U 367.007†             1828.8       468.2 µg/L          6.39       468.2 ppb           6.39   1.36%
   QC value within limits for U 367.007  Recovery = 93.64%
V 292.402†            53232.6      510.74 µg/L         1.625      510.74 ppb          1.625   0.32%
   QC value within limits for V 292.402  Recovery = 102.15%
Zn 213.857†           55491.6      523.27 µg/L         1.222      523.27 ppb          1.222   0.23%
   QC value within limits for Zn 213.857  Recovery = 104.65%
All analyte(s) passed QC.
```

Sequence No.: 8 **Autosampler Location:** 8
Sample ID: CCB **Date Collected:** 6/13/2012 9:07:14
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21720.7	21720.7	104	%			09:07:42
1	Al 396.153Radial†	-71.2	11.5	3.2202	µg/L	3.2202	ppb	09:07:42
1	Ca 317.933Radial†	123.4	5.5	2.5010	µg/L	2.5010	ppb	09:08:02
1	Fe 238.204 Radial†	36.3	2.0	1.0629	µg/L	1.0629	ppb	09:08:02
1	K 766.490 Radial†	778.1	-112.6	-52.054	µg/L	-52.054	ppb	09:07:42
1	Mg 279.077 IEC†	9.4	7.4	34.867	µg/L	34.867	ppb	09:08:02
1	Na 589.592 Radial†	-188.6	-36.9	-59.429	µg/L	-59.429	ppb	09:07:42
1	Sr 421.552†	-1266.8	94.6	0.4347	µg/L	0.4347	ppb	09:07:42
1	Sc 361.383	714867.6	714867.6	105.99	%			09:08:59
1	Y 371.029	614179.0	614179.0	105.75	%			09:08:59
1	Ag 328.068†	-574.0	86.0	0.5477	µg/L	0.5477	ppb	09:09:04
1	As 188.979†	-15.0	-6.0	-3.4258	µg/L	-3.4258	ppb	09:09:24
1	B 249.677†	117.0	28.5	0.7998	µg/L	0.7998	ppb	09:09:24
1	Ba 233.527†	-127.5	12.1	0.1027	µg/L	0.1027	ppb	09:09:24
1	Be 313.107†	-7737.7	350.2	0.1977	µg/L	0.1977	ppb	09:09:04
1	Cd 226.502†	-221.6	17.7	0.2527	µg/L	0.2527	ppb	09:09:24
1	Co 228.616†	-16.4	15.5	0.3936	µg/L	0.3936	ppb	09:09:24
1	Cr 267.716†	234.1	-4.8	-0.0975	µg/L	-0.0975	ppb	09:09:24
1	Cu 324.752†	5774.8	-106.6	-0.4535	µg/L	-0.4535	ppb	09:09:04
1	Mn 257.610†	495.4	51.0	0.0749	µg/L	0.0749	ppb	09:09:24
1	Mo 202.031†	58.2	24.7	1.6688	µg/L	1.6688	ppb	09:09:24
1	Ni 231.604†	-30.8	-1.1	-0.0346	µg/L	-0.0346	ppb	09:09:24
1	P 214.914†	131.7	-2.5	-1.9093	µg/L	-1.9093	ppb	09:09:24
1	Pb 220.353†	188.6	12.5	2.0385	µg/L	2.0385	ppb	09:09:24
1	S 181.975 Axial†	56.4	-4.0	-6.9639	µg/L	-6.9639	ppb	09:09:24
1	Sb 206.836†	80.7	12.1	3.9920	µg/L	3.9920	ppb	09:09:24
1	Se 196.026†	-12.9	-5.8	-4.7019	µg/L	-4.7019	ppb	09:09:24
1	SiO2†	2831.0	-149.6	-17.759	µg/L	-17.759	ppb	09:09:04
1	Si 251.611†	197.2	-9.6	-0.4731	µg/L	-0.4731	ppb	09:09:24
1	Sn 189.927†	34.4	6.0	1.3094	µg/L	1.3094	ppb	09:09:24
1	Ti 334.940†	-125.2	92.2	0.2278	µg/L	0.2278	ppb	09:09:04
1	Tl 190.801†	-36.4	7.1	2.4698	µg/L	2.4698	ppb	09:09:24
1	U 367.007†	363.0	1.2	0.328	µg/L	0.328	ppb	09:09:04
1	V 292.402†	-177.2	23.9	0.2445	µg/L	0.2445	ppb	09:09:04
1	Zn 213.857†	2541.2	1139.3	10.836	µg/L	10.836	ppb	09:09:24
2	Sc RADIAL	21757.6	21757.6	104	%			09:08:07
2	Al 396.153Radial†	-89.0	-5.5	-1.6069	µg/L	-1.6069	ppb	09:08:07
2	Ca 317.933Radial†	119.1	1.2	0.5285	µg/L	0.5285	ppb	09:08:27
2	Fe 238.204 Radial†	39.9	5.5	2.8783	µg/L	2.8783	ppb	09:08:27
2	K 766.490 Radial†	887.2	-9.2	-4.2352	µg/L	-4.2352	ppb	09:08:07
2	Mg 279.077 IEC†	-1.9	-3.4	-16.162	µg/L	-16.162	ppb	09:08:27
2	Na 589.592 Radial†	-157.3	-6.5	-10.543	µg/L	-10.543	ppb	09:08:07
2	Sr 421.552†	-1280.7	83.3	0.3828	µg/L	0.3828	ppb	09:08:07
2	Sc 361.383	715674.4	715674.4	106.10	%			09:09:29
2	Y 371.029	615258.1	615258.1	105.93	%			09:09:29
2	Ag 328.068†	-540.7	118.0	0.7485	µg/L	0.7485	ppb	09:09:34
2	As 188.979†	-6.4	2.1	1.2053	µg/L	1.2053	ppb	09:09:54
2	B 249.677†	110.8	22.6	0.6341	µg/L	0.6341	ppb	09:09:54
2	Ba 233.527†	-135.5	4.6	0.0387	µg/L	0.0387	ppb	09:09:54
2	Be 313.107†	-7710.2	384.4	0.2177	µg/L	0.2177	ppb	09:09:34
2	Cd 226.502†	-222.1	17.5	0.2497	µg/L	0.2497	ppb	09:09:54
2	Co 228.616†	-24.6	7.8	0.1989	µg/L	0.1989	ppb	09:09:54
2	Cr 267.716†	242.0	2.4	0.0458	µg/L	0.0458	ppb	09:09:54
2	Cu 324.752†	5818.3	-71.7	-0.3076	µg/L	-0.3076	ppb	09:09:34
2	Mn 257.610†	481.3	37.2	0.0561	µg/L	0.0561	ppb	09:09:54
2	Mo 202.031†	51.9	18.7	1.2650	µg/L	1.2650	ppb	09:09:54
2	Ni 231.604†	-41.3	-10.9	-0.3355	µg/L	-0.3355	ppb	09:09:54
2	P 214.914†	121.7	-12.2	-9.1412	µg/L	-9.1412	ppb	09:09:54
2	Pb 220.353†	191.7	15.2	2.4680	µg/L	2.4680	ppb	09:09:54

2	S 181.975 Axial†	60.7	-0.0	-0.0314 µg/L	-0.0314 ppb	09:09:54
2	Sb 206.836†	91.1	21.8	7.1533 µg/L	7.1533 ppb	09:09:54
2	Se 196.026†	-2.5	4.0	3.2934 µg/L	3.2934 ppb	09:09:54
2	SiO2†	2872.5	-113.5	-13.416 µg/L	-13.416 ppb	09:09:34
2	Si 251.611†	201.5	-5.8	-0.2844 µg/L	-0.2844 ppb	09:09:54
2	Sn 189.927†	27.6	-0.4	-0.0902 µg/L	-0.0902 ppb	09:09:54
2	Ti 334.940†	-131.8	86.1	0.2114 µg/L	0.2114 ppb	09:09:34
2	Tl 190.801†	-28.8	14.3	4.9737 µg/L	4.9737 ppb	09:09:54
2	U 367.007†	376.1	13.2	3.529 µg/L	3.529 ppb	09:09:34
2	V 292.402†	-223.9	-19.9	-0.1711 µg/L	-0.1711 ppb	09:09:34
2	Zn 213.857†	2489.3	1087.7	10.347 µg/L	10.347 ppb	09:09:54
3	Sc RADIAL	21737.7	21737.7	104 %		09:08:32
3	Al 396.153Radial†	-42.5	39.2	11.147 µg/L	11.147 ppb	09:08:32
3	Ca 317.933Radial†	122.8	4.8	2.2011 µg/L	2.2011 ppb	09:08:52
3	Fe 238.204 Radial†	36.0	1.8	0.9232 µg/L	0.9232 ppb	09:08:52
3	K 766.490 Radial†	938.7	41.1	18.992 µg/L	18.992 ppb	09:08:32
3	Mg 279.077 IEC†	-0.1	-1.7	-7.8443 µg/L	-7.8443 ppb	09:08:52
3	Na 589.592 Radial†	-164.0	-13.1	-21.109 µg/L	-21.109 ppb	09:08:32
3	Sr 421.552†	-1311.3	52.9	0.2428 µg/L	0.2428 ppb	09:08:32
3	Sc 361.383	715142.7	715142.7	106.03 %		09:09:59
3	Y 371.029	614628.8	614628.8	105.83 %		09:09:59
3	Ag 328.068†	-649.7	14.8	0.0920 µg/L	0.0920 ppb	09:10:04
3	As 188.979†	-7.5	1.0	0.5847 µg/L	0.5847 ppb	09:10:24
3	B 249.677†	103.8	16.0	0.4496 µg/L	0.4496 ppb	09:10:24
3	Ba 233.527†	-131.8	8.1	0.0680 µg/L	0.0680 ppb	09:10:24
3	Be 313.107†	-7753.0	338.6	0.1901 µg/L	0.1901 ppb	09:10:04
3	Cd 226.502†	-236.3	3.9	0.0562 µg/L	0.0562 ppb	09:10:24
3	Co 228.616†	-27.6	5.1	0.1288 µg/L	0.1288 ppb	09:10:24
3	Cr 267.716†	237.6	-1.5	-0.0258 µg/L	-0.0258 ppb	09:10:24
3	Cu 324.752†	5739.9	-141.6	-0.5985 µg/L	-0.5985 ppb	09:10:04
3	Mn 257.610†	465.0	22.1	0.0332 µg/L	0.0332 ppb	09:10:24
3	Mo 202.031†	50.7	17.7	1.1945 µg/L	1.1945 ppb	09:10:24
3	Ni 231.604†	-17.7	11.3	0.3462 µg/L	0.3462 ppb	09:10:24
3	P 214.914†	119.0	-14.6	-10.950 µg/L	-10.950 ppb	09:10:24
3	Pb 220.353†	210.3	32.9	5.3502 µg/L	5.3502 ppb	09:10:24
3	S 181.975 Axial†	60.1	-0.6	-1.0585 µg/L	-1.0585 ppb	09:10:24
3	Sb 206.836†	78.9	10.4	3.4200 µg/L	3.4200 ppb	09:10:24
3	Se 196.026†	-1.6	4.8	3.9205 µg/L	3.9205 ppb	09:10:24
3	SiO2†	2841.4	-140.9	-16.785 µg/L	-16.785 ppb	09:10:04
3	Si 251.611†	208.0	0.5	0.0054 µg/L	0.0054 ppb	09:10:24
3	Sn 189.927†	32.6	4.4	0.9561 µg/L	0.9561 ppb	09:10:24
3	Ti 334.940†	-144.7	73.9	0.1851 µg/L	0.1851 ppb	09:10:04
3	Tl 190.801†	-33.3	10.0	3.5018 µg/L	3.5018 ppb	09:10:24
3	U 367.007†	341.9	-18.8	-5.060 µg/L	-5.060 ppb	09:10:04
3	V 292.402†	-241.0	-36.2	-0.3336 µg/L	-0.3336 ppb	09:10:04
3	Zn 213.857†	2455.8	1057.9	10.059 µg/L	10.059 ppb	09:10:24

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	715228.2	106.04	%	0.061				0.06%
Sc RADIAL	21738.7	104	%	0.1				0.08%
Y 371.029	614688.6	105.84	%	0.093				0.09%
Ag 328.068†	73.0	0.4627	µg/L	0.33637	0.4627	ppb	0.33637	72.69%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	15.1	4.2533	µg/L	6.43919	4.2533	ppb	6.43919	151.39%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-0.9	-0.5453	µg/L	2.51383	-0.5453	ppb	2.51383	461.01%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	22.4	0.6278	µg/L	0.17521	0.6278	ppb	0.17521	27.91%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	8.3	0.0698	µg/L	0.03202	0.0698	ppb	0.03202	45.86%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	357.7	0.2018	µg/L	0.01423	0.2018	ppb	0.01423	7.05%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	3.8	1.7435	µg/L	1.06286	1.7435	ppb	1.06286	60.96%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	13.1	0.1862	µg/L	0.11259	0.1862	ppb	0.11259	60.47%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	9.5	0.2404	µg/L	0.13722	0.2404	ppb	0.13722	57.08%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -1.3     -0.0258 µg/L       0.07167     -0.0258 ppb        0.07167 277.39%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†            -106.7     -0.4532 µg/L       0.14548     -0.4532 ppb        0.14548  32.10%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        3.1      1.6215 µg/L       1.09071      1.6215 ppb        1.09071  67.27%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†       -26.9     -12.433 µg/L       36.2252     -12.433 ppb        36.2252 291.37%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           0.8      3.6201 µg/L      27.37802      3.6201 ppb       27.37802 756.27%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              36.7      0.0547 µg/L       0.02087      0.0547 ppb        0.02087  38.15%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              20.4      1.3761 µg/L       0.25593      1.3761 ppb        0.25593  18.60%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -18.8     -30.361 µg/L       25.7225     -30.361 ppb        25.7225  84.72%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -0.3     -0.0080 µg/L       0.34163     -0.0080 ppb        0.34163 >999.9%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -9.8     -7.3334 µg/L       4.78361     -7.3334 ppb        4.78361  65.23%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              20.2      3.2856 µg/L       1.80086      3.2856 ppb        1.80086  54.81%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -1.5     -2.6846 µg/L       3.74140     -2.6846 ppb        3.74140 139.37%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              14.8      4.8551 µg/L       2.01076      4.8551 ppb        2.01076  41.42%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               1.0      0.8373 µg/L       4.80732      0.8373 ppb        4.80732 574.12%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                  -134.7     -15.987 µg/L        2.2793     -15.987 ppb         2.2793  14.26%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              -4.9     -0.2507 µg/L       0.24104     -0.2507 ppb        0.24104  96.14%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               3.3      0.7251 µg/L       0.72784      0.7251 ppb        0.72784 100.37%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              76.9      0.3534 µg/L       0.09929      0.3534 ppb        0.09929  28.09%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              84.0      0.2081 µg/L       0.02152      0.2081 ppb        0.02152  10.34%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†              10.5      3.6484 µg/L       1.25835      3.6484 ppb        1.25835  34.49%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -1.5      -0.401 µg/L        4.3411      -0.401 ppb         4.3411 >999.9%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              -10.7     -0.0867 µg/L       0.29815     -0.0867 ppb        0.29815 343.72%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†            1095.0      10.414 µg/L        0.3928      10.414 ppb         0.3928   3.77%
   QC value greater than the upper limit for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
```

Miscellaneous

Prep Logbook

Acid Digestion of Sediments, Sludges, and Soils

Batch ID: **1220619.0** Verified by: _____

Analyst: Louis Hall

Method: SW846 3050B

Lab SOP: GL-MA-E-009 REV# 21

Instrument: BAL-001

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1202676786	Metals Spike Mix I	UI1778680-01	.25	mL
LCS	1202676786	Metals Spike Mix II	UI1778684-06	.25	mL
MS	1202676788	Metals Spike Mix I	UI1778680-01	.25	mL
MS	1202676788	Metals Spike Mix II	UI1778684-06	.25	mL
MSD	1202676790	Metals Spike Mix I	UI1778680-01	.25	mL
MSD	1202676790	Metals Spike Mix II	UI1778684-06	.25	mL

Sample ID	Run Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)	pH Check 1
1202676785 MB	12-JUN-2012 15:30:00	Soil	0.511	50	97.84736	
1202676786 LCS	12-JUN-2012 15:30:00	Soil	0.502	50	99.60159	
305844001	12-JUN-2012 15:30:00	Soil	0.508	50	98.4252	
305844002	12-JUN-2012 15:30:00	Soil	0.504	50	99.20635	
305844003	12-JUN-2012 15:30:00	Soil	0.509	50	98.23183	
305844004	12-JUN-2012 15:30:00	Soil	0.518	50	96.5251	
305844005	12-JUN-2012 15:30:00	Soil	0.503	50	99.40358	
1202676787 DUP (305844005)	12-JUN-2012 15:30:00	Soil	0.501	50	99.8004	
1202676788 MS (305844005)	12-JUN-2012 15:30:00	Soil	0.511	50	97.84736	
1202676790 MSD (305844001)	12-JUN-2012 15:30:00	Soil	0.501	50	99.8004	
1202676789 SDILT (305844005)	12-JUN-2012 15:30:00	Soil	0.503	50	99.40358	
305844006	12-JUN-2012 15:30:00	Soil	0.504	50	99.20635	

Reagent/Solvent Lot ID	Description	Amount
1739602	Concentrated Nitric Acid	1.25 mL
1772400	HYDROCHLORIC ACID	10 mL

Comments:

Brown, Soft, Dry Soil

Hot Block ID: 3

Thermometer ID: 126-C

Block Temperature: 92 C

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
13-JUN-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ICP	SW846 3050B/6010B	Solid	ECOL
Batch ID:	**Sample Numbers:**		
1220620	See Below		

Potentially affected work order(s)(SDG): 305844

Application Issues:

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MSD/PSD: QC 1202676790MSD	1. The matrix spike duplicate recovery failed outside of the control limits for arsenic and lead due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported.

Originator's Name:

Helen Camello 13-JUN-12

Data Validator/Group Leader:

Louise Smith 13-JUN-12

Serial ID: UI110317-42 **Open/Reference Date:** 15-AUG-11 **Amount :** 200 mL
Name: SILICON **Received:** 17-MAR-11 **Catalog Number :** HP100050-4F
Type: Source Material **Expires:** 15-AUG-12 **Lot Number :** 1029420
Employee: Helen Camello **Solvent :** H20/tr HF
Supplier: High-Purity Standards
Description: SILICON 1000mg/L H20/tr HF
Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI110614-40 **Open/Reference Date:** 27-JUN-11 **Amount :** 500 mL
Name: TRACE ICP Stock PQL Sta **Received:** 14-JUN-11 **Catalog Number :** 160543-01-03
Type: Source Material **Expires:** 27-JUN-12 **Lot Number :** 1026653
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3+TrHF
Supplier: 02si
Description: TRACE ICP Stock PQL Standard
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	100 mg/L	Antimony	5 mg/L
Arsenic	15 mg/L	Barium	2.5 mg/L
Beryllium	2.5 mg/L	Boron	25 mg/L
Cadmium	2.5 mg/L	Calcium	100 mg/L
Chromium	2.5 mg/L	Cobalt	2.5 mg/L
Copper	5 mg/L	Iron	50 mg/L
Lead	5 mg/L	Magnesium	150 mg/L
Manganese	5 mg/L	Molybdenum	5 mg/L
Nickel	2.5 mg/L	Phosphorous	75 mg/L
Potassium	75 mg/L	Selenium	15 mg/L
Silicon	50 mg/L	Silver	2.5 mg/L
Sodium	150 mg/L	Strontium	2.5 mg/L
Sulfur	50 mg/L	Thallium	10 mg/L
Tin	5 mg/L	Titanium	2.5 mg/L
Uranium	25 mg/L	Vanadium	2.5 mg/L
Zinc	5 mg/L		

Serial ID: UI111118-41 **Open/Reference Date:** 22-NOV-11 **Amount :** 500 mL
Name: SI 1000mg/L **Received:** 15-NOV-11 **Catalog Number :** 060014-02-03
Type: Source Material **Expires:** 22-NOV-12 **Lot Number :** 1030808
Employee: Helen Camello **Solvent :** 0.3%H2O(NH4)2SiF6
Supplier: o2si
Description: Silicon 1000mg/L+/-0.3%in H2O(NH4)2SiF6
Comments: None

Analyte	Concentration	Analyte	Concentration

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI111122-40 **Open/Reference Date:** 22-NOV-11 **Amount :** 500 mL
Name: TRACE CALSTD#1A SOUR **Received:** 18-NOV-11 **Catalog Number :** HP2270-1-500
Type: Source Material **Expires:** 17-NOV-12 **Lot Number :** 1131927
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Std #1A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	2000 mg/L	Arsenic	200 mg/L
Barium	200 mg/L	Beryllium	200 mg/L
Boron	200 mg/L	Cadmium	200 mg/L
Calcium	2000 mg/L	Chromium	200 mg/L
Cobalt	200 mg/L	Copper	200 mg/L
Iron	2000 mg/L	Lead	200 mg/L
Magnesium	2000 mg/L	Manganese	200 mg/L
Nickel	200 mg/L	Phosphorous	1000 mg/L
Potassium	2000 mg/L	Selenium	200 mg/L
Sodium	2000 mg/L	Strontium	200 mg/L
Thallium	200 mg/L	Uranium	200 mg/L
Vanadium	200 mg/L	Zinc	200 mg/L

Serial ID: UI111122-41 **Open/Reference Date:** 22-NOV-11 **Amount :** 500 mL
Name: TRACE CALSTD#1B SOUR **Received:** 18-NOV-11 **Catalog Number :** HP2270-2-500
Type: Source Material **Expires:** 17-NOV-12 **Lot Number :** 1131926
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Standard #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	200 mg/L	Molybdenum	200 mg/L
Silver	200 mg/L	Sulfur	400 mg/L
Tin	200 mg/L	Titanium	200 mg/L

Serial ID: UI111223-41 **Open/Reference Date:** 12-JAN-12 **Amount :** 500 mL
Name: TRACE ICP Na-1000SOUR **Received:** 23-DEC-11 **Catalog Number :** 060011-02-03
Type: Source Material **Expires:** 12-JAN-13 **Lot Number :** 1027488
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: 02SI
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI120320-40 **Open/Reference Date:** 20-MAR-12 **Amount :** 500 mL
Name: TRACE ICP ICSA SOLN A **Received:** 19-MAR-12 **Catalog Number :** 160005-01-03
Type: Source Material **Expires:** 20-MAR-13 **Lot Number :** 1034867
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: o2si
Description: TRACE ICP ICSA SOLN A mg/L+/-0.5%IN5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	5000 mg/L	Calcium	5000 mg/L
Iron	2000 mg/L	Magnesium	5000 mg/L

Serial ID: UI120417-40 **Open/Reference Date:** 01-MAY-12 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 16-APR-12 **Catalog Number :** 160358-01-03
Type: Source Material **Expires:** 01-MAY-13 **Lot Number :** 1035452
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: 02si
Description: SECOND SOURCE STD #1A 5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 mg/L	Arsenic	100 mg/L
Barium	100 mg/L	Boron	100 mg/L
Cadmium	100 mg/L	Calcium	1000 mg/L
Chromium	100 mg/L	Cobalt	100 mg/L
Copper	100 mg/L	Iron	1000 mg/L
Lead	100 mg/L	Phosphorous	500 mg/L
Potassium	500 mg/L	Selenium	500 mg/L
Sodium	500 mg/L	Strontium	100 mg/L

Serial ID: UI120417-41 **Open/Reference Date:** 01-MAY-12 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 16-APR-12 **Catalog Number :** 130358-01-03
Type: Source Material **Expires:** 01-MAY-13 **Lot Number :** 1035452
Employee: Helen Camello **Solvent :** 5%HNO3,TR.HF
Supplier: 02si
Description: SECOND SOURCE STD #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 mg/L	Beryllium	50 mg/L
Magnesium	1000 mg/L	Manganese	100 mg/L
Molybdenum	100 mg/L	Nickel	100 mg/L

Analyte	Concentration	Analyte	Concentration
Silver	50 mg/L	Sulfur	500 mg/L
Thallium	100 mg/L	Tin	100 mg/L
Titanium	100 mg/L	Uranium	100 mg/L
Vanadium	100 mg/L	Zinc	100 mg/L

Serial ID: UI120430-41 **Open/Reference Date:** 07-MAY-12 **Amount :** 500 mL
Name: TRACE ICP Na-1000SOUR **Received:** 23-APR-12 **Catalog Number :** 060011-02-03
Type: Source Material **Expires:** 07-MAY-13 **Lot Number :** 1035510
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: 02SI
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI120516-48.2 **Open/Reference Date:** 07-JUN-12 **Amount :** 1000 mL
Name: Trace ICP ICSA **Received:** 16-MAY-12 **Catalog Number :** 160005-02
Type: Source Material **Expires:** 07-JUN-13 **Lot Number :** 1036389
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Interferent Check Standard A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 UG/L	Calcium	500000 UG/L
Iron	200000 UG/L	Magnesium	500000 UG/L

Serial ID: UI120516-49.19 **Open/Reference Date:** 13-JUN-12 **Amount :** 100 ml
Name: Trace ICP ICSAB **Received:** 16-MAY-12 **Catalog Number :** 160066-04
Type: Source Material **Expires:** 14-JUN-12 **Lot Number :** 1036383
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Inteferent Check Standard AB
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Antimony	500 ug/L
Arsenic	500 ug/L	Barium	500 ug/L
Beryllium	250 ug/L	Boron	500 ug/L
Cadmium	500 ug/L	Calcium	500000 ug/L
Chromium	500 ug/L	Cobalt	500 ug/L
Copper	500 ug/L	Iron	200000 ug/L
Lead	500 ug/L	Magnesium	500000 ug/L

Analyte	Concentration	Analyte	Concentration
Manganese	500 ug/L	Molybdenum	500 ug/L
Nickel	500 ug/L	Phosphorous	2500 ug/L
Potassium	5000 ug/L	Selenium	2500 ug/L
Silica	10696.5 ug/L	Silicon	5000 ug/L
Silver	250 ug/L	Sodium	5000 ug/L
Strontium	500 ug/L	Sulfur	2500 ug/L
Thallium	500 ug/L	Tin	500 ug/L
Titanium	500 ug/L	Uranium	500 ug/L
Vanadium	500 ug/L	Zinc	500 ug/L

Serial ID: UI120530-40 **Open/Reference Date:** 30-MAY-12 **Amount :** 500 mL
Name: ICP HIGH RANGE STD-A **Received:** 25-MAY-12 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 30-MAY-13 **Lot Number :** 1036537
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION A
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	10000 ug/L	Arsenic	10000 ug/L
Barium	15000 ug/L	Beryllium	3000 ug/L
Boron	5000 ug/L	Cadmium	10000 ug/L
Chromium	25000 ug/L	Cobalt	10000 ug/L
Copper	20000 ug/L	Lead	25000 ug/L
Manganese	10000 ug/L	Molybdenum	10000 ug/L
Nickel	10000 ug/L	Phosphorous	15000 ug/L
Potassium	300000 ug/L	Selenium	10000 ug/L
Silica	107000 ug/L	Silicon	50000 ug/L
Silver	1000 ug/L	Strontium	10000 ug/L
Thallium	10000 ug/L	Tin	10000 ug/L
Titanium	10000 ug/L	Vanadium	10000 ug/L
Zinc	15000 ug/L		

Serial ID: UI120530-41 **Open/Reference Date:** 30-MAY-12 **Amount :** 500 mL
Name: ICP HIGH RANGE STD B **Received:** 25-MAY-12 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 30-MAY-13 **Lot Number :** 1036537
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION B
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Calcium	500000 ug/L
Iron	500000 ug/L	Magnesium	500000 ug/L
Sodium	500000 ug/L	Sulfur	50000 ug/L

Analyte	Concentration	Analyte	Concentration
Uranium	15000 ug/L		

Serial ID: UI1778680-01 **Open/Reference Date:** 16-MAY-12 **Catalog Number :** 160047-01
Name: METALSPIKE-1 **Received:** 15-MAY-12 **Lot Number :** 1036245
Type: Source Material **Expires:** 16-MAY-13
Employee: Louis Hall
Supplier: OS2I
Description: Metals Spike Mix I
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 ug/mL	Arsenic	100 ug/mL
Barium	100 ug/mL	Beryllium	100 ug/mL
Boron	100 ug/mL	Cadmium	100 ug/mL
Calcium	1000 ug/mL	Cobalt	100 ug/mL
Iron	1000 ug/mL	Lead	100 ug/mL
Magnesium	1000 ug/mL	Phosphorous	100 ug/mL
Potassium	1000 ug/mL	Silver	100 ug/mL
Sodium	1000 ug/mL	Strontium	100 ug/mL

Serial ID: UI1778684-06 **Open/Reference Date:** 16-MAY-12 **Catalog Number :** 160048-01
Name: METALSPIKE-2 **Received:** 15-MAY-12 **Lot Number :** 1036235
Type: Source Material **Expires:** 16-MAY-13
Employee: Louis Hall
Supplier: OS2I
Description: Metals Spike Mix II
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 ug/mL	Chromium	100 ug/mL
Copper	100 ug/mL	Manganese	100 ug/mL
Molybdenum	100 ug/mL	Nickel	100 ug/mL
Selenium	100 ug/mL	Silica	2141 ug/mL
Silicon	1000 ug/mL	Sulfur	1000 ug/mL
Thallium	100 ug/mL	Tin	100 ug/mL
Titanium	100 ug/mL	Uranium	100 ug/mL
Uranium-235	.72 ug/mL	Uranium-238	99.28 ug/mL
Vanadium	100 ug/mL	Zinc	100 ug/mL

Serial ID: WI120613-42 **Open/Reference Date:** 13-JUN-12 **Balance Id :** 216
Name: TRACE ICP 0.1 PPM STD. **Received:** 22-NOV-11 **Pipet Id :** 3581809
Type: Working **Expires:** 14-JUN-12 **Solvent :** 3%HCL and 1%HNO3-1788334
Employee: Helen Camello
Supplier: GEL

Description: TRACE ICP 0.1 PPM CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI120613-44	Aluminum	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120613-44	Antimony	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Arsenic	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Barium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Beryllium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Boron	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Cadmium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Calcium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120613-44	Chromium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Cobalt	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Copper	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Iron	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120613-44	Lead	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Magnesium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120613-44	Manganese	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Molybdenum	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Nickel	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Phosphorous	5000 ug/L	10 mL	100 mL	500 ug/L
WI120613-44	Potassium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120613-44	Selenium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Silica	10698 ug/L	10 mL	100 mL	1069 ug/L
WI120613-44	Silicon	5000 ug/L	10 mL	100 mL	500 ug/L
WI120613-44	Silver	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Sodium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120613-44	Strontium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Sulfur	2000 ug/L	10 mL	100 mL	200 ug/L
WI120613-44	Thallium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Tin	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Titanium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Uranium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Vanadium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120613-44	Zinc	1000 ug/L	10 mL	100 mL	100 ug/L

Serial ID: WI120613-43 **Open/Reference Date:** 13-JUN-12 **Balance Id :** 216
Name: TRACE ICP 0.5/CCV STD. **Received:** 22-NOV-11 **Pipet Id :** 3581809
Type: Working **Expires:** 14-JUN-12 **Solvent :** 3%HCL and 1%HNO3-1788334
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP O.5/CCV CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111118-41	Silica	2139 mg/L	2.5 mL	1000 mL	5348.25 UG/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111118-41	Silicon	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI111122-40	Aluminum	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Arsenic	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Barium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Beryllium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Boron	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Cadmium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Calcium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Chromium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Cobalt	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Copper	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Iron	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Lead	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Magnesium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Manganese	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Nickel	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Phosphorous	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI111122-40	Potassium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Selenium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Sodium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Strontium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Thallium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Uranium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Vanadium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Zinc	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Antimony	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Molybdenum	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Silver	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Sulfur	400 mg/L	2.5 mL	1000 mL	1000 UG/L
UI111122-41	Tin	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Titanium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120430-41	Sodium	1000 ug/mL	5 mL	1000 mL	5000 UG/L

Serial ID: WI120613-44 **Open/Reference Date:** 13-JUN-12 **Balance Id :** 216

Name: TRACE ICP SCAL 1.0 **Received:** 22-NOV-11 **Pipet Id :** 3581809

Type: Working **Expires:** 14-JUN-12 **Solvent :** 3%HCL and 1 %HNO3-1788334

Employee: Helen Camello

Supplier: o2si

Description: Trace ICP Calibration Standard 1.0ppm

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111118-41	Silica	2139 mg/L	2.5 mL	500 mL	10698 ug/L
UI111118-41	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI111122-40	Aluminum	2000 mg/L	2.5 mL	500 mL	10000 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111122-40	Arsenic	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Barium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Beryllium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Boron	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Cadmium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Calcium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Chromium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Cobalt	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Copper	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Iron	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Lead	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Magnesium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Manganese	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Nickel	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Phosphorous	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI111122-40	Potassium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Selenium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Sodium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Strontium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Thallium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Uranium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Vanadium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Zinc	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Antimony	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Molybdenum	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Silver	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Sulfur	400 mg/L	2.5 mL	500 mL	2000 ug/L
UI111122-41	Tin	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Titanium	200 mg/L	2.5 mL	500 mL	1000 ug/L

Serial ID: WI120613-45 **Open/Reference Date:** 13-JUN-12 **Balance Id :** 216

Name: TRACE ICP S-10 STD **Received:** 20-MAR-12 **Pipet Id :** 3581809

Type: Working **Expires:** 14-JUN-12 **Solvent :** 3%HCL and 1%HNO3 -1788334

Employee: Helen Camello

Supplier: GEL

Description: TRACE ICP S-10 CALIBRATION STD.

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111223-41	Sodium	1000 ug/mL	10 mL	500 mL	20000 UG/L
UI120320-40	Aluminum	5000 mg/L	5 mL	500 mL	50000 UG/L
UI120320-40	Calcium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI120320-40	Iron	2000 mg/L	5 mL	500 mL	20000 UG/L
UI120320-40	Magnesium	5000 mg/L	5 mL	500 mL	50000 UG/L

Standard Logbook

Serial ID: WI120613-46 **Open/Reference Date:** 13-JUN-12 **Balance Id :** 216
Name: ICP TRACE ICV **Received:** 17-APR-12 **Pipet Id :** 3581809
Type: Working **Expires:** 14-JUN-12 **Solvent :** 3%HCL AND 1%HNO3-1788334
Employee: Helen Camello
Supplier: GEL
Description: Initial Calibration Verification ICP Trace Metals
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI110317-42	Silica	2139 mg/L	2.5 mL	500 mL	10695 ug/L
UI110317-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Aluminum	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Arsenic	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Barium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Boron	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Cadmium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Calcium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Chromium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Cobalt	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Copper	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Iron	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Lead	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Phosphorous	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Potassium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Selenium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Sodium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Strontium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Antimony	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Beryllium	50 mg/L	2.5 mL	500 mL	250 ug/L
UI120417-41	Magnesium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-41	Manganese	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Molybdenum	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Nickel	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Silver	50 mg/L	2.5 mL	500 mL	250 ug/L
UI120417-41	Sulfur	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-41	Thallium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Tin	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Titanium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Uranium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Vanadium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Zinc	100 mg/L	2.5 mL	500 mL	500 ug/L

Standard Logbook

Serial ID: WI120613-47 **Open/Reference Date:** 13-JUN-12 **Balance Id :** 216
Name: PQL Working Standard **Received:** 14-JUN-11 **Pipet Id :** 3581809
Type: Working **Expires:** 14-JUN-12 **Solvent :** 3%HCL &1%HNO3-1788334
Employee: Helen Camello
Supplier: 02si
Description: PQL Working Standard
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI110614-40	Aluminum	100 mg/L	2 mL	1000 mL	200 ug/L
UI110614-40	Antimony	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Arsenic	15 mg/L	2 mL	1000 mL	15 ug/L
UI110614-40	Barium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Beryllium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Boron	25 mg/L	2 mL	1000 mL	50 ug/L
UI110614-40	Cadmium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Calcium	100 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Chromium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Cobalt	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Copper	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Iron	50 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Lead	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Magnesium	150 mg/L	2 mL	1000 mL	300 ug/L
UI110614-40	Manganese	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Molybdenum	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Nickel	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Phosphorous	75 mg/L	2 mL	1000 mL	150 ug/L
UI110614-40	Potassium	75 mg/L	2 mL	1000 mL	150 ug/L
UI110614-40	Selenium	15 mg/L	2 mL	1000 mL	15 ug/L
UI110614-40	Silicon	50 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Silver	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Sodium	150 mg/L	2 mL	1000 mL	150 ug/L
UI110614-40	Strontium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Sulfur	50 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Thallium	10 mg/L	2 mL	1000 mL	20 ug/L
UI110614-40	Tin	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Titanium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Uranium	25 mg/L	2 mL	1000 mL	50 ug/L
UI110614-40	Vanadium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Zinc	5 mg/L	2 mL	1000 mL	10 ug/L

Serial ID: 120418 **Open/Reference Date:** 18-JAN-12 **Lot Number :** K48AO2
Name: I-HCL **Received:** 18-JAN-12
Type: Reagent/Solvent **Expires:** 18-JAN-13
Employee: Richard Dollinger
Supplier: Macron Chemicals

Description: HYDROCHLORIC ACID
Comments: None

Serial ID: 1739602 **Open/Reference Date:** 14-FEB-12 **Lot Number :** L03022
Name: I-HNO3 **Received:** 14-FEB-12
Type: Reagent/Solvent **Expires:** 14-FEB-13
Employee: Louis Hall
Supplier: Macron Chemicals
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 1760073 **Open/Reference Date:** 03-APR-12 **Lot Number :** K45047
Name: I-HNO3 **Received:** 03-APR-12
Type: Reagent/Solvent **Expires:** 03-APR-13
Employee: Louis Hall
Supplier: Macron Chemicals
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 1772400 **Open/Reference Date:** 03-MAY-12 **Lot Number :** L02A02
Name: I-HCL **Received:** 03-MAY-12 **Preservative_Id :** 5 none
Type: Reagent/Solvent **Expires:** 03-MAY-13
Employee: Louis Hall
Supplier: Macron Chemicals
Description: HYDROCHLORIC ACID
Comments: None

Serial ID: 1788334 **Open/Reference Date:** 11-JUN-12 **Amount :** 8 L
Name: B-ICP-RINSE SOLN **Received:** 03-APR-12 **Solvent :** 3%HCL+1%HNO3
Type: Reagent/Solvent **Expires:** 17-JUN-12
Employee: Helen Camello
Supplier: GEL
Description: 3%HCL+1%HNO3 RINSE SOLN.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
120418	I-HCL	36.5-38.0	240 mL	10000 mL	N/A
1760073	I-HNO3	68.0-70.0%	80 mL	10000 mL	N/A

This data package file was not reviewed. Reported data was R9 Tier 2 reviewed. If this package is included as a report deliverable then data in this package needs to include qualifiers or be stamped as "Data without validation Qualifiers.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178

www.gel.com

June 18, 2012

Ms. Mindy Song
Ecology & Environment, Inc.
3700 Industry Ave.
#102
Lakewood, California 90712

Re: Klondyke Tailings Removal Project
Work Order: 306122

Dear Ms. Song:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 15, 2012. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4422.

Sincerely,

Jennifer Pellegrini for
Jake Crook
Project Manager

Purchase Order: 002693.2105.06TTO
Enclosures

Ecology and Environment, Inc. Project #002693
Klondyke Tailings Removal Project
SDG: 306122

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Case Narrative

Case Narrative
for
Ecology and Environment, Inc. Project #002693
SDG: 306122

June 18, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample Receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 15, 2012 for analysis.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
306122001	AD-04-00
306122002	AD-46-12COMP
306122003	SH-20-00
306122004	AC-01-00
306122005	AD-44-12COMP
306122006	SH-19-00
306122007	AC-02-00
306122008	AD-50-12COMP
306122009	AD-03-01
306122010	AD-03-00-PD
306122011	AD-48-12COMP

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Metals.

Jennifer Pellegrini for
Jake Crook
Project Manager

Chain of Custody and Supporting Documentation

ENVIRONMENTAL PROTECTION AGENCY
Region 9 Laboratory

306122

CHAIN OF CUSTODY RECORD

1337 S. 46th St., Bldg. 201
Richmond, CA 94804-4698

PROJ. NO. 002693.

PROJECT NAME: KLONDYKE TAILINGS REMOVAL

SAMPLERS: (Signature)

Ecology & Environment
3700 Industry Ave #162
Lakewood, CA 90712
562-997-1200

DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	EPA 6010B	REMARKS
6/3/12	1200	Soil		X	AD-04-00	1	X	
6/12/12	1511		X		AD-46-12COMP	1	X	
6/11/12	1200			X	SH-20-00	1	X	
6/9/12	1200			X	AC-01-00	1	X	
6/12/12	1508		X		AD-44-12COMP	1	X	MS/MSD
6/11/12	1200			X	SH-19-00	1	X	
6/9/12	1200			X	AC-02-00	1	X	
6/12/12	1530		X		AD-50-12COMP	1	X	
6/9/12	1200			X	AD-03-01	1	X	
6/8/12	1200			X	AD-03-00-PD	1	X	
6/12/12	1515		X		AD-48-12COMP	1	X	

Send results to Robyn Kelly <rkelly@ene.com>

Rush: 24hr TAT

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Matt Diener / Matt Diener	6/14/12 0645	to FedEx
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received for Laboratory by: (Signature)	Date / Time	Temp. / Seals Intact (Y/N)

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
		6.15.12 0930
Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Conditions / Remarks

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

9-2406

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ECOL	**SDG/AR/COC/Work Order:** 320122
Received By: SE	**Date Received:** 6.15.12

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Ice bags Blue ice Dry ice (None) Other (describe) *all temperatures are recorded in Celsius 20
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 6152464 9 Secondary Temperature Device Serial # (if Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: times not present on all samples
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: (FedEx Air) FedEx Ground UPS Field Services Courier Other 7936 7912 2780

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials JP Date 6-18-12 Page 1 of 1

Data Review Qualifier Definitions

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

List of current GEL Certifications as of 18 June 2012

State	Certification
Arizona	AZ0766
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−09−00191
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
Wisconsin	999887790

Metals Analysis

Case Narrative

Metals Fractional Narrative
Ecology and Environment, Inc. Project #002693 (ECOL)
SDG 306122

Sample Analysis

Sample ID	Client ID
306122001	AD-04-00
306122002	AD-46-12COMP
306122003	SH-20-00
306122004	AC-01-00
306122005	AD-44-12COMP
306122006	SH-19-00
306122007	AC-02-00
306122008	AD-50-12COMP
306122009	AD-03-01
306122010	AD-03-00-PD
306122011	AD-48-12COMP
1202679758	Method Blank (MB) **ICP**
1202679759	Laboratory Control Sample (LCS)
1202679762	306122005(AD-44-12COMPL) Serial Dilution (SD)
1202679760	306122005(AD-44-12COMPD) Sample Duplicate (DUP)
1202679761	306122005(AD-44-12COMPS) Matrix Spike (MS)
1202679764	306122005(AD-44-12COMPSD) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Method/Analysis Information

Analytical Batch: 1221778
Prep Batch : 1221777
Standard Operating Procedures: GL-MA-E-013 REV# 20 and GL-MA-E-009 REV# 21
Analytical Method: SW846 3050B/6010B
Prep Method : SW846 3050B

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this SDG: 306122005 (AD-44-12COMP).

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Matrix Spike Duplicate (MSD) Recovery Statement
The percent recovery (%R) obtained from the MSD analyses are evaluated when the sample concentration is less than four time (4X) the spike concentration added. All applicable elements met the acceptance criteria.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD(s) between the MS and MSD met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 06-20-12

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ECOL007 Ecology and Environment, Inc. Project #002693

Client SDG: 306122 GEL Work Order: 306122

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

B Metals--Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the RL or LOQ.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.

Reviewed By: _____ 06-26-12

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122001 **CLIENT ID:** AD−04−00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 99.39

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	13.9	mg/kg			P	0.502	1	OPTIMA3	061512−1
7439−92−1	Lead	871	mg/kg			P	0.331	1	OPTIMA3	061512−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122002 **CLIENT ID:** AD−46−12COMP

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 96.9

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	13.2	mg/kg			P	0.466	1	OPTIMA3	061512−1
7439−92−1	Lead	753	mg/kg			P	0.307	1	OPTIMA3	061512−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122003 **CLIENT ID:** SH−20−00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 99.965

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	16.5	mg/kg			P	0.5	1	OPTIMA3	061512−1
7439−92−1	Lead	828	mg/kg			P	0.33	1	OPTIMA3	061512−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122004 **CLIENT ID:** AC−01−00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 99.36

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	12.1	mg/kg			P	0.478	1	OPTIMA3	061512−1
7439−92−1	Lead	899	mg/kg			P	0.316	1	OPTIMA3	061512−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122005 **CLIENT ID:** AD−44−12COMP

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 95.5

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	16.8	mg/kg			P	0.483	1	OPTIMA3	061512−1
7439−92−1	Lead	781	mg/kg			P	0.319	1	OPTIMA3	061512−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122006 **CLIENT ID:** SH−19−00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 100

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	25.1	mg/kg			P	0.487	1	OPTIMA3	061512−1
7439−92−1	Lead	751	mg/kg			P	0.322	1	OPTIMA3	061512−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122007 **CLIENT ID:** AC−02−00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 97

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	8.94	mg/kg			P	0.505	1	OPTIMA3	061512−1
7439−92−1	Lead	415	mg/kg			P	0.333	1	OPTIMA3	061512−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122008 **CLIENT ID:** AD−50−12COMP

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 96.9

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	10.5	mg/kg			P	0.481	1	OPTIMA3	061512−1
7439−92−1	Lead	461	mg/kg			P	0.318	1	OPTIMA3	061512−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122009 **CLIENT ID:** AD−03−01

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 90

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	8.27	mg/kg			P	0.551	1	OPTIMA3	061512−1
7439−92−1	Lead	87.2	mg/kg			P	0.364	1	OPTIMA3	061512−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122010 **CLIENT ID:** AD−03−00−PD

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 97.6

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	20.5	mg/kg			P	0.489	1	OPTIMA3	061512−1
7439−92−1	Lead	1170	mg/kg			P	0.323	1	OPTIMA3	061512−1

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122011 **CLIENT ID:** AD−48−12COMP

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15−JUN−12 **LEVEL:** Low **%SOLIDS:** 97.8

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	11.2	mg/kg			P	0.497	1	OPTIMA3	061512−1
7439−92−1	Lead	469	mg/kg			P	0.328	1	OPTIMA3	061512−1

***Analytical Methods:**

P SW846 3050B/6010B

Quality Control Summary

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 306122

Contract: ECOL00720 **Lab Code:** GEL

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: O2Si

Instrument ID: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
ICV01										
	Arsenic	496	ug/L	500	ug/L	99.3	90.0 − 110.0	P	15−JUN−12 06:23	061512−1
	Lead	506	ug/L	500	ug/L	101.3	90.0 − 110.0	P	15−JUN−12 06:23	061512−1
CCV01										
	Arsenic	506	ug/L	500	ug/L	101.2	90.0 − 110.0	P	15−JUN−12 06:44	061512−1
	Lead	515	ug/L	500	ug/L	103	90.0 − 110.0	P	15−JUN−12 06:44	061512−1
CCV02										
	Arsenic	484	ug/L	500	ug/L	96.8	90.0 − 110.0	P	15−JUN−12 07:19	061512−1
	Lead	486	ug/L	500	ug/L	97.1	90.0 − 110.0	P	15−JUN−12 07:19	061512−1
CCV03										
	Arsenic	517	ug/L	500	ug/L	103.5	90.0 − 110.0	P	15−JUN−12 07:59	061512−1
	Lead	522	ug/L	500	ug/L	104.4	90.0 − 110.0	P	15−JUN−12 07:59	061512−1
CCV04										
	Arsenic	516	ug/L	500	ug/L	103.3	90.0 − 110.0	P	15−JUN−12 08:12	061512−1
	Lead	521	ug/L	500	ug/L	104.2	90.0 − 110.0	P	15−JUN−12 08:12	061512−1
CCV05										
	Arsenic	503	ug/L	500	ug/L	100.6	90.0 − 110.0	P	15−JUN−12 08:44	061512−1
	Lead	504	ug/L	500	ug/L	100.8	90.0 − 110.0	P	15−JUN−12 08:44	061512−1
CCV06										
	Arsenic	502	ug/L	500	ug/L	100.3	90.0 − 110.0	P	15−JUN−12 08:57	061512−1
	Lead	503	ug/L	500	ug/L	100.5	90.0 − 110.0	P	15−JUN−12 08:57	061512−1
CCV07										
	Arsenic	510	ug/L	500	ug/L	102.1	90.0 − 110.0	P	15−JUN−12 09:23	061512−1
	Lead	520	ug/L	500	ug/L	104	90.0 − 110.0	P	15−JUN−12 09:23	061512−1
CCV08										
	Arsenic	500	ug/L	500	ug/L	100	90.0 − 110.0	P	15−JUN−12 09:50	061512−1
	Lead	510	ug/L	500	ug/L	102	90.0 − 110.0	P	15−JUN−12 09:50	061512−1
CCV09										
	Arsenic	498	ug/L	500	ug/L	99.6	90.0 − 110.0	P	15−JUN−12 10:13	061512−1
	Lead	506	ug/L	500	ug/L	101.2	90.0 − 110.0	P	15−JUN−12 10:13	061512−1

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 306122

Contract: ECOL00720 **Lab Code:** GEL

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: O2Si

Instrument ID: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
CCV10										
	Arsenic	510	ug/L	500	ug/L	102.1	90.0 − 110.0	P	15−JUN−12 10:37	061512−1
	Lead	518	ug/L	500	ug/L	103.6	90.0 − 110.0	P	15−JUN−12 10:37	061512−1
CCV11										
	Arsenic	500	ug/L	500	ug/L	99.9	90.0 − 110.0	P	15−JUN−12 10:54	061512−1
	Lead	506	ug/L	500	ug/L	101.2	90.0 − 110.0	P	15−JUN−12 10:54	061512−1
CCV12										
	Arsenic	489	ug/L	500	ug/L	97.8	90.0 − 110.0	P	15−JUN−12 11:26	061512−1
	Lead	496	ug/L	500	ug/L	99.2	90.0 − 110.0	P	15−JUN−12 11:26	061512−1
CCV13										
	Arsenic	501	ug/L	500	ug/L	100.2	90.0 − 110.0	P	15−JUN−12 12:05	061512−1
	Lead	507	ug/L	500	ug/L	101.4	90.0 − 110.0	P	15−JUN−12 12:05	061512−1
CCV14										
	Arsenic	478	ug/L	500	ug/L	95.6	90.0 − 110.0	P	15−JUN−12 12:31	061512−1
	Lead	481	ug/L	500	ug/L	96.3	90.0 − 110.0	P	15−JUN−12 12:31	061512−1
CCV15										
	Arsenic	488	ug/L	500	ug/L	97.6	90.0 − 110.0	P	15−JUN−12 13:21	061512−1
	Lead	489	ug/L	500	ug/L	97.9	90.0 − 110.0	P	15−JUN−12 13:21	061512−1
CCV16										
	Arsenic	471	ug/L	500	ug/L	94.2	90.0 − 110.0	P	15−JUN−12 13:34	061512−1
	Lead	474	ug/L	500	ug/L	94.8	90.0 − 110.0	P	15−JUN−12 13:34	061512−1
CCV17										
	Arsenic	481	ug/L	500	ug/L	96.2	90.0 − 110.0	P	15−JUN−12 14:03	061512−1
	Lead	479	ug/L	500	ug/L	95.7	90.0 − 110.0	P	15−JUN−12 14:03	061512−1
CCV18										
	Arsenic	498	ug/L	500	ug/L	99.5	90.0 − 110.0	P	15−JUN−12 14:33	061512−1
	Lead	501	ug/L	500	ug/L	100.2	90.0 − 110.0	P	15−JUN−12 14:33	061512−1
CCV19										
	Arsenic	492	ug/L	500	ug/L	98.4	90.0 − 110.0	P	15−JUN−12 14:43	061512−1
	Lead	493	ug/L	500	ug/L	98.5	90.0 − 110.0	P	15−JUN−12 14:43	061512−1

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 306122

Contract: ECOL00720 **Lab Code:** GEL

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: O2Si

Instrument ID: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
CCV20										
	Arsenic	490	ug/L	500	ug/L	98	90.0 − 110.0	P	15−JUN−12 15:12	061512−1
	Lead	491	ug/L	500	ug/L	98.1	90.0 − 110.0	P	15−JUN−12 15:12	061512−1
CCV21										
	Arsenic	471	ug/L	500	ug/L	94.3	90.0 − 110.0	P	15−JUN−12 15:42	061512−1
	Lead	475	ug/L	500	ug/L	94.9	90.0 − 110.0	P	15−JUN−12 15:42	061512−1

***Analytical Methods:**

P SW846 3050B/6010B

METALS
−2b−
CRDL Standard for AA & ICP

SDG No: 306122

Contract: ECOL00720 **Lab Code:** GEL

AA CRDL Standard Source: SPEX

ICP CRDL Standard Source Solutions Plus

Instrument ID: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Advisory Limits (%R)	M*	Analysis Date/Time	Run Number
PQL01										
	Arsenic	30.1	ug/L	30	ug/L	100.5	70.0 − 130.0	P	15−JUN−12 06:29	061512−1
	Lead	9.68	ug/L	10	ug/L	96.8	70.0 − 130.0	P	15−JUN−12 06:29	061512−1
PQL02										
	Lead	12.9	ug/L	10	ug/L	128.9	70.0 − 130.0	P	15−JUN−12 08:02	061512−1
	Arsenic	31.2	ug/L	30	ug/L	104	70.0 − 130.0	P	15−JUN−12 08:02	061512−1
PQL03										
	Arsenic	29.6	ug/L	30	ug/L	98.8	70.0 − 130.0	P	15−JUN−12 08:47	061512−1
	Lead	11.3	ug/L	10	ug/L	113.4	70.0 − 130.0	P	15−JUN−12 08:47	061512−1
PQL04										
	Arsenic	29.2	ug/L	30	ug/L	97.2	70.0 − 130.0	P	15−JUN−12 10:57	061512−1
	Lead	13.8	ug/L	10	ug/L	137.9	70.0 − 130.0	P	15−JUN−12 10:57	061512−1
PQL05										
	Arsenic	25.4	ug/L	30	ug/L	84.7	70.0 − 130.0	P	15−JUN−12 12:35	061512−1
	Lead	9.45	ug/L	10	ug/L	94.5	70.0 − 130.0	P	15−JUN−12 12:35	061512−1
PQL06										
	Arsenic	29.1	ug/L	30	ug/L	97	70.0 − 130.0	P	15−JUN−12 13:24	061512−1
	Lead	12.5	ug/L	10	ug/L	124.6	70.0 − 130.0	P	15−JUN−12 13:24	061512−1
PQL07										
	Arsenic	27.1	ug/L	30	ug/L	90.5	70.0 − 130.0	P	15−JUN−12 14:36	061512−1
	Lead	10.9	ug/L	10	ug/L	109.1	70.0 − 130.0	P	15−JUN−12 14:36	061512−1

***Analytical Methods:**

P **SW846 3050B/6010B**

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 306122

Contract: ECOL00720

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
ICB01										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 06:26	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 06:26	061512−1
CCB01										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 06:47	061512−1
	Lead	4.14	+/−10	B	3.3	10.0	SOL	P	15−JUN−12 06:47	061512−1
CCB02										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 07:23	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 07:23	061512−1
CCB03										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 08:05	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 08:05	061512−1
CCB04										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 08:15	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 08:15	061512−1
CCB05										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 08:50	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 08:50	061512−1
CCB06										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 09:00	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 09:00	061512−1
CCB07										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 09:26	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 09:26	061512−1
CCB08										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 09:53	061512−1
	Lead	6.73	+/−10	B	3.3	10.0	SOL	P	15−JUN−12 09:53	061512−1
CCB09										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 10:17	061512−1
	Lead	6.47	+/−10	B	3.3	10.0	SOL	P	15−JUN−12 10:17	061512−1
CCB10										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 10:40	061512−1
	Lead	4.31	+/−10	B	3.3	10.0	SOL	P	15−JUN−12 10:40	061512−1

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 306122

Contract: ECOL00720

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
CCB11										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 11:00	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 11:00	061512−1
CCB12										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 11:30	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 11:30	061512−1
CCB13										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 12:08	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 12:08	061512−1
CCB14										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 12:38	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 12:38	061512−1
CCB15										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 13:27	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 13:27	061512−1
CCB16										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 13:37	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 13:37	061512−1
CCB17										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 14:06	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 14:06	061512−1
CCB18										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 14:39	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 14:39	061512−1
CCB19										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 14:46	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 14:46	061512−1
CCB20										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 15:15	061512−1
	Lead	5.59	+/−10	B	3.3	10.0	SOL	P	15−JUN−12 15:15	061512−1
CCB21										
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	15−JUN−12 15:46	061512−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	15−JUN−12 15:46	061512−1

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 306122

Contract: ECOL00720 **Lab Code: GEL**

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 306122
Contract: ECOL00720
Matrix: Soil

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202679758								
	Arsenic	0.478	mg/kg	+/−2.87	U	P	0.478	2.87
	Lead	0.701	mg/kg	+/−0.956	B	P	0.315	0.956

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
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Interference Check Sample

SDG No: 306122

Contract: ECOL00720 **Lab Code:** GEL

ICS: O2Si

Instrument: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Arsenic	0.381	ug/L					15−JUN−12 06:32	061512−1
	Lead	1.46	ug/L					15−JUN−12 06:32	061512−1
ICSAB01									
	Arsenic	545	ug/L	500	ug/L	109	80.0 − 120.0	15−JUN−12 06:35	061512−1
	Lead	496	ug/L	500	ug/L	99.2	80.0 − 120.0	15−JUN−12 06:35	061512−1

METALS
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Matrix Spike Summary

SDG NO.	306122	**Client ID**	AD−44−12COMPS
Contract:	ECOL00720	**Level:**	Low
Matrix:	SOIL	**% Solids:**	95.5
Sample ID:	306122005	**Spike ID:**	1202679761

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Arsenic	mg/kg	75−125	60.6		16.8		50.7	86.2		P
Lead	mg/kg		791		781		50.7	19.8	N/A	P

***Analytical Methods:**
P SW846 3050B/6010B

METALS
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Matrix Spike Duplicate Summary

SDG NO. 306122 **Client ID** AD−44−12COMPSD

Contract: ECOL00720 **Level:** Low

Matrix: SOIL **% Solids:** 95.5

Sample ID: 306122005 **Spike ID:** 1202679764

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Arsenic	mg/kg	75−125	64.1		16.8		51.4	91.9		P
Lead	mg/kg		836		781		51.4	108	N/A	P

***Analytical Methods:**
P SW846 3050B/6010B

Metals
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Duplicate Sample Summary

SDG No.: 306122 **Lab Code:** GEL

Contract: ECOL00720 **Client ID:** AD−44−12COMPD

Matrix: SOLID **Level:** Low

Sample ID: 306122005 **Duplicate ID:** 1202679760 **Percent Solids for Dup:** 95.5

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Arsenic	mg/kg	+/−20%	16.8		16.7		.791		P
Lead	mg/kg	+/−20%	781		783		.251		P

***Analytical Methods:**

P SW846 3050B/6010B

Metals
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Duplicate Sample Summary

SDG No.: 306122 **Lab Code:** GEL

Contract: ECOL00720 **Client ID:** AD−44−12COMPSD

Matrix: SOLID **Level:** Low

Sample ID: 1202679761 **Duplicate ID:** 1202679764 **Percent Solids for Dup:** 95.5

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Arsenic	mg/kg	+/−20	60.6		64.1		5.66		P
Lead	mg/kg	+/−20	791		836		5.57		P

***Analytical Methods:**

P SW846 3050B/6010B

METALS
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Laboratory Control Sample Summary

SDG NO. 306122

Contract: ECOL00720

Aqueous LCS Source: **Solid LCS Source:** OS2I

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202679759								
	Arsenic	mg/kg	48.4	50		103	80−120	P
	Lead	mg/kg	48.4	50.3		104	80−120	P

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
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Serial Dilution Sample Summary

SDG NO. 306122 **Client ID** AD−44−12COMPL

Contract: ECOL00720

Matrix: SOLID **Level:** Low

Sample ID: 306122005 **Serial Dilution ID:** 1202679762

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Arsenic	174		172		1.04			P
Lead	8090		8530		5.55		10	P

***Analytical Methods:**

P **SW846 3050B/6010B**

METALS
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SAMPLE PREPARATION SUMMARY

SDG No: 306122 **Method Type:** P

Contract: ECOL00720 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
Batch Number 1221777							
1202679758	MB for batch 1221777	MB	S	15−JUN−12	.523g	50mL	
1202679759	LCS for batch 1221777	LCS	S	15−JUN−12	.517g	50mL	
1202679761	AD−44−12COMPS	MS	S	15−JUN−12	.516g	50mL	
1202679764	AD−44−12COMPSD	MSD	S	15−JUN−12	.509g	50mL	
1202679760	AD−44−12COMPD	DUP	S	15−JUN−12	.54g	50mL	
306122001	AD−04−00	SAMPLE	S	15−JUN−12	.501g	50mL	
306122002	AD−46−12COMP	SAMPLE	S	15−JUN−12	.554g	50mL	
306122003	SH−20−00	SAMPLE	S	15−JUN−12	.5g	50mL	
306122004	AC−01−00	SAMPLE	S	15−JUN−12	.526g	50mL	
306122005	AD−44−12COMP	SAMPLE	S	15−JUN−12	.542g	50mL	
306122006	SH−19−00	SAMPLE	S	15−JUN−12	.513g	50mL	
306122007	AC−02−00	SAMPLE	S	15−JUN−12	.511g	50mL	
306122008	AD−50−12COMP	SAMPLE	S	15−JUN−12	.536g	50mL	
306122009	AD−03−01	SAMPLE	S	15−JUN−12	.505g	50mL	
306122010	AD−03−00−PD	SAMPLE	S	15−JUN−12	.524g	50mL	
306122011	AD−48−12COMP	SAMPLE	S	15−JUN−12	.514g	50mL	

Metals
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Analysis Run Log

Contract: ECOL00720
Lab Code: GEL
Inst Name: OPTIMA3
Start Date: 15−JUN−12
End Date: 15−JUN−12
Client Sdg: 306122
Method*: P
Data File: 061512−1

Samp No.	D/F	Run Time	As	Pb
S0.0	1	06:09:00	X	X
S0.1	1	06:12:00	X	X
S0.5	1	06:15:00	X	X
SCAL	1	06:18:00	X	X
S10	1	06:21:00		
ICV01	1	06:23:00	X	X
ICB01	1	06:26:00	X	X
PQL01	1	06:29:00	X	X
ICSA01	1	06:32:00	X	X
ICSAB01	1	06:35:00	X	X
LR01	1	06:37:00	X	X
LR02	1	06:39:00	X	X
CCV01	1	06:44:00	X	X
CCB01	1	06:47:00	X	X
ZZZZZZ	1	06:56:00		
ZZZZZZ	1	07:00:00		
ZZZZZZ	1	07:03:00		
ZZZZZZ	1	07:06:00		
ZZZZZZ	1	07:09:00		
ZZZZZZ	1	07:13:00		
ZZZZZZ	1	07:16:00		
CCV02	1	07:19:00	X	X
CCB02	1	07:23:00	X	X
ZZZZZZ	1	07:26:00		
ZZZZZZ	1	07:29:00		
ZZZZZZ	1	07:32:00		
ZZZZZZ	1	07:36:00		
ZZZZZZ	1	07:39:00		
ZZZZZZ	1	07:42:00		
ZZZZZZ	1	07:45:00		
ZZZZZZ	1	07:49:00		
ZZZZZZ	1	07:52:00		
ZZZZZZ	5	07:56:00		
CCV03	1	07:59:00	X	X
PQL02	1	08:02:00	X	X
CCB03	1	08:05:00	X	X
ZZZZZZ	10	08:08:00		
CCV04	1	08:12:00	X	X
CCB04	1	08:15:00	X	X
ZZZZZZ	1	08:18:00		

Metals
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Analysis Run Log

Samp No.	D/F	Run Time		
ZZZZZZ	1	08:21:00		
ZZZZZZ	1	08:25:00		
ZZZZZZ	1	08:28:00		
ZZZZZZ	1	08:31:00		
ZZZZZZ	5	08:35:00		
ZZZZZZ	1	08:38:00		
ZZZZZZ	5	08:41:00		
CCV05	1	08:44:00	X	X
PQL03	1	08:47:00	X	X
CCB05	1	08:50:00	X	X
ZZZZZZ	50	08:54:00		
CCV06	1	08:57:00	X	X
CCB06	1	09:00:00	X	X
ZZZZZZ	1	09:04:00		
ZZZZZZ	1	09:07:00		
ZZZZZZ	1	09:10:00		
ZZZZZZ	1	09:13:00		
ZZZZZZ	1	09:15:00		
ZZZZZZ	1	09:18:00		
ZZZZZZ	5	09:20:00		
CCV07	1	09:23:00	X	X
CCB07	1	09:26:00	X	X
ZZZZZZ	1	09:29:00		
ZZZZZZ	1	09:32:00		
ZZZZZZ	1	09:34:00		
ZZZZZZ	1	09:37:00		
ZZZZZZ	1	09:40:00		
ZZZZZZ	1	09:42:00		
ZZZZZZ	1	09:45:00		
ZZZZZZ	1	09:47:00		
CCV08	1	09:50:00	X	X
CCB08	1	09:53:00	X	X
ZZZZZZ	5	09:59:00		
ZZZZZZ	5	10:01:00		
ZZZZZZ	5	10:03:00		
ZZZZZZ	5	10:06:00		
ZZZZZZ	25	10:08:00		
ZZZZZZ	5	10:11:00		
CCV09	1	10:13:00	X	X
CCB09	1	10:17:00	X	X

Metals
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Analysis Run Log

Samp No.	D/F	Run Time	As	Pb
ZZZZZZ	5	10:20:00		
ZZZZZZ	5	10:22:00		
ZZZZZZ	5	10:24:00		
ZZZZZZ	5	10:28:00		
ZZZZZZ	5	10:30:00		
ZZZZZZ	5	10:32:00		
ZZZZZZ	5	10:34:00		
CCV10	1	10:37:00	X	X
CCB10	1	10:40:00	X	X
ZZZZZZ	1	10:47:00		
ZZZZZZ	5	10:50:00		
CCV11	1	10:54:00	X	X
PQL04	1	10:57:00	X	X
CCB11	1	11:00:00	X	X
ZZZZZZ	1	11:04:00		
ZZZZZZ	1	11:07:00		
ZZZZZZ	1	11:10:00		
ZZZZZZ	1	11:13:00		
ZZZZZZ	1	11:17:00		
ZZZZZZ	5	11:20:00		
ZZZZZZ	50	11:23:00		
CCV12	1	11:26:00	X	X
CCB12	1	11:30:00	X	X
ZZZZZZ	1	11:39:00		
ZZZZZZ	1	11:42:00		
ZZZZZZ	1	11:45:00		
ZZZZZZ	1	11:48:00		
ZZZZZZ	1	11:52:00		
ZZZZZZ	1	11:55:00		
ZZZZZZ	5	11:58:00		
ZZZZZZ	1	12:02:00		
CCV13	1	12:05:00	X	X
CCB13	1	12:08:00	X	X
ZZZZZZ	1	12:11:00		
ZZZZZZ	5	12:15:00		
ZZZZZZ	5	12:18:00		
ZZZZZZ	5	12:21:00		
ZZZZZZ	5	12:24:00		
ZZZZZZ	25	12:28:00		
CCV14	1	12:31:00	X	X

Metals
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Analysis Run Log

Samp No.	D/F	Run Time		
PQL05	1	12:35:00	X	X
CCB14	1	12:38:00	X	X
ZZZZZZ	1	12:44:00		
ZZZZZZ	1	12:47:00		
ZZZZZZ	1	12:50:00		
ZZZZZZ	1	12:53:00		
ZZZZZZ	5	12:57:00		
ZZZZZZ	1	13:00:00		
ZZZZZZ	1	13:04:00		
ZZZZZZ	50	13:07:00		
ZZZZZZ	50	13:10:00		
ZZZZZZ	20	13:17:00		
CCV15	1	13:21:00	X	X
PQL06	1	13:24:00	X	X
CCB15	1	13:27:00	X	X
ZZZZZZ	100	13:31:00		
CCV16	1	13:34:00	X	X
CCB16	1	13:37:00	X	X
CCV17	1	14:03:00	X	X
CCB17	1	14:06:00	X	X
ZZZZZZ	1	14:10:00		
ZZZZZZ	1	14:13:00		
ZZZZZZ	1	14:16:00		
ZZZZZZ	1	14:20:00		
ZZZZZZ	5	14:23:00		
ZZZZZZ	50	14:26:00		
ZZZZZZ	1	14:30:00		
CCV18	1	14:33:00	X	X
PQL07	1	14:36:00	X	X
CCB18	1	14:39:00	X	X
CCV19	1	14:43:00	X	X
CCB19	1	14:46:00	X	X
1202679758	1	14:49:00	X	X
1202679759	1	14:53:00	X	X
306122001	1	14:56:00	X	X
306122002	1	14:59:00	X	X
306122003	1	15:01:00	X	X
306122004	1	15:04:00	X	X
306122005	1	15:07:00	X	X
1202679760	1	15:09:00	X	X

Metals
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Analysis Run Log

Samp No.	D/F	Run Time	As	Pb
CCV20	1	15:12:00	X	X
CCB20	1	15:15:00	X	X
1202679761	1	15:19:00	X	X
1202679764	1	15:21:00	X	X
1202679762	5	15:24:00	X	X
306122006	1	15:26:00	X	X
306122007	1	15:29:00	X	X
306122008	1	15:32:00	X	X
306122009	1	15:34:00	X	X
306122010	1	15:37:00	X	X
306122011	1	15:40:00	X	X
CCV21	1	15:42:00	X	X
CCB21	1	15:46:00	X	X

Standards

METALS
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Instrument Detection Limits

SDG NO. 306122

Contract: ECOL00720 **Lab Code: GEL** **MDL Effective Date:** 23−JAN−11

ICP	Analyte	Wavelength (nm)	MDL ug/L	RDL ug/L
SOLID	Arsenic	188.979	5.0	30
	Lead	220.353	3.3	10

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 306122
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Aluminum	Antimony	Arsenic	Barium	Beryllium
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.07354	0.00000	0.00000	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	−0.75350	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.49463	0.00000	0.00000	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	−0.23554	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	13.1846	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.21575	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00465	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 306122
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Boron	Cadmium	Calcium	Chromium	Cobalt
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	23.3987	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	−4.41902	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	−0.00885	−0.19499	0.00000
Boron	249.677	0.00000	0.00000	0.00000	−1.83304	3.43795
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.26855	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	−1.36933
Lead	220.353	0.00000	0.00000	−0.04535	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	−10.0236
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.60469
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.17047	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	−1.31651
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.01180	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.10056	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	−0.09685	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	−0.03646	0.35209	0.00000
Uranium	367.007	0.00000	0.00000	0.26208	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	−2.79443	0.00000
Zinc	213.857	0.00000	0.00000	0.01118	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 306122
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Copper	Lead	Magnesium	Manganese	Molybdenum
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	37.9834
Antimony	**206.836**	0.00000	0.00000	0.00000	0.00000	−12.9786
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	5.06550
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	−0.01013	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	0.00000	−1.37414
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.15226	0.00000	0.00000	0.00000	−3.69435
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	−7.03373
Manganese	**257.61**	0.00000	0.00000	0.03774	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	23.6803	0.00000	0.00000	0.00000	8.28450
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	11.9716
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	5.24433	−9.70065
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.01115	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	−0.67352	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	−11.1543
Zinc	**213.857**	0.72938	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 306122
Contract: ECOL00720
Instrument: OPTIMA3
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Nickel	Phosphorous	Potassium	Selenium	Silicon
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.40304	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	6.45017	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
Contract: **ECOL00720**
Instrument: **OPTIMA3**
GEL Job No: **306122**
Effective Dates: **01−MAY−12**
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Silver	Strontium	Sulfur	Thallium	Tin
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	0.00000	0.00000	0.00000	−2.80617
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.00000	0.00000	0.00000	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	3.97807
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
Contract: **ECOL00720**
Instrument: **OPTIMA3**
GEL Job No: **306122**
Effective Dates: **01−MAY−12**
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Titanium	Uranium	Vanadium	Zinc
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	−0.46849	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	−1.35629	0.00000
Beryllium	**313.107**	0.26962	−0.19884	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.98445	−0.73762	0.00000
Cobalt	**228.616**	2.07030	0.00000	0.00000	0.00000
Copper	**324.752**	−0.77714	0.83827	0.00000	0.00000
Lead	**220.353**	0.00000	0.64053	0.00000	0.00000
	238.204	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	−7.26842	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	−1.60778	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	−6.14596	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.42459	0.00000	0.00000	0.00000
Thallium	**190.801**	−4.09084	−0.46877	0.00000	0.00000
Tin	**189.927**	−2.84744	0.28891	0.00000	0.00000
Titanium	**334.94**	0.00000	0.45218	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	−1.68602	0.00000
Vanadium	**292.402**	0.86620	−0.82394	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000

METALS
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Linear Ranges

SDG NO. 306122

Contract: ECOL00720 **Lab Code: GEL**

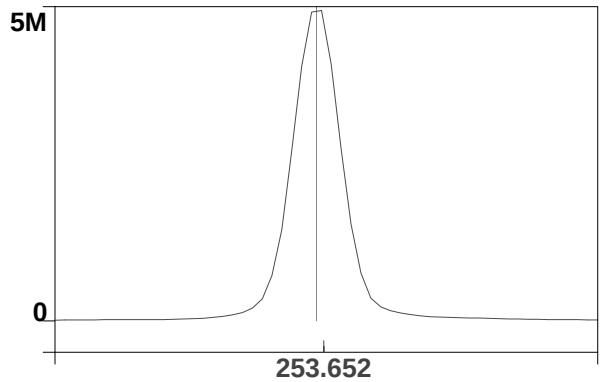
Instrument ID OPTIMA3

Analyte	Integration Time (sec)	LDR	Units	Effective Date
Arsenic	20	10000	ug/L	01−MAY−12
Lead	20	25000	ug/L	01−MAY−12

Raw Data

Method: Hg_ReAlign **Sample ID: Hg_ReAlign**
Result: 061512

Hg 253.652 **Rep: 1**



Intensity: 5328028.7 cps
Conc:

1

6/15/2012 5:57:32 Hg ReAlign... Actual peak offset (nm): 0.001
Drift (nm): 0.001 Slit adjustment: 3

Analysis Begun

Start Time: 6/15/2012 6:09:35 **Plasma On Time: 6/14/2012 5:56:16**
Logged In Analyst: optima3 **Technique: ICP Continuous**
Spectrometer Model: Optima 5300 DV, S/N No Serial #Autosampler Model: AS-93plus

Sample Information File: C:\pe\Optima3\Sample Information\061512.sif
Batch ID:
Results Data Set: 061512
Results Library: C:\pe\Optima3\Results\Results.mdb

Method Loaded
Method Name: Gen Eng fast_new Si2 **Method Last Saved: 6/14/2012 7:19:45**
IEC File: 041012.iec **MSF File:**
Method Description:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Al 396.153Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
B 249.677	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Be 313.107	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ca 317.933Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Cd 226.502	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cr 267.716	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Fe 238.204 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
K 766.490 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mg 279.077 IEC	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mn 257.610	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Na 589.592 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Ni 231.604	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
P 214.914	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
S 181.975 Axial	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sc 361.383	Lin Thru 0	Peak Area	Axial	n/a	n/a
Sc RADIAL	Lin, Calc Int	Peak Area	Radial	n/a	n/a
Se 196.026	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
SiO2	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Si 251.611	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sn 189.927	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Ti 334.940	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
U 367.007	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Y 371.029	Lin, Calc Int	Peak Area	Axial	n/a	n/a
Zn 213.857	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes

Sequence No.: 1 **Autosampler Location: 8**
Sample ID: S0 **Date Collected: 6/15/2012 6:09:36**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time

1	Sc RADIAL	21105.3	21105.3	101	%	06:10:08
1	Al 396.153Radial†	-178.8	-177.7	[0.00]	µg/L	06:10:08
1	Ca 317.933Radial†	96.3	95.7	[0.00]	µg/L	06:10:28
1	Fe 238.204 Radial†	36.4	36.2	[0.00]	µg/L	06:10:28
1	K 766.490 Radial†	665.4	661.4	[0.00]	µg/L	06:10:08
1	Mg 279.077 IEC†	7.3	7.3	[0.00]	µg/L	06:10:28
1	Na 589.592 Radial†	-49.1	-48.8	[0.00]	µg/L	06:10:08
1	Sr 421.552†	-593.9	-590.3	[0.00]	µg/L	06:10:08
1	Sc 361.383	713559.8	713559.8	100.14	%	06:11:25
1	Y 371.029	620069.9	620069.9	100.15	%	06:11:25
1	Ag 328.068†	-354.8	-354.3	[0.00]	µg/L	06:11:30
1	As 188.979†	-5.5	-5.5	[0.00]	µg/L	06:11:50
1	B 249.677†	102.6	102.4	[0.00]	µg/L	06:11:50
1	Ba 233.527†	-165.6	-165.4	[0.00]	µg/L	06:11:50
1	Be 313.107†	-8076.8	-8065.9	[0.00]	µg/L	06:11:30
1	Cd 226.502†	-218.5	-218.2	[0.00]	µg/L	06:11:50
1	Co 228.616†	-12.4	-12.4	[0.00]	µg/L	06:11:50
1	Cr 267.716†	183.7	183.4	[0.00]	µg/L	06:11:50
1	Cu 324.752†	6574.7	6565.9	[0.00]	µg/L	06:11:30
1	Mn 257.610†	483.8	483.1	[0.00]	µg/L	06:11:50
1	Mo 202.031†	15.2	15.2	[0.00]	µg/L	06:11:50
1	Ni 231.604†	-130.2	-130.0	[0.00]	µg/L	06:11:50
1	P 214.914†	137.7	137.5	[0.00]	µg/L	06:11:50
1	Pb 220.353†	168.9	168.7	[0.00]	µg/L	06:11:50
1	S 181.975 Axial†	64.2	64.1	[0.00]	µg/L	06:11:50
1	Sb 206.836†	65.8	65.7	[0.00]	µg/L	06:11:50
1	Se 196.026†	0.1	0.1	[0.00]	µg/L	06:11:50
1	SiO2†	2959.9	2955.9	[0.00]	µg/L	06:11:30
1	Si 251.611†	183.5	183.2	[0.00]	µg/L	06:11:50
1	Sn 189.927†	28.4	28.4	[0.00]	µg/L	06:11:50
1	Ti 334.940†	-31.5	-31.4	[0.00]	µg/L	06:11:30
1	Tl 190.801†	-49.9	-49.8	[0.00]	µg/L	06:11:50
1	U 367.007†	285.2	284.8	[0.00]	µg/L	06:11:30
1	V 292.402†	-51.2	-51.1	[0.00]	µg/L	06:11:30
1	Zn 213.857†	1199.7	1198.1	[0.00]	µg/L	06:11:50
2	Sc RADIAL	20843.7	20843.7	99.4	%	06:10:33
2	Al 396.153Radial†	-185.7	-186.9	[0.00]	µg/L	06:10:33
2	Ca 317.933Radial†	93.4	94.0	[0.00]	µg/L	06:10:53
2	Fe 238.204 Radial†	30.7	30.9	[0.00]	µg/L	06:10:53
2	K 766.490 Radial†	644.5	648.7	[0.00]	µg/L	06:10:33
2	Mg 279.077 IEC†	11.0	11.1	[0.00]	µg/L	06:10:53
2	Na 589.592 Radial†	-41.1	-41.3	[0.00]	µg/L	06:10:33
2	Sr 421.552†	-633.6	-637.7	[0.00]	µg/L	06:10:33
2	Sc 361.383	708787.7	708787.7	99.465	%	06:11:55
2	Y 371.029	615325.2	615325.2	99.386	%	06:11:55
2	Ag 328.068†	-447.4	-449.8	[0.00]	µg/L	06:12:00
2	As 188.979†	-10.0	-10.0	[0.00]	µg/L	06:12:20
2	B 249.677†	90.9	91.4	[0.00]	µg/L	06:12:20
2	Ba 233.527†	-174.7	-175.7	[0.00]	µg/L	06:12:20
2	Be 313.107†	-7985.9	-8028.8	[0.00]	µg/L	06:12:00
2	Cd 226.502†	-235.0	-236.3	[0.00]	µg/L	06:12:20
2	Co 228.616†	-27.6	-27.7	[0.00]	µg/L	06:12:20
2	Cr 267.716†	198.1	199.2	[0.00]	µg/L	06:12:20
2	Cu 324.752†	6525.9	6560.9	[0.00]	µg/L	06:12:00
2	Mn 257.610†	506.5	509.2	[0.00]	µg/L	06:12:20
2	Mo 202.031†	21.5	21.6	[0.00]	µg/L	06:12:20
2	Ni 231.604†	-129.8	-130.5	[0.00]	µg/L	06:12:20
2	P 214.914†	119.5	120.2	[0.00]	µg/L	06:12:20
2	Pb 220.353†	143.8	144.5	[0.00]	µg/L	06:12:20
2	S 181.975 Axial†	58.8	59.1	[0.00]	µg/L	06:12:20
2	Sb 206.836†	71.0	71.4	[0.00]	µg/L	06:12:20
2	Se 196.026†	-11.0	-11.1	[0.00]	µg/L	06:12:20
2	SiO2†	2947.0	2962.9	[0.00]	µg/L	06:12:00
2	Si 251.611†	181.4	182.4	[0.00]	µg/L	06:12:20
2	Sn 189.927†	28.8	28.9	[0.00]	µg/L	06:12:20
2	Ti 334.940†	-3.6	-3.6	[0.00]	µg/L	06:12:00
2	Tl 190.801†	-46.0	-46.2	[0.00]	µg/L	06:12:20
2	U 367.007†	307.2	308.9	[0.00]	µg/L	06:12:00
2	V 292.402†	-52.1	-52.4	[0.00]	µg/L	06:12:00
2	Zn 213.857†	1202.7	1209.1	[0.00]	µg/L	06:12:20
3	Sc RADIAL	20990.6	20990.6	100	%	06:10:58

3	Al 396.153Radial†	-156.9	-156.9	[0.00] µg/L	06:10:58
3	Ca 317.933Radial†	97.8	97.7	[0.00] µg/L	06:11:18
3	Fe 238.204 Radial†	30.3	30.2	[0.00] µg/L	06:11:18
3	K 766.490 Radial†	758.1	757.7	[0.00] µg/L	06:10:58
3	Mg 279.077 IEC†	11.3	11.3	[0.00] µg/L	06:11:18
3	Na 589.592 Radial†	-46.1	-46.0	[0.00] µg/L	06:10:58
3	Sr 421.552†	-608.2	-607.9	[0.00] µg/L	06:10:58
3	Sc 361.383	715443.2	715443.2	100.40 %	06:12:25
3	Y 371.029	621979.1	621979.1	100.46 %	06:12:25
3	Ag 328.068†	-334.6	-333.3	[0.00] µg/L	06:12:30
3	As 188.979†	-10.9	-10.8	[0.00] µg/L	06:12:50
3	B 249.677†	97.6	97.2	[0.00] µg/L	06:12:50
3	Ba 233.527†	-172.0	-171.4	[0.00] µg/L	06:12:50
3	Be 313.107†	-7919.9	-7888.4	[0.00] µg/L	06:12:30
3	Cd 226.502†	-222.2	-221.3	[0.00] µg/L	06:12:50
3	Co 228.616†	-22.5	-22.4	[0.00] µg/L	06:12:50
3	Cr 267.716†	199.1	198.3	[0.00] µg/L	06:12:50
3	Cu 324.752†	6348.2	6322.9	[0.00] µg/L	06:12:30
3	Mn 257.610†	523.6	521.5	[0.00] µg/L	06:12:50
3	Mo 202.031†	29.6	29.5	[0.00] µg/L	06:12:50
3	Ni 231.604†	-126.0	-125.5	[0.00] µg/L	06:12:50
3	P 214.914†	117.3	116.8	[0.00] µg/L	06:12:50
3	Pb 220.353†	140.0	139.4	[0.00] µg/L	06:12:50
3	S 181.975 Axial†	62.1	61.8	[0.00] µg/L	06:12:50
3	Sb 206.836†	60.4	60.1	[0.00] µg/L	06:12:50
3	Se 196.026†	-5.0	-5.0	[0.00] µg/L	06:12:50
3	SiO2†	2943.8	2932.1	[0.00] µg/L	06:12:30
3	Si 251.611†	181.3	180.6	[0.00] µg/L	06:12:50
3	Sn 189.927†	23.1	23.0	[0.00] µg/L	06:12:50
3	Ti 334.940†	13.4	13.3	[0.00] µg/L	06:12:30
3	Tl 190.801†	-49.4	-49.2	[0.00] µg/L	06:12:50
3	U 367.007†	290.8	289.6	[0.00] µg/L	06:12:30
3	V 292.402†	-77.3	-77.0	[0.00] µg/L	06:12:30
3	Zn 213.857†	1201.5	1196.7	[0.00] µg/L	06:12:50

Mean Data: S0

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	712596.9	3430.63	0.48%	100.00	%
Sc RADIAL	20979.9	131.14	0.63%	100	%
Y 371.029	619124.8	3426.19	0.55%	100.00	%
Ag 328.068†	-379.1	62.09	16.38%	[0.00]	µg/L
Al 396.153Radial†	-173.8	15.39	8.85%	[0.00]	µg/L
As 188.979†	-8.8	2.86	32.53%	[0.00]	µg/L
B 249.677†	97.0	5.53	5.70%	[0.00]	µg/L
Ba 233.527†	-170.8	5.16	3.02%	[0.00]	µg/L
Be 313.107†	-7994.4	93.64	1.17%	[0.00]	µg/L
Ca 317.933Radial†	95.8	1.87	1.95%	[0.00]	µg/L
Cd 226.502†	-225.3	9.67	4.29%	[0.00]	µg/L
Co 228.616†	-20.8	7.80	37.45%	[0.00]	µg/L
Cr 267.716†	193.6	8.84	4.57%	[0.00]	µg/L
Cu 324.752†	6483.2	138.86	2.14%	[0.00]	µg/L
Fe 238.204 Radial†	32.4	3.24	10.00%	[0.00]	µg/L
K 766.490 Radial†	689.3	59.57	8.64%	[0.00]	µg/L
Mg 279.077 IEC†	9.9	2.27	22.98%	[0.00]	µg/L
Mn 257.610†	504.6	19.60	3.88%	[0.00]	µg/L
Mo 202.031†	22.1	7.18	32.50%	[0.00]	µg/L
Na 589.592 Radial†	-45.4	3.77	8.31%	[0.00]	µg/L
Ni 231.604†	-128.7	2.74	2.13%	[0.00]	µg/L
P 214.914†	124.8	11.10	8.89%	[0.00]	µg/L
Pb 220.353†	150.9	15.62	10.35%	[0.00]	µg/L
S 181.975 Axial†	61.7	2.51	4.08%	[0.00]	µg/L
Sb 206.836†	65.7	5.62	8.55%	[0.00]	µg/L
Se 196.026†	-5.3	5.61	105.58%	[0.00]	µg/L
SiO2†	2950.3	16.12	0.55%	[0.00]	µg/L
Si 251.611†	182.1	1.36	0.75%	[0.00]	µg/L
Sn 189.927†	26.8	3.30	12.31%	[0.00]	µg/L
Sr 421.552†	-612.0	23.96	3.91%	[0.00]	µg/L
Ti 334.940†	-7.2	22.60	311.90%	[0.00]	µg/L
Tl 190.801†	-48.4	1.92	3.96%	[0.00]	µg/L

U 367.007†	294.4	12.75	4.33%	[0.00] µg/L
V 292.402†	-60.2	14.61	24.27%	[0.00] µg/L
Zn 213.857†	1201.3	6.80	0.57%	[0.00] µg/L

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Sequence No.: 2 **Autosampler Location: 2**
Sample ID: S0.1 **Date Collected: 6/15/2012 6:12:58**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	21314.3	21314.3	102	%	06:13:27
1	K 766.490 Radial†	2749.3	2016.9	[1000]	µg/L	06:13:27
1	Sr 421.552†	19583.8	19888.5	[100]	µg/L	06:13:27
1	Sc 361.383	717066.5	717066.5	100.63	%	06:13:44
1	Y 371.029	622527.1	622527.1	100.55	%	06:13:44
1	Ag 328.068†	15227.7	15511.9	[100]	µg/L	06:13:49
1	As 188.979†	167.6	175.4	[100]	µg/L	06:14:09
1	B 249.677†	3512.7	3393.8	[100]	µg/L	06:13:49
1	Ba 233.527†	10520.5	10625.7	[100]	µg/L	06:13:49
1	Be 313.107†	164324.6	171294.8	[100]	µg/L	06:13:44
1	Cd 226.502†	6556.3	6740.7	[100]	µg/L	06:13:49
1	Co 228.616†	4077.9	4073.3	[100]	µg/L	06:14:09
1	Cr 267.716†	5288.6	5062.0	[100]	µg/L	06:13:49
1	Cu 324.752†	30444.6	23771.5	[100]	µg/L	06:13:49
1	Mn 257.610†	70698.9	69753.6	[100]	µg/L	06:13:49
1	Mo 202.031†	1472.1	1440.8	[100]	µg/L	06:14:09
1	Ni 231.604†	3290.4	3398.6	[100]	µg/L	06:14:09
1	P 214.914†	766.7	637.1	[500]	µg/L	06:14:09
1	Pb 220.353†	803.5	647.6	[100]	µg/L	06:14:09
1	S 181.975 Axial†	172.9	110.2	[200]	µg/L	06:14:09
1	Sb 206.836†	378.9	310.8	[100]	µg/L	06:14:09
1	Se 196.026†	133.6	138.1	[100]	µg/L	06:14:09
1	SiO2†	11402.4	8381.1	[1069.5]	µg/L	06:13:49
1	Si 251.611†	10642.4	10394.0	[500]	µg/L	06:13:49
1	Sn 189.927†	480.6	450.8	[100]	µg/L	06:14:09
1	Ti 334.940†	39127.6	38891.0	[100]	µg/L	06:13:49
1	Tl 190.801†	244.4	291.3	[100]	µg/L	06:14:09
1	U 367.007†	720.7	421.8	[100]	µg/L	06:13:49
1	V 292.402†	9994.5	9992.4	[100]	µg/L	06:13:49
1	Zn 213.857†	12133.7	10856.8	[100]	µg/L	06:13:49
2	Sc RADIAL	21104.0	21104.0	101	%	06:13:32
2	K 766.490 Radial†	2723.6	2018.3	[1000]	µg/L	06:13:32
2	Sr 421.552†	19306.9	19805.3	[100]	µg/L	06:13:32
2	Sc 361.383	709715.0	709715.0	99.596	%	06:14:14
2	Y 371.029	616396.2	616396.2	99.559	%	06:14:14
2	Ag 328.068†	15388.2	15829.9	[100]	µg/L	06:14:19
2	As 188.979†	168.1	177.6	[100]	µg/L	06:14:39
2	B 249.677†	3531.2	3448.5	[100]	µg/L	06:14:19
2	Ba 233.527†	10625.4	10839.4	[100]	µg/L	06:14:19
2	Be 313.107†	164932.4	173596.6	[100]	µg/L	06:14:14
2	Cd 226.502†	6632.0	6884.2	[100]	µg/L	06:14:19
2	Co 228.616†	4111.7	4149.2	[100]	µg/L	06:14:39
2	Cr 267.716†	5328.8	5156.8	[100]	µg/L	06:14:19
2	Cu 324.752†	30613.8	24254.8	[100]	µg/L	06:14:19
2	Mn 257.610†	71428.2	71213.6	[100]	µg/L	06:14:19
2	Mo 202.031†	1491.2	1475.2	[100]	µg/L	06:14:39
2	Ni 231.604†	3332.5	3474.7	[100]	µg/L	06:14:39
2	P 214.914†	789.4	667.8	[500]	µg/L	06:14:39
2	Pb 220.353†	804.0	656.4	[100]	µg/L	06:14:39
2	S 181.975 Axial†	175.9	114.9	[200]	µg/L	06:14:39
2	Sb 206.836†	369.6	305.4	[100]	µg/L	06:14:39
2	Se 196.026†	133.7	139.6	[100]	µg/L	06:14:39
2	SiO2†	11480.5	8576.9	[1069.5]	µg/L	06:14:19
2	Si 251.611†	10728.3	10589.8	[500]	µg/L	06:14:19
2	Sn 189.927†	484.5	459.7	[100]	µg/L	06:14:39
2	Ti 334.940†	39523.4	39691.2	[100]	µg/L	06:14:19
2	Tl 190.801†	246.5	295.9	[100]	µg/L	06:14:39
2	U 367.007†	717.1	425.5	[100]	µg/L	06:14:19
2	V 292.402†	10039.3	10140.3	[100]	µg/L	06:14:19

2	Zn 213.857†	12302.3	11151.0	[100]	µg/L	06:14:19
3	Sc RADIAL	21071.4	21071.4	100	%	06:13:37
3	K 766.490 Radial†	2806.7	2105.2	[1000]	µg/L	06:13:37
3	Sr 421.552†	19397.6	19925.3	[100]	µg/L	06:13:37
3	Sc 361.383	719975.5	719975.5	101.04	%	06:14:44
3	Y 371.029	624779.3	624779.3	100.91	%	06:14:44
3	Ag 328.068†	15155.0	15378.8	[100]	µg/L	06:14:50
3	As 188.979†	174.4	181.4	[100]	µg/L	06:15:10
3	B 249.677†	3472.0	3339.4	[100]	µg/L	06:14:50
3	Ba 233.527†	10484.7	10548.1	[100]	µg/L	06:14:50
3	Be 313.107†	166121.1	172413.0	[100]	µg/L	06:14:44
3	Cd 226.502†	6548.6	6706.8	[100]	µg/L	06:14:50
3	Co 228.616†	4090.3	4069.2	[100]	µg/L	06:15:10
3	Cr 267.716†	5291.5	5043.7	[100]	µg/L	06:14:50
3	Cu 324.752†	30353.2	23558.9	[100]	µg/L	06:14:50
3	Mn 257.610†	70715.1	69485.8	[100]	µg/L	06:14:50
3	Mo 202.031†	1470.4	1433.2	[100]	µg/L	06:15:10
3	Ni 231.604†	3311.5	3406.2	[100]	µg/L	06:15:10
3	P 214.914†	774.6	641.8	[500]	µg/L	06:15:10
3	Pb 220.353†	809.4	650.2	[100]	µg/L	06:15:10
3	S 181.975 Axial†	178.0	114.5	[200]	µg/L	06:15:10
3	Sb 206.836†	362.9	293.5	[100]	µg/L	06:15:10
3	Se 196.026†	120.2	124.3	[100]	µg/L	06:15:10
3	SiO2†	11422.7	8355.3	[1069.5]	µg/L	06:14:50
3	Si 251.611†	10651.6	10360.4	[500]	µg/L	06:14:50
3	Sn 189.927†	483.5	451.8	[100]	µg/L	06:15:10
3	Ti 334.940†	39063.9	38670.8	[100]	µg/L	06:14:50
3	Tl 190.801†	242.9	288.9	[100]	µg/L	06:15:10
3	U 367.007†	684.8	383.4	[100]	µg/L	06:14:50
3	V 292.402†	10049.8	10007.0	[100]	µg/L	06:14:50
3	Zn 213.857†	12150.0	10824.1	[100]	µg/L	06:14:50

Mean Data: S0.1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	715585.7	5288.14	0.74%	100.42	%
Sc RADIAL	21163.3	131.84	0.62%	101	%
Y 371.029	621234.2	4338.54	0.70%	100.34	%
Ag 328.068†	15573.5	231.75	1.49%	[100]	µg/L
As 188.979†	178.1	3.03	1.70%	[100]	µg/L
B 249.677†	3393.9	54.56	1.61%	[100]	µg/L
Ba 233.527†	10671.1	150.87	1.41%	[100]	µg/L
Be 313.107†	172434.8	1151.06	0.67%	[100]	µg/L
Cd 226.502†	6777.2	94.16	1.39%	[100]	µg/L
Co 228.616†	4097.2	45.05	1.10%	[100]	µg/L
Cr 267.716†	5087.5	60.71	1.19%	[100]	µg/L
Cu 324.752†	23861.8	356.62	1.49%	[100]	µg/L
K 766.490 Radial†	2046.8	50.58	2.47%	[1000]	µg/L
Mn 257.610†	70151.0	929.94	1.33%	[100]	µg/L
Mo 202.031†	1449.8	22.37	1.54%	[100]	µg/L
Ni 231.604†	3426.5	41.92	1.22%	[100]	µg/L
P 214.914†	648.9	16.56	2.55%	[500]	µg/L
Pb 220.353†	651.4	4.51	0.69%	[100]	µg/L
S 181.975 Axial†	113.2	2.62	2.32%	[200]	µg/L
Sb 206.836†	303.2	8.86	2.92%	[100]	µg/L
Se 196.026†	134.0	8.45	6.31%	[100]	µg/L
SiO2†	8437.7	121.16	1.44%	[1069.5]	µg/L
Si 251.611†	10448.1	123.90	1.19%	[500]	µg/L
Sn 189.927†	454.1	4.85	1.07%	[100]	µg/L
Sr 421.552†	19873.0	61.47	0.31%	[100]	µg/L
Ti 334.940†	39084.3	536.94	1.37%	[100]	µg/L
Tl 190.801†	292.0	3.58	1.22%	[100]	µg/L
U 367.007†	410.2	23.33	5.69%	[100]	µg/L
V 292.402†	10046.5	81.49	0.81%	[100]	µg/L
Zn 213.857†	10944.0	180.00	1.64%	[100]	µg/L

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Sequence No.: 3 **Autosampler Location: 3**
Sample ID: S0.5 **Date Collected: 6/15/2012 6:15:17**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	21235.4	21235.4	101	%	06:15:45
1	Al 396.153Radial†	16383.7	16360.3	[5000]	µg/L	06:15:45
1	Ca 317.933Radial†	10356.9	10136.4	[5000]	µg/L	06:16:05
1	K 766.490 Radial†	11162.2	10338.6	[5000]	µg/L	06:15:45
1	Mg 279.077 IEC†	970.1	948.5	[5000]	µg/L	06:16:05
1	Sr 421.552†	100266.8	99672.3	[500]	µg/L	06:15:45
1	Sc 361.383	721458.6	721458.6	101.24	%	06:17:02
1	Y 371.029	622969.2	622969.2	100.62	%	06:17:02
1	Ag 328.068†	78741.7	78153.7	[500]	µg/L	06:17:07
1	As 188.979†	880.8	878.8	[500]	µg/L	06:17:27
1	B 249.677†	17407.7	17096.9	[500]	µg/L	06:17:07
1	Ba 233.527†	52722.8	52246.0	[500]	µg/L	06:17:07
1	Be 313.107†	852227.7	849754.2	[500]	µg/L	06:17:02
1	Cd 226.502†	33243.2	33060.2	[500]	µg/L	06:17:07
1	Co 228.616†	20569.2	20337.4	[500]	µg/L	06:17:07
1	Cr 267.716†	25495.8	24989.0	[500]	µg/L	06:17:07
1	Cu 324.752†	126596.6	118558.3	[500]	µg/L	06:17:07
1	Mn 257.610†	343452.6	338729.4	[500]	µg/L	06:17:07
1	Mo 202.031†	7333.0	7220.9	[500]	µg/L	06:17:27
1	Ni 231.604†	17270.7	17187.3	[500]	µg/L	06:17:07
1	P 214.914†	3429.7	3262.8	[2500]	µg/L	06:17:27
1	Pb 220.353†	3454.1	3260.8	[500]	µg/L	06:17:27
1	S 181.975 Axial†	636.8	567.3	[1000]	µg/L	06:17:27
1	Sb 206.836†	1603.0	1517.6	[500]	µg/L	06:17:27
1	Se 196.026†	671.6	668.7	[500]	µg/L	06:17:27
1	SiO2†	46018.2	42502.7	[5347.5]	µg/L	06:17:07
1	Si 251.611†	53390.8	52552.9	[2500]	µg/L	06:17:07
1	Sn 189.927†	2304.9	2249.9	[500]	µg/L	06:17:27
1	Ti 334.940†	196991.1	194578.7	[500]	µg/L	06:17:07
1	Tl 190.801†	1402.2	1433.4	[500]	µg/L	06:17:27
1	U 367.007†	2313.3	1990.5	[500]	µg/L	06:17:07
1	V 292.402†	50252.4	49695.3	[500]	µg/L	06:17:07
1	Zn 213.857†	55537.5	53654.0	[500]	µg/L	06:17:07
2	Sc RADIAL	21043.4	21043.4	100	%	06:16:10
2	Al 396.153Radial†	16311.3	16435.9	[5000]	µg/L	06:16:10
2	Ca 317.933Radial†	10329.8	10202.8	[5000]	µg/L	06:16:30
2	K 766.490 Radial†	11095.9	10373.2	[5000]	µg/L	06:16:10
2	Mg 279.077 IEC†	977.6	964.8	[5000]	µg/L	06:16:30
2	Sr 421.552†	99852.3	100162.8	[500]	µg/L	06:16:10
2	Sc 361.383	717582.9	717582.9	100.70	%	06:17:33
2	Y 371.029	619605.6	619605.6	100.08	%	06:17:33
2	Ag 328.068†	79940.4	79764.1	[500]	µg/L	06:17:38
2	As 188.979†	889.6	892.2	[500]	µg/L	06:17:58
2	B 249.677†	17729.7	17509.5	[500]	µg/L	06:17:38
2	Ba 233.527†	53762.4	53559.7	[500]	µg/L	06:17:38
2	Be 313.107†	853398.3	855463.1	[500]	µg/L	06:17:33
2	Cd 226.502†	33984.9	33974.0	[500]	µg/L	06:17:38
2	Co 228.616†	21033.2	20907.9	[500]	µg/L	06:17:38
2	Cr 267.716†	26010.9	25636.5	[500]	µg/L	06:17:38
2	Cu 324.752†	128251.0	120876.6	[500]	µg/L	06:17:38
2	Mn 257.610†	349619.0	346685.1	[500]	µg/L	06:17:38
2	Mo 202.031†	7419.6	7345.9	[500]	µg/L	06:17:58
2	Ni 231.604†	17616.0	17622.3	[500]	µg/L	06:17:38
2	P 214.914†	3495.3	3346.2	[2500]	µg/L	06:17:58
2	Pb 220.353†	3487.0	3311.9	[500]	µg/L	06:17:58
2	S 181.975 Axial†	648.6	582.4	[1000]	µg/L	06:17:58
2	Sb 206.836†	1633.9	1556.8	[500]	µg/L	06:17:58
2	Se 196.026†	691.4	691.9	[500]	µg/L	06:17:58
2	SiO2†	46757.6	43482.4	[5347.5]	µg/L	06:17:38

2	Si 251.611†	54365.0	53805.2	[2500]	µg/L	06:17:38
2	Sn 189.927†	2345.7	2302.6	[500]	µg/L	06:17:58
2	Ti 334.940†	200310.3	198925.7	[500]	µg/L	06:17:38
2	Tl 190.801†	1430.0	1468.5	[500]	µg/L	06:17:58
2	U 367.007†	2333.8	2023.2	[500]	µg/L	06:17:38
2	V 292.402†	51109.0	50814.0	[500]	µg/L	06:17:38
2	Zn 213.857†	56574.0	54979.6	[500]	µg/L	06:17:38
3	Sc RADIAL	21143.3	21143.3	101	%	06:16:35
3	Al 396.153Radial†	16449.0	16495.7	[5000]	µg/L	06:16:35
3	Ca 317.933Radial†	10353.6	10177.8	[5000]	µg/L	06:16:55
3	K 766.490 Radial†	11128.6	10353.3	[5000]	µg/L	06:16:35
3	Mg 279.077 IEC†	969.2	951.8	[5000]	µg/L	06:16:55
3	Sr 421.552†	100614.1	100448.3	[500]	µg/L	06:16:35
3	Sc 361.383	719207.6	719207.6	100.93	%	06:18:04
3	Y 371.029	620644.3	620644.3	100.25	%	06:18:04
3	Ag 328.068†	79231.6	78882.5	[500]	µg/L	06:18:09
3	As 188.979†	885.7	886.4	[500]	µg/L	06:18:29
3	B 249.677†	17621.0	17362.0	[500]	µg/L	06:18:09
3	Ba 233.527†	53313.0	52993.8	[500]	µg/L	06:18:09
3	Be 313.107†	858362.6	858467.3	[500]	µg/L	06:18:04
3	Cd 226.502†	33625.9	33542.1	[500]	µg/L	06:18:09
3	Co 228.616†	20786.6	20616.3	[500]	µg/L	06:18:09
3	Cr 267.716†	25678.0	25248.4	[500]	µg/L	06:18:09
3	Cu 324.752†	127565.1	119909.3	[500]	µg/L	06:18:09
3	Mn 257.610†	347046.8	343352.2	[500]	µg/L	06:18:09
3	Mo 202.031†	7369.1	7279.3	[500]	µg/L	06:18:29
3	Ni 231.604†	17475.9	17444.0	[500]	µg/L	06:18:09
3	P 214.914†	3445.5	3289.0	[2500]	µg/L	06:18:29
3	Pb 220.353†	3448.0	3265.4	[500]	µg/L	06:18:29
3	S 181.975 Axial†	635.1	567.6	[1000]	µg/L	06:18:29
3	Sb 206.836†	1618.2	1537.6	[500]	µg/L	06:18:29
3	Se 196.026†	687.3	686.3	[500]	µg/L	06:18:29
3	SiO2†	46535.6	43157.6	[5347.5]	µg/L	06:18:09
3	Si 251.611†	53942.5	53264.7	[2500]	µg/L	06:18:09
3	Sn 189.927†	2314.4	2266.3	[500]	µg/L	06:18:29
3	Ti 334.940†	199018.5	197196.5	[500]	µg/L	06:18:09
3	Tl 190.801†	1412.2	1447.7	[500]	µg/L	06:18:29
3	U 367.007†	2290.9	1975.4	[500]	µg/L	06:18:09
3	V 292.402†	50614.5	50209.4	[500]	µg/L	06:18:09
3	Zn 213.857†	56200.8	54482.9	[500]	µg/L	06:18:09

Mean Data: S0.5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	719416.3	1946.29	0.27%	100.96	%
Sc RADIAL	21140.7	96.03	0.45%	101	%
Y 371.029	621073.0	1722.29	0.28%	100.31	%
Ag 328.068†	78933.4	806.43	1.02%	[500]	µg/L
Al 396.153Radial†	16430.6	67.83	0.41%	[5000]	µg/L
As 188.979†	885.8	6.74	0.76%	[500]	µg/L
B 249.677†	17322.8	209.08	1.21%	[500]	µg/L
Ba 233.527†	52933.2	658.95	1.24%	[500]	µg/L
Be 313.107†	854561.5	4425.98	0.52%	[500]	µg/L
Ca 317.933Radial†	10172.3	33.49	0.33%	[5000]	µg/L
Cd 226.502†	33525.4	457.16	1.36%	[500]	µg/L
Co 228.616†	20620.5	285.28	1.38%	[500]	µg/L
Cr 267.716†	25291.3	325.89	1.29%	[500]	µg/L
Cu 324.752†	119781.4	1164.41	0.97%	[500]	µg/L
K 766.490 Radial†	10355.0	17.33	0.17%	[5000]	µg/L
Mg 279.077 IEC†	955.0	8.61	0.90%	[5000]	µg/L
Mn 257.610†	342922.2	3995.27	1.17%	[500]	µg/L
Mo 202.031†	7282.0	62.59	0.86%	[500]	µg/L
Ni 231.604†	17417.8	218.67	1.26%	[500]	µg/L
P 214.914†	3299.3	42.69	1.29%	[2500]	µg/L
Pb 220.353†	3279.4	28.24	0.86%	[500]	µg/L
S 181.975 Axial†	572.4	8.64	1.51%	[1000]	µg/L
Sb 206.836†	1537.4	19.60	1.27%	[500]	µg/L
Se 196.026†	682.3	12.10	1.77%	[500]	µg/L
SiO2†	43047.6	499.03	1.16%	[5347.5]	µg/L
Si 251.611†	53207.6	628.09	1.18%	[2500]	µg/L

Sn 189.927†	2272.9	27.01	1.19%	[500] µg/L
Sr 421.552†	100094.5	392.53	0.39%	[500] µg/L
Ti 334.940†	196900.3	2188.59	1.11%	[500] µg/L
Tl 190.801†	1449.9	17.63	1.22%	[500] µg/L
U 367.007†	1996.4	24.44	1.22%	[500] µg/L
V 292.402†	50239.6	559.95	1.11%	[500] µg/L
Zn 213.857†	54372.2	669.68	1.23%	[500] µg/L

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SCAL **Date Collected: 6/15/2012 6:18:37**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: SCAL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	20894.3	20894.3	99.6	%	06:19:25
1	Al 396.153Radial†	33289.8	33599.9	[10000]	µg/L	06:19:05
1	Ca 317.933Radial†	21232.3	21223.4	[10000]	µg/L	06:19:25
1	Fe 238.204 Radial†	18770.3	18814.7	[10000]	µg/L	06:19:25
1	K 766.490 Radial†	21730.2	21129.9	[10000]	µg/L	06:19:05
1	Mg 279.077 IEC†	1981.5	1979.8	[10000]	µg/L	06:19:25
1	Na 589.592 Radial†	4829.5	4894.7	[10000]	µg/L	06:19:25
1	Sr 421.552†	203934.1	205380.9	[1000]	µg/L	06:19:05
1	Sc 361.383	716940.4	716940.4	100.61	%	06:20:25
1	Y 371.029	618665.7	618665.7	99.926	%	06:20:25
1	Ag 328.068†	158090.6	157511.9	[1000]	µg/L	06:20:25
1	As 188.979†	1789.9	1787.8	[1000]	µg/L	06:20:45
1	B 249.677†	35658.6	35345.5	[1000]	µg/L	06:20:25
1	Ba 233.527†	107981.6	107498.2	[1000]	µg/L	06:20:25
1	Be 313.107†	1733260.0	1730753.6	[1000]	µg/L	06:20:25
1	Cd 226.502†	67312.1	67129.5	[1000]	µg/L	06:20:25
1	Co 228.616†	41343.2	41113.6	[1000]	µg/L	06:20:25
1	Cr 267.716†	51740.0	51232.9	[1000]	µg/L	06:20:25
1	Cu 324.752†	251943.1	243933.5	[1000]	µg/L	06:20:25
1	Mn 257.610†	708992.7	704192.7	[1000]	µg/L	06:20:25
1	Mo 202.031†	14817.5	14705.7	[1000]	µg/L	06:20:45
1	Ni 231.604†	34359.6	34280.1	[1000]	µg/L	06:20:45
1	P 214.914†	6861.4	6695.1	[5000]	µg/L	06:20:45
1	Pb 220.353†	6813.1	6620.9	[1000]	µg/L	06:20:45
1	S 181.975 Axial†	1221.1	1152.1	[2000]	µg/L	06:20:45
1	Sb 206.836†	3201.7	3116.6	[1000]	µg/L	06:20:45
1	Se 196.026†	1345.6	1342.8	[1000]	µg/L	06:20:45
1	SiO2†	89329.6	85838.1	[10695]	µg/L	06:20:25
1	Si 251.611†	106809.8	105980.6	[5000]	µg/L	06:20:25
1	Sn 189.927†	4641.5	4586.6	[1000]	µg/L	06:20:45
1	Ti 334.940†	402618.6	400186.6	[1000]	µg/L	06:20:25
1	Tl 190.801†	2902.8	2933.6	[1000]	µg/L	06:20:45
1	U 367.007†	4414.1	4092.9	[1000]	µg/L	06:20:25
1	V 292.402†	102795.0	102232.4	[1000]	µg/L	06:20:25
1	Zn 213.857†	110217.4	108348.3	[1000]	µg/L	06:20:25
2	Sc RADIAL	20840.2	20840.2	99.3	%	06:19:50
2	Al 396.153Radial†	33305.6	33702.7	[10000]	µg/L	06:19:30
2	Ca 317.933Radial†	21054.5	21099.9	[10000]	µg/L	06:19:50
2	Fe 238.204 Radial†	18628.7	18721.1	[10000]	µg/L	06:19:50
2	K 766.490 Radial†	21871.5	21328.8	[10000]	µg/L	06:19:30
2	Mg 279.077 IEC†	1967.8	1971.1	[10000]	µg/L	06:19:50
2	Na 589.592 Radial†	4827.5	4905.3	[10000]	µg/L	06:19:50
2	Sr 421.552†	204299.0	206280.6	[1000]	µg/L	06:19:30
2	Sc 361.383	721807.9	721807.9	101.29	%	06:20:52
2	Y 371.029	623431.9	623431.9	100.70	%	06:20:52
2	Ag 328.068†	158516.8	156873.1	[1000]	µg/L	06:20:52
2	As 188.979†	1786.2	1772.2	[1000]	µg/L	06:21:12
2	B 249.677†	35712.4	35159.7	[1000]	µg/L	06:20:52
2	Ba 233.527†	108333.9	107122.3	[1000]	µg/L	06:20:52
2	Be 313.107†	1737932.7	1723749.3	[1000]	µg/L	06:20:52
2	Cd 226.502†	67697.6	67059.0	[1000]	µg/L	06:20:52
2	Co 228.616†	41535.0	41025.8	[1000]	µg/L	06:20:52
2	Cr 267.716†	51863.1	51007.6	[1000]	µg/L	06:20:52
2	Cu 324.752†	252090.2	242390.0	[1000]	µg/L	06:20:52
2	Mn 257.610†	710859.2	701283.3	[1000]	µg/L	06:20:52
2	Mo 202.031†	14837.9	14626.5	[1000]	µg/L	06:21:12
2	Ni 231.604†	34438.4	34127.6	[1000]	µg/L	06:21:12
2	P 214.914†	6869.5	6657.0	[5000]	µg/L	06:21:12
2	Pb 220.353†	6831.5	6593.4	[1000]	µg/L	06:21:12

2	S 181.975 Axial†	1229.1	1151.8	[2000] µg/L	06:21:12
2	Sb 206.836†	3196.2	3089.7	[1000] µg/L	06:21:12
2	Se 196.026†	1348.5	1336.6	[1000] µg/L	06:21:12
2	SiO2†	89541.5	85448.6	[10695] µg/L	06:20:52
2	Si 251.611†	107122.0	105573.0	[5000] µg/L	06:20:52
2	Sn 189.927†	4655.4	4569.2	[1000] µg/L	06:21:12
2	Ti 334.940†	403019.3	397883.7	[1000] µg/L	06:20:52
2	Tl 190.801†	2907.7	2919.0	[1000] µg/L	06:21:12
2	U 367.007†	4451.1	4099.9	[1000] µg/L	06:20:52
2	V 292.402†	102977.5	101723.6	[1000] µg/L	06:20:52
2	Zn 213.857†	110612.9	108000.0	[1000] µg/L	06:20:52
3	Sc RADIAL	20893.2	20893.2	99.6 %	06:20:16
3	Al 396.153Radial†	33386.5	33698.8	[10000] µg/L	06:19:56
3	Ca 317.933Radial†	21123.7	21115.5	[10000] µg/L	06:20:16
3	Fe 238.204 Radial†	18671.6	18716.6	[10000] µg/L	06:20:16
3	K 766.490 Radial†	21858.4	21259.8	[10000] µg/L	06:19:56
3	Mg 279.077 IEC†	1966.8	1965.1	[10000] µg/L	06:20:16
3	Na 589.592 Radial†	4793.7	4859.0	[10000] µg/L	06:20:16
3	Sr 421.552†	204816.6	206278.2	[1000] µg/L	06:19:56
3	Sc 361.383	717196.1	717196.1	100.65 %	06:21:20
3	Y 371.029	619289.5	619289.5	100.03 %	06:21:20
3	Ag 328.068†	159033.0	158392.3	[1000] µg/L	06:21:20
3	As 188.979†	1788.1	1785.4	[1000] µg/L	06:21:40
3	B 249.677†	35804.9	35478.3	[1000] µg/L	06:21:20
3	Ba 233.527†	108685.5	108159.3	[1000] µg/L	06:21:20
3	Be 313.107†	1744197.1	1741006.3	[1000] µg/L	06:21:20
3	Cd 226.502†	67962.7	67752.1	[1000] µg/L	06:21:20
3	Co 228.616†	41592.5	41346.6	[1000] µg/L	06:21:20
3	Cr 267.716†	52140.0	51612.0	[1000] µg/L	06:21:20
3	Cu 324.752†	252957.2	244851.8	[1000] µg/L	06:21:20
3	Mn 257.610†	713636.8	708555.8	[1000] µg/L	06:21:20
3	Mo 202.031†	14868.3	14750.8	[1000] µg/L	06:21:40
3	Ni 231.604†	34442.0	34349.8	[1000] µg/L	06:21:40
3	P 214.914†	6878.4	6709.4	[5000] µg/L	06:21:40
3	Pb 220.353†	6835.8	6641.1	[1000] µg/L	06:21:40
3	S 181.975 Axial†	1224.4	1154.9	[2000] µg/L	06:21:40
3	Sb 206.836†	3207.2	3120.9	[1000] µg/L	06:21:40
3	Se 196.026†	1357.5	1354.1	[1000] µg/L	06:21:40
3	SiO2†	89790.5	86264.4	[10695] µg/L	06:21:20
3	Si 251.611†	107411.6	106540.8	[5000] µg/L	06:21:20
3	Sn 189.927†	4657.2	4600.6	[1000] µg/L	06:21:40
3	Ti 334.940†	404774.9	402186.4	[1000] µg/L	06:21:20
3	Tl 190.801†	2911.4	2941.1	[1000] µg/L	06:21:40
3	U 367.007†	4419.8	4097.1	[1000] µg/L	06:21:20
3	V 292.402†	103504.7	102901.2	[1000] µg/L	06:21:20
3	Zn 213.857†	110896.4	108983.9	[1000] µg/L	06:21:20

Mean Data: SCAL

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	718648.1	2739.42	0.38%	100.85	%
Sc RADIAL	20875.9	30.96	0.15%	99.5	%
Y 371.029	620462.4	2590.56	0.42%	100.22	%
Ag 328.068†	157592.4	762.78	0.48%	[1000]	µg/L
Al 396.153Radial†	33667.1	58.24	0.17%	[10000]	µg/L
As 188.979†	1781.8	8.40	0.47%	[1000]	µg/L
B 249.677†	35327.8	160.05	0.45%	[1000]	µg/L
Ba 233.527†	107593.3	525.01	0.49%	[1000]	µg/L
Be 313.107†	1731836.4	8679.29	0.50%	[1000]	µg/L
Ca 317.933Radial†	21146.3	67.29	0.32%	[10000]	µg/L
Cd 226.502†	67313.5	381.45	0.57%	[1000]	µg/L
Co 228.616†	41162.0	165.79	0.40%	[1000]	µg/L
Cr 267.716†	51284.2	305.44	0.60%	[1000]	µg/L
Cu 324.752†	243725.1	1244.05	0.51%	[1000]	µg/L
Fe 238.204 Radial†	18750.8	55.38	0.30%	[10000]	µg/L
K 766.490 Radial†	21239.5	101.02	0.48%	[10000]	µg/L
Mg 279.077 IEC†	1972.0	7.39	0.37%	[10000]	µg/L
Mn 257.610†	704677.3	3660.37	0.52%	[1000]	µg/L
Mo 202.031†	14694.3	62.93	0.43%	[1000]	µg/L
Na 589.592 Radial†	4886.3	24.25	0.50%	[10000]	µg/L

Ni 231.604†	34252.5	113.66	0.33%	[1000]	µg/L
P 214.914†	6687.2	27.08	0.40%	[5000]	µg/L
Pb 220.353†	6618.5	23.92	0.36%	[1000]	µg/L
S 181.975 Axial†	1152.9	1.73	0.15%	[2000]	µg/L
Sb 206.836†	3109.1	16.91	0.54%	[1000]	µg/L
Se 196.026†	1344.5	8.92	0.66%	[1000]	µg/L
SiO2†	85850.4	408.07	0.48%	[10695]	µg/L
Si 251.611†	106031.5	485.88	0.46%	[5000]	µg/L
Sn 189.927†	4585.5	15.70	0.34%	[1000]	µg/L
Sr 421.552†	205979.9	518.71	0.25%	[1000]	µg/L
Ti 334.940†	400085.6	2153.17	0.54%	[1000]	µg/L
Tl 190.801†	2931.3	11.26	0.38%	[1000]	µg/L
U 367.007†	4096.6	3.51	0.09%	[1000]	µg/L
V 292.402†	102285.7	590.57	0.58%	[1000]	µg/L
Zn 213.857†	108444.1	498.87	0.46%	[1000]	µg/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: S10 **Date Collected: 6/15/2012 6:21:48**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	20962.8	20962.8	99.9	%	06:22:21
1	Al 396.153Radial†	167594.3	167904.6	[50000]	µg/L	06:22:16
1	Ca 317.933Radial†	105193.9	105183.7	[50000]	µg/L	06:22:21
1	Fe 238.204 Radial†	36360.8	36358.0	[20000]	µg/L	06:22:21
1	Mg 279.077 IEC†	9407.8	9405.6	[50000]	µg/L	06:22:21
1	Na 589.592 Radial†	9445.0	9498.1	[20000]	µg/L	06:22:21
1	Sc 361.383	708994.9	708994.9	99.495	%	06:22:48
1	Y 371.029	609856.5	609856.5	98.503	%	06:22:48
2	Sc RADIAL	21057.0	21057.0	100	%	06:22:31
2	Al 396.153Radial†	167545.9	167106.1	[50000]	µg/L	06:22:26
2	Ca 317.933Radial†	105924.9	105441.2	[50000]	µg/L	06:22:31
2	Fe 238.204 Radial†	36616.4	36449.9	[20000]	µg/L	06:22:31
2	Mg 279.077 IEC†	9461.6	9417.1	[50000]	µg/L	06:22:31
2	Na 589.592 Radial†	9506.4	9517.0	[20000]	µg/L	06:22:31
2	Sc 361.383	708327.9	708327.9	99.401	%	06:22:54
2	Y 371.029	609270.2	609270.2	98.408	%	06:22:54
3	Sc RADIAL	20936.2	20936.2	99.8	%	06:22:41
3	Al 396.153Radial†	167669.8	168193.1	[50000]	µg/L	06:22:36
3	Ca 317.933Radial†	105642.7	105767.0	[50000]	µg/L	06:22:41
3	Fe 238.204 Radial†	36540.2	36583.9	[20000]	µg/L	06:22:41
3	Mg 279.077 IEC†	9468.5	9478.3	[50000]	µg/L	06:22:41
3	Na 589.592 Radial†	9620.6	9686.1	[20000]	µg/L	06:22:41
3	Sc 361.383	705840.3	705840.3	99.052	%	06:22:59
3	Y 371.029	607377.7	607377.7	98.103	%	06:22:59

Mean Data: S10

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	707721.0	1662.53	0.23%	99.316	%
Sc RADIAL	20985.3	63.45	0.30%	100	%
Y 371.029	608834.8	1295.51	0.21%	98.338	%
Al 396.153Radial†	167734.6	563.06	0.34%	[50000]	µg/L
Ca 317.933Radial†	105464.0	292.34	0.28%	[50000]	µg/L
Fe 238.204 Radial†	36463.9	113.61	0.31%	[20000]	µg/L
Mg 279.077 IEC†	9433.7	39.08	0.41%	[50000]	µg/L
Na 589.592 Radial†	9567.1	103.53	1.08%	[20000]	µg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	3	Lin Thru 0	0.0	157.6	0.00000	0.999999	
Al 396.153Radial	3	Lin Thru 0	0.0	3.354	0.00000	0.999998	
As 188.979	3	Lin Thru 0	0.0	1.780	0.00000	0.999997	
B 249.677	3	Lin Thru 0	0.0	35.18	0.00000	0.999965	
Ba 233.527	3	Lin Thru 0	0.0	107.2	0.00000	0.999979	
Be 313.107	3	Lin Thru 0	0.0	1727	0.00000	0.999986	
Ca 317.933Radial	3	Lin Thru 0	0.0	2.109	0.00000	0.999994	
Cd 226.502	3	Lin Thru 0	0.0	67.27	0.00000	0.999999	
Co 228.616	3	Lin Thru 0	0.0	41.18	0.00000	1.000000	
Cr 267.716	3	Lin Thru 0	0.0	51.14	0.00000	0.999985	
Cu 324.752	3	Lin Thru 0	0.0	242.9	0.00000	0.999975	
Fe 238.204 Radia	2	Lin Thru 0	0.0	1.834	0.00000	0.999936	
K 766.490 Radial	3	Lin Thru 0	0.0	2.113	0.00000	0.999946	
Mg 279.077 IEC	3	Lin Thru 0	0.0	0.1890	0.00000	0.999962	
Mn 257.610	3	Lin Thru 0	0.0	700.9	0.00000	0.999943	
Mo 202.031	3	Lin Thru 0	0.0	14.67	0.00000	0.999993	
Na 589.592 Radia	2	Lin Thru 0	0.0	0.4804	0.00000	0.999963	

Ni 231.604	3	Lin Thru 0	0.0	34.37	0.00000	0.999977
P 214.914	3	Lin Thru 0	0.0	1.334	0.00000	0.999983
Pb 220.353	3	Lin Thru 0	0.0	6.606	0.00000	0.999993
S 181.975 Axial	3	Lin Thru 0	0.0	0.5756	0.00000	0.999995
Sb 206.836	3	Lin Thru 0	0.0	3.102	0.00000	0.999988
Se 196.026	3	Lin Thru 0	0.0	1.348	0.00000	0.999982
SiO2	3	Lin Thru 0	0.0	8.031	0.00000	0.999998
Si 251.611	3	Lin Thru 0	0.0	21.22	0.00000	0.999998
Sn 189.927	3	Lin Thru 0	0.0	4.577	0.00000	0.999994
Sr 421.552	3	Lin Thru 0	0.0	204.8	0.00000	0.999933
Ti 334.940	3	Lin Thru 0	0.0	398.8	0.00000	0.999979
Tl 190.801	3	Lin Thru 0	0.0	2.925	0.00000	0.999991
U 367.007	3	Lin Thru 0	0.0	4.076	0.00000	0.999948
V 292.402	3	Lin Thru 0	0.0	101.9	0.00000	0.999974
Zn 213.857	3	Lin Thru 0	0.0	108.5	0.00000	0.999999

Sequence No.: 6 **Autosampler Location: 9**
Sample ID: ICV **Date Collected: 6/15/2012 6:23:07**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21148.0	21148.0	101	%			06:23:36
1	Al 396.153Radial†	16426.5	16469.8	4890.9	µg/L	4890.9	ppb	06:23:36
1	Ca 317.933Radial†	10804.3	10622.6	5037.3	µg/L	5037.3	ppb	06:23:56
1	Fe 238.204 Radial†	9337.9	9231.3	5039.6	µg/L	5039.6	ppb	06:23:56
1	K 766.490 Radial†	6031.8	5294.6	2501.1	µg/L	2501.1	ppb	06:23:36
1	Mg 279.077 IEC†	980.8	963.1	5102.5	µg/L	5102.5	ppb	06:23:56
1	Na 589.592 Radial†	1168.2	1204.3	2506.8	µg/L	2506.8	ppb	06:23:56
1	Sr 421.552†	101425.2	101231.0	494.33	µg/L	494.33	ppb	06:23:36
1	Sc 361.383	710292.6	710292.6	99.677	%			06:24:53
1	Y 371.029	614104.0	614104.0	99.189	%			06:24:53
1	Ag 328.068†	39356.3	39863.1	257.29	µg/L	257.29	ppb	06:24:53
1	As 188.979†	867.7	879.3	493.91	µg/L	493.91	ppb	06:25:13
1	B 249.677†	17593.8	17553.9	497.42	µg/L	497.42	ppb	06:24:53
1	Ba 233.527†	54424.4	54771.8	511.26	µg/L	511.26	ppb	06:24:53
1	Be 313.107†	430202.5	439592.5	254.62	µg/L	254.62	ppb	06:24:53
1	Cd 226.502†	33857.0	34192.1	507.73	µg/L	507.73	ppb	06:24:53
1	Co 228.616†	20714.8	20802.8	505.10	µg/L	505.10	ppb	06:25:13
1	Cr 267.716†	26099.6	25990.6	508.19	µg/L	508.19	ppb	06:25:13
1	Cu 324.752†	131045.8	124987.6	516.04	µg/L	516.04	ppb	06:24:53
1	Mn 257.610†	355956.7	356606.8	509.10	µg/L	509.10	ppb	06:24:53
1	Mo 202.031†	7288.3	7289.9	497.24	µg/L	497.24	ppb	06:25:13
1	Ni 231.604†	17435.6	17620.8	512.48	µg/L	512.48	ppb	06:25:13
1	P 214.914†	3482.9	3369.4	2508.1	µg/L	2508.1	ppb	06:25:13
1	Pb 220.353†	3479.9	3340.3	506.11	µg/L	506.11	ppb	06:25:13
1	S 181.975 Axial†	1517.9	1461.2	2539.2	µg/L	2539.2	ppb	06:25:13
1	Sb 206.836†	1606.3	1545.8	494.43	µg/L	494.43	ppb	06:25:13
1	Se 196.026†	3426.2	3442.7	2557.1	µg/L	2557.1	ppb	06:25:13
1	SiO2†	90951.0	88295.8	11031	µg/L	11031	ppb	06:24:53
1	Si 251.611†	108397.7	108567.3	5108.5	µg/L	5108.5	ppb	06:24:53
1	Sn 189.927†	2356.4	2337.3	512.76	µg/L	512.76	ppb	06:25:13
1	Ti 334.940†	199828.9	200484.4	502.43	µg/L	502.43	ppb	06:24:53
1	Tl 190.801†	1439.1	1492.1	512.79	µg/L	512.79	ppb	06:25:13
1	U 367.007†	2457.6	2171.2	509.1	µg/L	509.1	ppb	06:24:53
1	V 292.402†	51444.8	51671.9	514.00	µg/L	514.00	ppb	06:24:53
1	Zn 213.857†	56047.8	55028.3	502.70	µg/L	502.70	ppb	06:24:53
2	Sc RADIAL	20778.2	20778.2	99.0	%			06:24:01
2	Al 396.153Radial†	16620.5	16955.6	5035.6	µg/L	5035.6	ppb	06:24:01
2	Ca 317.933Radial†	10809.7	10818.8	5130.4	µg/L	5130.4	ppb	06:24:21
2	Fe 238.204 Radial†	9338.5	9396.7	5129.9	µg/L	5129.9	ppb	06:24:21
2	K 766.490 Radial†	5995.5	5364.3	2534.1	µg/L	2534.1	ppb	06:24:01
2	Mg 279.077 IEC†	978.9	978.5	5184.0	µg/L	5184.0	ppb	06:24:21
2	Na 589.592 Radial†	1174.3	1231.1	2562.6	µg/L	2562.6	ppb	06:24:21
2	Sr 421.552†	101916.1	103517.1	505.50	µg/L	505.50	ppb	06:24:01
2	Sc 361.383	701449.7	701449.7	98.436	%			06:25:19
2	Y 371.029	607244.5	607244.5	98.081	%			06:25:19
2	Ag 328.068†	39226.0	40228.5	259.65	µg/L	259.65	ppb	06:25:19
2	As 188.979†	871.7	894.4	502.41	µg/L	502.41	ppb	06:25:39
2	B 249.677†	17580.8	17763.2	503.35	µg/L	503.35	ppb	06:25:19
2	Ba 233.527†	53913.5	54941.1	512.84	µg/L	512.84	ppb	06:25:19
2	Be 313.107†	427058.8	441839.9	255.92	µg/L	255.92	ppb	06:25:19
2	Cd 226.502†	33656.3	34416.4	511.05	µg/L	511.05	ppb	06:25:19
2	Co 228.616†	20588.7	20936.7	508.35	µg/L	508.35	ppb	06:25:39
2	Cr 267.716†	26012.9	26232.6	512.93	µg/L	512.93	ppb	06:25:39
2	Cu 324.752†	130397.3	125986.2	520.17	µg/L	520.17	ppb	06:25:19
2	Mn 257.610†	353026.4	358131.9	511.28	µg/L	511.28	ppb	06:25:19
2	Mo 202.031†	7241.0	7334.0	500.25	µg/L	500.25	ppb	06:25:39
2	Ni 231.604†	17355.4	17759.9	516.53	µg/L	516.53	ppb	06:25:39
2	P 214.914†	3460.7	3390.9	2524.1	µg/L	2524.1	ppb	06:25:39
2	Pb 220.353†	3467.1	3371.4	510.78	µg/L	510.78	ppb	06:25:39

2	S 181.975 Axial†	1515.3	1477.7	2567.9 µg/L	2567.9 ppb	06:25:39
2	Sb 206.836†	1599.8	1559.5	498.79 µg/L	498.79 ppb	06:25:39
2	Se 196.026†	3402.2	3461.6	2571.2 µg/L	2571.2 ppb	06:25:39
2	SiO2†	90134.1	88616.2	11071 µg/L	11071 ppb	06:25:19
2	Si 251.611†	107513.7	109040.2	5130.7 µg/L	5130.7 ppb	06:25:19
2	Sn 189.927†	2345.8	2356.4	516.96 µg/L	516.96 ppb	06:25:39
2	Ti 334.940†	198586.6	201749.8	505.61 µg/L	505.61 ppb	06:25:19
2	Tl 190.801†	1443.5	1514.8	520.56 µg/L	520.56 ppb	06:25:39
2	U 367.007†	2423.9	2168.0	507.9 µg/L	507.9 ppb	06:25:19
2	V 292.402†	51067.0	51938.8	516.66 µg/L	516.66 ppb	06:25:19
2	Zn 213.857†	55732.2	55416.6	506.24 µg/L	506.24 ppb	06:25:19
3	Sc RADIAL	20985.8	20985.8	100 %		06:24:26
3	Al 396.153Radial†	16465.6	16634.8	4940.2 µg/L	4940.2 ppb	06:24:26
3	Ca 317.933Radial†	10821.0	10722.1	5084.5 µg/L	5084.5 ppb	06:24:46
3	Fe 238.204 Radial†	9349.8	9314.7	5085.1 µg/L	5085.1 ppb	06:24:46
3	K 766.490 Radial†	5972.2	5281.2	2494.8 µg/L	2494.8 ppb	06:24:26
3	Mg 279.077 IEC†	981.3	971.2	5145.1 µg/L	5145.1 ppb	06:24:46
3	Na 589.592 Radial†	1203.9	1249.0	2599.9 µg/L	2599.9 ppb	06:24:46
3	Sr 421.552†	101708.5	102291.9	499.51 µg/L	499.51 ppb	06:24:26
3	Sc 361.383	710823.6	710823.6	99.751 %		06:25:45
3	Y 371.029	615583.8	615583.8	99.428 %		06:25:45
3	Ag 328.068†	39242.2	39719.2	256.39 µg/L	256.39 ppb	06:25:45
3	As 188.979†	866.5	877.5	492.89 µg/L	492.89 ppb	06:26:06
3	B 249.677†	17647.4	17594.4	498.57 µg/L	498.57 ppb	06:25:45
3	Ba 233.527†	54288.4	54594.7	509.61 µg/L	509.61 ppb	06:25:45
3	Be 313.107†	429731.9	438798.3	254.15 µg/L	254.15 ppb	06:25:45
3	Cd 226.502†	33938.4	34248.3	508.56 µg/L	508.56 ppb	06:25:45
3	Co 228.616†	20632.7	20705.0	502.72 µg/L	502.72 ppb	06:26:06
3	Cr 267.716†	25958.6	25829.7	505.06 µg/L	505.06 ppb	06:26:06
3	Cu 324.752†	130924.7	124768.1	515.15 µg/L	515.15 ppb	06:25:45
3	Mn 257.610†	355099.0	355480.3	507.49 µg/L	507.49 ppb	06:25:45
3	Mo 202.031†	7253.7	7249.7	494.50 µg/L	494.50 ppb	06:26:06
3	Ni 231.604†	17361.0	17532.9	509.93 µg/L	509.93 ppb	06:26:06
3	P 214.914†	3472.1	3355.9	2498.1 µg/L	2498.1 ppb	06:26:06
3	Pb 220.353†	3458.8	3316.6	502.51 µg/L	502.51 ppb	06:26:06
3	S 181.975 Axial†	1503.1	1445.2	2511.3 µg/L	2511.3 ppb	06:26:06
3	Sb 206.836†	1594.2	1532.4	490.14 µg/L	490.14 ppb	06:26:06
3	Se 196.026†	3413.6	3427.4	2545.8 µg/L	2545.8 ppb	06:26:06
3	SiO2†	90836.8	88113.1	11008 µg/L	11008 ppb	06:25:45
3	Si 251.611†	108292.8	108380.9	5099.7 µg/L	5099.7 ppb	06:25:45
3	Sn 189.927†	2348.2	2327.3	510.59 µg/L	510.59 ppb	06:26:06
3	Ti 334.940†	199460.1	199964.9	501.14 µg/L	501.14 ppb	06:25:45
3	Tl 190.801†	1434.0	1486.1	510.70 µg/L	510.70 ppb	06:26:06
3	U 367.007†	2409.8	2121.4	496.7 µg/L	496.7 ppb	06:25:45
3	V 292.402†	51463.3	51651.8	513.75 µg/L	513.75 ppb	06:25:45
3	Zn 213.857†	56079.4	55018.0	502.62 µg/L	502.62 ppb	06:25:45

Mean Data: ICV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	707522.0	99.288	%	0.7389				0.74%
Sc RADIAL	20970.7	100.0	%	0.88				0.88%
Y 371.029	612310.8	98.899	%	0.7187				0.73%
Ag 328.068†	39936.9	257.77	µg/L	1.683	257.77	ppb	1.683	0.65%
QC value within limits for Ag 328.068 Recovery = 103.11%								
Al 396.153Radial†	16686.7	4955.6	µg/L	73.57	4955.6	ppb	73.57	1.48%
QC value within limits for Al 396.153Radial Recovery = 99.11%								
As 188.979†	883.7	496.41	µg/L	5.225	496.41	ppb	5.225	1.05%
QC value within limits for As 188.979 Recovery = 99.28%								
B 249.677†	17637.2	499.78	µg/L	3.148	499.78	ppb	3.148	0.63%
QC value within limits for B 249.677 Recovery = 99.96%								
Ba 233.527†	54769.2	511.24	µg/L	1.616	511.24	ppb	1.616	0.32%
QC value within limits for Ba 233.527 Recovery = 102.25%								
Be 313.107†	440076.9	254.90	µg/L	0.915	254.90	ppb	0.915	0.36%
QC value within limits for Be 313.107 Recovery = 101.96%								
Ca 317.933Radial†	10721.1	5084.1	µg/L	46.53	5084.1	ppb	46.53	0.92%
QC value within limits for Ca 317.933Radial Recovery = 101.68%								
Cd 226.502†	34285.6	509.11	µg/L	1.730	509.11	ppb	1.730	0.34%
QC value within limits for Cd 226.502 Recovery = 101.82%								
Co 228.616†	20814.8	505.39	µg/L	2.824	505.39	ppb	2.824	0.56%

QC value within limits for Co 228.616 Recovery = 101.08%

Cr 267.716†	26017.6	508.72 µg/L	3.962	508.72 ppb	3.962	0.78%

QC value within limits for Cr 267.716 Recovery = 101.74%

Cu 324.752†	125247.3	517.12 µg/L	2.681	517.12 ppb	2.681	0.52%

QC value within limits for Cu 324.752 Recovery = 103.42%

Fe 238.204 Radial†	9314.2	5084.9 µg/L	45.13	5084.9 ppb	45.13	0.89%

QC value within limits for Fe 238.204 Radial Recovery = 101.70%

K 766.490 Radial†	5313.4	2510.0 µg/L	21.13	2510.0 ppb	21.13	0.84%

QC value within limits for K 766.490 Radial Recovery = 100.40%

Mg 279.077 IEC†	970.9	5143.9 µg/L	40.76	5143.9 ppb	40.76	0.79%

QC value within limits for Mg 279.077 IEC Recovery = 102.88%

Mn 257.610†	356739.7	509.29 µg/L	1.900	509.29 ppb	1.900	0.37%

QC value within limits for Mn 257.610 Recovery = 101.86%

Mo 202.031†	7291.2	497.33 µg/L	2.877	497.33 ppb	2.877	0.58%

QC value within limits for Mo 202.031 Recovery = 99.47%

Na 589.592 Radial†	1228.1	2556.4 µg/L	46.87	2556.4 ppb	46.87	1.83%

QC value within limits for Na 589.592 Radial Recovery = 102.26%

Ni 231.604†	17637.9	512.98 µg/L	3.328	512.98 ppb	3.328	0.65%

QC value within limits for Ni 231.604 Recovery = 102.60%

P 214.914†	3372.1	2510.1 µg/L	13.12	2510.1 ppb	13.12	0.52%

QC value within limits for P 214.914 Recovery = 100.40%

Pb 220.353†	3342.8	506.47 µg/L	4.148	506.47 ppb	4.148	0.82%

QC value within limits for Pb 220.353 Recovery = 101.29%

S 181.975 Axial†	1461.3	2539.4 µg/L	28.27	2539.4 ppb	28.27	1.11%

QC value within limits for S 181.975 Axial Recovery = 101.58%

Sb 206.836†	1545.9	494.45 µg/L	4.325	494.45 ppb	4.325	0.87%

QC value within limits for Sb 206.836 Recovery = 98.89%

Se 196.026†	3443.9	2558.0 µg/L	12.70	2558.0 ppb	12.70	0.50%

QC value within limits for Se 196.026 Recovery = 102.32%

SiO2†	88341.7	11036 µg/L	32.0	11036 ppb	32.0	0.29%

QC value within limits for SiO2 Recovery = 103.19%

Si 251.611†	108662.8	5113.0 µg/L	15.97	5113.0 ppb	15.97	0.31%

QC value within limits for Si 251.611 Recovery = 102.26%

Sn 189.927†	2340.3	513.44 µg/L	3.236	513.44 ppb	3.236	0.63%

QC value within limits for Sn 189.927 Recovery = 102.69%

Sr 421.552†	102346.7	499.78 µg/L	5.587	499.78 ppb	5.587	1.12%

QC value within limits for Sr 421.552 Recovery = 99.96%

Ti 334.940†	200733.0	503.06 µg/L	2.299	503.06 ppb	2.299	0.46%

QC value within limits for Ti 334.940 Recovery = 100.61%

Tl 190.801†	1497.7	514.68 µg/L	5.198	514.68 ppb	5.198	1.01%

QC value within limits for Tl 190.801 Recovery = 102.94%

U 367.007†	2153.5	504.5 µg/L	6.86	504.5 ppb	6.86	1.36%

QC value within limits for U 367.007 Recovery = 100.91%

V 292.402†	51754.2	514.80 µg/L	1.612	514.80 ppb	1.612	0.31%

QC value within limits for V 292.402 Recovery = 102.96%

Zn 213.857†	55154.3	503.85 µg/L	2.066	503.85 ppb	2.066	0.41%

QC value within limits for Zn 213.857 Recovery = 100.77%

All analyte(s) passed QC.

Sequence No.: 7 **Autosampler Location: 10**
Sample ID: ICB **Date Collected: 6/15/2012 6:26:13**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21123.0	21123.0	101	%			06:26:41
1	Al 396.153Radial†	-151.3	23.6	6.9809	µg/L	6.9809	ppb	06:26:41
1	Ca 317.933Radial†	108.8	12.2	5.8052	µg/L	5.8052	ppb	06:27:01
1	Fe 238.204 Radial†	39.9	7.1	3.9036	µg/L	3.9036	ppb	06:27:01
1	K 766.490 Radial†	785.1	90.5	42.841	µg/L	42.841	ppb	06:26:41
1	Mg 279.077 IEC†	9.2	-0.7	-3.7457	µg/L	-3.7457	ppb	06:27:01
1	Na 589.592 Radial†	-58.9	-13.1	-27.184	µg/L	-27.184	ppb	06:26:41
1	Sr 421.552†	-592.3	23.7	0.1157	µg/L	0.1157	ppb	06:26:41
1	Sc 361.383	704607.4	704607.4	98.879	%			06:27:58
1	Y 371.029	611822.9	611822.9	98.821	%			06:27:58
1	Ag 328.068†	-373.4	1.5	0.0090	µg/L	0.0090	ppb	06:28:03
1	As 188.979†	-10.8	-2.1	-1.2058	µg/L	-1.2058	ppb	06:28:23
1	B 249.677†	131.0	35.4	1.0056	µg/L	1.0056	ppb	06:28:23
1	Ba 233.527†	-156.0	13.1	0.1217	µg/L	0.1217	ppb	06:28:23
1	Be 313.107†	-7866.8	38.4	0.0251	µg/L	0.0251	ppb	06:28:03
1	Cd 226.502†	-219.4	3.3	0.0488	µg/L	0.0488	ppb	06:28:23
1	Co 228.616†	-0.3	20.5	0.5007	µg/L	0.5007	ppb	06:28:23
1	Cr 267.716†	208.8	17.6	0.3306	µg/L	0.3306	ppb	06:28:23
1	Cu 324.752†	6414.3	3.7	0.0053	µg/L	0.0053	ppb	06:28:03
1	Mn 257.610†	533.2	34.6	0.0499	µg/L	0.0499	ppb	06:28:23
1	Mo 202.031†	40.2	18.5	1.2643	µg/L	1.2643	ppb	06:28:23
1	Ni 231.604†	-145.4	-18.4	-0.5352	µg/L	-0.5352	ppb	06:28:23
1	P 214.914†	114.0	-9.5	-7.1387	µg/L	-7.1387	ppb	06:28:23
1	Pb 220.353†	119.3	-30.2	-4.5748	µg/L	-4.5748	ppb	06:28:23
1	S 181.975 Axial†	64.3	3.4	5.9310	µg/L	5.9310	ppb	06:28:23
1	Sb 206.836†	74.2	9.3	3.0189	µg/L	3.0189	ppb	06:28:23
1	Se 196.026†	1.1	6.4	4.7582	µg/L	4.7582	ppb	06:28:23
1	SiO2†	2982.6	66.1	8.4166	µg/L	8.4166	ppb	06:28:03
1	Si 251.611†	198.2	18.4	0.8458	µg/L	0.8458	ppb	06:28:23
1	Sn 189.927†	33.2	6.8	1.4752	µg/L	1.4752	ppb	06:28:23
1	Ti 334.940†	-127.7	-121.9	-0.3117	µg/L	-0.3117	ppb	06:28:03
1	Tl 190.801†	-48.8	-0.9	-0.3170	µg/L	-0.3170	ppb	06:28:23
1	U 367.007†	344.8	54.3	13.31	µg/L	13.31	ppb	06:28:03
1	V 292.402†	-82.2	-23.0	-0.1989	µg/L	-0.1989	ppb	06:28:03
1	Zn 213.857†	1215.4	27.8	0.2595	µg/L	0.2595	ppb	06:28:23
2	Sc RADIAL	21075.7	21075.7	100	%			06:27:06
2	Al 396.153Radial†	-135.7	38.8	11.491	µg/L	11.491	ppb	06:27:06
2	Ca 317.933Radial†	105.8	9.4	4.4771	µg/L	4.4771	ppb	06:27:26
2	Fe 238.204 Radial†	38.5	5.9	3.2124	µg/L	3.2124	ppb	06:27:26
2	K 766.490 Radial†	624.9	-67.2	-31.814	µg/L	-31.814	ppb	06:27:06
2	Mg 279.077 IEC†	11.3	1.4	7.3922	µg/L	7.3922	ppb	06:27:26
2	Na 589.592 Radial†	-73.7	-27.9	-58.123	µg/L	-58.123	ppb	06:27:06
2	Sr 421.552†	-625.9	-11.0	-0.0538	µg/L	-0.0538	ppb	06:27:06
2	Sc 361.383	703711.6	703711.6	98.753	%			06:28:28
2	Y 371.029	611513.5	611513.5	98.771	%			06:28:28
2	Ag 328.068†	-316.0	59.1	0.3745	µg/L	0.3745	ppb	06:28:33
2	As 188.979†	-6.3	2.4	1.3386	µg/L	1.3386	ppb	06:28:53
2	B 249.677†	144.6	49.4	1.4047	µg/L	1.4047	ppb	06:28:53
2	Ba 233.527†	-153.7	15.1	0.1407	µg/L	0.1407	ppb	06:28:53
2	Be 313.107†	-7990.0	-96.5	-0.0541	µg/L	-0.0541	ppb	06:28:33
2	Cd 226.502†	-208.1	14.5	0.2152	µg/L	0.2152	ppb	06:28:53
2	Co 228.616†	-15.1	5.5	0.1376	µg/L	0.1376	ppb	06:28:53
2	Cr 267.716†	206.4	15.4	0.2926	µg/L	0.2926	ppb	06:28:53
2	Cu 324.752†	6521.9	121.0	0.4920	µg/L	0.4920	ppb	06:28:33
2	Mn 257.610†	516.5	18.4	0.0263	µg/L	0.0263	ppb	06:28:53
2	Mo 202.031†	46.1	24.6	1.6793	µg/L	1.6793	ppb	06:28:53
2	Ni 231.604†	-121.9	5.2	0.1511	µg/L	0.1511	ppb	06:28:53
2	P 214.914†	121.5	-1.8	-1.3644	µg/L	-1.3644	ppb	06:28:53
2	Pb 220.353†	154.5	5.5	0.8363	µg/L	0.8363	ppb	06:28:53

2	S 181.975 Axial†	73.7	12.9	22.472 µg/L	22.472 ppb	06:28:53
2	Sb 206.836†	78.5	13.7	4.4509 µg/L	4.4509 ppb	06:28:53
2	Se 196.026†	-1.6	3.7	2.7828 µg/L	2.7828 ppb	06:28:53
2	SiO2†	2981.1	68.5	8.6519 µg/L	8.6519 ppb	06:28:33
2	Si 251.611†	196.0	16.4	0.7481 µg/L	0.7481 ppb	06:28:53
2	Sn 189.927†	33.5	7.2	1.5662 µg/L	1.5662 ppb	06:28:53
2	Ti 334.940†	-127.1	-121.5	-0.3083 µg/L	-0.3083 ppb	06:28:33
2	Tl 190.801†	-38.8	9.2	3.1357 µg/L	3.1357 ppb	06:28:53
2	U 367.007†	322.9	32.6	7.975 µg/L	7.975 ppb	06:28:33
2	V 292.402†	-80.3	-21.2	-0.1813 µg/L	-0.1813 ppb	06:28:33
2	Zn 213.857†	1225.9	40.1	0.3679 µg/L	0.3679 ppb	06:28:53
3	Sc RADIAL	20990.2	20990.2	100 %		06:27:31
3	Al 396.153Radial†	-133.5	40.4	11.976 µg/L	11.976 ppb	06:27:31
3	Ca 317.933Radial†	96.4	0.5	0.2280 µg/L	0.2280 ppb	06:27:51
3	Fe 238.204 Radial†	49.2	16.8	9.1500 µg/L	9.1500 ppb	06:27:51
3	K 766.490 Radial†	735.6	46.0	21.765 µg/L	21.765 ppb	06:27:31
3	Mg 279.077 IEC†	6.7	-3.2	-16.924 µg/L	-16.924 ppb	06:27:51
3	Na 589.592 Radial†	-63.0	-17.6	-36.617 µg/L	-36.617 ppb	06:27:31
3	Sr 421.552†	-598.8	13.5	0.0661 µg/L	0.0661 ppb	06:27:31
3	Sc 361.383	709925.8	709925.8	99.625 %		06:28:58
3	Y 371.029	617214.7	617214.7	99.691 %		06:28:58
3	Ag 328.068†	-361.0	16.8	0.1085 µg/L	0.1085 ppb	06:29:03
3	As 188.979†	-10.6	-1.9	-1.0595 µg/L	-1.0595 ppb	06:29:23
3	B 249.677†	121.9	25.3	0.7193 µg/L	0.7193 ppb	06:29:23
3	Ba 233.527†	-146.9	23.4	0.2177 µg/L	0.2177 ppb	06:29:23
3	Be 313.107†	-7988.1	-23.7	-0.0119 µg/L	-0.0119 ppb	06:29:03
3	Cd 226.502†	-211.8	12.6	0.1862 µg/L	0.1862 ppb	06:29:23
3	Co 228.616†	-25.5	-4.7	-0.1119 µg/L	-0.1119 ppb	06:29:23
3	Cr 267.716†	211.4	18.5	0.3537 µg/L	0.3537 ppb	06:29:23
3	Cu 324.752†	6411.6	-47.5	-0.2020 µg/L	-0.2020 ppb	06:29:03
3	Mn 257.610†	528.8	26.2	0.0387 µg/L	0.0387 ppb	06:29:23
3	Mo 202.031†	48.2	26.3	1.7931 µg/L	1.7931 ppb	06:29:23
3	Ni 231.604†	-132.8	-4.6	-0.1349 µg/L	-0.1349 ppb	06:29:23
3	P 214.914†	127.4	3.1	2.3092 µg/L	2.3092 ppb	06:29:23
3	Pb 220.353†	148.8	-1.5	-0.2300 µg/L	-0.2300 ppb	06:29:23
3	S 181.975 Axial†	62.7	1.2	2.1658 µg/L	2.1658 ppb	06:29:23
3	Sb 206.836†	73.9	8.5	2.7628 µg/L	2.7628 ppb	06:29:23
3	Se 196.026†	1.3	6.6	4.8915 µg/L	4.8915 ppb	06:29:23
3	SiO2†	2971.8	32.7	4.2048 µg/L	4.2048 ppb	06:29:03
3	Si 251.611†	189.6	8.2	0.3564 µg/L	0.3564 ppb	06:29:23
3	Sn 189.927†	38.7	12.0	2.6305 µg/L	2.6305 ppb	06:29:23
3	Ti 334.940†	-24.9	-17.8	-0.0486 µg/L	-0.0486 ppb	06:29:03
3	Tl 190.801†	-40.9	7.4	2.5421 µg/L	2.5421 ppb	06:29:23
3	U 367.007†	329.1	35.9	8.755 µg/L	8.755 ppb	06:29:03
3	V 292.402†	-64.3	-4.4	-0.0145 µg/L	-0.0145 ppb	06:29:03
3	Zn 213.857†	1238.5	41.8	0.3854 µg/L	0.3854 ppb	06:29:23

Mean Data: ICB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	706081.6	99.086	%	0.4714				0.48%
Sc RADIAL	21063.0	100	%	0.3				0.32%
Y 371.029	613517.0	99.094	%	0.5178				0.52%
Ag 328.068†	25.8	0.1640	µg/L	0.18897	0.1640	ppb	0.18897	115.20%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	34.2	10.149	µg/L	2.7546	10.149	ppb	2.7546	27.14%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-0.5	-0.3089	µg/L	1.42864	-0.3089	ppb	1.42864	462.55%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	36.7	1.0432	µg/L	0.34426	1.0432	ppb	0.34426	33.00%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	17.2	0.1600	µg/L	0.05087	0.1600	ppb	0.05087	31.79%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-27.3	-0.0136	µg/L	0.03962	-0.0136	ppb	0.03962	290.66%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	7.4	3.5034	µg/L	2.91326	3.5034	ppb	2.91326	83.15%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	10.2	0.1501	µg/L	0.08889	0.1501	ppb	0.08889	59.23%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	7.1	0.1755	µg/L	0.30802	0.1755	ppb	0.30802	175.53%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              17.2      0.3256 µg/L       0.03087      0.3256 ppb        0.03087   9.48%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              25.7      0.0985 µg/L       0.35626      0.0985 ppb        0.35626 361.87%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        9.9      5.4220 µg/L       3.24702      5.4220 ppb        3.24702  59.89%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        23.1      10.931 µg/L       38.4890      10.931 ppb        38.4890 352.12%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          -0.9     -4.4258 µg/L      12.17222     -4.4258 ppb       12.17222 275.03%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              26.4      0.0383 µg/L       0.01180      0.0383 ppb        0.01180  30.80%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              23.2      1.5789 µg/L       0.27832      1.5789 ppb        0.27832  17.63%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -19.5     -40.641 µg/L       15.8573     -40.641 ppb        15.8573  39.02%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -5.9     -0.1730 µg/L       0.34474     -0.1730 ppb        0.34474 199.26%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -2.7     -2.0646 µg/L       4.76272     -2.0646 ppb        4.76272 230.68%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              -8.7     -1.3228 µg/L       2.86628     -1.3228 ppb        2.86628 216.68%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          5.9      10.190 µg/L       10.8024      10.190 ppb        10.8024 106.01%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              10.5      3.4109 µg/L       0.90978      3.4109 ppb        0.90978  26.67%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               5.6      4.1442 µg/L       1.18085      4.1442 ppb        1.18085  28.49%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    55.8      7.0911 µg/L       2.50241      7.0911 ppb        2.50241  35.29%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              14.4      0.6501 µg/L       0.25899      0.6501 ppb        0.25899  39.84%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               8.7      1.8906 µg/L       0.64235      1.8906 ppb        0.64235  33.98%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               8.7      0.0427 µg/L       0.08717      0.0427 ppb        0.08717 204.32%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -87.1     -0.2229 µg/L       0.15095     -0.2229 ppb        0.15095  67.73%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               5.2      1.7870 µg/L       1.84606      1.7870 ppb        1.84606 103.31%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               40.9       10.01 µg/L         2.882       10.01 ppb          2.882  28.78%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              -16.2     -0.1316 µg/L       0.10177     -0.1316 ppb        0.10177  77.34%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              36.6      0.3376 µg/L       0.06821      0.3376 ppb        0.06821  20.20%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 8 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/15/2012 6:29:31**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20868.9	20868.9	99.5	%			06:30:00
1	Al 396.153Radial†	513.8	690.4	205.41	µg/L	205.41	ppb	06:30:00
1	Ca 317.933Radial†	532.9	439.9	208.60	µg/L	208.60	ppb	06:30:20
1	Fe 238.204 Radial†	217.1	185.8	101.38	µg/L	101.38	ppb	06:30:20
1	K 766.490 Radial†	983.1	299.0	141.49	µg/L	141.49	ppb	06:30:00
1	Mg 279.077 IEC†	67.6	58.1	307.80	µg/L	307.80	ppb	06:30:20
1	Na 589.592 Radial†	89.7	135.5	282.13	µg/L	282.13	ppb	06:30:00
1	Sr 421.552†	432.0	1046.3	5.1086	µg/L	5.1086	ppb	06:30:00
1	Sc 361.383	706527.8	706527.8	99.148	%			06:31:16
1	Y 371.029	614251.4	614251.4	99.213	%			06:31:16
1	Ag 328.068†	383.2	765.7	4.9135	µg/L	4.9135	ppb	06:31:21
1	As 188.979†	47.6	56.8	31.877	µg/L	31.877	ppb	06:31:41
1	B 249.677†	1859.8	1778.7	50.536	µg/L	50.536	ppb	06:31:21
1	Ba 233.527†	396.0	570.3	5.3210	µg/L	5.3210	ppb	06:31:41
1	Be 313.107†	941.5	8944.0	5.1904	µg/L	5.1904	ppb	06:31:21
1	Cd 226.502†	143.9	370.4	5.4933	µg/L	5.4933	ppb	06:31:41
1	Co 228.616†	194.7	217.2	5.2808	µg/L	5.2808	ppb	06:31:41
1	Cr 267.716†	470.3	280.7	5.4450	µg/L	5.4450	ppb	06:31:41
1	Cu 324.752†	9012.9	2607.1	10.716	µg/L	10.716	ppb	06:31:21
1	Mn 257.610†	7781.9	7344.2	10.478	µg/L	10.478	ppb	06:31:21
1	Mo 202.031†	171.1	150.5	10.262	µg/L	10.262	ppb	06:31:41
1	Ni 231.604†	47.0	176.1	5.1216	µg/L	5.1216	ppb	06:31:41
1	P 214.914†	327.0	205.0	153.40	µg/L	153.40	ppb	06:31:41
1	Pb 220.353†	216.3	67.3	10.136	µg/L	10.136	ppb	06:31:41
1	S 181.975 Axial†	126.0	65.4	113.60	µg/L	113.60	ppb	06:31:41
1	Sb 206.836†	95.3	30.4	9.8510	µg/L	9.8510	ppb	06:31:41
1	Se 196.026†	40.2	45.8	34.142	µg/L	34.142	ppb	06:31:41
1	SiO2†	4722.5	1812.8	226.74	µg/L	226.74	ppb	06:31:21
1	Si 251.611†	2284.9	2122.5	99.862	µg/L	99.862	ppb	06:31:41
1	Sn 189.927†	72.3	46.2	10.112	µg/L	10.112	ppb	06:31:41
1	Ti 334.940†	1907.5	1931.1	4.8195	µg/L	4.8195	ppb	06:31:21
1	Tl 190.801†	20.1	68.7	23.523	µg/L	23.523	ppb	06:31:41
1	U 367.007†	507.9	217.8	52.95	µg/L	52.95	ppb	06:31:21
1	V 292.402†	437.8	501.7	5.0931	µg/L	5.0931	ppb	06:31:21
1	Zn 213.857†	2343.7	1162.6	10.657	µg/L	10.657	ppb	06:31:41
2	Sc RADIAL	20961.4	20961.4	99.9	%			06:30:25
2	Al 396.153Radial†	507.8	682.1	202.94	µg/L	202.94	ppb	06:30:25
2	Ca 317.933Radial†	544.8	449.4	213.12	µg/L	213.12	ppb	06:30:45
2	Fe 238.204 Radial†	242.0	209.8	114.45	µg/L	114.45	ppb	06:30:45
2	K 766.490 Radial†	1025.7	337.3	159.62	µg/L	159.62	ppb	06:30:25
2	Mg 279.077 IEC†	64.9	55.0	291.63	µg/L	291.63	ppb	06:30:45
2	Na 589.592 Radial†	100.4	145.9	303.70	µg/L	303.70	ppb	06:30:25
2	Sr 421.552†	419.1	1031.5	5.0363	µg/L	5.0363	ppb	06:30:25
2	Sc 361.383	703947.6	703947.6	98.786	%			06:31:47
2	Y 371.029	612195.1	612195.1	98.881	%			06:31:47
2	Ag 328.068†	481.4	866.4	5.5550	µg/L	5.5550	ppb	06:31:52
2	As 188.979†	42.9	52.2	29.325	µg/L	29.325	ppb	06:32:12
2	B 249.677†	1822.6	1748.0	49.660	µg/L	49.660	ppb	06:31:52
2	Ba 233.527†	392.7	568.4	5.3030	µg/L	5.3030	ppb	06:32:12
2	Be 313.107†	1036.6	9043.7	5.2498	µg/L	5.2498	ppb	06:31:52
2	Cd 226.502†	143.1	370.1	5.4860	µg/L	5.4860	ppb	06:32:12
2	Co 228.616†	206.7	230.1	5.5949	µg/L	5.5949	ppb	06:32:12
2	Cr 267.716†	468.7	280.9	5.4392	µg/L	5.4392	ppb	06:32:12
2	Cu 324.752†	9045.5	2673.4	10.985	µg/L	10.985	ppb	06:31:52
2	Mn 257.610†	7760.4	7351.1	10.490	µg/L	10.490	ppb	06:31:52
2	Mo 202.031†	171.0	151.0	10.299	µg/L	10.299	ppb	06:32:12
2	Ni 231.604†	52.9	182.2	5.3003	µg/L	5.3003	ppb	06:32:12
2	P 214.914†	313.6	192.6	144.08	µg/L	144.08	ppb	06:32:12
2	Pb 220.353†	210.0	61.7	9.2920	µg/L	9.2920	ppb	06:32:12

2	S 181.975 Axial†	125.9	65.8	114.35 µg/L	114.35 ppb	06:32:12
2	Sb 206.836†	100.9	36.5	11.809 µg/L	11.809 ppb	06:32:12
2	Se 196.026†	39.2	45.0	33.553 µg/L	33.553 ppb	06:32:12
2	SiO2†	4727.1	1834.9	229.60 µg/L	229.60 ppb	06:31:52
2	Si 251.611†	2275.8	2121.7	99.828 µg/L	99.828 ppb	06:32:12
2	Sn 189.927†	70.6	44.7	9.7847 µg/L	9.7847 ppb	06:32:12
2	Ti 334.940†	1927.1	1958.0	4.8834 µg/L	4.8834 ppb	06:31:52
2	Tl 190.801†	15.1	63.7	21.827 µg/L	21.827 ppb	06:32:12
2	U 367.007†	540.3	252.5	61.40 µg/L	61.40 ppb	06:31:52
2	V 292.402†	420.2	485.6	4.9419 µg/L	4.9419 ppb	06:31:52
2	Zn 213.857†	2359.4	1187.1	10.880 µg/L	10.880 ppb	06:32:12
3	Sc RADIAL	21046.8	21046.8	100 %		06:30:50
3	Al 396.153Radial†	504.6	676.9	201.35 µg/L	201.35 ppb	06:30:50
3	Ca 317.933Radial†	533.4	435.8	206.68 µg/L	206.68 ppb	06:31:10
3	Fe 238.204 Radial†	228.8	195.6	106.75 µg/L	106.75 ppb	06:31:10
3	K 766.490 Radial†	1041.8	349.2	165.25 µg/L	165.25 ppb	06:30:50
3	Mg 279.077 IEC†	65.8	55.7	295.30 µg/L	295.30 ppb	06:31:10
3	Na 589.592 Radial†	109.7	154.8	322.14 µg/L	322.14 ppb	06:30:50
3	Sr 421.552†	409.9	1020.6	4.9833 µg/L	4.9833 ppb	06:30:50
3	Sc 361.383	706408.3	706408.3	99.132 %		06:32:17
3	Y 371.029	613638.5	613638.5	99.114 %		06:32:17
3	Ag 328.068†	414.4	797.2	5.1127 µg/L	5.1127 ppb	06:32:22
3	As 188.979†	42.9	52.0	29.200 µg/L	29.200 ppb	06:32:42
3	B 249.677†	1916.1	1835.9	52.159 µg/L	52.159 ppb	06:32:22
3	Ba 233.527†	411.4	585.8	5.4652 µg/L	5.4652 ppb	06:32:42
3	Be 313.107†	996.1	8999.2	5.2238 µg/L	5.2238 ppb	06:32:22
3	Cd 226.502†	148.7	375.3	5.5648 µg/L	5.5648 ppb	06:32:42
3	Co 228.616†	211.1	233.8	5.6859 µg/L	5.6859 ppb	06:32:42
3	Cr 267.716†	470.5	281.0	5.4433 µg/L	5.4433 ppb	06:32:42
3	Cu 324.752†	9000.8	2596.4	10.667 µg/L	10.667 ppb	06:32:22
3	Mn 257.610†	7748.7	7312.0	10.433 µg/L	10.433 ppb	06:32:22
3	Mo 202.031†	184.7	164.3	11.205 µg/L	11.205 ppb	06:32:42
3	Ni 231.604†	65.3	194.5	5.6579 µg/L	5.6579 ppb	06:32:42
3	P 214.914†	326.5	204.6	153.04 µg/L	153.04 ppb	06:32:42
3	Pb 220.353†	212.8	63.8	9.6077 µg/L	9.6077 ppb	06:32:42
3	S 181.975 Axial†	119.6	59.0	102.50 µg/L	102.50 ppb	06:32:42
3	Sb 206.836†	104.3	39.5	12.787 µg/L	12.787 ppb	06:32:42
3	Se 196.026†	32.3	37.9	28.247 µg/L	28.247 ppb	06:32:42
3	SiO2†	4718.1	1809.1	226.40 µg/L	226.40 ppb	06:32:22
3	Si 251.611†	2313.4	2151.6	101.23 µg/L	101.23 ppb	06:32:42
3	Sn 189.927†	72.6	46.5	10.173 µg/L	10.173 ppb	06:32:42
3	Ti 334.940†	1903.2	1927.1	4.8060 µg/L	4.8060 ppb	06:32:22
3	Tl 190.801†	14.8	63.3	21.703 µg/L	21.703 ppb	06:32:42
3	U 367.007†	539.5	249.8	60.76 µg/L	60.76 ppb	06:32:22
3	V 292.402†	404.9	468.6	4.7850 µg/L	4.7850 ppb	06:32:22
3	Zn 213.857†	2367.9	1187.3	10.881 µg/L	10.881 ppb	06:32:42

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	705627.9	99.022	%	0.2044				0.21%
Sc RADIAL	20959.0	99.9	%	0.42				0.42%
Y 371.029	613361.7	99.069	%	0.1705				0.17%
Ag 328.068†	809.8	5.1937	µg/L	0.32835	5.1937	ppb	0.32835	6.32%
QC value within limits for Ag 328.068 Recovery = 103.87%								
Al 396.153Radial†	683.1	203.23	µg/L	2.045	203.23	ppb	2.045	1.01%
QC value within limits for Al 396.153Radial Recovery = 101.62%								
As 188.979†	53.7	30.134	µg/L	1.5108	30.134	ppb	1.5108	5.01%
QC value within limits for As 188.979 Recovery = 100.45%								
B 249.677†	1787.5	50.785	µg/L	1.2677	50.785	ppb	1.2677	2.50%
QC value within limits for B 249.677 Recovery = 101.57%								
Ba 233.527†	574.8	5.3631	µg/L	0.08892	5.3631	ppb	0.08892	1.66%
QC value within limits for Ba 233.527 Recovery = 107.26%								
Be 313.107†	8995.7	5.2213	µg/L	0.02980	5.2213	ppb	0.02980	0.57%
QC value within limits for Be 313.107 Recovery = 104.43%								
Ca 317.933Radial†	441.7	209.47	µg/L	3.305	209.47	ppb	3.305	1.58%
QC value within limits for Ca 317.933Radial Recovery = 104.73%								
Cd 226.502†	371.9	5.5147	µg/L	0.04355	5.5147	ppb	0.04355	0.79%
QC value within limits for Cd 226.502 Recovery = 110.29%								
Co 228.616†	227.0	5.5205	µg/L	0.21257	5.5205	ppb	0.21257	3.85%

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   QC value within limits for Co 228.616  Recovery = 110.41%
Cr 267.716†              280.9      5.4425 µg/L       0.00299      5.4425 ppb        0.00299   0.05%
   QC value within limits for Cr 267.716  Recovery = 108.85%
Cu 324.752†             2625.6      10.789 µg/L        0.1709      10.789 ppb         0.1709   1.58%
   QC value within limits for Cu 324.752  Recovery = 107.89%
Fe 238.204 Radial†       197.1      107.53 µg/L         6.570      107.53 ppb          6.570   6.11%
   QC value within limits for Fe 238.204 Radial  Recovery = 107.53%
K 766.490 Radial†        328.5      155.46 µg/L        12.416      155.46 ppb         12.416   7.99%
   QC value within limits for K 766.490 Radial  Recovery = 103.64%
Mg 279.077 IEC†           56.3      298.24 µg/L         8.480      298.24 ppb          8.480   2.84%
   QC value within limits for Mg 279.077 IEC  Recovery = 99.41%
Mn 257.610†             7335.7      10.467 µg/L        0.0299      10.467 ppb         0.0299   0.29%
   QC value within limits for Mn 257.610  Recovery = 104.67%
Mo 202.031†              155.2      10.589 µg/L        0.5338      10.589 ppb         0.5338   5.04%
   QC value within limits for Mo 202.031  Recovery = 105.89%
Na 589.592 Radial†       145.4      302.66 µg/L        20.026      302.66 ppb         20.026   6.62%
   QC value within limits for Na 589.592 Radial  Recovery = 100.89%
Ni 231.604†              184.3      5.3599 µg/L       0.27306      5.3599 ppb        0.27306   5.09%
   QC value within limits for Ni 231.604  Recovery = 107.20%
P 214.914†               200.7      150.17 µg/L         5.281      150.17 ppb          5.281   3.52%
   QC value within limits for P 214.914  Recovery = 100.11%
Pb 220.353†               64.3      9.6785 µg/L       0.42639      9.6785 ppb        0.42639   4.41%
   QC value within limits for Pb 220.353  Recovery = 96.79%
S 181.975 Axial†          63.4      110.15 µg/L         6.635      110.15 ppb          6.635   6.02%
   QC value within limits for S 181.975 Axial  Recovery = 110.15%
Sb 206.836†               35.4      11.482 µg/L        1.4950      11.482 ppb         1.4950  13.02%
   QC value within limits for Sb 206.836  Recovery = 114.82%
Se 196.026†               42.9      31.981 µg/L        3.2471      31.981 ppb         3.2471  10.15%
   QC value within limits for Se 196.026  Recovery = 106.60%
SiO2†                   1818.9      227.58 µg/L         1.758      227.58 ppb          1.758   0.77%
   QC value within limits for SiO2  Recovery = 106.84%
Si 251.611†             2131.9      100.31 µg/L         0.798      100.31 ppb          0.798   0.80%
   QC value within limits for Si 251.611  Recovery = 100.31%
Sn 189.927†               45.8      10.023 µg/L        0.2088      10.023 ppb         0.2088   2.08%
   QC value within limits for Sn 189.927  Recovery = 100.23%
Sr 421.552†             1032.8      5.0427 µg/L       0.06291      5.0427 ppb        0.06291   1.25%
   QC value within limits for Sr 421.552  Recovery = 100.85%
Ti 334.940†             1938.7      4.8363 µg/L       0.04136      4.8363 ppb        0.04136   0.86%
   QC value within limits for Ti 334.940  Recovery = 96.73%
Tl 190.801†               65.2      22.351 µg/L        1.0169      22.351 ppb         1.0169   4.55%
   QC value within limits for Tl 190.801  Recovery = 111.75%
U 367.007†               240.0       58.37 µg/L         4.703       58.37 ppb          4.703   8.06%
   QC value within limits for U 367.007  Recovery = 116.74%
V 292.402†               485.3      4.9400 µg/L       0.15406      4.9400 ppb        0.15406   3.12%
   QC value within limits for V 292.402  Recovery = 98.80%
Zn 213.857†             1179.0      10.806 µg/L        0.1290      10.806 ppb         0.1290   1.19%
   QC value within limits for Zn 213.857  Recovery = 108.06%
All analyte(s) passed QC.
```

Sequence No.: 9 **Autosampler Location: 103**
Sample ID: ICSA **Date Collected: 6/15/2012 6:32:50**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSA

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20438.8	20438.8	97.4	%			06:33:25
1	Al 396.153Radial†	1659603.7	1703708.9	507890	µg/L	507890	ppb	06:33:20
1	Ca 317.933Radial†	995659.1	1021919.3	484600	µg/L	484600	ppb	06:33:20
1	Fe 238.204 Radial†	328076.1	336728.1	183650	µg/L	183650	ppb	06:33:20
1	K 766.490 Radial†	583.9	-89.9	6.7529	µg/L	6.7529	ppb	06:33:25
1	Mg 279.077 IEC†	88954.6	91299.4	483020	µg/L	483020	ppb	06:33:25
1	Na 589.592 Radial†	-69.6	-26.0	-54.211	µg/L	-54.211	ppb	06:33:25
1	Sr 421.552†	-186.0	421.1	-0.1442	µg/L	-0.1442	ppb	06:33:25
1	Sc 361.383	654648.2	654648.2	91.868	%			06:33:52
1	Y 371.029	564336.8	564336.8	91.151	%			06:33:52
1	Ag 328.068†	-7024.2	-7266.8	0.7931	µg/L	0.7931	ppb	06:34:13
1	As 188.979†	-23.6	-16.9	-4.0612	µg/L	-4.0612	ppb	06:34:13
1	B 249.677†	997.8	989.1	1.5478	µg/L	1.5478	ppb	06:33:52
1	Ba 233.527†	290.7	487.2	-0.9260	µg/L	-0.9260	ppb	06:34:13
1	Be 313.107†	-14231.7	-7497.0	0.1310	µg/L	0.1310	ppb	06:33:52
1	Cd 226.502†	1569.2	1933.4	-0.3561	µg/L	-0.3561	ppb	06:34:13
1	Co 228.616†	47.8	72.9	1.4732	µg/L	1.4732	ppb	06:34:13
1	Cr 267.716†	-199.0	-410.2	-0.9147	µg/L	-0.9147	ppb	06:34:13
1	Cu 324.752†	18.0	-6463.6	0.0341	µg/L	0.0341	ppb	06:34:13
1	Mn 257.610†	-975.8	-1566.8	0.5562	µg/L	0.5562	ppb	06:33:52
1	Mo 202.031†	-86.3	-116.0	-0.4048	µg/L	-0.4048	ppb	06:34:13
1	Ni 231.604†	-265.5	-160.3	-1.6066	µg/L	-1.6066	ppb	06:34:13
1	P 214.914†	217.0	111.4	109.82	µg/L	109.82	ppb	06:34:13
1	Pb 220.353†	1050.6	992.8	0.4750	µg/L	0.4750	ppb	06:34:13
1	S 181.975 Axial†	119.4	68.3	-39.767	µg/L	-39.767	ppb	06:34:13
1	Sb 206.836†	123.1	68.3	2.3840	µg/L	2.3840	ppb	06:34:13
1	Se 196.026†	-101.2	-104.8	15.183	µg/L	15.183	ppb	06:34:13
1	SiO2†	2767.6	62.3	41.235	µg/L	41.235	ppb	06:34:13
1	Si 251.611†	200.8	36.5	-0.1561	µg/L	-0.1561	ppb	06:34:13
1	Sn 189.927†	-236.1	-283.8	-9.1424	µg/L	-9.1424	ppb	06:34:13
1	Ti 334.940†	-3500.3	-3802.9	-1.1976	µg/L	-1.1976	ppb	06:33:52
1	Tl 190.801†	-61.6	-18.6	6.0414	µg/L	6.0414	ppb	06:34:13
1	U 367.007†	3645.9	3674.2	-18.33	µg/L	-18.33	ppb	06:33:52
1	V 292.402†	-262.4	-225.4	-1.1691	µg/L	-1.1691	ppb	06:34:13
1	Zn 213.857†	3943.6	3091.3	-1.4295	µg/L	-1.4295	ppb	06:34:13
2	Sc RADIAL	20489.7	20489.7	97.7	%			06:33:35
2	Al 396.153Radial†	1668001.2	1708081.1	509190	µg/L	509190	ppb	06:33:30
2	Ca 317.933Radial†	1002300.5	1026184.2	486630	µg/L	486630	ppb	06:33:30
2	Fe 238.204 Radial†	330078.2	337942.7	184310	µg/L	184310	ppb	06:33:30
2	K 766.490 Radial†	526.7	-150.0	-21.526	µg/L	-21.526	ppb	06:33:35
2	Mg 279.077 IEC†	89282.9	91409.0	483600	µg/L	483600	ppb	06:33:35
2	Na 589.592 Radial†	-90.9	-47.7	-99.286	µg/L	-99.286	ppb	06:33:35
2	Sr 421.552†	-150.9	457.5	0.0241	µg/L	0.0241	ppb	06:33:35
2	Sc 361.383	657987.9	657987.9	92.337	%			06:34:18
2	Y 371.029	567469.0	567469.0	91.657	%			06:34:18
2	Ag 328.068†	-6910.2	-7104.6	1.9889	µg/L	1.9889	ppb	06:34:38
2	As 188.979†	-19.4	-12.3	-1.4638	µg/L	-1.4638	ppb	06:34:38
2	B 249.677†	1041.1	1030.5	2.6298	µg/L	2.6298	ppb	06:34:18
2	Ba 233.527†	290.2	485.1	-0.9657	µg/L	-0.9657	ppb	06:34:38
2	Be 313.107†	-14257.9	-7446.8	0.1778	µg/L	0.1778	ppb	06:34:18
2	Cd 226.502†	1577.7	1933.9	-0.4529	µg/L	-0.4529	ppb	06:34:38
2	Co 228.616†	29.0	52.3	0.9728	µg/L	0.9728	ppb	06:34:38
2	Cr 267.716†	-203.3	-413.8	-0.9672	µg/L	-0.9672	ppb	06:34:38
2	Cu 324.752†	-25.8	-6511.2	-0.0629	µg/L	-0.0629	ppb	06:34:38
2	Mn 257.610†	-879.3	-1456.9	0.7582	µg/L	0.7582	ppb	06:34:18
2	Mo 202.031†	-70.1	-98.0	0.8485	µg/L	0.8485	ppb	06:34:38
2	Ni 231.604†	-290.6	-186.1	-2.3444	µg/L	-2.3444	ppb	06:34:38
2	P 214.914†	197.3	88.8	92.806	µg/L	92.806	ppb	06:34:38
2	Pb 220.353†	1073.6	1011.8	3.0828	µg/L	3.0828	ppb	06:34:38

2	S 181.975 Axial†	118.6	66.8	-42.743 µg/L	-42.743 ppb		06:34:38
2	Sb 206.836†	128.7	73.7	4.0732 µg/L	4.0732 ppb		06:34:38
2	Se 196.026†	-98.4	-101.2	18.177 µg/L	18.177 ppb		06:34:38
2	SiO2†	2759.7	38.5	38.367 µg/L	38.367 ppb		06:34:38
2	Si 251.611†	191.0	24.7	-0.7258 µg/L	-0.7258 ppb		06:34:38
2	Sn 189.927†	-244.0	-291.0	-10.524 µg/L	-10.524 ppb		06:34:38
2	Ti 334.940†	-3597.8	-3889.1	-1.3645 µg/L	-1.3645 ppb		06:34:18
2	Tl 190.801†	-53.8	-9.9	9.0750 µg/L	9.0750 ppb		06:34:38
2	U 367.007†	3660.2	3669.6	-22.78 µg/L	-22.78 ppb		06:34:18
2	V 292.402†	-306.2	-271.5	-1.6065 µg/L	-1.6065 ppb		06:34:38
2	Zn 213.857†	3944.3	3070.4	-1.7286 µg/L	-1.7286 ppb		06:34:38
3	Sc RADIAL	20348.6	20348.6	97.0 %			06:33:46
3	Al 396.153Radial†	1662368.2	1714111.4	510990 µg/L	510990 ppb		06:33:41
3	Ca 317.933Radial†	998921.2	1029813.6	488350 µg/L	488350 ppb		06:33:41
3	Fe 238.204 Radial†	329505.8	339695.2	185260 µg/L	185260 ppb		06:33:41
3	K 766.490 Radial†	571.6	-99.9	2.4754 µg/L	2.4754 ppb		06:33:46
3	Mg 279.077 IEC†	89663.9	92435.6	489030 µg/L	489030 ppb		06:33:46
3	Na 589.592 Radial†	-65.9	-22.6	-47.025 µg/L	-47.025 ppb		06:33:46
3	Sr 421.552†	-190.8	415.3	-0.1895 µg/L	-0.1895 ppb		06:33:46
3	Sc 361.383	650038.5	650038.5	91.221 %			06:34:44
3	Y 371.029	560854.1	560854.1	90.588 %			06:34:44
3	Ag 328.068†	-6983.4	-7276.3	1.1420 µg/L	1.1420 ppb		06:35:04
3	As 188.979†	-6.1	2.2	6.6664 µg/L	6.6664 ppb		06:35:04
3	B 249.677†	953.2	948.0	0.1472 µg/L	0.1472 ppb		06:34:44
3	Ba 233.527†	302.3	502.2	-0.8351 µg/L	-0.8351 ppb		06:35:04
3	Be 313.107†	-14112.9	-7476.7	0.1796 µg/L	0.1796 ppb		06:34:44
3	Cd 226.502†	1597.6	1976.6	0.0299 µg/L	0.0299 ppb		06:35:04
3	Co 228.616†	23.9	47.0	0.8430 µg/L	0.8430 ppb		06:35:04
3	Cr 267.716†	-191.1	-403.1	-0.7043 µg/L	-0.7043 ppb		06:35:04
3	Cu 324.752†	-81.0	-6572.0	-0.1869 µg/L	-0.1869 ppb		06:35:04
3	Mn 257.610†	-903.8	-1495.4	0.6297 µg/L	0.6297 ppb		06:34:44
3	Mo 202.031†	-67.6	-96.2	1.0156 µg/L	1.0156 ppb		06:35:04
3	Ni 231.604†	-286.4	-185.3	-2.3044 µg/L	-2.3044 ppb		06:35:04
3	P 214.914†	190.6	84.1	89.159 µg/L	89.159 ppb		06:35:04
3	Pb 220.353†	1050.0	1000.2	0.8261 µg/L	0.8261 ppb		06:35:04
3	S 181.975 Axial†	119.1	68.9	-39.643 µg/L	-39.643 ppb		06:35:04
3	Sb 206.836†	121.6	67.6	2.0554 µg/L	2.0554 ppb		06:35:04
3	Se 196.026†	-105.3	-110.2	12.079 µg/L	12.079 ppb		06:35:04
3	SiO2†	2760.9	76.3	43.421 µg/L	43.421 ppb		06:35:04
3	Si 251.611†	204.8	42.5	0.0887 µg/L	0.0887 ppb		06:35:04
3	Sn 189.927†	-232.6	-281.7	-8.2866 µg/L	-8.2866 ppb		06:35:04
3	Ti 334.940†	-3554.2	-3889.0	-1.3739 µg/L	-1.3739 ppb		06:34:44
3	Tl 190.801†	-57.6	-14.7	7.4930 µg/L	7.4930 ppb		06:35:04
3	U 367.007†	3687.4	3747.9	-8.311 µg/L	-8.311 ppb		06:34:44
3	V 292.402†	-325.5	-296.7	-1.8337 µg/L	-1.8337 ppb		06:35:04
3	Zn 213.857†	3946.9	3125.4	-1.3688 µg/L	-1.3688 ppb		06:35:04

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	654224.8	91.809	%	0.5601				0.61%
Sc RADIAL	20425.7	97.4	%	0.34				0.35%
Y 371.029	564220.0	91.132	%	0.5345				0.59%
Ag 328.068†	-7215.9	1.3080	µg/L	0.61493	1.3080	ppb	0.61493	47.01%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	1708633.8	509360	µg/L	1557.1	509360	ppb	1557.1	0.31%
QC value within limits for Al 396.153Radial Recovery = 101.87%								
As 188.979†	-9.0	0.3805	µg/L	5.59654	0.3805	ppb	5.59654	>999.9%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	989.2	1.4416	µg/L	1.24469	1.4416	ppb	1.24469	86.34%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	491.5	-0.9089	µg/L	0.06694	-0.9089	ppb	0.06694	7.36%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-7473.5	0.1628	µg/L	0.02754	0.1628	ppb	0.02754	16.92%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	1025972.4	486530	µg/L	1873.8	486530	ppb	1873.8	0.39%
QC value within limits for Ca 317.933Radial Recovery = 97.31%								
Cd 226.502†	1948.0	-0.2597	µg/L	0.25542	-0.2597	ppb	0.25542	98.37%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	57.4	1.0963	µg/L	0.33277	1.0963	ppb	0.33277	30.35%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†            -409.0     -0.8621 µg/L       0.13913     -0.8621 ppb        0.13913  16.14%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†           -6515.6     -0.0719 µg/L       0.11077     -0.0719 ppb        0.11077 154.08%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†    338122.0      184410 µg/L         813.5      184410 ppb          813.5   0.44%
   QC value within limits for Fe 238.204 Radial  Recovery = 92.20%
K 766.490 Radial†       -113.3     -4.0992 µg/L      15.24274     -4.0992 ppb       15.24274 371.85%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†        91714.7      485220 µg/L        3315.6      485220 ppb         3315.6   0.68%
   QC value within limits for Mg 279.077 IEC  Recovery = 97.04%
Mn 257.610†            -1506.4      0.6481 µg/L       0.10222      0.6481 ppb        0.10222  15.77%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†            -103.4      0.4864 µg/L       0.77632      0.4864 ppb        0.77632 159.60%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -32.1     -66.841 µg/L       28.3271     -66.841 ppb        28.3271  42.38%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†            -177.2     -2.0851 µg/L       0.41489     -2.0851 ppb        0.41489  19.90%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†              94.8      97.262 µg/L       11.0282      97.262 ppb        11.0282  11.34%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†            1001.6      1.4613 µg/L       1.41520      1.4613 ppb        1.41520  96.85%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         68.0     -40.718 µg/L        1.7549     -40.718 ppb         1.7549   4.31%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              69.9      2.8375 µg/L       1.08267      2.8375 ppb        1.08267  38.16%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†            -105.4      15.146 µg/L        3.0494      15.146 ppb         3.0494  20.13%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    59.0      41.008 µg/L        2.5349      41.008 ppb         2.5349   6.18%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              34.6     -0.2644 µg/L       0.41792     -0.2644 ppb        0.41792 158.06%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†            -285.5     -9.3177 µg/L       1.12903     -9.3177 ppb        1.12903  12.12%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             431.3     -0.1032 µg/L       0.11254     -0.1032 ppb        0.11254 109.05%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†           -3860.3     -1.3120 µg/L       0.09918     -1.3120 ppb        0.09918   7.56%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†             -14.4      7.5364 µg/L       1.51726      7.5364 ppb        1.51726  20.13%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†             3697.2      -16.47 µg/L         7.411      -16.47 ppb          7.411  44.99%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†             -264.5     -1.5364 µg/L       0.33779     -1.5364 ppb        0.33779  21.99%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†            3095.7     -1.5090 µg/L       0.19260     -1.5090 ppb        0.19260  12.76%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 10 **Autosampler Location: 104**
Sample ID: ICSAB **Date Collected: 6/15/2012 6:35:12**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSAB

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20449.9	20449.9	97.5	%			06:35:46
1	Al 396.153Radial†	1674756.4	1718330.9	512230	µg/L	512230	ppb	06:35:41
1	Ca 317.933Radial†	998222.7	1023995.5	485590	µg/L	485590	ppb	06:35:41
1	Fe 238.204 Radial†	332904.2	341498.9	186250	µg/L	186250	ppb	06:35:41
1	K 766.490 Radial†	12027.1	11649.5	5557.3	µg/L	5557.3	ppb	06:35:46
1	Mg 279.077 IEC†	89752.2	92068.3	487090	µg/L	487090	ppb	06:35:46
1	Na 589.592 Radial†	2473.7	2583.2	5377.2	µg/L	5377.2	ppb	06:35:46
1	Sr 421.552†	104540.9	107862.0	524.53	µg/L	524.53	ppb	06:35:41
1	Sc 361.383	650227.5	650227.5	91.248	%			06:36:14
1	Y 371.029	560943.5	560943.5	90.603	%			06:36:14
1	Ag 328.068†	33162.6	36722.7	283.76	µg/L	283.76	ppb	06:36:14
1	As 188.979†	877.5	970.5	550.37	µg/L	550.37	ppb	06:36:34
1	B 249.677†	18455.6	20128.8	544.52	µg/L	544.52	ppb	06:36:14
1	Ba 233.527†	51082.8	56153.4	518.77	µg/L	518.77	ppb	06:36:14
1	Be 313.107†	393172.1	438879.3	258.62	µg/L	258.62	ppb	06:36:14
1	Cd 226.502†	31662.2	34924.5	489.89	µg/L	489.89	ppb	06:36:14
1	Co 228.616†	17553.6	19258.2	467.26	µg/L	467.26	ppb	06:36:34
1	Cr 267.716†	23267.9	25306.1	501.90	µg/L	501.90	ppb	06:36:34
1	Cu 324.752†	128127.6	133934.3	579.15	µg/L	579.15	ppb	06:36:14
1	Mn 257.610†	320461.6	350695.5	503.25	µg/L	503.25	ppb	06:36:14
1	Mo 202.031†	6824.1	7456.5	516.00	µg/L	516.00	ppb	06:36:34
1	Ni 231.604†	14434.5	15947.7	466.84	µg/L	466.84	ppb	06:36:34
1	P 214.914†	3451.6	3657.9	2750.6	µg/L	2750.6	ppb	06:36:34
1	Pb 220.353†	4008.1	4241.7	492.32	µg/L	492.32	ppb	06:36:34
1	S 181.975 Axial†	1574.4	1663.8	2733.4	µg/L	2733.4	ppb	06:36:34
1	Sb 206.836†	1617.5	1706.9	527.12	µg/L	527.12	ppb	06:36:34
1	Se 196.026†	2962.5	3251.9	2507.3	µg/L	2507.3	ppb	06:36:34
1	SiO2†	89126.0	94724.6	11864	µg/L	11864	ppb	06:36:14
1	Si 251.611†	107182.6	117281.5	5517.0	µg/L	5517.0	ppb	06:36:14
1	Sn 189.927†	1911.3	2067.9	506.46	µg/L	506.46	ppb	06:36:34
1	Ti 334.940†	191064.1	209398.1	533.04	µg/L	533.04	ppb	06:36:14
1	Tl 190.801†	1223.0	1388.7	489.80	µg/L	489.80	ppb	06:36:34
1	U 367.007†	5522.8	5758.2	481.5	µg/L	481.5	ppb	06:36:14
1	V 292.402†	48764.7	53502.3	533.15	µg/L	533.15	ppb	06:36:14
1	Zn 213.857†	54521.0	58549.3	505.84	µg/L	505.84	ppb	06:36:14
2	Sc RADIAL	20114.5	20114.5	95.9	%			06:35:57
2	Al 396.153Radial†	1676232.1	1748517.8	521230	µg/L	521230	ppb	06:35:52
2	Ca 317.933Radial†	994351.0	1037032.3	491770	µg/L	491770	ppb	06:35:52
2	Fe 238.204 Radial†	332126.5	346382.2	188920	µg/L	188920	ppb	06:35:52
2	K 766.490 Radial†	11966.9	11792.5	5625.6	µg/L	5625.6	ppb	06:35:57
2	Mg 279.077 IEC†	89011.0	92830.3	491130	µg/L	491130	ppb	06:35:57
2	Na 589.592 Radial†	2414.2	2563.5	5336.1	µg/L	5336.1	ppb	06:35:57
2	Sr 421.552†	104491.2	109598.4	532.98	µg/L	532.98	ppb	06:35:52
2	Sc 361.383	647270.1	647270.1	90.833	%			06:36:40
2	Y 371.029	559291.5	559291.5	90.336	%			06:36:40
2	Ag 328.068†	33208.5	36939.2	285.85	µg/L	285.85	ppb	06:36:40
2	As 188.979†	855.0	950.1	538.98	µg/L	538.98	ppb	06:37:00
2	B 249.677†	18649.6	20434.8	552.83	µg/L	552.83	ppb	06:36:40
2	Ba 233.527†	51244.4	56587.2	522.75	µg/L	522.75	ppb	06:36:40
2	Be 313.107†	395729.1	443663.1	261.45	µg/L	261.45	ppb	06:36:40
2	Cd 226.502†	31865.0	35306.3	495.14	µg/L	495.14	ppb	06:36:40
2	Co 228.616†	17537.9	19328.8	468.97	µg/L	468.97	ppb	06:37:00
2	Cr 267.716†	23225.2	25375.6	503.34	µg/L	503.34	ppb	06:37:00
2	Cu 324.752†	128698.2	135204.1	584.78	µg/L	584.78	ppb	06:36:40
2	Mn 257.610†	322161.9	354172.0	508.34	µg/L	508.34	ppb	06:36:40
2	Mo 202.031†	6851.6	7521.0	520.51	µg/L	520.51	ppb	06:37:00
2	Ni 231.604†	14430.4	16015.5	468.86	µg/L	468.86	ppb	06:37:00
2	P 214.914†	3478.0	3704.2	2786.1	µg/L	2786.1	ppb	06:37:00
2	Pb 220.353†	4048.4	4306.2	499.11	µg/L	499.11	ppb	06:37:00

2	S 181.975 Axial†	1576.2	1673.6	2748.0 µg/L	2748.0 ppb	06:37:00
2	Sb 206.836†	1610.4	1707.2	526.92 µg/L	526.92 ppb	06:37:00
2	Se 196.026†	2956.0	3259.6	2514.4 µg/L	2514.4 ppb	06:37:00
2	SiO2†	89589.7	95681.4	11984 µg/L	11984 ppb	06:36:40
2	Si 251.611†	107903.7	118612.0	5579.7 µg/L	5579.7 ppb	06:36:40
2	Sn 189.927†	1914.1	2080.6	510.04 µg/L	510.04 ppb	06:37:00
2	Ti 334.940†	192202.6	211608.2	538.71 µg/L	538.71 ppb	06:36:40
2	Tl 190.801†	1218.9	1390.3	490.55 µg/L	490.55 ppb	06:37:00
2	U 367.007†	5533.3	5797.4	477.8 µg/L	477.8 ppb	06:36:40
2	V 292.402†	49073.4	54086.4	538.95 µg/L	538.95 ppb	06:36:40
2	Zn 213.857†	54759.9	59085.3	510.34 µg/L	510.34 ppb	06:36:40
3	Sc RADIAL	20329.4	20329.4	96.9 %		06:36:07
3	Al 396.153Radial†	1668742.5	1722308.1	513410 µg/L	513410 ppb	06:36:02
3	Ca 317.933Radial†	988409.5	1019938.0	483660 µg/L	483660 ppb	06:36:02
3	Fe 238.204 Radial†	330170.5	340701.9	185820 µg/L	185820 ppb	06:36:02
3	K 766.490 Radial†	12035.0	11730.7	5595.6 µg/L	5595.6 ppb	06:36:07
3	Mg 279.077 IEC†	89587.0	92443.4	489080 µg/L	489080 ppb	06:36:07
3	Na 589.592 Radial†	2416.4	2539.1	5285.3 µg/L	5285.3 ppb	06:36:07
3	Sr 421.552†	103914.0	107850.7	524.49 µg/L	524.49 ppb	06:36:02
3	Sc 361.383	652209.8	652209.8	91.526 %		06:37:06
3	Y 371.029	562855.2	562855.2	90.911 %		06:37:06
3	Ag 328.068†	33394.6	36865.7	284.59 µg/L	284.59 ppb	06:37:06
3	As 188.979†	873.4	963.1	546.19 µg/L	546.19 ppb	06:37:26
3	B 249.677†	18830.2	20476.6	554.47 µg/L	554.47 ppb	06:37:06
3	Ba 233.527†	51810.5	56778.4	524.62 µg/L	524.62 ppb	06:37:06
3	Be 313.107†	399233.7	444192.6	261.69 µg/L	261.69 ppb	06:37:06
3	Cd 226.502†	32128.2	35328.2	495.96 µg/L	495.96 ppb	06:37:06
3	Co 228.616†	17636.8	19290.6	468.04 µg/L	468.04 ppb	06:37:26
3	Cr 267.716†	23319.1	25284.6	501.48 µg/L	501.48 ppb	06:37:26
3	Cu 324.752†	129509.9	135017.7	583.54 µg/L	583.54 ppb	06:37:06
3	Mn 257.610†	325068.6	354661.6	508.81 µg/L	508.81 ppb	06:37:06
3	Mo 202.031†	6860.4	7473.6	517.15 µg/L	517.15 ppb	06:37:26
3	Ni 231.604†	14529.3	16003.2	468.45 µg/L	468.45 ppb	06:37:26
3	P 214.914†	3511.4	3711.7	2791.5 µg/L	2791.5 ppb	06:37:26
3	Pb 220.353†	4053.2	4277.6	496.96 µg/L	496.96 ppb	06:37:26
3	S 181.975 Axial†	1601.5	1688.1	2775.7 µg/L	2775.7 ppb	06:37:26
3	Sb 206.836†	1625.2	1710.0	528.11 µg/L	528.11 ppb	06:37:26
3	Se 196.026†	2961.0	3240.5	2498.7 µg/L	2498.7 ppb	06:37:26
3	SiO2†	90274.8	95682.9	11984 µg/L	11984 ppb	06:37:06
3	Si 251.611†	108872.5	118770.8	5587.2 µg/L	5587.2 ppb	06:37:06
3	Sn 189.927†	1916.6	2067.3	506.26 µg/L	506.26 ppb	06:37:26
3	Ti 334.940†	193325.8	211232.8	537.56 µg/L	537.56 ppb	06:37:06
3	Tl 190.801†	1232.4	1394.9	491.91 µg/L	491.91 ppb	06:37:26
3	U 367.007†	5614.0	5839.4	503.6 µg/L	503.6 ppb	06:37:06
3	V 292.402†	49398.6	54032.5	538.38 µg/L	538.38 ppb	06:37:06
3	Zn 213.857†	55421.0	59351.0	513.30 µg/L	513.30 ppb	06:37:06

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	649902.4	91.202	%	0.3488				0.38%
Sc RADIAL	20298.0	96.7	%	0.81				0.84%
Y 371.029	561030.1	90.617	%	0.2881				0.32%
Ag 328.068†	36842.5	284.73	µg/L	1.052	284.73	ppb	1.052	0.37%
QC value within limits for Ag 328.068 Recovery = 113.89%								
Al 396.153Radial†	1729718.9	515620	µg/L	4889.3	515620	ppb	4889.3	0.95%
QC value within limits for Al 396.153Radial Recovery = 103.12%								
As 188.979†	961.2	545.18	µg/L	5.760	545.18	ppb	5.760	1.06%
QC value within limits for As 188.979 Recovery = 109.04%								
B 249.677†	20346.8	550.61	µg/L	5.333	550.61	ppb	5.333	0.97%
QC value within limits for B 249.677 Recovery = 110.12%								
Ba 233.527†	56506.3	522.05	µg/L	2.986	522.05	ppb	2.986	0.57%
QC value within limits for Ba 233.527 Recovery = 104.41%								
Be 313.107†	442245.0	260.59	µg/L	1.703	260.59	ppb	1.703	0.65%
QC value within limits for Be 313.107 Recovery = 104.23%								
Ca 317.933Radial†	1026988.6	487010	µg/L	4235.4	487010	ppb	4235.4	0.87%
QC value within limits for Ca 317.933Radial Recovery = 97.40%								
Cd 226.502†	35186.3	493.66	µg/L	3.295	493.66	ppb	3.295	0.67%
QC value within limits for Cd 226.502 Recovery = 98.73%								
Co 228.616†	19292.5	468.09	µg/L	0.855	468.09	ppb	0.855	0.18%

QC value within limits for Co 228.616 Recovery = 93.62%

Cr 267.716†	25322.1	502.24 µg/L	0.975	502.24 ppb	0.975	0.19%
QC value within limits for Cr 267.716 Recovery = 100.45%						
Cu 324.752†	134718.7	582.49 µg/L	2.955	582.49 ppb	2.955	0.51%
QC value within limits for Cu 324.752 Recovery = 116.50%						
Fe 238.204 Radial†	342861.0	187000 µg/L	1677.3	187000 ppb	1677.3	0.90%
QC value within limits for Fe 238.204 Radial Recovery = 93.50%						
K 766.490 Radial†	11724.2	5592.8 µg/L	34.27	5592.8 ppb	34.27	0.61%
QC value within limits for K 766.490 Radial Recovery = 111.86%						
Mg 279.077 IEC†	92447.3	489100 µg/L	2016.0	489100 ppb	2016.0	0.41%
QC value within limits for Mg 279.077 IEC Recovery = 97.82%						
Mn 257.610†	353176.4	506.80 µg/L	3.083	506.80 ppb	3.083	0.61%
QC value within limits for Mn 257.610 Recovery = 101.36%						
Mo 202.031†	7483.7	517.89 µg/L	2.343	517.89 ppb	2.343	0.45%
QC value within limits for Mo 202.031 Recovery = 103.58%						
Na 589.592 Radial†	2561.9	5332.8 µg/L	46.02	5332.8 ppb	46.02	0.86%
QC value within limits for Na 589.592 Radial Recovery = 106.66%						
Ni 231.604†	15988.8	468.05 µg/L	1.066	468.05 ppb	1.066	0.23%
QC value within limits for Ni 231.604 Recovery = 93.61%						
P 214.914†	3691.2	2776.1 µg/L	22.20	2776.1 ppb	22.20	0.80%
QC value within limits for P 214.914 Recovery = 111.04%						
Pb 220.353†	4275.2	496.13 µg/L	3.467	496.13 ppb	3.467	0.70%
QC value within limits for Pb 220.353 Recovery = 99.23%						
S 181.975 Axial†	1675.2	2752.4 µg/L	21.46	2752.4 ppb	21.46	0.78%
QC value within limits for S 181.975 Axial Recovery = 110.09%						
Sb 206.836†	1708.0	527.38 µg/L	0.635	527.38 ppb	0.635	0.12%
QC value within limits for Sb 206.836 Recovery = 105.48%						
Se 196.026†	3250.7	2506.8 µg/L	7.87	2506.8 ppb	7.87	0.31%
QC value within limits for Se 196.026 Recovery = 100.27%						
SiO2†	95363.0	11944 µg/L	69.1	11944 ppb	69.1	0.58%
QC value within limits for SiO2 Recovery = 111.68%						
Si 251.611†	118221.4	5561.3 µg/L	38.52	5561.3 ppb	38.52	0.69%
QC value within limits for Si 251.611 Recovery = 111.23%						
Sn 189.927†	2071.9	507.59 µg/L	2.122	507.59 ppb	2.122	0.42%
QC value within limits for Sn 189.927 Recovery = 101.52%						
Sr 421.552†	108437.1	527.34 µg/L	4.893	527.34 ppb	4.893	0.93%
QC value within limits for Sr 421.552 Recovery = 105.47%						
Ti 334.940†	210746.4	536.44 µg/L	2.997	536.44 ppb	2.997	0.56%
QC value within limits for Ti 334.940 Recovery = 107.29%						
Tl 190.801†	1391.3	490.75 µg/L	1.068	490.75 ppb	1.068	0.22%
QC value within limits for Tl 190.801 Recovery = 98.15%						
U 367.007†	5798.3	487.6 µg/L	13.97	487.6 ppb	13.97	2.86%
QC value within limits for U 367.007 Recovery = 97.53%						
V 292.402†	53873.7	536.83 µg/L	3.193	536.83 ppb	3.193	0.59%
QC value within limits for V 292.402 Recovery = 107.37%						
Zn 213.857†	58995.2	509.82 µg/L	3.753	509.82 ppb	3.753	0.74%
QC value within limits for Zn 213.857 Recovery = 101.96%						

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location: 105**
Sample ID: LR1 **Date Collected: 6/15/2012 6:37:34**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20244.9	20244.9	96.5	%			06:38:09
1	Al 396.153Radial†	1647435.6	1707415.0	508990	µg/L	508990	ppb	06:38:04
1	Ca 317.933Radial†	999137.5	1035312.5	490960	µg/L	490960	ppb	06:38:04
1	Fe 238.204 Radial†	802560.3	831662.5	453570	µg/L	453570	ppb	06:38:04
1	K 766.490 Radial†	527.6	-142.5	102.99	µg/L	102.99	ppb	06:38:09
1	Mg 279.077 IEC†	88814.5	92028.8	487000	µg/L	487000	ppb	06:38:09
1	Na 589.592 Radial†	225798.5	234040.9	487170	µg/L	487170	ppb	06:38:04
1	Sr 421.552†	271.0	892.9	2.1306	µg/L	2.1306	ppb	06:38:09
1	Sc 361.383	646695.1	646695.1	90.752	%			06:38:37
1	Y 371.029	555489.8	555489.8	89.722	%			06:38:37
1	Ag 328.068†	-16992.6	-18345.1	-0.6216	µg/L	-0.6216	ppb	06:38:37
1	As 188.979†	-28.5	-22.6	0.7665	µg/L	0.7665	ppb	06:38:57
1	B 249.677†	1796.0	1882.0	-12.071	µg/L	-12.071	ppb	06:38:37
1	Ba 233.527†	878.0	1138.3	-2.9071	µg/L	-2.9071	ppb	06:38:57
1	Be 313.107†	-19437.3	-13423.6	-0.0461	µg/L	-0.0461	ppb	06:38:37
1	Cd 226.502†	4237.4	4894.5	0.8972	µg/L	0.8972	ppb	06:38:57
1	Co 228.616†	189.6	229.8	4.7989	µg/L	4.7989	ppb	06:38:57
1	Cr 267.716†	615.8	484.9	5.0259	µg/L	5.0259	ppb	06:38:57
1	Cu 324.752†	-7736.1	-15007.7	-8.3237	µg/L	-8.3237	ppb	06:38:37
1	Mn 257.610†	-16757.0	-18969.2	1.1420	µg/L	1.1420	ppb	06:38:37
1	Mo 202.031†	-199.8	-242.2	2.0261	µg/L	2.0261	ppb	06:38:57
1	Ni 231.604†	-361.7	-269.9	-0.3004	µg/L	-0.3004	ppb	06:38:57
1	P 214.914†	708.8	656.2	326.97	µg/L	326.97	ppb	06:38:57
1	Pb 220.353†	1106.5	1068.4	37.861	µg/L	37.861	ppb	06:38:57
1	S 181.975 Axial†	27380.1	30108.6	52166	µg/L	52166	ppb	06:38:57
1	Sb 206.836†	98.5	42.8	1.1445	µg/L	1.1445	ppb	06:38:57
1	Se 196.026†	-256.0	-276.8	47.996	µg/L	47.996	ppb	06:38:57
1	SiO2†	1432.9	-1371.4	89.115	µg/L	89.115	ppb	06:38:57
1	Si 251.611†	-404.0	-627.2	-34.609	µg/L	-34.609	ppb	06:38:57
1	Sn 189.927†	-214.3	-262.9	18.218	µg/L	18.218	ppb	06:38:57
1	Ti 334.940†	-1090.6	-1194.5	-1.7952	µg/L	-1.7952	ppb	06:38:37
1	Tl 190.801†	-95.3	-56.6	18.300	µg/L	18.300	ppb	06:38:57
1	U 367.007†	63060.0	69191.8	14740	µg/L	14740	ppb	06:38:37
1	V 292.402†	-1474.1	-1564.2	-0.5220	µg/L	-0.5220	ppb	06:38:57
1	Zn 213.857†	7878.9	7480.5	2.3808	µg/L	2.3808	ppb	06:38:57
2	Sc RADIAL	20266.2	20266.2	96.6	%			06:38:19
2	Al 396.153Radial†	1643295.9	1701338.2	507180	µg/L	507180	ppb	06:38:14
2	Ca 317.933Radial†	995893.2	1030867.6	488850	µg/L	488850	ppb	06:38:14
2	Fe 238.204 Radial†	800258.1	828406.6	451800	µg/L	451800	ppb	06:38:14
2	K 766.490 Radial†	534.9	-135.5	105.66	µg/L	105.66	ppb	06:38:19
2	Mg 279.077 IEC†	89004.3	92128.7	487530	µg/L	487530	ppb	06:38:19
2	Na 589.592 Radial†	225314.0	233293.8	485620	µg/L	485620	ppb	06:38:14
2	Sr 421.552†	236.1	856.4	1.9622	µg/L	1.9622	ppb	06:38:19
2	Sc 361.383	636688.6	636688.6	89.348	%			06:39:03
2	Y 371.029	547480.3	547480.3	88.428	%			06:39:03
2	Ag 328.068†	-17073.5	-18729.9	-3.5220	µg/L	-3.5220	ppb	06:39:03
2	As 188.979†	-45.7	-42.4	-10.379	µg/L	-10.379	ppb	06:39:23
2	B 249.677†	1868.1	1993.8	-8.6373	µg/L	-8.6373	ppb	06:39:03
2	Ba 233.527†	872.6	1147.5	-2.7699	µg/L	-2.7699	ppb	06:39:23
2	Be 313.107†	-19525.5	-13859.0	-0.2413	µg/L	-0.2413	ppb	06:39:03
2	Cd 226.502†	4241.3	4972.2	2.3339	µg/L	2.3339	ppb	06:39:23
2	Co 228.616†	193.6	237.5	4.9907	µg/L	4.9907	ppb	06:39:23
2	Cr 267.716†	631.9	513.7	5.1909	µg/L	5.1909	ppb	06:39:23
2	Cu 324.752†	-7896.5	-15321.2	-10.197	µg/L	-10.197	ppb	06:39:03
2	Mn 257.610†	-16942.6	-19467.2	0.2476	µg/L	0.2476	ppb	06:39:03
2	Mo 202.031†	-185.7	-229.9	2.7907	µg/L	2.7907	ppb	06:39:23
2	Ni 231.604†	-348.2	-261.1	-0.0730	µg/L	-0.0730	ppb	06:39:23
2	P 214.914†	708.3	667.9	336.51	µg/L	336.51	ppb	06:39:23
2	Pb 220.353†	1115.9	1098.1	42.467	µg/L	42.467	ppb	06:39:23

2	S 181.975 Axial†	27160.5	30337.0	52563 µg/L	52563 ppb		06:39:23
2	Sb 206.836†	94.2	39.7	0.3842 µg/L	0.3842 ppb		06:39:23
2	Se 196.026†	-242.1	-265.7	55.963 µg/L	55.963 ppb		06:39:23
2	SiO2†	1449.7	-1327.8	98.929 µg/L	98.929 ppb		06:39:23
2	Si 251.611†	-425.5	-658.2	-36.047 µg/L	-36.047 ppb		06:39:23
2	Sn 189.927†	-223.0	-276.4	14.845 µg/L	14.845 ppb		06:39:23
2	Ti 334.940†	-1082.1	-1203.8	-2.0509 µg/L	-2.0509 ppb		06:39:03
2	Tl 190.801†	-74.5	-34.9	25.768 µg/L	25.768 ppb		06:39:23
2	U 367.007†	63465.7	70737.8	15130 µg/L	15130 ppb		06:39:03
2	V 292.402†	-1531.6	-1654.0	-1.0843 µg/L	-1.0843 ppb		06:39:23
2	Zn 213.857†	7802.6	7531.5	3.1130 µg/L	3.1130 ppb		06:39:23
3	Sc RADIAL	20009.8	20009.8	95.4 %			06:38:30
3	Al 396.153Radial†	1633237.7	1712587.5	510540 µg/L	510540 ppb		06:38:25
3	Ca 317.933Radial†	991203.0	1039158.7	492780 µg/L	492780 ppb		06:38:25
3	Fe 238.204 Radial†	796270.5	834839.7	455310 µg/L	455310 ppb		06:38:25
3	K 766.490 Radial†	610.2	-49.5	147.66 µg/L	147.66 ppb		06:38:30
3	Mg 279.077 IEC†	88485.1	92764.8	490890 µg/L	490890 ppb		06:38:30
3	Na 589.592 Radial†	225892.1	236888.3	493100 µg/L	493100 ppb		06:38:25
3	Sr 421.552†	251.5	875.7	2.0388 µg/L	2.0388 ppb		06:38:30
3	Sc 361.383	635261.2	635261.2	89.147 %			06:39:28
3	Y 371.029	546546.2	546546.2	88.277 %			06:39:28
3	Ag 328.068†	-16691.8	-18344.7	-0.1861 µg/L	-0.1861 ppb		06:39:28
3	As 188.979†	-40.6	-36.7	-7.0947 µg/L	-7.0947 ppb		06:39:48
3	B 249.677†	1833.3	1959.4	-10.121 µg/L	-10.121 ppb		06:39:28
3	Ba 233.527†	892.9	1172.4	-2.6432 µg/L	-2.6432 ppb		06:39:48
3	Be 313.107†	-19261.3	-13611.7	-0.1014 µg/L	-0.1014 ppb		06:39:28
3	Cd 226.502†	4229.6	4969.8	1.7419 µg/L	1.7419 ppb		06:39:48
3	Co 228.616†	204.9	250.7	5.3043 µg/L	5.3043 ppb		06:39:48
3	Cr 267.716†	650.6	536.2	5.9100 µg/L	5.9100 ppb		06:39:48
3	Cu 324.752†	-7561.5	-14965.3	-8.0471 µg/L	-8.0471 ppb		06:39:28
3	Mn 257.610†	-16547.7	-19066.9	1.0491 µg/L	1.0491 ppb		06:39:28
3	Mo 202.031†	-182.7	-227.0	3.1325 µg/L	3.1325 ppb		06:39:48
3	Ni 231.604†	-384.1	-302.2	-1.2101 µg/L	-1.2101 ppb		06:39:48
3	P 214.914†	723.1	686.4	348.84 µg/L	348.84 ppb		06:39:48
3	Pb 220.353†	1078.4	1058.8	36.036 µg/L	36.036 ppb		06:39:48
3	S 181.975 Axial†	27074.5	30308.8	52513 µg/L	52513 ppb		06:39:48
3	Sb 206.836†	120.8	69.8	9.8631 µg/L	9.8631 ppb		06:39:48
3	Se 196.026†	-257.7	-283.8	43.965 µg/L	43.965 ppb		06:39:48
3	SiO2†	1456.8	-1316.2	98.502 µg/L	98.502 ppb		06:39:48
3	Si 251.611†	-427.2	-661.3	-36.258 µg/L	-36.258 ppb		06:39:48
3	Sn 189.927†	-199.7	-250.8	21.103 µg/L	21.103 ppb		06:39:48
3	Ti 334.940†	-1019.4	-1136.2	-1.7192 µg/L	-1.7192 ppb		06:39:28
3	Tl 190.801†	-87.3	-49.5	20.920 µg/L	20.920 ppb		06:39:48
3	U 367.007†	62628.1	69957.9	14920 µg/L	14920 ppb		06:39:28
3	V 292.402†	-1588.2	-1721.4	-1.8918 µg/L	-1.8918 ppb		06:39:48
3	Zn 213.857†	7817.8	7568.2	2.9408 µg/L	2.9408 ppb		06:39:48

Mean Data: LR1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	639548.3	89.749	%	0.8743				0.97%
Sc RADIAL	20173.7	96.2	%	0.68				0.71%
Y 371.029	549838.7	88.809	%	0.7941				0.89%
Ag 328.068†	-18473.2	-1.4432	µg/L	1.81337	-1.4432	ppb	1.81337	125.65%
Al 396.153Radial†	1707113.6	508900	µg/L	1678.6	508900	ppb	1678.6	0.33%
QC value within limits for Al 396.153Radial Recovery = 101.78%								
As 188.979†	-33.9	-5.5691	µg/L	5.72728	-5.5691	ppb	5.72728	102.84%
B 249.677†	1945.1	-10.277	µg/L	1.7223	-10.277	ppb	1.7223	16.76%
Ba 233.527†	1152.7	-2.7734	µg/L	0.13200	-2.7734	ppb	0.13200	4.76%
Be 313.107†	-13631.5	-0.1296	µg/L	0.10062	-0.1296	ppb	0.10062	77.63%
Ca 317.933Radial†	1035112.9	490860	µg/L	1967.6	490860	ppb	1967.6	0.40%
QC value within limits for Ca 317.933Radial Recovery = 98.17%								
Cd 226.502†	4945.5	1.6577	µg/L	0.72204	1.6577	ppb	0.72204	43.56%
Co 228.616†	239.3	5.0313	µg/L	0.25513	5.0313	ppb	0.25513	5.07%
Cr 267.716†	511.6	5.3756	µg/L	0.47007	5.3756	ppb	0.47007	8.74%
Cu 324.752†	-15098.1	-8.8560	µg/L	1.16978	-8.8560	ppb	1.16978	13.21%
Fe 238.204 Radial†	831636.3	453560	µg/L	1754.3	453560	ppb	1754.3	0.39%
QC value within limits for Fe 238.204 Radial Recovery = 90.71%								
K 766.490 Radial†	-109.2	118.77	µg/L	25.059	118.77	ppb	25.059	21.10%
Mg 279.077 IEC†	92307.4	488470	µg/L	2112.2	488470	ppb	2112.2	0.43%

QC value within limits for Mg 279.077 IEC Recovery = 97.69%							
Mn 257.610†	-19167.8	0.8129 µg/L	0.49177	0.8129 ppb	0.49177	60.49%	
Mo 202.031†	-233.0	2.6498 µg/L	0.56649	2.6498 ppb	0.56649	21.38%	
Na 589.592 Radial†	234741.0	488630 µg/L	3948.3	488630 ppb	3948.3	0.81%	
QC value within limits for Na 589.592 Radial Recovery = 97.73%							
Ni 231.604†	-277.7	-0.5279 µg/L	0.60170	-0.5279 ppb	0.60170	113.99%	
P 214.914†	670.1	337.44 µg/L	10.967	337.44 ppb	10.967	3.25%	
Pb 220.353†	1075.1	38.788 µg/L	3.3140	38.788 ppb	3.3140	8.54%	
S 181.975 Axial†	30251.5	52414 µg/L	216.4	52414 ppb	216.4	0.41%	
QC value within limits for S 181.975 Axial Recovery = 104.83%							
Sb 206.836†	50.8	3.7973 µg/L	5.26692	3.7973 ppb	5.26692	138.70%	
Se 196.026†	-275.4	49.308 µg/L	6.1055	49.308 ppb	6.1055	12.38%	
SiO2†	-1338.4	95.515 µg/L	5.5467	95.515 ppb	5.5467	5.81%	
Si 251.611†	-648.9	-35.638 µg/L	0.8976	-35.638 ppb	0.8976	2.52%	
Sn 189.927†	-263.4	18.055 µg/L	3.1323	18.055 ppb	3.1323	17.35%	
Sr 421.552†	875.0	2.0439 µg/L	0.08435	2.0439 ppb	0.08435	4.13%	
Ti 334.940†	-1178.2	-1.8551 µg/L	0.17377	-1.8551 ppb	0.17377	9.37%	
Tl 190.801†	-47.0	21.663 µg/L	3.7891	21.663 ppb	3.7891	17.49%	
U 367.007†	69962.5	14930 µg/L	194.2	14930 ppb	194.2	1.30%	
QC value within limits for U 367.007 Recovery = 99.54%							
V 292.402†	-1646.5	-1.1660 µg/L	0.68855	-1.1660 ppb	0.68855	59.05%	
Zn 213.857†	7526.7	2.8115 µg/L	0.38282	2.8115 ppb	0.38282	13.62%	

All analyte(s) passed QC.

Sequence No.: 12 **Autosampler Location: 108**
Sample ID: LR2 **Date Collected: 6/15/2012 6:39:56**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR2

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20668.5	20668.5	98.5	%			06:40:31
1	Al 396.153Radial†	1757.2	1957.5	204.25	µg/L	204.25	ppb	06:40:31
1	Ca 317.933Radial†	543.8	456.2	216.32	µg/L	216.32	ppb	06:40:51
1	Fe 238.204 Radial†	148.0	117.8	168.87	µg/L	168.87	ppb	06:40:51
1	K 766.490 Radial†	638122.9	647047.2	306040	µg/L	306040	ppb	06:40:26
1	Mg 279.077 IEC†	6.2	-3.6	51.337	µg/L	51.337	ppb	06:40:51
1	Na 589.592 Radial†	97.6	144.5	300.82	µg/L	300.82	ppb	06:40:31
1	Sr 421.552†	2075089.4	2106963.6	10289	µg/L	10289	ppb	06:40:26
1	Sc 361.383	682217.8	682217.8	95.737	%			06:42:09
1	Y 371.029	588263.0	588263.0	95.015	%			06:42:09
1	Ag 328.068†	-8172.8	-8157.6	13.771	µg/L	13.771	ppb	06:42:14
1	As 188.979†	17152.4	17925.0	10136	µg/L	10136	ppb	06:42:14
1	B 249.677†	174557.1	182233.1	5191.6	µg/L	5191.6	ppb	06:42:09
1	Ba 233.527†	1573915.7	1644172.9	15346	µg/L	15346	ppb	06:42:09
1	Be 313.107†	5219070.2	5459469.6	3163.1	µg/L	3163.1	ppb	06:42:02
1	Cd 226.502†	666125.6	696013.4	10352	µg/L	10352	ppb	06:42:09
1	Co 228.616†	411461.0	429804.2	10435	µg/L	10435	ppb	06:42:09
1	Cr 267.716†	1274389.9	1330944.8	26032	µg/L	26032	ppb	06:42:09
1	Cu 324.752†	5163967.5	5387435.5	22206	µg/L	22206	ppb	06:42:02
1	Mn 257.610†	6967818.9	7277591.0	10383	µg/L	10383	ppb	06:42:02
1	Mo 202.031†	140233.7	146456.2	9985.5	µg/L	9985.5	ppb	06:42:14
1	Ni 231.604†	343000.2	358402.7	10422	µg/L	10422	ppb	06:42:09
1	P 214.914†	20543.0	21333.0	15389	µg/L	15389	ppb	06:42:14
1	Pb 220.353†	155567.6	162344.2	24609	µg/L	24609	ppb	06:42:14
1	S 181.975 Axial†	64.6	5.8	47.989	µg/L	47.989	ppb	06:42:34
1	Sb 206.836†	31000.7	32315.5	9968.9	µg/L	9968.9	ppb	06:42:14
1	Se 196.026†	13024.1	13609.4	10106	µg/L	10106	ppb	06:42:14
1	SiO2†	785850.4	817894.0	103200	µg/L	103200	ppb	06:42:09
1	Si 251.611†	969918.5	1012926.9	47575	µg/L	47575	ppb	06:42:09
1	Sn 189.927†	46010.1	48032.2	10523	µg/L	10523	ppb	06:42:14
1	Ti 334.940†	3909368.1	4083459.3	10231	µg/L	10231	ppb	06:42:09
1	Tl 190.801†	28087.3	29386.5	10089	µg/L	10089	ppb	06:42:14
1	U 367.007†	303.7	22.8	30.22	µg/L	30.22	ppb	06:42:14
1	V 292.402†	1039858.8	1086223.9	10834	µg/L	10834	ppb	06:42:09
1	Zn 213.857†	1562304.6	1630672.6	14944	µg/L	14944	ppb	06:42:09
2	Sc RADIAL	20881.9	20881.9	99.5	%			06:41:02
2	Al 396.153Radial†	1460.1	1640.8	116.88	µg/L	116.88	ppb	06:41:02
2	Ca 317.933Radial†	375.4	281.3	133.42	µg/L	133.42	ppb	06:41:22
2	Fe 238.204 Radial†	-1.6	-34.0	84.919	µg/L	84.919	ppb	06:41:22
2	K 766.490 Radial†	644087.2	646420.9	305750	µg/L	305750	ppb	06:40:57
2	Mg 279.077 IEC†	-4.7	-14.6	-8.2564	µg/L	-8.2564	ppb	06:41:22
2	Na 589.592 Radial†	5.6	51.0	106.21	µg/L	106.21	ppb	06:41:02
2	Sr 421.552†	2098073.0	2108531.9	10297	µg/L	10297	ppb	06:40:57
2	Sc 361.383	678874.2	678874.2	95.268	%			06:42:49
2	Y 371.029	586082.8	586082.8	94.663	%			06:42:49
2	Ag 328.068†	-8078.2	-8100.4	13.596	µg/L	13.596	ppb	06:42:54
2	As 188.979†	16744.4	17584.9	9944.7	µg/L	9944.7	ppb	06:42:54
2	B 249.677†	172756.4	181240.9	5163.4	µg/L	5163.4	ppb	06:42:49
2	Ba 233.527†	1551270.7	1628499.9	15199	µg/L	15199	ppb	06:42:49
2	Be 313.107†	4994956.2	5251071.9	3042.4	µg/L	3042.4	ppb	06:42:42
2	Cd 226.502†	654453.4	687188.3	10220	µg/L	10220	ppb	06:42:49
2	Co 228.616†	404987.2	425125.5	10321	µg/L	10321	ppb	06:42:49
2	Cr 267.716†	1255861.5	1318052.1	25780	µg/L	25780	ppb	06:42:49
2	Cu 324.752†	5000970.1	5242907.0	21610	µg/L	21610	ppb	06:42:42
2	Mn 257.610†	6688564.3	7020310.0	10016	µg/L	10016	ppb	06:42:42
2	Mo 202.031†	136960.8	143742.1	9800.4	µg/L	9800.4	ppb	06:42:54
2	Ni 231.604†	337282.2	354165.2	10299	µg/L	10299	ppb	06:42:49
2	P 214.914†	20006.6	20875.6	15061	µg/L	15061	ppb	06:42:54
2	Pb 220.353†	151801.4	159191.2	24131	µg/L	24131	ppb	06:42:54

2	S 181.975 Axial†	65.6	7.2	50.592 µg/L	50.592 ppb	06:43:14
2	Sb 206.836†	30332.5	31773.6	9797.1 µg/L	9797.1 ppb	06:42:54
2	Se 196.026†	12709.1	13345.7	9910.8 µg/L	9910.8 ppb	06:42:54
2	SiO2†	777130.2	812783.4	102550 µg/L	102550 ppb	06:42:49
2	Si 251.611†	959051.4	1006509.6	47276 µg/L	47276 ppb	06:42:49
2	Sn 189.927†	44780.8	46978.5	10292 µg/L	10292 ppb	06:42:54
2	Ti 334.940†	3865801.0	4057839.5	10167 µg/L	10167 ppb	06:42:49
2	Tl 190.801†	27417.1	28827.5	9897.5 µg/L	9897.5 ppb	06:42:54
2	U 367.007†	298.3	18.7	29.24 µg/L	29.24 ppb	06:42:54
2	V 292.402†	1026594.3	1077650.0	10747 µg/L	10747 ppb	06:42:49
2	Zn 213.857†	1539376.8	1614643.1	14798 µg/L	14798 ppb	06:42:49
3	Sc RADIAL	20892.1	20892.1	99.6 %		06:41:33
3	Al 396.153Radial†	1243.4	1422.5	41.254 µg/L	41.254 ppb	06:41:33
3	Ca 317.933Radial†	308.8	214.3	101.60 µg/L	101.60 ppb	06:41:53
3	Fe 238.204 Radial†	-63.8	-96.5	50.693 µg/L	50.693 ppb	06:41:53
3	K 766.490 Radial†	642798.7	644811.0	304990 µg/L	304990 ppb	06:41:28
3	Mg 279.077 IEC†	-13.5	-23.4	-53.101 µg/L	-53.101 ppb	06:41:53
3	Na 589.592 Radial†	-29.8	15.4	32.105 µg/L	32.105 ppb	06:41:33
3	Sr 421.552†	2087851.7	2097238.6	10242 µg/L	10242 ppb	06:41:28
3	Sc 361.383	671531.6	671531.6	94.237 %		06:43:28
3	Y 371.029	579771.0	579771.0	93.644 %		06:43:28
3	Ag 328.068†	-8149.3	-8268.5	12.416 µg/L	12.416 ppb	06:43:33
3	As 188.979†	17178.9	18238.2	10310 µg/L	10310 ppb	06:43:33
3	B 249.677†	171196.2	181568.1	5172.4 µg/L	5172.4 ppb	06:43:28
3	Ba 233.527†	1534853.5	1628883.2	15203 µg/L	15203 ppb	06:43:28
3	Be 313.107†	4894590.8	5201897.7	3013.9 µg/L	3013.9 ppb	06:43:21
3	Cd 226.502†	647578.9	687404.7	10224 µg/L	10224 ppb	06:43:28
3	Co 228.616†	399989.1	424469.9	10306 µg/L	10306 ppb	06:43:28
3	Cr 267.716†	1234888.4	1310210.3	25627 µg/L	25627 ppb	06:43:28
3	Cu 324.752†	4895040.2	5187896.9	21384 µg/L	21384 ppb	06:43:21
3	Mn 257.610†	6550240.6	6950294.2	9916.0 µg/L	9916.0 ppb	06:43:21
3	Mo 202.031†	139317.5	147814.9	10078 µg/L	10078 ppb	06:43:33
3	Ni 231.604†	333456.5	353976.6	10293 µg/L	10293 ppb	06:43:28
3	P 214.914†	20437.5	21562.5	15579 µg/L	15579 ppb	06:43:33
3	Pb 220.353†	155433.9	164788.1	24980 µg/L	24980 ppb	06:43:33
3	S 181.975 Axial†	56.0	-2.2	37.472 µg/L	37.472 ppb	06:43:53
3	Sb 206.836†	31052.3	32885.5	10164 µg/L	10164 ppb	06:43:33
3	Se 196.026†	12997.4	13797.6	10246 µg/L	10246 ppb	06:43:33
3	SiO2†	770393.6	814554.1	102760 µg/L	102760 ppb	06:43:28
3	Si 251.611†	950717.8	1008673.7	47373 µg/L	47373 ppb	06:43:28
3	Sn 189.927†	45735.1	48505.1	10626 µg/L	10626 ppb	06:43:33
3	Ti 334.940†	3820901.7	4054563.6	10159 µg/L	10159 ppb	06:43:28
3	Tl 190.801†	28214.6	29988.4	10294 µg/L	10294 ppb	06:43:33
3	U 367.007†	315.0	39.8	34.49 µg/L	34.49 ppb	06:43:33
3	V 292.402†	1013844.2	1075902.7	10732 µg/L	10732 ppb	06:43:28
3	Zn 213.857†	1523887.3	1615874.2	14809 µg/L	14809 ppb	06:43:28

Mean Data: LR2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	677541.2	95.081	%	0.7671				0.81%
Sc RADIAL	20814.1	99.2	%	0.60				0.61%
Y 371.029	584705.6	94.441	%	0.7124				0.75%
Ag 328.068†	-8175.5	13.261	µg/L	0.7374	13.261	ppb	0.7374	5.56%
Al 396.153Radial†	1673.6	120.80	µg/L	81.571	120.80	ppb	81.571	67.53%
As 188.979†	17916.0	10130	µg/L	182.5	10130	ppb	182.5	1.80%
QC value within limits for As 188.979 Recovery = 101.30%								
B 249.677†	181680.7	5175.8	µg/L	14.43	5175.8	ppb	14.43	0.28%
QC value within limits for B 249.677 Recovery = 103.52%								
Ba 233.527†	1633852.0	15249	µg/L	83.4	15249	ppb	83.4	0.55%
QC value within limits for Ba 233.527 Recovery = 101.66%								
Be 313.107†	5304146.4	3073.1	µg/L	79.20	3073.1	ppb	79.20	2.58%
QC value within limits for Be 313.107 Recovery = 102.44%								
Ca 317.933Radial†	317.3	150.44	µg/L	59.223	150.44	ppb	59.223	39.37%
Cd 226.502†	690202.1	10265	µg/L	74.9	10265	ppb	74.9	0.73%
QC value within limits for Cd 226.502 Recovery = 102.65%								
Co 228.616†	426466.5	10354	µg/L	70.6	10354	ppb	70.6	0.68%
QC value within limits for Co 228.616 Recovery = 103.54%								
Cr 267.716†	1319735.7	25813	µg/L	204.8	25813	ppb	204.8	0.79%
QC value within limits for Cr 267.716 Recovery = 103.25%								

Cu 324.752†	5272746.5	21733 µg/L	424.5	21733 ppb	424.5	1.95%
QC value within limits for Cu 324.752 Recovery = 108.67%						
Fe 238.204 Radial†	-4.3	101.49 µg/L	60.807	101.49 ppb	60.807	59.91%
K 766.490 Radial†	646093.0	305590 µg/L	545.2	305590 ppb	545.2	0.18%
QC value within limits for K 766.490 Radial Recovery = 101.86%						
Mg 279.077 IEC†	-13.9	-3.3402 µg/L	52.39182	-3.3402 ppb	52.39182	>999.9%
Mn 257.610†	7082731.7	10105 µg/L	245.9	10105 ppb	245.9	2.43%
QC value within limits for Mn 257.610 Recovery = 101.05%						
Mo 202.031†	146004.4	9954.7 µg/L	141.38	9954.7 ppb	141.38	1.42%
QC value within limits for Mo 202.031 Recovery = 99.55%						
Na 589.592 Radial†	70.3	146.38 µg/L	138.788	146.38 ppb	138.788	94.81%
Ni 231.604†	355514.8	10338 µg/L	72.8	10338 ppb	72.8	0.70%
QC value within limits for Ni 231.604 Recovery = 103.38%						
P 214.914†	21257.0	15343 µg/L	262.0	15343 ppb	262.0	1.71%
QC value within limits for P 214.914 Recovery = 102.29%						
Pb 220.353†	162107.8	24574 µg/L	425.3	24574 ppb	425.3	1.73%
QC value within limits for Pb 220.353 Recovery = 98.29%						
S 181.975 Axial†	3.6	45.351 µg/L	6.9465	45.351 ppb	6.9465	15.32%
Sb 206.836†	32324.8	9976.5 µg/L	183.43	9976.5 ppb	183.43	1.84%
QC value within limits for Sb 206.836 Recovery = 99.77%						
Se 196.026†	13584.2	10088 µg/L	168.3	10088 ppb	168.3	1.67%
QC value within limits for Se 196.026 Recovery = 100.88%						
SiO2†	815077.2	102830 µg/L	331.1	102830 ppb	331.1	0.32%
QC value within limits for SiO2 Recovery = 96.11%						
Si 251.611†	1009370.1	47408 µg/L	152.7	47408 ppb	152.7	0.32%
QC value within limits for Si 251.611 Recovery = 94.82%						
Sn 189.927†	47838.6	10480 µg/L	170.7	10480 ppb	170.7	1.63%
QC value within limits for Sn 189.927 Recovery = 104.80%						
Sr 421.552†	2104244.7	10276 µg/L	29.9	10276 ppb	29.9	0.29%
QC value within limits for Sr 421.552 Recovery = 102.76%						
Ti 334.940†	4065287.5	10186 µg/L	39.6	10186 ppb	39.6	0.39%
QC value within limits for Ti 334.940 Recovery = 101.86%						
Tl 190.801†	29400.8	10094 µg/L	198.5	10094 ppb	198.5	1.97%
QC value within limits for Tl 190.801 Recovery = 100.94%						
U 367.007†	27.1	31.32 µg/L	2.791	31.32 ppb	2.791	8.91%
V 292.402†	1079925.5	10771 µg/L	54.8	10771 ppb	54.8	0.51%
QC value within limits for V 292.402 Recovery = 107.71%						
Zn 213.857†	1620396.6	14850 µg/L	81.4	14850 ppb	81.4	0.55%
QC value within limits for Zn 213.857 Recovery = 99.00%						

All analyte(s) passed QC.

Sequence No.: 13 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 6:44:01**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20319.8	20319.8	96.9	%			06:44:31
1	Al 396.153Radial†	16137.3	16835.3	4999.2	µg/L	4999.2	ppb	06:44:31
1	Ca 317.933Radial†	10121.4	10354.4	4910.2	µg/L	4910.2	ppb	06:44:51
1	Fe 238.204 Radial†	8954.7	9213.2	5029.9	µg/L	5029.9	ppb	06:44:51
1	K 766.490 Radial†	11439.5	11121.8	5259.2	µg/L	5259.2	ppb	06:44:31
1	Mg 279.077 IEC†	951.0	972.0	5149.7	µg/L	5149.7	ppb	06:44:51
1	Na 589.592 Radial†	4626.0	4821.7	10037	µg/L	10037	ppb	06:44:51
1	Sr 421.552†	99255.2	103091.4	503.42	µg/L	503.42	ppb	06:44:31
1	Sc 361.383	687292.6	687292.6	96.449	%			06:45:49
1	Y 371.029	593820.3	593820.3	95.913	%			06:45:49
1	Ag 328.068†	77546.5	80780.7	516.84	µg/L	516.84	ppb	06:45:49
1	As 188.979†	855.8	896.1	503.28	µg/L	503.28	ppb	06:46:09
1	B 249.677†	17553.5	18102.8	512.99	µg/L	512.99	ppb	06:45:49
1	Ba 233.527†	52380.8	54480.1	508.54	µg/L	508.54	ppb	06:45:49
1	Be 313.107†	831851.7	870472.8	504.06	µg/L	504.06	ppb	06:45:49
1	Cd 226.502†	32767.0	34198.6	507.83	µg/L	507.83	ppb	06:45:49
1	Co 228.616†	20335.4	21105.0	512.44	µg/L	512.44	ppb	06:45:49
1	Cr 267.716†	25090.9	25821.1	504.90	µg/L	504.90	ppb	06:45:49
1	Cu 324.752†	125585.7	123726.2	510.88	µg/L	510.88	ppb	06:45:49
1	Mn 257.610†	344968.2	357164.4	509.89	µg/L	509.89	ppb	06:45:49
1	Mo 202.031†	7299.9	7546.6	514.74	µg/L	514.74	ppb	06:46:09
1	Ni 231.604†	17059.4	17816.2	518.16	µg/L	518.16	ppb	06:45:49
1	P 214.914†	3342.3	3340.5	2486.5	µg/L	2486.5	ppb	06:46:09
1	Pb 220.353†	3411.3	3386.0	513.05	µg/L	513.05	ppb	06:46:09
1	S 181.975 Axial†	624.1	585.4	1017.8	µg/L	1017.8	ppb	06:46:09
1	Sb 206.836†	1617.7	1611.5	515.90	µg/L	515.90	ppb	06:46:09
1	Se 196.026†	658.5	688.0	514.24	µg/L	514.24	ppb	06:46:09
1	SiO2†	45930.2	44670.9	5598.3	µg/L	5598.3	ppb	06:45:49
1	Si 251.611†	53320.0	55101.1	2588.5	µg/L	2588.5	ppb	06:45:49
1	Sn 189.927†	2264.5	2321.1	509.25	µg/L	509.25	ppb	06:46:09
1	Ti 334.940†	195948.0	203169.6	509.18	µg/L	509.18	ppb	06:45:49
1	Tl 190.801†	1400.9	1500.9	515.79	µg/L	515.79	ppb	06:46:09
1	U 367.007†	2287.1	2076.9	486.0	µg/L	486.0	ppb	06:45:49
1	V 292.402†	49376.5	51254.6	510.07	µg/L	510.07	ppb	06:45:49
1	Zn 213.857†	55369.0	56206.2	513.53	µg/L	513.53	ppb	06:45:49
2	Sc RADIAL	20371.7	20371.7	97.1	%			06:44:56
2	Al 396.153Radial†	16159.6	16815.9	4993.2	µg/L	4993.2	ppb	06:44:56
2	Ca 317.933Radial†	10139.7	10346.5	4906.4	µg/L	4906.4	ppb	06:45:16
2	Fe 238.204 Radial†	8985.9	9221.7	5034.5	µg/L	5034.5	ppb	06:45:16
2	K 766.490 Radial†	11323.1	10971.9	5188.2	µg/L	5188.2	ppb	06:44:56
2	Mg 279.077 IEC†	957.4	976.1	5171.6	µg/L	5171.6	ppb	06:45:16
2	Na 589.592 Radial†	4704.2	4890.0	10179	µg/L	10179	ppb	06:45:16
2	Sr 421.552†	99027.6	102595.9	501.00	µg/L	501.00	ppb	06:44:56
2	Sc 361.383	680405.1	680405.1	95.482	%			06:46:15
2	Y 371.029	587951.0	587951.0	94.965	%			06:46:15
2	Ag 328.068†	77191.8	81223.1	519.66	µg/L	519.66	ppb	06:46:15
2	As 188.979†	855.4	904.6	508.02	µg/L	508.02	ppb	06:46:35
2	B 249.677†	17396.2	18122.2	513.54	µg/L	513.54	ppb	06:46:15
2	Ba 233.527†	51894.0	54520.1	508.91	µg/L	508.91	ppb	06:46:15
2	Be 313.107†	827069.8	874195.2	506.22	µg/L	506.22	ppb	06:46:15
2	Cd 226.502†	32461.8	34223.0	508.19	µg/L	508.19	ppb	06:46:15
2	Co 228.616†	20217.4	21194.8	514.63	µg/L	514.63	ppb	06:46:15
2	Cr 267.716†	24852.1	25834.3	505.15	µg/L	505.15	ppb	06:46:15
2	Cu 324.752†	124836.8	124259.9	513.08	µg/L	513.08	ppb	06:46:15
2	Mn 257.610†	342699.1	358408.5	511.66	µg/L	511.66	ppb	06:46:15
2	Mo 202.031†	7301.1	7624.5	520.05	µg/L	520.05	ppb	06:46:35
2	Ni 231.604†	16937.3	17867.3	519.65	µg/L	519.65	ppb	06:46:15
2	P 214.914†	3344.7	3378.1	2514.6	µg/L	2514.6	ppb	06:46:35
2	Pb 220.353†	3413.6	3424.3	518.86	µg/L	518.86	ppb	06:46:35

2	S 181.975 Axial†	629.7	597.8	1039.4 µg/L	1039.4 ppb	06:46:35
2	Sb 206.836†	1594.3	1604.0	513.56 µg/L	513.56 ppb	06:46:35
2	Se 196.026†	676.6	713.9	533.42 µg/L	533.42 ppb	06:46:35
2	SiO2†	45438.6	44638.1	5594.2 µg/L	5594.2 ppb	06:46:15
2	Si 251.611†	52810.8	55127.4	2589.7 µg/L	2589.7 ppb	06:46:15
2	Sn 189.927†	2279.4	2360.5	517.86 µg/L	517.86 ppb	06:46:35
2	Ti 334.940†	194977.0	204209.2	511.78 µg/L	511.78 ppb	06:46:15
2	Tl 190.801†	1383.4	1497.3	514.59 µg/L	514.59 ppb	06:46:35
2	U 367.007†	2271.6	2084.6	487.9 µg/L	487.9 ppb	06:46:15
2	V 292.402†	49115.7	51499.7	512.53 µg/L	512.53 ppb	06:46:15
2	Zn 213.857†	55032.7	56435.2	515.62 µg/L	515.62 ppb	06:46:15
3	Sc RADIAL	20130.5	20130.5	96.0 %		06:45:21
3	Al 396.153Radial†	16014.1	16863.6	5007.6 µg/L	5007.6 ppb	06:45:21
3	Ca 317.933Radial†	10042.8	10370.7	4917.9 µg/L	4917.9 ppb	06:45:41
3	Fe 238.204 Radial†	8889.8	9232.5	5040.4 µg/L	5040.4 ppb	06:45:41
3	K 766.490 Radial†	11103.4	10882.5	5145.9 µg/L	5145.9 ppb	06:45:21
3	Mg 279.077 IEC†	940.5	970.3	5140.9 µg/L	5140.9 ppb	06:45:41
3	Na 589.592 Radial†	4681.3	4924.2	10250 µg/L	10250 ppb	06:45:41
3	Sr 421.552†	98071.6	102821.5	502.10 µg/L	502.10 ppb	06:45:21
3	Sc 361.383	684858.9	684858.9	96.107 %		06:46:41
3	Y 371.029	591542.6	591542.6	95.545 %		06:46:41
3	Ag 328.068†	77125.8	80628.7	515.87 µg/L	515.87 ppb	06:46:41
3	As 188.979†	858.1	901.7	506.40 µg/L	506.40 ppb	06:47:01
3	B 249.677†	17364.0	17970.3	509.23 µg/L	509.23 ppb	06:46:41
3	Ba 233.527†	52015.8	54293.4	506.79 µg/L	506.79 ppb	06:46:41
3	Be 313.107†	828621.5	870176.6	503.89 µg/L	503.89 ppb	06:46:41
3	Cd 226.502†	32694.6	34244.0	508.50 µg/L	508.50 ppb	06:46:41
3	Co 228.616†	20192.0	21030.7	510.64 µg/L	510.64 ppb	06:46:41
3	Cr 267.716†	24973.7	25791.6	504.32 µg/L	504.32 ppb	06:46:41
3	Cu 324.752†	124717.6	123285.6	509.06 µg/L	509.06 ppb	06:46:41
3	Mn 257.610†	343111.7	356503.7	508.95 µg/L	508.95 ppb	06:46:41
3	Mo 202.031†	7266.8	7539.0	514.22 µg/L	514.22 ppb	06:47:01
3	Ni 231.604†	16925.5	17739.7	515.94 µg/L	515.94 ppb	06:46:41
3	P 214.914†	3331.8	3341.9	2487.6 µg/L	2487.6 ppb	06:47:01
3	Pb 220.353†	3395.2	3381.9	512.42 µg/L	512.42 ppb	06:47:01
3	S 181.975 Axial†	624.4	588.0	1022.3 µg/L	1022.3 ppb	06:47:01
3	Sb 206.836†	1611.3	1610.9	515.70 µg/L	515.70 ppb	06:47:01
3	Se 196.026†	663.5	695.7	519.96 µg/L	519.96 ppb	06:47:01
3	SiO2†	45476.5	44368.1	5560.5 µg/L	5560.5 ppb	06:46:41
3	Si 251.611†	52729.7	54683.3	2568.8 µg/L	2568.8 ppb	06:46:41
3	Sn 189.927†	2257.2	2321.9	509.42 µg/L	509.42 ppb	06:47:01
3	Ti 334.940†	194967.4	202871.2	508.43 µg/L	508.43 ppb	06:46:41
3	Tl 190.801†	1386.7	1491.3	512.50 µg/L	512.50 ppb	06:47:01
3	U 367.007†	2287.7	2085.9	488.2 µg/L	488.2 ppb	06:46:41
3	V 292.402†	49123.5	51173.3	509.26 µg/L	509.26 ppb	06:46:41
3	Zn 213.857†	55130.9	56162.5	513.14 µg/L	513.14 ppb	06:46:41

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	684185.5	96.013	%	0.4901				0.51%
Sc RADIAL	20274.0	96.6	%	0.61				0.63%
Y 371.029	591104.6	95.474	%	0.4779				0.50%
Ag 328.068†	80877.5	517.46	µg/L	1.969	517.46	ppb	1.969	0.38%
QC value within limits for Ag 328.068 Recovery = 103.49%								
Al 396.153Radial†	16838.3	5000.0	µg/L	7.26	5000.0	ppb	7.26	0.15%
QC value within limits for Al 396.153Radial Recovery = 100.00%								
As 188.979†	900.8	505.90	µg/L	2.412	505.90	ppb	2.412	0.48%
QC value within limits for As 188.979 Recovery = 101.18%								
B 249.677†	18065.1	511.92	µg/L	2.345	511.92	ppb	2.345	0.46%
QC value within limits for B 249.677 Recovery = 102.38%								
Ba 233.527†	54431.2	508.08	µg/L	1.130	508.08	ppb	1.130	0.22%
QC value within limits for Ba 233.527 Recovery = 101.62%								
Be 313.107†	871614.8	504.73	µg/L	1.296	504.73	ppb	1.296	0.26%
QC value within limits for Be 313.107 Recovery = 100.95%								
Ca 317.933Radial†	10357.2	4911.5	µg/L	5.84	4911.5	ppb	5.84	0.12%
QC value within limits for Ca 317.933Radial Recovery = 98.23%								
Cd 226.502†	34221.9	508.17	µg/L	0.337	508.17	ppb	0.337	0.07%
QC value within limits for Cd 226.502 Recovery = 101.63%								
Co 228.616†	21110.1	512.57	µg/L	1.997	512.57	ppb	1.997	0.39%

QC value within limits for Co 228.616 Recovery = 102.51%

Cr 267.716†	25815.7	504.79 µg/L	0.430	504.79 ppb	0.430	0.09%
QC value within limits for Cr 267.716 Recovery = 100.96%						
Cu 324.752†	123757.2	511.01 µg/L	2.013	511.01 ppb	2.013	0.39%
QC value within limits for Cu 324.752 Recovery = 102.20%						
Fe 238.204 Radial†	9222.5	5034.9 µg/L	5.27	5034.9 ppb	5.27	0.10%
QC value within limits for Fe 238.204 Radial Recovery = 100.70%						
K 766.490 Radial†	10992.1	5197.8 µg/L	57.22	5197.8 ppb	57.22	1.10%
QC value within limits for K 766.490 Radial Recovery = 103.96%						
Mg 279.077 IEC†	972.8	5154.0 µg/L	15.82	5154.0 ppb	15.82	0.31%
QC value within limits for Mg 279.077 IEC Recovery = 103.08%						
Mn 257.610†	357358.9	510.17 µg/L	1.379	510.17 ppb	1.379	0.27%
QC value within limits for Mn 257.610 Recovery = 102.03%						
Mo 202.031†	7570.1	516.34 µg/L	3.226	516.34 ppb	3.226	0.62%
QC value within limits for Mo 202.031 Recovery = 103.27%						
Na 589.592 Radial†	4878.6	10155 µg/L	108.6	10155 ppb	108.6	1.07%
QC value within limits for Na 589.592 Radial Recovery = 101.55%						
Ni 231.604†	17807.7	517.92 µg/L	1.868	517.92 ppb	1.868	0.36%
QC value within limits for Ni 231.604 Recovery = 103.58%						
P 214.914†	3353.5	2496.2 µg/L	15.90	2496.2 ppb	15.90	0.64%
QC value within limits for P 214.914 Recovery = 99.85%						
Pb 220.353†	3397.4	514.78 µg/L	3.553	514.78 ppb	3.553	0.69%
QC value within limits for Pb 220.353 Recovery = 102.96%						
S 181.975 Axial†	590.4	1026.5 µg/L	11.39	1026.5 ppb	11.39	1.11%
QC value within limits for S 181.975 Axial Recovery = 102.65%						
Sb 206.836†	1608.8	515.05 µg/L	1.296	515.05 ppb	1.296	0.25%
QC value within limits for Sb 206.836 Recovery = 103.01%						
Se 196.026†	699.2	522.54 µg/L	9.847	522.54 ppb	9.847	1.88%
QC value within limits for Se 196.026 Recovery = 104.51%						
SiO2†	44559.0	5584.3 µg/L	20.71	5584.3 ppb	20.71	0.37%
QC value within limits for SiO2 Recovery = 104.43%						
Si 251.611†	54970.6	2582.4 µg/L	11.71	2582.4 ppb	11.71	0.45%
QC value within limits for Si 251.611 Recovery = 103.29%						
Sn 189.927†	2334.5	512.18 µg/L	4.918	512.18 ppb	4.918	0.96%
QC value within limits for Sn 189.927 Recovery = 102.44%						
Sr 421.552†	102836.3	502.17 µg/L	1.211	502.17 ppb	1.211	0.24%
QC value within limits for Sr 421.552 Recovery = 100.43%						
Ti 334.940†	203416.6	509.79 µg/L	1.761	509.79 ppb	1.761	0.35%
QC value within limits for Ti 334.940 Recovery = 101.96%						
Tl 190.801†	1496.5	514.29 µg/L	1.664	514.29 ppb	1.664	0.32%
QC value within limits for Tl 190.801 Recovery = 102.86%						
U 367.007†	2082.5	487.4 µg/L	1.18	487.4 ppb	1.18	0.24%
QC value within limits for U 367.007 Recovery = 97.47%						
V 292.402†	51309.2	510.62 µg/L	1.703	510.62 ppb	1.703	0.33%
QC value within limits for V 292.402 Recovery = 102.12%						
Zn 213.857†	56268.0	514.10 µg/L	1.338	514.10 ppb	1.338	0.26%
QC value within limits for Zn 213.857 Recovery = 102.82%						

All analyte(s) passed QC.

Sequence No.: 14 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 6:47:09**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19930.2	19930.2	95.0	%			06:47:37
1	Al 396.153Radial†	-194.0	-30.3	-9.1641	µg/L	-9.1641	ppb	06:47:37
1	Ca 317.933Radial†	96.3	5.5	2.6119	µg/L	2.6119	ppb	06:47:57
1	Fe 238.204 Radial†	31.8	1.0	0.5601	µg/L	0.5601	ppb	06:47:57
1	K 766.490 Radial†	700.3	47.8	22.646	µg/L	22.646	ppb	06:47:37
1	Mg 279.077 IEC†	3.9	-5.8	-30.642	µg/L	-30.642	ppb	06:47:57
1	Na 589.592 Radial†	-79.5	-38.3	-79.703	µg/L	-79.703	ppb	06:47:37
1	Sr 421.552†	-582.4	-1.0	-0.0050	µg/L	-0.0050	ppb	06:47:37
1	Sc 361.383	664307.8	664307.8	93.223	%			06:48:54
1	Y 371.029	576783.7	576783.7	93.161	%			06:48:54
1	Ag 328.068†	-314.6	41.6	0.2606	µg/L	0.2606	ppb	06:48:54
1	As 188.979†	-16.3	-8.7	-4.9262	µg/L	-4.9262	ppb	06:49:14
1	B 249.677†	243.9	164.6	4.6780	µg/L	4.6780	ppb	06:49:14
1	Ba 233.527†	-155.0	4.5	0.0413	µg/L	0.0413	ppb	06:49:14
1	Be 313.107†	-7625.5	-185.4	-0.1032	µg/L	-0.1032	ppb	06:48:54
1	Cd 226.502†	-195.2	15.9	0.2351	µg/L	0.2351	ppb	06:49:14
1	Co 228.616†	-11.8	8.2	0.2026	µg/L	0.2026	ppb	06:49:14
1	Cr 267.716†	189.4	9.5	0.1645	µg/L	0.1645	ppb	06:49:14
1	Cu 324.752†	6590.8	586.6	2.3987	µg/L	2.3987	ppb	06:48:54
1	Mn 257.610†	521.7	55.0	0.0794	µg/L	0.0794	ppb	06:49:14
1	Mo 202.031†	62.9	45.4	3.0967	µg/L	3.0967	ppb	06:49:14
1	Ni 231.604†	-158.4	-41.3	-1.2013	µg/L	-1.2013	ppb	06:49:14
1	P 214.914†	126.0	10.3	7.6465	µg/L	7.6465	ppb	06:49:14
1	Pb 220.353†	175.0	36.8	5.5796	µg/L	5.5796	ppb	06:49:14
1	S 181.975 Axial†	63.5	6.4	11.208	µg/L	11.208	ppb	06:49:14
1	Sb 206.836†	80.4	20.6	6.6751	µg/L	6.6751	ppb	06:49:14
1	Se 196.026†	0.1	5.4	4.0192	µg/L	4.0192	ppb	06:49:14
1	SiO2†	2972.5	238.3	29.965	µg/L	29.965	ppb	06:48:54
1	Si 251.611†	326.9	168.6	7.9014	µg/L	7.9014	ppb	06:49:14
1	Sn 189.927†	30.5	5.9	1.2840	µg/L	1.2840	ppb	06:49:14
1	Ti 334.940†	25.5	34.6	0.0778	µg/L	0.0778	ppb	06:48:54
1	Tl 190.801†	-36.9	8.9	3.0397	µg/L	3.0397	ppb	06:49:14
1	U 367.007†	352.7	83.9	20.58	µg/L	20.58	ppb	06:48:54
1	V 292.402†	-111.8	-59.7	-0.5340	µg/L	-0.5340	ppb	06:48:54
1	Zn 213.857†	1502.3	410.2	3.7860	µg/L	3.7860	ppb	06:49:14
2	Sc RADIAL	19711.2	19711.2	94.0	%			06:48:02
2	Al 396.153Radial†	-148.3	15.9	4.6085	µg/L	4.6085	ppb	06:48:02
2	Ca 317.933Radial†	90.6	0.6	0.2914	µg/L	0.2914	ppb	06:48:22
2	Fe 238.204 Radial†	30.7	0.2	0.1113	µg/L	0.1113	ppb	06:48:22
2	K 766.490 Radial†	820.2	183.7	86.940	µg/L	86.940	ppb	06:48:02
2	Mg 279.077 IEC†	2.0	-7.8	-41.091	µg/L	-41.091	ppb	06:48:22
2	Na 589.592 Radial†	-48.3	-6.0	-12.468	µg/L	-12.468	ppb	06:48:02
2	Sr 421.552†	-589.4	-15.3	-0.0749	µg/L	-0.0749	ppb	06:48:02
2	Sc 361.383	663223.5	663223.5	93.071	%			06:49:19
2	Y 371.029	575878.1	575878.1	93.015	%			06:49:19
2	Ag 328.068†	-286.8	71.0	0.4474	µg/L	0.4474	ppb	06:49:19
2	As 188.979†	-7.9	0.3	0.1464	µg/L	0.1464	ppb	06:49:39
2	B 249.677†	220.4	139.8	3.9718	µg/L	3.9718	ppb	06:49:39
2	Ba 233.527†	-144.2	15.9	0.1473	µg/L	0.1473	ppb	06:49:39
2	Be 313.107†	-7638.1	-212.3	-0.1224	µg/L	-0.1224	ppb	06:49:19
2	Cd 226.502†	-186.9	24.4	0.3634	µg/L	0.3634	ppb	06:49:39
2	Co 228.616†	-7.4	12.9	0.3184	µg/L	0.3184	ppb	06:49:39
2	Cr 267.716†	194.4	15.3	0.2958	µg/L	0.2958	ppb	06:49:39
2	Cu 324.752†	6618.0	627.4	2.5821	µg/L	2.5821	ppb	06:49:19
2	Mn 257.610†	507.6	40.8	0.0594	µg/L	0.0594	ppb	06:49:39
2	Mo 202.031†	70.7	53.9	3.6754	µg/L	3.6754	ppb	06:49:39
2	Ni 231.604†	-117.8	2.1	0.0600	µg/L	0.0600	ppb	06:49:39
2	P 214.914†	110.8	-5.8	-4.4214	µg/L	-4.4214	ppb	06:49:39
2	Pb 220.353†	157.2	18.0	2.7380	µg/L	2.7380	ppb	06:49:39

2	S 181.975 Axial†	62.4	5.4	9.4387 µg/L	9.4387 ppb	06:49:39
2	Sb 206.836†	81.4	21.8	7.0800 µg/L	7.0800 ppb	06:49:39
2	Se 196.026†	-5.4	-0.5	-0.3831 µg/L	-0.3831 ppb	06:49:39
2	SiO2†	2958.4	228.3	28.494 µg/L	28.494 ppb	06:49:19
2	Si 251.611†	297.4	137.5	6.4140 µg/L	6.4140 ppb	06:49:39
2	Sn 189.927†	46.0	22.6	4.9474 µg/L	4.9474 ppb	06:49:39
2	Ti 334.940†	-32.5	-27.7	-0.0701 µg/L	-0.0701 ppb	06:49:19
2	Tl 190.801†	-39.3	6.2	2.1084 µg/L	2.1084 ppb	06:49:39
2	U 367.007†	282.2	8.8	2.145 µg/L	2.145 ppb	06:49:19
2	V 292.402†	-103.8	-51.4	-0.4604 µg/L	-0.4604 ppb	06:49:19
2	Zn 213.857†	1471.1	379.3	3.4929 µg/L	3.4929 ppb	06:49:39
3	Sc RADIAL	19808.1	19808.1	94.4 %		06:48:27
3	Al 396.153Radial†	-213.7	-52.5	-15.781 µg/L	-15.781 ppb	06:48:27
3	Ca 317.933Radial†	95.9	5.8	2.7322 µg/L	2.7322 ppb	06:48:47
3	Fe 238.204 Radial†	32.7	2.1	1.1724 µg/L	1.1724 ppb	06:48:47
3	K 766.490 Radial†	721.7	75.1	35.533 µg/L	35.533 ppb	06:48:27
3	Mg 279.077 IEC†	4.2	-5.4	-28.619 µg/L	-28.619 ppb	06:48:47
3	Na 589.592 Radial†	-45.0	-2.3	-4.7166 µg/L	-4.7166 ppb	06:48:27
3	Sr 421.552†	-589.3	-12.2	-0.0596 µg/L	-0.0596 ppb	06:48:27
3	Sc 361.383	665311.1	665311.1	93.364 %		06:49:44
3	Y 371.029	578081.6	578081.6	93.371 %		06:49:44
3	Ag 328.068†	-290.2	68.3	0.4306 µg/L	0.4306 ppb	06:49:44
3	As 188.979†	-6.2	2.2	1.2112 µg/L	1.2112 ppb	06:50:05
3	B 249.677†	212.8	131.0	3.7215 µg/L	3.7215 ppb	06:50:05
3	Ba 233.527†	-132.4	29.0	0.2699 µg/L	0.2699 ppb	06:50:05
3	Be 313.107†	-7714.5	-268.4	-0.1521 µg/L	-0.1521 ppb	06:49:44
3	Cd 226.502†	-203.0	7.8	0.1160 µg/L	0.1160 ppb	06:50:05
3	Co 228.616†	-5.8	14.7	0.3616 µg/L	0.3616 ppb	06:50:05
3	Cr 267.716†	185.7	5.3	0.0873 µg/L	0.0873 ppb	06:50:05
3	Cu 324.752†	6596.2	581.8	2.3826 µg/L	2.3826 ppb	06:49:44
3	Mn 257.610†	504.9	36.2	0.0526 µg/L	0.0526 ppb	06:50:05
3	Mo 202.031†	70.9	53.9	3.6756 µg/L	3.6756 ppb	06:50:05
3	Ni 231.604†	-138.7	-19.9	-0.5782 µg/L	-0.5782 ppb	06:50:05
3	P 214.914†	117.5	1.0	0.6704 µg/L	0.6704 ppb	06:50:05
3	Pb 220.353†	166.1	27.1	4.1066 µg/L	4.1066 ppb	06:50:05
3	S 181.975 Axial†	56.2	-1.5	-2.5788 µg/L	-2.5788 ppb	06:50:05
3	Sb 206.836†	92.3	33.2	10.754 µg/L	10.754 ppb	06:50:05
3	Se 196.026†	1.0	6.4	4.7449 µg/L	4.7449 ppb	06:50:05
3	SiO2†	3010.2	273.9	34.336 µg/L	34.336 ppb	06:49:44
3	Si 251.611†	266.8	103.7	4.8318 µg/L	4.8318 ppb	06:50:05
3	Sn 189.927†	39.2	15.3	3.3304 µg/L	3.3304 ppb	06:50:05
3	Ti 334.940†	-55.9	-52.6	-0.1390 µg/L	-0.1390 ppb	06:49:44
3	Tl 190.801†	-33.3	12.8	4.3846 µg/L	4.3846 ppb	06:50:05
3	U 367.007†	336.9	66.4	16.30 µg/L	16.30 ppb	06:49:44
3	V 292.402†	-103.8	-50.9	-0.4451 µg/L	-0.4451 ppb	06:49:44
3	Zn 213.857†	1476.1	379.8	3.5015 µg/L	3.5015 ppb	06:50:05

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	664280.8	93.220	%	0.1465				0.16%
Sc RADIAL	19816.5	94.5	%	0.52				0.55%
Y 371.029	576914.5	93.182	%	0.1789				0.19%
Ag 328.068†	60.3	0.3795	µg/L	0.10333	0.3795	ppb	0.10333	27.23%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-22.3	-6.7789	µg/L	10.40197	-6.7789	ppb	10.40197	153.45%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-2.1	-1.1895	µg/L	3.27955	-1.1895	ppb	3.27955	275.71%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	145.1	4.1238	µg/L	0.49605	4.1238	ppb	0.49605	12.03%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	16.5	0.1529	µg/L	0.11440	0.1529	ppb	0.11440	74.84%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-222.0	-0.1259	µg/L	0.02463	-0.1259	ppb	0.02463	19.57%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	4.0	1.8785	µg/L	1.37580	1.8785	ppb	1.37580	73.24%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	16.0	0.2382	µg/L	0.12372	0.2382	ppb	0.12372	51.95%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	11.9	0.2942	µg/L	0.08220	0.2942	ppb	0.08220	27.94%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              10.0      0.1826 µg/L       0.10541      0.1826 ppb        0.10541  57.73%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             598.6      2.4544 µg/L       0.11083      2.4544 ppb        0.11083   4.52%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        1.1      0.6146 µg/L       0.53265      0.6146 ppb        0.53265  86.67%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†       102.2      48.373 µg/L       34.0160      48.373 ppb        34.0160  70.32%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          -6.3     -33.451 µg/L        6.6939     -33.451 ppb         6.6939  20.01%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              44.0      0.0638 µg/L       0.01393      0.0638 ppb        0.01393  21.83%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              51.1      3.4826 µg/L       0.33417      3.4826 ppb        0.33417   9.60%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -15.5     -32.296 µg/L       41.2381     -32.296 ppb        41.2381 127.69%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†             -19.7     -0.5732 µg/L       0.63068     -0.5732 ppb        0.63068 110.03%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                1.9      1.2985 µg/L       6.05846      1.2985 ppb        6.05846 466.58%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              27.3      4.1414 µg/L       1.42114      4.1414 ppb        1.42114  34.32%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          3.4      6.0227 µg/L       7.50145      6.0227 ppb        7.50145 124.55%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              25.2      8.1698 µg/L       2.24744      8.1698 ppb        2.24744  27.51%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               3.7      2.7937 µg/L       2.77496      2.7937 ppb        2.77496  99.33%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   246.8      30.932 µg/L        3.0386      30.932 ppb         3.0386   9.82%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             136.6      6.3824 µg/L       1.53505      6.3824 ppb        1.53505  24.05%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†              14.6      3.1873 µg/L       1.83587      3.1873 ppb        1.83587  57.60%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              -9.5     -0.0465 µg/L       0.03672     -0.0465 ppb        0.03672  78.95%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -15.2     -0.0438 µg/L       0.11079     -0.0438 ppb        0.11079 253.11%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               9.3      3.1776 µg/L       1.14438      3.1776 ppb        1.14438  36.01%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               53.0       13.01 µg/L         9.647       13.01 ppb          9.647  74.17%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              -54.0     -0.4798 µg/L       0.04751     -0.4798 ppb        0.04751   9.90%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             389.7      3.5934 µg/L       0.16681      3.5934 ppb        0.16681   4.64%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 8 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 7:19:39**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20468.7	20468.7	97.6	%			07:20:09
1	Al 396.153Radial†	15757.1	16324.4	4848.0	µg/L	4848.0	ppb	07:20:09
1	Ca 317.933Radial†	9759.9	9907.8	4698.4	µg/L	4698.4	ppb	07:20:29
1	Fe 238.204 Radial†	8655.5	8839.2	4825.7	µg/L	4825.7	ppb	07:20:29
1	K 766.490 Radial†	10855.2	10437.0	4935.3	µg/L	4935.3	ppb	07:20:09
1	Mg 279.077 IEC†	917.3	930.3	4928.6	µg/L	4928.6	ppb	07:20:29
1	Na 589.592 Radial†	4506.4	4664.4	9709.1	µg/L	9709.1	ppb	07:20:29
1	Sr 421.552†	95956.5	98964.7	483.27	µg/L	483.27	ppb	07:20:09
1	Sc 361.383	695244.7	695244.7	97.565	%			07:21:26
1	Y 371.029	599682.2	599682.2	96.860	%			07:21:26
1	Ag 328.068†	75999.6	78275.5	500.78	µg/L	500.78	ppb	07:21:32
1	As 188.979†	824.6	853.9	479.63	µg/L	479.63	ppb	07:21:52
1	B 249.677†	16680.6	16999.9	481.71	µg/L	481.71	ppb	07:21:32
1	Ba 233.527†	50386.7	51815.1	483.67	µg/L	483.67	ppb	07:21:32
1	Be 313.107†	810378.0	838598.1	485.61	µg/L	485.61	ppb	07:21:26
1	Cd 226.502†	31569.4	32582.6	483.83	µg/L	483.83	ppb	07:21:32
1	Co 228.616†	19637.6	20148.5	489.21	µg/L	489.21	ppb	07:21:32
1	Cr 267.716†	24367.8	24782.4	484.59	µg/L	484.59	ppb	07:21:32
1	Cu 324.752†	121867.4	118425.7	488.99	µg/L	488.99	ppb	07:21:32
1	Mn 257.610†	328774.0	336475.0	480.36	µg/L	480.36	ppb	07:21:32
1	Mo 202.031†	6954.0	7105.5	484.65	µg/L	484.65	ppb	07:21:52
1	Ni 231.604†	16413.1	16951.4	493.01	µg/L	493.01	ppb	07:21:32
1	P 214.914†	3225.9	3181.6	2368.2	µg/L	2368.2	ppb	07:21:52
1	Pb 220.353†	3257.4	3187.9	482.98	µg/L	482.98	ppb	07:21:52
1	S 181.975 Axial†	598.5	551.8	959.31	µg/L	959.31	ppb	07:21:52
1	Sb 206.836†	1511.1	1483.1	474.49	µg/L	474.49	ppb	07:21:52
1	Se 196.026†	650.4	671.9	502.14	µg/L	502.14	ppb	07:21:52
1	SiO2†	44082.6	42232.6	5293.1	µg/L	5293.1	ppb	07:21:32
1	Si 251.611†	51157.4	52252.1	2454.7	µg/L	2454.7	ppb	07:21:32
1	Sn 189.927†	2175.5	2203.1	483.37	µg/L	483.37	ppb	07:21:52
1	Ti 334.940†	189370.7	194104.3	486.46	µg/L	486.46	ppb	07:21:32
1	Tl 190.801†	1336.9	1418.7	487.57	µg/L	487.57	ppb	07:21:52
1	U 367.007†	2226.5	1987.6	465.1	µg/L	465.1	ppb	07:21:32
1	V 292.402†	48059.0	49318.6	490.68	µg/L	490.68	ppb	07:21:32
1	Zn 213.857†	53194.0	53320.3	487.14	µg/L	487.14	ppb	07:21:32
2	Sc RADIAL	20383.3	20383.3	97.2	%			07:20:34
2	Al 396.153Radial†	15722.8	16356.8	4857.4	µg/L	4857.4	ppb	07:20:34
2	Ca 317.933Radial†	9835.4	10027.4	4755.1	µg/L	4755.1	ppb	07:20:54
2	Fe 238.204 Radial†	8696.4	8918.5	4868.9	µg/L	4868.9	ppb	07:20:54
2	K 766.490 Radial†	10758.9	10384.5	4910.4	µg/L	4910.4	ppb	07:20:34
2	Mg 279.077 IEC†	930.1	947.5	5019.5	µg/L	5019.5	ppb	07:20:54
2	Na 589.592 Radial†	4528.3	4706.2	9796.3	µg/L	9796.3	ppb	07:20:54
2	Sr 421.552†	95431.8	98836.9	482.64	µg/L	482.64	ppb	07:20:34
2	Sc 361.383	696736.9	696736.9	97.774	%			07:21:57
2	Y 371.029	601537.8	601537.8	97.159	%			07:21:57
2	Ag 328.068†	76360.5	78477.8	502.08	µg/L	502.08	ppb	07:22:02
2	As 188.979†	841.1	869.1	488.12	µg/L	488.12	ppb	07:22:22
2	B 249.677†	16827.3	17113.4	484.93	µg/L	484.93	ppb	07:22:02
2	Ba 233.527†	50708.0	52033.1	485.70	µg/L	485.70	ppb	07:22:02
2	Be 313.107†	813313.1	839821.2	486.31	µg/L	486.31	ppb	07:21:57
2	Cd 226.502†	31937.9	32890.2	488.39	µg/L	488.39	ppb	07:22:02
2	Co 228.616†	19779.9	20251.0	491.70	µg/L	491.70	ppb	07:22:02
2	Cr 267.716†	24518.2	24882.7	486.55	µg/L	486.55	ppb	07:22:02
2	Cu 324.752†	122396.2	118699.1	490.13	µg/L	490.13	ppb	07:22:02
2	Mn 257.610†	330555.9	337575.8	481.93	µg/L	481.93	ppb	07:22:02
2	Mo 202.031†	7066.0	7204.7	491.42	µg/L	491.42	ppb	07:22:22
2	Ni 231.604†	16556.2	17061.8	496.22	µg/L	496.22	ppb	07:22:02
2	P 214.914†	3299.0	3249.3	2418.8	µg/L	2418.8	ppb	07:22:22
2	Pb 220.353†	3324.0	3248.8	492.23	µg/L	492.23	ppb	07:22:22

2	S 181.975 Axial†	609.3	561.5	976.16 µg/L	976.16 ppb	07:22:22
2	Sb 206.836†	1548.0	1517.5	485.67 µg/L	485.67 ppb	07:22:22
2	Se 196.026†	653.1	673.3	503.16 µg/L	503.16 ppb	07:22:22
2	SiO2†	44316.0	42374.5	5310.8 µg/L	5310.8 ppb	07:22:02
2	Si 251.611†	51391.3	52379.1	2460.6 µg/L	2460.6 ppb	07:22:02
2	Sn 189.927†	2219.2	2242.9	492.09 µg/L	492.09 ppb	07:22:22
2	Ti 334.940†	190090.1	194424.4	487.26 µg/L	487.26 ppb	07:22:02
2	Tl 190.801†	1350.6	1429.8	491.37 µg/L	491.37 ppb	07:22:22
2	U 367.007†	2219.2	1975.3	461.8 µg/L	461.8 ppb	07:22:02
2	V 292.402†	48369.9	49531.1	492.84 µg/L	492.84 ppb	07:22:02
2	Zn 213.857†	53529.3	53546.5	489.20 µg/L	489.20 ppb	07:22:02
3	Sc RADIAL	20431.5	20431.5	97.4 %		07:21:00
3	Al 396.153Radial†	15702.5	16297.7	4840.1 µg/L	4840.1 ppb	07:21:00
3	Ca 317.933Radial†	9822.2	9989.9	4737.3 µg/L	4737.3 ppb	07:21:20
3	Fe 238.204 Radial†	8710.4	8911.8	4865.3 µg/L	4865.3 ppb	07:21:20
3	K 766.490 Radial†	10743.0	10342.1	4890.4 µg/L	4890.4 ppb	07:21:00
3	Mg 279.077 IEC†	932.5	947.6	5020.4 µg/L	5020.4 ppb	07:21:20
3	Na 589.592 Radial†	4559.4	4727.2	9839.9 µg/L	9839.9 ppb	07:21:20
3	Sr 421.552†	95477.1	98651.5	481.74 µg/L	481.74 ppb	07:21:00
3	Sc 361.383	704568.4	704568.4	98.873 %		07:22:28
3	Y 371.029	607399.5	607399.5	98.106 %		07:22:28
3	Ag 328.068†	76800.0	78054.2	499.38 µg/L	499.38 ppb	07:22:33
3	As 188.979†	844.5	862.9	484.68 µg/L	484.68 ppb	07:22:53
3	B 249.677†	16937.7	17033.7	482.66 µg/L	482.66 ppb	07:22:33
3	Ba 233.527†	51219.0	51973.4	485.14 µg/L	485.14 ppb	07:22:33
3	Be 313.107†	824534.9	841924.8	487.53 µg/L	487.53 ppb	07:22:28
3	Cd 226.502†	32084.9	32675.8	485.21 µg/L	485.21 ppb	07:22:33
3	Co 228.616†	20022.3	20271.3	492.19 µg/L	492.19 ppb	07:22:33
3	Cr 267.716†	24630.8	24717.8	483.32 µg/L	483.32 ppb	07:22:33
3	Cu 324.752†	123400.9	118323.8	488.58 µg/L	488.58 ppb	07:22:33
3	Mn 257.610†	333677.4	336975.0	481.07 µg/L	481.07 ppb	07:22:33
3	Mo 202.031†	7032.4	7090.5	483.63 µg/L	483.63 ppb	07:22:53
3	Ni 231.604†	16653.5	16971.9	493.61 µg/L	493.61 ppb	07:22:33
3	P 214.914†	3275.9	3188.4	2373.3 µg/L	2373.3 ppb	07:22:53
3	Pb 220.353†	3290.8	3177.5	481.40 µg/L	481.40 ppb	07:22:53
3	S 181.975 Axial†	612.7	558.0	970.07 µg/L	970.07 ppb	07:22:53
3	Sb 206.836†	1533.9	1485.6	475.34 µg/L	475.34 ppb	07:22:53
3	Se 196.026†	643.8	656.5	490.72 µg/L	490.72 ppb	07:22:53
3	SiO2†	44704.4	42263.5	5296.9 µg/L	5296.9 ppb	07:22:33
3	Si 251.611†	51966.6	52376.7	2460.6 µg/L	2460.6 ppb	07:22:33
3	Sn 189.927†	2207.3	2205.7	483.95 µg/L	483.95 ppb	07:22:53
3	Ti 334.940†	191631.9	193822.8	485.75 µg/L	485.75 ppb	07:22:33
3	Tl 190.801†	1340.4	1404.1	482.60 µg/L	482.60 ppb	07:22:53
3	U 367.007†	2282.4	2014.0	471.3 µg/L	471.3 ppb	07:22:33
3	V 292.402†	48667.0	49281.7	490.31 µg/L	490.31 ppb	07:22:33
3	Zn 213.857†	53928.4	53341.6	487.33 µg/L	487.33 ppb	07:22:33

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	698850.0	98.071	%	0.7028				0.72%
Sc RADIAL	20427.9	97.4	%	0.20				0.21%
Y 371.029	602873.2	97.375	%	0.6506				0.67%
Ag 328.068†	78269.2	500.75	µg/L	1.352	500.75	ppb	1.352	0.27%
QC value within limits for Ag 328.068 Recovery = 100.15%								
Al 396.153Radial†	16326.3	4848.5	µg/L	8.67	4848.5	ppb	8.67	0.18%
QC value within limits for Al 396.153Radial Recovery = 96.97%								
As 188.979†	862.0	484.14	µg/L	4.268	484.14	ppb	4.268	0.88%
QC value within limits for As 188.979 Recovery = 96.83%								
B 249.677†	17049.0	483.10	µg/L	1.652	483.10	ppb	1.652	0.34%
QC value within limits for B 249.677 Recovery = 96.62%								
Ba 233.527†	51940.5	484.84	µg/L	1.051	484.84	ppb	1.051	0.22%
QC value within limits for Ba 233.527 Recovery = 96.97%								
Be 313.107†	840114.7	486.49	µg/L	0.975	486.49	ppb	0.975	0.20%
QC value within limits for Be 313.107 Recovery = 97.30%								
Ca 317.933Radial†	9975.0	4730.3	µg/L	29.01	4730.3	ppb	29.01	0.61%
QC value within limits for Ca 317.933Radial Recovery = 94.61%								
Cd 226.502†	32716.2	485.81	µg/L	2.343	485.81	ppb	2.343	0.48%
QC value within limits for Cd 226.502 Recovery = 97.16%								
Co 228.616†	20223.6	491.03	µg/L	1.601	491.03	ppb	1.601	0.33%

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   QC value within limits for Co 228.616  Recovery = 98.21%
Cr 267.716†           24794.3      484.82 µg/L         1.631      484.82 ppb          1.631   0.34%
   QC value within limits for Cr 267.716  Recovery = 96.96%
Cu 324.752†          118482.9      489.23 µg/L         0.805      489.23 ppb          0.805   0.16%
   QC value within limits for Cu 324.752  Recovery = 97.85%
Fe 238.204 Radial†     8889.8      4853.3 µg/L         23.98      4853.3 ppb          23.98   0.49%
   QC value within limits for Fe 238.204 Radial  Recovery = 97.07%
K 766.490 Radial†     10387.9      4912.0 µg/L         22.50      4912.0 ppb          22.50   0.46%
   QC value within limits for K 766.490 Radial  Recovery = 98.24%
Mg 279.077 IEC†         941.8      4989.5 µg/L         52.73      4989.5 ppb          52.73   1.06%
   QC value within limits for Mg 279.077 IEC  Recovery = 99.79%
Mn 257.610†          337008.6      481.12 µg/L         0.787      481.12 ppb          0.787   0.16%
   QC value within limits for Mn 257.610  Recovery = 96.22%
Mo 202.031†            7133.6      486.57 µg/L         4.233      486.57 ppb          4.233   0.87%
   QC value within limits for Mo 202.031  Recovery = 97.31%
Na 589.592 Radial†     4699.2      9781.8 µg/L         66.58      9781.8 ppb          66.58   0.68%
   QC value within limits for Na 589.592 Radial  Recovery = 97.82%
Ni 231.604†           16995.0      494.28 µg/L         1.708      494.28 ppb          1.708   0.35%
   QC value within limits for Ni 231.604  Recovery = 98.86%
P 214.914†             3206.4      2386.8 µg/L         27.87      2386.8 ppb          27.87   1.17%
   QC value within limits for P 214.914  Recovery = 95.47%
Pb 220.353†            3204.7      485.54 µg/L         5.850      485.54 ppb          5.850   1.20%
   QC value within limits for Pb 220.353  Recovery = 97.11%
S 181.975 Axial†        557.1      968.51 µg/L         8.531      968.51 ppb          8.531   0.88%
   QC value within limits for S 181.975 Axial  Recovery = 96.85%
Sb 206.836†            1495.4      478.50 µg/L         6.222      478.50 ppb          6.222   1.30%
   QC value within limits for Sb 206.836  Recovery = 95.70%
Se 196.026†             667.2      498.67 µg/L         6.910      498.67 ppb          6.910   1.39%
   QC value within limits for Se 196.026  Recovery = 99.73%
SiO2†                 42290.2      5300.3 µg/L          9.35      5300.3 ppb           9.35   0.18%
   QC value within limits for SiO2  Recovery = 99.12%
Si 251.611†           52336.0      2458.7 µg/L          3.39      2458.7 ppb           3.39   0.14%
   QC value within limits for Si 251.611  Recovery = 98.35%
Sn 189.927†            2217.2      486.47 µg/L         4.877      486.47 ppb          4.877   1.00%
   QC value within limits for Sn 189.927  Recovery = 97.29%
Sr 421.552†           98817.7      482.55 µg/L         0.769      482.55 ppb          0.769   0.16%
   QC value within limits for Sr 421.552  Recovery = 96.51%
Ti 334.940†          194117.2      486.49 µg/L         0.757      486.49 ppb          0.757   0.16%
   QC value within limits for Ti 334.940  Recovery = 97.30%
Tl 190.801†            1417.5      487.18 µg/L         4.398      487.18 ppb          4.398   0.90%
   QC value within limits for Tl 190.801  Recovery = 97.44%
U 367.007†             1992.3       466.1 µg/L          4.84       466.1 ppb           4.84   1.04%
   QC value within limits for U 367.007  Recovery = 93.21%
V 292.402†            49377.1      491.28 µg/L         1.368      491.28 ppb          1.368   0.28%
   QC value within limits for V 292.402  Recovery = 98.26%
Zn 213.857†           53402.8      487.89 µg/L         1.137      487.89 ppb          1.137   0.23%
   QC value within limits for Zn 213.857  Recovery = 97.58%
All analyte(s) passed QC.
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Sequence No.: 9 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 7:23:01**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20397.1	20397.1	97.2	%			07:23:29
1	Al 396.153Radial†	-154.1	15.3	4.5061	µg/L	4.5061	ppb	07:23:29
1	Ca 317.933Radial†	96.4	3.3	1.5727	µg/L	1.5727	ppb	07:23:49
1	Fe 238.204 Radial†	32.5	1.0	0.5449	µg/L	0.5449	ppb	07:23:49
1	K 766.490 Radial†	683.9	14.1	6.6822	µg/L	6.6822	ppb	07:23:29
1	Mg 279.077 IEC†	8.0	-1.6	-8.6481	µg/L	-8.6481	ppb	07:23:49
1	Na 589.592 Radial†	-59.0	-15.3	-31.837	µg/L	-31.837	ppb	07:23:29
1	Sr 421.552†	-584.9	10.4	0.0508	µg/L	0.0508	ppb	07:23:29
1	Sc 361.383	693600.6	693600.6	97.334	%			07:24:46
1	Y 371.029	602171.8	602171.8	97.262	%			07:24:46
1	Ag 328.068†	-357.0	12.4	0.0750	µg/L	0.0750	ppb	07:24:51
1	As 188.979†	-17.1	-8.8	-4.9436	µg/L	-4.9436	ppb	07:25:11
1	B 249.677†	142.6	49.5	1.4067	µg/L	1.4067	ppb	07:25:11
1	Ba 233.527†	-154.7	11.9	0.1104	µg/L	0.1104	ppb	07:25:11
1	Be 313.107†	-7592.5	193.9	0.1138	µg/L	0.1138	ppb	07:24:51
1	Cd 226.502†	-208.0	11.5	0.1708	µg/L	0.1708	ppb	07:25:11
1	Co 228.616†	-12.3	8.1	0.2002	µg/L	0.2002	ppb	07:25:11
1	Cr 267.716†	187.0	-1.5	-0.0382	µg/L	-0.0382	ppb	07:25:11
1	Cu 324.752†	6374.5	65.9	0.2651	µg/L	0.2651	ppb	07:24:51
1	Mn 257.610†	469.5	-22.2	-0.0314	µg/L	-0.0314	ppb	07:25:11
1	Mo 202.031†	43.2	22.3	1.5185	µg/L	1.5185	ppb	07:25:11
1	Ni 231.604†	-153.1	-28.7	-0.8340	µg/L	-0.8340	ppb	07:25:11
1	P 214.914†	111.4	-10.4	-7.8187	µg/L	-7.8187	ppb	07:25:11
1	Pb 220.353†	157.4	10.9	1.6440	µg/L	1.6440	ppb	07:25:11
1	S 181.975 Axial†	52.4	-7.8	-13.513	µg/L	-13.513	ppb	07:25:11
1	Sb 206.836†	78.0	14.4	4.6668	µg/L	4.6668	ppb	07:25:11
1	Se 196.026†	-5.1	0.0	0.0405	µg/L	0.0405	ppb	07:25:11
1	SiO2†	2843.1	-29.3	-3.5516	µg/L	-3.5516	ppb	07:24:51
1	Si 251.611†	192.6	15.9	0.7219	µg/L	0.7219	ppb	07:25:11
1	Sn 189.927†	34.3	8.5	1.8557	µg/L	1.8557	ppb	07:25:11
1	Ti 334.940†	-25.1	-18.5	-0.0498	µg/L	-0.0498	ppb	07:24:51
1	Tl 190.801†	-38.8	8.6	2.9462	µg/L	2.9462	ppb	07:25:11
1	U 367.007†	316.8	31.1	7.616	µg/L	7.616	ppb	07:24:51
1	V 292.402†	-118.1	-61.2	-0.5771	µg/L	-0.5771	ppb	07:24:51
1	Zn 213.857†	1256.0	89.1	0.8263	µg/L	0.8263	ppb	07:25:11
2	Sc RADIAL	20150.8	20150.8	96.0	%			07:23:54
2	Al 396.153Radial†	-140.5	27.6	8.1480	µg/L	8.1480	ppb	07:23:54
2	Ca 317.933Radial†	96.0	4.2	1.9744	µg/L	1.9744	ppb	07:24:14
2	Fe 238.204 Radial†	31.6	0.4	0.2292	µg/L	0.2292	ppb	07:24:14
2	K 766.490 Radial†	661.6	-0.5	-0.2160	µg/L	-0.2160	ppb	07:23:54
2	Mg 279.077 IEC†	4.9	-4.8	-25.285	µg/L	-25.285	ppb	07:24:14
2	Na 589.592 Radial†	-75.3	-33.0	-68.683	µg/L	-68.683	ppb	07:23:54
2	Sr 421.552†	-578.5	9.7	0.0473	µg/L	0.0473	ppb	07:23:54
2	Sc 361.383	687947.7	687947.7	96.541	%			07:25:16
2	Y 371.029	597653.8	597653.8	96.532	%			07:25:16
2	Ag 328.068†	-275.6	93.6	0.5911	µg/L	0.5911	ppb	07:25:21
2	As 188.979†	-9.2	-0.7	-0.4241	µg/L	-0.4241	ppb	07:25:41
2	B 249.677†	163.1	72.0	2.0461	µg/L	2.0461	ppb	07:25:41
2	Ba 233.527†	-151.4	14.0	0.1295	µg/L	0.1295	ppb	07:25:41
2	Be 313.107†	-7638.9	81.8	0.0496	µg/L	0.0496	ppb	07:25:21
2	Cd 226.502†	-212.4	5.2	0.0778	µg/L	0.0778	ppb	07:25:41
2	Co 228.616†	-19.0	1.2	0.0307	µg/L	0.0307	ppb	07:25:41
2	Cr 267.716†	198.8	12.3	0.2297	µg/L	0.2297	ppb	07:25:41
2	Cu 324.752†	6319.2	62.3	0.2477	µg/L	0.2477	ppb	07:25:21
2	Mn 257.610†	483.5	-3.8	-0.0047	µg/L	-0.0047	ppb	07:25:41
2	Mo 202.031†	50.0	29.7	2.0273	µg/L	2.0273	ppb	07:25:41
2	Ni 231.604†	-135.2	-11.3	-0.3297	µg/L	-0.3297	ppb	07:25:41
2	P 214.914†	111.2	-9.7	-7.2745	µg/L	-7.2745	ppb	07:25:41
2	Pb 220.353†	158.5	13.4	2.0188	µg/L	2.0188	ppb	07:25:41

2	S 181.975 Axial†	55.6	-4.1	-7.0862 µg/L	-7.0862 ppb	07:25:41
2	Sb 206.836†	74.9	11.9	3.8633 µg/L	3.8633 ppb	07:25:41
2	Se 196.026†	-3.9	1.3	0.9550 µg/L	0.9550 ppb	07:25:41
2	SiO2†	2925.7	80.3	10.163 µg/L	10.163 ppb	07:25:21
2	Si 251.611†	188.8	13.5	0.6081 µg/L	0.6081 ppb	07:25:41
2	Sn 189.927†	28.7	2.9	0.6337 µg/L	0.6337 ppb	07:25:41
2	Ti 334.940†	19.0	26.9	0.0629 µg/L	0.0629 ppb	07:25:21
2	Tl 190.801†	-45.8	1.0	0.3551 µg/L	0.3551 ppb	07:25:41
2	U 367.007†	326.7	44.0	10.80 µg/L	10.80 ppb	07:25:21
2	V 292.402†	-107.1	-50.8	-0.4660 µg/L	-0.4660 ppb	07:25:21
2	Zn 213.857†	1235.8	78.8	0.7279 µg/L	0.7279 ppb	07:25:41
3	Sc RADIAL	20082.5	20082.5	95.7 %		07:24:19
3	Al 396.153Radial†	-180.1	-14.4	-4.3320 µg/L	-4.3320 ppb	07:24:19
3	Ca 317.933Radial†	96.9	5.4	2.5673 µg/L	2.5673 ppb	07:24:39
3	Fe 238.204 Radial†	33.3	2.4	1.2942 µg/L	1.2942 ppb	07:24:39
3	K 766.490 Radial†	689.3	30.8	14.581 µg/L	14.581 ppb	07:24:19
3	Mg 279.077 IEC†	4.3	-5.4	-28.425 µg/L	-28.425 ppb	07:24:39
3	Na 589.592 Radial†	-69.8	-27.6	-57.376 µg/L	-57.376 ppb	07:24:19
3	Sr 421.552†	-559.4	27.7	0.1350 µg/L	0.1350 ppb	07:24:19
3	Sc 361.383	686231.8	686231.8	96.300 %		07:25:46
3	Y 371.029	595442.3	595442.3	96.175 %		07:25:46
3	Ag 328.068†	-339.6	26.5	0.1700 µg/L	0.1700 ppb	07:25:51
3	As 188.979†	-8.3	0.2	0.0832 µg/L	0.0832 ppb	07:26:11
3	B 249.677†	145.3	53.8	1.5295 µg/L	1.5295 ppb	07:26:11
3	Ba 233.527†	-147.7	17.5	0.1633 µg/L	0.1633 ppb	07:26:11
3	Be 313.107†	-7675.2	24.3	0.0164 µg/L	0.0164 ppb	07:25:51
3	Cd 226.502†	-188.8	29.2	0.4338 µg/L	0.4338 ppb	07:26:11
3	Co 228.616†	-6.8	13.8	0.3369 µg/L	0.3369 ppb	07:26:11
3	Cr 267.716†	200.5	14.6	0.2748 µg/L	0.2748 ppb	07:26:11
3	Cu 324.752†	6323.5	83.2	0.3340 µg/L	0.3340 ppb	07:25:51
3	Mn 257.610†	473.2	-13.2	-0.0179 µg/L	-0.0179 ppb	07:26:11
3	Mo 202.031†	40.5	20.0	1.3649 µg/L	1.3649 ppb	07:26:11
3	Ni 231.604†	-155.9	-33.2	-0.9654 µg/L	-0.9654 ppb	07:26:11
3	P 214.914†	111.5	-9.0	-6.7798 µg/L	-6.7798 ppb	07:26:11
3	Pb 220.353†	144.7	-0.6	-0.0879 µg/L	-0.0879 ppb	07:26:11
3	S 181.975 Axial†	61.3	2.0	3.4820 µg/L	3.4820 ppb	07:26:11
3	Sb 206.836†	74.5	11.6	3.7719 µg/L	3.7719 ppb	07:26:11
3	Se 196.026†	0.3	5.6	4.1602 µg/L	4.1602 ppb	07:26:11
3	SiO2†	2880.4	40.8	5.2477 µg/L	5.2477 ppb	07:25:51
3	Si 251.611†	172.5	-2.9	-0.1533 µg/L	-0.1533 ppb	07:26:11
3	Sn 189.927†	26.3	0.6	0.1226 µg/L	0.1226 ppb	07:26:11
3	Ti 334.940†	-4.5	2.6	0.0016 µg/L	0.0016 ppb	07:25:51
3	Tl 190.801†	-35.7	11.3	3.8765 µg/L	3.8765 ppb	07:26:11
3	U 367.007†	327.8	45.9	11.27 µg/L	11.27 ppb	07:25:51
3	V 292.402†	-34.9	23.9	0.2602 µg/L	0.2602 ppb	07:25:51
3	Zn 213.857†	1225.6	71.4	0.6640 µg/L	0.6640 ppb	07:26:11

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	689260.0	96.725	%	0.5411				0.56%
Sc RADIAL	20210.1	96.3	%	0.79				0.82%
Y 371.029	598422.6	96.656	%	0.5540				0.57%
Ag 328.068†	44.2	0.2787	µg/L	0.27468	0.2787	ppb	0.27468	98.57%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	9.5	2.7740	µg/L	6.41777	2.7740	ppb	6.41777	231.35%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-3.1	-1.7615	µg/L	2.76745	-1.7615	ppb	2.76745	157.11%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	58.4	1.6608	µg/L	0.33933	1.6608	ppb	0.33933	20.43%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	14.5	0.1344	µg/L	0.02680	0.1344	ppb	0.02680	19.95%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	100.0	0.0599	µg/L	0.04953	0.0599	ppb	0.04953	82.65%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	4.3	2.0381	µg/L	0.50034	2.0381	ppb	0.50034	24.55%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	15.3	0.2275	µg/L	0.18463	0.2275	ppb	0.18463	81.17%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	7.7	0.1893	µg/L	0.15343	0.1893	ppb	0.15343	81.07%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†                8.5      0.1554 µg/L       0.16921      0.1554 ppb        0.16921 108.88%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†               70.5      0.2822 µg/L       0.04563      0.2822 ppb        0.04563  16.17%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         1.3      0.6894 µg/L       0.54700      0.6894 ppb        0.54700  79.34%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         14.8      7.0158 µg/L       7.40417      7.0158 ppb        7.40417 105.54%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           -3.9     -20.786 µg/L       10.6282     -20.786 ppb        10.6282  51.13%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -13.1      -0.0180 µg/L       0.01336     -0.0180 ppb        0.01336  74.31%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               24.0      1.6369 µg/L       0.34669      1.6369 ppb        0.34669  21.18%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -25.3     -52.632 µg/L       18.8753     -52.632 ppb        18.8753  35.86%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -24.4      -0.7097 µg/L       0.33560     -0.7097 ppb        0.33560  47.29%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -9.7      -7.2910 µg/L       0.51963     -7.2910 ppb        0.51963   7.13%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                7.9      1.1916 µg/L       1.12382      1.1916 ppb        1.12382  94.31%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -3.3      -5.7059 µg/L       8.58137     -5.7059 ppb        8.58137 150.40%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               12.6      4.1007 µg/L       0.49242      4.1007 ppb        0.49242  12.01%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                2.3      1.7186 µg/L       2.16338      1.7186 ppb        2.16338 125.88%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                     30.6      3.9531 µg/L       6.94846      3.9531 ppb        6.94846 175.77%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†                8.8      0.3922 µg/L       0.47588      0.3922 ppb        0.47588 121.33%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                4.0      0.8707 µg/L       0.89053      0.8707 ppb        0.89053 102.28%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               15.9      0.0777 µg/L       0.04967      0.0777 ppb        0.04967  63.92%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†                3.7      0.0049 µg/L       0.05639      0.0049 ppb        0.05639 >999.9%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                7.0      2.3926 µg/L       1.82479      2.3926 ppb        1.82479  76.27%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                40.3       9.893 µg/L        1.9861       9.893 ppb         1.9861  20.08%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -29.3     -0.2609 µg/L       0.45475     -0.2609 ppb        0.45475 174.27%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†               79.8      0.7394 µg/L       0.08177      0.7394 ppb        0.08177  11.06%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 20 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 7:59:05**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20101.3	20101.3	95.8	%			07:59:35
1	Al 396.153Radial†	16309.1	17195.8	5106.6	µg/L	5106.6	ppb	07:59:35
1	Ca 317.933Radial†	10365.8	10723.0	5085.0	µg/L	5085.0	ppb	07:59:55
1	Fe 238.204 Radial†	9190.6	9559.8	5219.0	µg/L	5219.0	ppb	07:59:55
1	K 766.490 Radial†	11159.9	10958.4	5181.8	µg/L	5181.8	ppb	07:59:35
1	Mg 279.077 IEC†	971.5	1004.1	5319.5	µg/L	5319.5	ppb	07:59:55
1	Na 589.592 Radial†	4639.6	4887.8	10174	µg/L	10174	ppb	07:59:55
1	Sr 421.552†	99348.4	104302.7	509.33	µg/L	509.33	ppb	07:59:35
1	Sc 361.383	687968.0	687968.0	96.544	%			08:00:52
1	Y 371.029	593203.7	593203.7	95.813	%			08:00:52
1	Ag 328.068†	78612.9	81806.4	523.44	µg/L	523.44	ppb	08:00:57
1	As 188.979†	877.5	917.7	515.41	µg/L	515.41	ppb	08:01:17
1	B 249.677†	17357.0	17881.4	506.66	µg/L	506.66	ppb	08:00:57
1	Ba 233.527†	52961.0	55027.8	513.65	µg/L	513.65	ppb	08:00:57
1	Be 313.107†	858371.5	897095.2	519.48	µg/L	519.48	ppb	08:00:52
1	Cd 226.502†	33385.7	34806.2	516.83	µg/L	516.83	ppb	08:00:57
1	Co 228.616†	20631.0	21390.4	519.38	µg/L	519.38	ppb	08:00:57
1	Cr 267.716†	25466.3	26184.3	512.00	µg/L	512.00	ppb	08:00:57
1	Cu 324.752†	126016.7	124044.8	512.22	µg/L	512.22	ppb	08:00:57
1	Mn 257.610†	344169.0	355985.5	508.22	µg/L	508.22	ppb	08:00:57
1	Mo 202.031†	7333.6	7574.1	516.62	µg/L	516.62	ppb	08:01:17
1	Ni 231.604†	17294.7	18042.5	524.75	µg/L	524.75	ppb	08:00:57
1	P 214.914†	3440.7	3439.1	2560.3	µg/L	2560.3	ppb	08:01:17
1	Pb 220.353†	3444.4	3416.9	517.72	µg/L	517.72	ppb	08:01:17
1	S 181.975 Axial†	640.1	601.3	1045.4	µg/L	1045.4	ppb	08:01:17
1	Sb 206.836†	1614.6	1606.7	514.22	µg/L	514.22	ppb	08:01:17
1	Se 196.026†	677.5	707.1	528.49	µg/L	528.49	ppb	08:01:17
1	SiO2†	45815.8	44505.7	5578.1	µg/L	5578.1	ppb	08:00:57
1	Si 251.611†	53402.3	55132.0	2589.9	µg/L	2589.9	ppb	08:00:57
1	Sn 189.927†	2309.4	2365.3	518.93	µg/L	518.93	ppb	08:01:17
1	Ti 334.940†	196927.7	203984.9	511.22	µg/L	511.22	ppb	08:00:57
1	Tl 190.801†	1399.8	1498.4	514.95	µg/L	514.95	ppb	08:01:17
1	U 367.007†	2322.4	2111.1	493.5	µg/L	493.5	ppb	08:00:57
1	V 292.402†	50256.3	52115.6	518.56	µg/L	518.56	ppb	08:00:57
1	Zn 213.857†	55698.3	56491.0	516.08	µg/L	516.08	ppb	08:00:57
2	Sc RADIAL	20090.9	20090.9	95.8	%			08:00:00
2	Al 396.153Radial†	16350.4	17247.7	5121.9	µg/L	5121.9	ppb	08:00:00
2	Ca 317.933Radial†	10353.5	10715.7	5081.5	µg/L	5081.5	ppb	08:00:20
2	Fe 238.204 Radial†	9139.7	9511.6	5192.8	µg/L	5192.8	ppb	08:00:20
2	K 766.490 Radial†	11183.7	10989.2	5196.3	µg/L	5196.3	ppb	08:00:00
2	Mg 279.077 IEC†	972.3	1005.5	5326.8	µg/L	5326.8	ppb	08:00:20
2	Na 589.592 Radial†	4566.0	4813.5	10020	µg/L	10020	ppb	08:00:20
2	Sr 421.552†	99495.0	104509.4	510.34	µg/L	510.34	ppb	08:00:00
2	Sc 361.383	677584.0	677584.0	95.087	%			08:01:23
2	Y 371.029	583609.9	583609.9	94.264	%			08:01:23
2	Ag 328.068†	78304.1	82729.4	529.33	µg/L	529.33	ppb	08:01:28
2	As 188.979†	865.1	918.6	515.94	µg/L	515.94	ppb	08:01:48
2	B 249.677†	17327.7	18126.1	513.61	µg/L	513.61	ppb	08:01:28
2	Ba 233.527†	52895.7	55799.8	520.86	µg/L	520.86	ppb	08:01:28
2	Be 313.107†	844900.6	896553.7	519.17	µg/L	519.17	ppb	08:01:23
2	Cd 226.502†	33250.9	35194.4	522.61	µg/L	522.61	ppb	08:01:28
2	Co 228.616†	20619.2	21705.5	527.02	µg/L	527.02	ppb	08:01:28
2	Cr 267.716†	25432.3	26552.9	519.21	µg/L	519.21	ppb	08:01:28
2	Cu 324.752†	125804.2	125821.7	519.55	µg/L	519.55	ppb	08:01:28
2	Mn 257.610†	343654.1	360907.2	515.24	µg/L	515.24	ppb	08:01:28
2	Mo 202.031†	7273.3	7627.1	520.23	µg/L	520.23	ppb	08:01:48
2	Ni 231.604†	17241.4	18261.1	531.10	µg/L	531.10	ppb	08:01:28
2	P 214.914†	3407.0	3458.2	2574.4	µg/L	2574.4	ppb	08:01:48
2	Pb 220.353†	3418.1	3443.9	521.81	µg/L	521.81	ppb	08:01:48

2	S 181.975 Axial†	635.7	606.9	1055.1 µg/L	1055.1 ppb	08:01:48
2	Sb 206.836†	1594.2	1610.9	515.47 µg/L	515.47 ppb	08:01:48
2	Se 196.026†	674.7	714.9	534.29 µg/L	534.29 ppb	08:01:48
2	SiO2†	45863.5	45283.1	5675.2 µg/L	5675.2 ppb	08:01:28
2	Si 251.611†	53250.7	55820.2	2622.3 µg/L	2622.3 ppb	08:01:28
2	Sn 189.927†	2304.0	2396.3	525.73 µg/L	525.73 ppb	08:01:48
2	Ti 334.940†	196758.2	206932.6	518.61 µg/L	518.61 ppb	08:01:28
2	Tl 190.801†	1403.2	1524.1	523.78 µg/L	523.78 ppb	08:01:48
2	U 367.007†	2272.7	2095.7	489.8 µg/L	489.8 ppb	08:01:28
2	V 292.402†	49996.1	52639.8	523.75 µg/L	523.75 ppb	08:01:28
2	Zn 213.857†	55549.0	57218.1	522.74 µg/L	522.74 ppb	08:01:28
3	Sc RADIAL	19914.0	19914.0	94.9 %		08:00:25
3	Al 396.153Radial†	16194.1	17234.6	5117.9 µg/L	5117.9 ppb	08:00:25
3	Ca 317.933Radial†	10412.1	10873.6	5156.4 µg/L	5156.4 ppb	08:00:45
3	Fe 238.204 Radial†	9197.1	9656.9	5272.0 µg/L	5272.0 ppb	08:00:45
3	K 766.490 Radial†	10994.0	10893.1	5150.8 µg/L	5150.8 ppb	08:00:25
3	Mg 279.077 IEC†	969.8	1011.9	5360.6 µg/L	5360.6 ppb	08:00:45
3	Na 589.592 Radial†	4560.1	4849.6	10095 µg/L	10095 ppb	08:00:45
3	Sr 421.552†	98258.0	104128.9	508.48 µg/L	508.48 ppb	08:00:25
3	Sc 361.383	675611.0	675611.0	94.810 %		08:01:54
3	Y 371.029	582750.7	582750.7	94.125 %		08:01:54
3	Ag 328.068†	78955.2	83656.6	535.26 µg/L	535.26 ppb	08:01:59
3	As 188.979†	870.7	927.1	520.75 µg/L	520.75 ppb	08:02:19
3	B 249.677†	17480.9	18340.9	519.70 µg/L	519.70 ppb	08:01:59
3	Ba 233.527†	53092.6	56169.9	524.31 µg/L	524.31 ppb	08:01:59
3	Be 313.107†	847775.3	902180.7	522.42 µg/L	522.42 ppb	08:01:54
3	Cd 226.502†	33616.4	35682.0	529.85 µg/L	529.85 ppb	08:01:59
3	Co 228.616†	20650.3	21801.6	529.35 µg/L	529.35 ppb	08:01:59
3	Cr 267.716†	25622.3	26831.3	524.66 µg/L	524.66 ppb	08:01:59
3	Cu 324.752†	126638.4	127087.9	524.79 µg/L	524.79 ppb	08:01:59
3	Mn 257.610†	345214.4	363608.3	519.10 µg/L	519.10 ppb	08:01:59
3	Mo 202.031†	7287.5	7664.4	522.78 µg/L	522.78 ppb	08:02:19
3	Ni 231.604†	17388.1	18468.6	537.14 µg/L	537.14 ppb	08:01:59
3	P 214.914†	3422.0	3484.5	2593.9 µg/L	2593.9 ppb	08:02:19
3	Pb 220.353†	3439.0	3476.4	526.75 µg/L	526.75 ppb	08:02:19
3	S 181.975 Axial†	637.7	611.0	1062.2 µg/L	1062.2 ppb	08:02:19
3	Sb 206.836†	1601.2	1623.2	519.34 µg/L	519.34 ppb	08:02:19
3	Se 196.026†	673.3	715.4	534.70 µg/L	534.70 ppb	08:02:19
3	SiO2†	46085.1	45657.7	5722.2 µg/L	5722.2 ppb	08:01:59
3	Si 251.611†	53641.8	56396.3	2649.4 µg/L	2649.4 ppb	08:01:59
3	Sn 189.927†	2296.0	2394.9	525.45 µg/L	525.45 ppb	08:02:19
3	Ti 334.940†	197978.6	208824.1	523.35 µg/L	523.35 ppb	08:01:59
3	Tl 190.801†	1386.9	1511.2	519.39 µg/L	519.39 ppb	08:02:19
3	U 367.007†	2264.5	2094.0	489.1 µg/L	489.1 ppb	08:01:59
3	V 292.402†	50371.5	53189.3	529.19 µg/L	529.19 ppb	08:01:59
3	Zn 213.857†	55969.2	57831.9	528.34 µg/L	528.34 ppb	08:01:59

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	680387.7	95.480	%	0.9316				0.98%
Sc RADIAL	20035.4	95.5	%	0.50				0.53%
Y 371.029	586521.4	94.734	%	0.9373				0.99%
Ag 328.068†	82730.8	529.34	µg/L	5.908	529.34	ppb	5.908	1.12%
QC value within limits for Ag 328.068 Recovery = 105.87%								
Al 396.153Radial†	17226.0	5115.5	µg/L	7.96	5115.5	ppb	7.96	0.16%
QC value within limits for Al 396.153Radial Recovery = 102.31%								
As 188.979†	921.1	517.37	µg/L	2.944	517.37	ppb	2.944	0.57%
QC value within limits for As 188.979 Recovery = 103.47%								
B 249.677†	18116.1	513.32	µg/L	6.526	513.32	ppb	6.526	1.27%
QC value within limits for B 249.677 Recovery = 102.66%								
Ba 233.527†	55665.9	519.61	µg/L	5.440	519.61	ppb	5.440	1.05%
QC value within limits for Ba 233.527 Recovery = 103.92%								
Be 313.107†	898609.9	520.36	µg/L	1.797	520.36	ppb	1.797	0.35%
QC value within limits for Be 313.107 Recovery = 104.07%								
Ca 317.933Radial†	10770.8	5107.6	µg/L	42.25	5107.6	ppb	42.25	0.83%
QC value within limits for Ca 317.933Radial Recovery = 102.15%								
Cd 226.502†	35227.5	523.10	µg/L	6.522	523.10	ppb	6.522	1.25%
QC value within limits for Cd 226.502 Recovery = 104.62%								
Co 228.616†	21632.5	525.25	µg/L	5.218	525.25	ppb	5.218	0.99%

QC value within limits for Co 228.616 Recovery = 105.05%

Cr 267.716†	26522.8	518.63 µg/L	6.353	518.63 ppb	6.353	1.22%

QC value within limits for Cr 267.716 Recovery = 103.73%

Cu 324.752†	125651.5	518.85 µg/L	6.312	518.85 ppb	6.312	1.22%

QC value within limits for Cu 324.752 Recovery = 103.77%

Fe 238.204 Radial†	9576.1	5227.9 µg/L	40.37	5227.9 ppb	40.37	0.77%

QC value within limits for Fe 238.204 Radial Recovery = 104.56%

K 766.490 Radial†	10946.9	5176.3 µg/L	23.26	5176.3 ppb	23.26	0.45%

QC value within limits for K 766.490 Radial Recovery = 103.53%

Mg 279.077 IEC†	1007.1	5335.6 µg/L	21.91	5335.6 ppb	21.91	0.41%

QC value within limits for Mg 279.077 IEC Recovery = 106.71%

Mn 257.610†	360167.0	514.19 µg/L	5.516	514.19 ppb	5.516	1.07%

QC value within limits for Mn 257.610 Recovery = 102.84%

Mo 202.031†	7621.9	519.88 µg/L	3.096	519.88 ppb	3.096	0.60%

QC value within limits for Mo 202.031 Recovery = 103.98%

Na 589.592 Radial†	4850.3	10096 µg/L	77.4	10096 ppb	77.4	0.77%

QC value within limits for Na 589.592 Radial Recovery = 100.96%

Ni 231.604†	18257.4	531.00 µg/L	6.198	531.00 ppb	6.198	1.17%

QC value within limits for Ni 231.604 Recovery = 106.20%

P 214.914†	3460.6	2576.2 µg/L	16.91	2576.2 ppb	16.91	0.66%

QC value within limits for P 214.914 Recovery = 103.05%

Pb 220.353†	3445.7	522.09 µg/L	4.526	522.09 ppb	4.526	0.87%

QC value within limits for Pb 220.353 Recovery = 104.42%

S 181.975 Axial†	606.4	1054.2 µg/L	8.44	1054.2 ppb	8.44	0.80%

QC value within limits for S 181.975 Axial Recovery = 105.42%

Sb 206.836†	1613.6	516.35 µg/L	2.668	516.35 ppb	2.668	0.52%

QC value within limits for Sb 206.836 Recovery = 103.27%

Se 196.026†	712.5	532.49 µg/L	3.476	532.49 ppb	3.476	0.65%

QC value within limits for Se 196.026 Recovery = 106.50%

SiO2†	45148.8	5658.5 µg/L	73.48	5658.5 ppb	73.48	1.30%

QC value within limits for SiO2 Recovery = 105.82%

Si 251.611†	55782.9	2620.5 µg/L	29.78	2620.5 ppb	29.78	1.14%

QC value within limits for Si 251.611 Recovery = 104.82%

Sn 189.927†	2385.5	523.37 µg/L	3.846	523.37 ppb	3.846	0.73%

QC value within limits for Sn 189.927 Recovery = 104.67%

Sr 421.552†	104313.7	509.39 µg/L	0.930	509.39 ppb	0.930	0.18%

QC value within limits for Sr 421.552 Recovery = 101.88%

Ti 334.940†	206580.5	517.73 µg/L	6.115	517.73 ppb	6.115	1.18%

QC value within limits for Ti 334.940 Recovery = 103.55%

Tl 190.801†	1511.2	519.38 µg/L	4.416	519.38 ppb	4.416	0.85%

QC value within limits for Tl 190.801 Recovery = 103.88%

U 367.007†	2100.3	490.8 µg/L	2.37	490.8 ppb	2.37	0.48%

QC value within limits for U 367.007 Recovery = 98.16%

V 292.402†	52648.2	523.83 µg/L	5.313	523.83 ppb	5.313	1.01%

QC value within limits for V 292.402 Recovery = 104.77%

Zn 213.857†	57180.3	522.39 µg/L	6.138	522.39 ppb	6.138	1.17%

QC value within limits for Zn 213.857 Recovery = 104.48%

All analyte(s) passed QC.

Sequence No.: 21 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/15/2012 8:02:27**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19855.4	19855.4	94.6	%			08:02:57
1	Al 396.153Radial†	510.0	712.7	211.97	µg/L	211.97	ppb	08:02:57
1	Ca 317.933Radial†	538.3	472.9	224.26	µg/L	224.26	ppb	08:03:17
1	Fe 238.204 Radial†	226.8	207.2	113.06	µg/L	113.06	ppb	08:03:17
1	K 766.490 Radial†	1037.1	406.5	192.37	µg/L	192.37	ppb	08:02:57
1	Mg 279.077 IEC†	71.5	65.7	348.15	µg/L	348.15	ppb	08:03:17
1	Na 589.592 Radial†	48.3	96.4	200.67	µg/L	200.67	ppb	08:02:57
1	Sr 421.552†	442.2	1079.3	5.2695	µg/L	5.2695	ppb	08:02:57
1	Sc 361.383	666248.6	666248.6	93.496	%			08:04:13
1	Y 371.029	577711.8	577711.8	93.311	%			08:04:13
1	Ag 328.068†	528.0	943.8	6.0492	µg/L	6.0492	ppb	08:04:13
1	As 188.979†	51.2	63.5	35.658	µg/L	35.658	ppb	08:04:33
1	B 249.677†	1912.3	1948.4	55.356	µg/L	55.356	ppb	08:04:13
1	Ba 233.527†	399.8	598.5	5.5844	µg/L	5.5844	ppb	08:04:33
1	Be 313.107†	1137.7	9211.2	5.3486	µg/L	5.3486	ppb	08:04:13
1	Cd 226.502†	138.0	372.9	5.5274	µg/L	5.5274	ppb	08:04:33
1	Co 228.616†	189.6	223.6	5.4401	µg/L	5.4401	ppb	08:04:33
1	Cr 267.716†	455.7	293.8	5.6838	µg/L	5.6838	ppb	08:04:33
1	Cu 324.752†	8847.0	2979.2	12.236	µg/L	12.236	ppb	08:04:13
1	Mn 257.610†	7692.4	7722.9	11.018	µg/L	11.018	ppb	08:04:13
1	Mo 202.031†	193.2	184.6	12.589	µg/L	12.589	ppb	08:04:33
1	Ni 231.604†	55.4	188.0	5.4677	µg/L	5.4677	ppb	08:04:33
1	P 214.914†	317.3	214.6	160.47	µg/L	160.47	ppb	08:04:33
1	Pb 220.353†	219.0	83.3	12.559	µg/L	12.559	ppb	08:04:33
1	S 181.975 Axial†	116.3	62.8	109.05	µg/L	109.05	ppb	08:04:33
1	Sb 206.836†	107.3	49.1	15.905	µg/L	15.905	ppb	08:04:33
1	Se 196.026†	43.0	51.3	38.219	µg/L	38.219	ppb	08:04:33
1	SiO2†	4630.9	2002.8	250.64	µg/L	250.64	ppb	08:04:13
1	Si 251.611†	2276.5	2252.9	105.97	µg/L	105.97	ppb	08:04:33
1	Sn 189.927†	73.2	51.5	11.273	µg/L	11.273	ppb	08:04:33
1	Ti 334.940†	1924.3	2065.4	5.1485	µg/L	5.1485	ppb	08:04:13
1	Tl 190.801†	20.8	70.7	24.224	µg/L	24.224	ppb	08:04:33
1	U 367.007†	544.1	287.5	70.00	µg/L	70.00	ppb	08:04:13
1	V 292.402†	453.0	544.7	5.5551	µg/L	5.5551	ppb	08:04:13
1	Zn 213.857†	2356.7	1319.3	12.097	µg/L	12.097	ppb	08:04:33
2	Sc RADIAL	19810.8	19810.8	94.4	%			08:03:22
2	Al 396.153Radial†	532.9	738.1	219.58	µg/L	219.58	ppb	08:03:22
2	Ca 317.933Radial†	524.9	460.0	218.15	µg/L	218.15	ppb	08:03:42
2	Fe 238.204 Radial†	227.8	208.8	113.92	µg/L	113.92	ppb	08:03:42
2	K 766.490 Radial†	957.2	324.4	153.48	µg/L	153.48	ppb	08:03:22
2	Mg 279.077 IEC†	56.6	50.1	265.61	µg/L	265.61	ppb	08:03:42
2	Na 589.592 Radial†	99.2	150.5	313.24	µg/L	313.24	ppb	08:03:22
2	Sr 421.552†	428.3	1065.6	5.2027	µg/L	5.2027	ppb	08:03:22
2	Sc 361.383	669128.9	669128.9	93.900	%			08:04:39
2	Y 371.029	580647.0	580647.0	93.785	%			08:04:39
2	Ag 328.068†	512.4	924.8	5.9275	µg/L	5.9275	ppb	08:04:39
2	As 188.979†	40.0	51.4	28.847	µg/L	28.847	ppb	08:04:59
2	B 249.677†	1866.2	1890.5	53.708	µg/L	53.708	ppb	08:04:39
2	Ba 233.527†	394.5	590.9	5.5139	µg/L	5.5139	ppb	08:04:59
2	Be 313.107†	1090.3	9155.6	5.3160	µg/L	5.3160	ppb	08:04:39
2	Cd 226.502†	140.4	374.8	5.5563	µg/L	5.5563	ppb	08:04:59
2	Co 228.616†	215.6	250.4	6.0899	µg/L	6.0899	ppb	08:04:59
2	Cr 267.716†	480.5	318.0	6.1592	µg/L	6.1592	ppb	08:04:59
2	Cu 324.752†	8817.4	2906.9	11.941	µg/L	11.941	ppb	08:04:39
2	Mn 257.610†	7684.7	7679.3	10.959	µg/L	10.959	ppb	08:04:39
2	Mo 202.031†	190.3	180.6	12.319	µg/L	12.319	ppb	08:04:59
2	Ni 231.604†	36.1	167.1	4.8601	µg/L	4.8601	ppb	08:04:59
2	P 214.914†	319.7	215.6	161.30	µg/L	161.30	ppb	08:04:59
2	Pb 220.353†	216.4	79.6	11.988	µg/L	11.988	ppb	08:04:59

2	S 181.975 Axial†	122.1	68.4	118.77 µg/L	118.77 ppb	08:04:59
2	Sb 206.836†	109.3	50.7	16.421 µg/L	16.421 ppb	08:04:59
2	Se 196.026†	36.4	44.0	32.834 µg/L	32.834 ppb	08:04:59
2	SiO2†	4655.6	2007.8	251.27 µg/L	251.27 ppb	08:04:39
2	Si 251.611†	2266.7	2231.9	104.99 µg/L	104.99 ppb	08:04:59
2	Sn 189.927†	75.0	53.2	11.634 µg/L	11.634 ppb	08:04:59
2	Ti 334.940†	1967.3	2102.4	5.2423 µg/L	5.2423 ppb	08:04:39
2	Tl 190.801†	20.7	70.5	24.168 µg/L	24.168 ppb	08:04:59
2	U 367.007†	540.6	281.3	68.46 µg/L	68.46 ppb	08:04:39
2	V 292.402†	438.5	527.2	5.3803 µg/L	5.3803 ppb	08:04:39
2	Zn 213.857†	2341.1	1291.9	11.848 µg/L	11.848 ppb	08:04:59
3	Sc RADIAL	20052.6	20052.6	95.6 %		08:03:47
3	Al 396.153Radial†	491.5	688.1	204.65 µg/L	204.65 ppb	08:03:47
3	Ca 317.933Radial†	525.2	453.6	215.12 µg/L	215.12 ppb	08:04:07
3	Fe 238.204 Radial†	224.0	201.9	110.18 µg/L	110.18 ppb	08:04:07
3	K 766.490 Radial†	1025.4	383.5	181.49 µg/L	181.49 ppb	08:03:47
3	Mg 279.077 IEC†	65.3	58.5	309.77 µg/L	309.77 ppb	08:04:07
3	Na 589.592 Radial†	83.2	132.4	275.67 µg/L	275.67 ppb	08:03:47
3	Sr 421.552†	451.3	1084.1	5.2933 µg/L	5.2933 ppb	08:03:47
3	Sc 361.383	668636.0	668636.0	93.831 %		08:05:04
3	Y 371.029	580992.7	580992.7	93.841 %		08:05:04
3	Ag 328.068†	448.6	857.3	5.5011 µg/L	5.5011 ppb	08:05:04
3	As 188.979†	40.4	51.9	29.106 µg/L	29.106 ppb	08:05:24
3	B 249.677†	1860.0	1885.3	53.564 µg/L	53.564 ppb	08:05:04
3	Ba 233.527†	395.3	592.1	5.5252 µg/L	5.5252 ppb	08:05:24
3	Be 313.107†	1135.5	9204.6	5.3425 µg/L	5.3425 ppb	08:05:04
3	Cd 226.502†	133.1	367.1	5.4422 µg/L	5.4422 ppb	08:05:24
3	Co 228.616†	199.9	233.9	5.6899 µg/L	5.6899 ppb	08:05:24
3	Cr 267.716†	458.5	295.1	5.7203 µg/L	5.7203 ppb	08:05:24
3	Cu 324.752†	8886.1	2987.0	12.278 µg/L	12.278 ppb	08:05:04
3	Mn 257.610†	7720.1	7723.1	11.020 µg/L	11.020 ppb	08:05:04
3	Mo 202.031†	192.5	183.1	12.487 µg/L	12.487 ppb	08:05:24
3	Ni 231.604†	44.8	176.5	5.1328 µg/L	5.1328 ppb	08:05:24
3	P 214.914†	331.3	228.3	170.76 µg/L	170.76 ppb	08:05:24
3	Pb 220.353†	229.4	93.6	14.126 µg/L	14.126 ppb	08:05:24
3	S 181.975 Axial†	116.2	62.1	107.94 µg/L	107.94 ppb	08:05:24
3	Sb 206.836†	109.1	50.6	16.389 µg/L	16.389 ppb	08:05:24
3	Se 196.026†	39.3	47.2	35.165 µg/L	35.165 ppb	08:05:24
3	SiO2†	4646.3	2001.5	250.35 µg/L	250.35 ppb	08:05:04
3	Si 251.611†	2256.0	2222.3	104.53 µg/L	104.53 ppb	08:05:24
3	Sn 189.927†	75.7	53.9	11.800 µg/L	11.800 ppb	08:05:24
3	Ti 334.940†	1845.9	1974.6	4.9258 µg/L	4.9258 ppb	08:05:04
3	Tl 190.801†	19.9	69.7	23.878 µg/L	23.878 ppb	08:05:24
3	U 367.007†	503.8	242.5	58.96 µg/L	58.96 ppb	08:05:04
3	V 292.402†	480.8	572.6	5.8192 µg/L	5.8192 ppb	08:05:04
3	Zn 213.857†	2338.2	1290.6	11.835 µg/L	11.835 ppb	08:05:24

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	668004.5	93.742	%	0.2162				0.23%
Sc RADIAL	19906.3	94.9	%	0.61				0.65%
Y 371.029	579783.9	93.646	%	0.2912				0.31%
Ag 328.068†	908.6	5.8259	µg/L	0.28780	5.8259	ppb	0.28780	4.94%
QC value within limits for Ag 328.068 Recovery = 116.52%								
Al 396.153Radial†	713.0	212.07	µg/L	7.464	212.07	ppb	7.464	3.52%
QC value within limits for Al 396.153Radial Recovery = 106.03%								
As 188.979†	55.6	31.204	µg/L	3.8599	31.204	ppb	3.8599	12.37%
QC value within limits for As 188.979 Recovery = 104.01%								
B 249.677†	1908.0	54.209	µg/L	0.9957	54.209	ppb	0.9957	1.84%
QC value within limits for B 249.677 Recovery = 108.42%								
Ba 233.527†	593.8	5.5412	µg/L	0.03789	5.5412	ppb	0.03789	0.68%
QC value within limits for Ba 233.527 Recovery = 110.82%								
Be 313.107†	9190.5	5.3357	µg/L	0.01729	5.3357	ppb	0.01729	0.32%
QC value within limits for Be 313.107 Recovery = 106.71%								
Ca 317.933Radial†	462.2	219.17	µg/L	4.658	219.17	ppb	4.658	2.13%
QC value within limits for Ca 317.933Radial Recovery = 109.59%								
Cd 226.502†	371.6	5.5086	µg/L	0.05932	5.5086	ppb	0.05932	1.08%
QC value within limits for Cd 226.502 Recovery = 110.17%								
Co 228.616†	236.0	5.7400	µg/L	0.32775	5.7400	ppb	0.32775	5.71%

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   QC value within limits for Co 228.616  Recovery = 114.80%
Cr 267.716†              302.3      5.8544 µg/L       0.26458      5.8544 ppb        0.26458   4.52%
   QC value within limits for Cr 267.716  Recovery = 117.09%
Cu 324.752†             2957.7      12.152 µg/L        0.1835      12.152 ppb         0.1835   1.51%
   QC value within limits for Cu 324.752  Recovery = 121.52%
Fe 238.204 Radial†       206.0      112.39 µg/L         1.958      112.39 ppb          1.958   1.74%
   QC value within limits for Fe 238.204 Radial  Recovery = 112.39%
K 766.490 Radial†        371.5      175.78 µg/L        20.065      175.78 ppb         20.065  11.42%
   QC value within limits for K 766.490 Radial  Recovery = 117.19%
Mg 279.077 IEC†           58.1      307.84 µg/L        41.303      307.84 ppb         41.303  13.42%
   QC value within limits for Mg 279.077 IEC  Recovery = 102.61%
Mn 257.610†             7708.4      10.999 µg/L        0.0348      10.999 ppb         0.0348   0.32%
   QC value within limits for Mn 257.610  Recovery = 109.99%
Mo 202.031†              182.8      12.465 µg/L        0.1364      12.465 ppb         0.1364   1.09%
   QC value within limits for Mo 202.031  Recovery = 124.65%
Na 589.592 Radial†       126.4      263.19 µg/L        57.312      263.19 ppb         57.312  21.78%
   QC value within limits for Na 589.592 Radial  Recovery = 87.73%
Ni 231.604†              177.2      5.1535 µg/L       0.30434      5.1535 ppb        0.30434   5.91%
   QC value within limits for Ni 231.604  Recovery = 103.07%
P 214.914†               219.5      164.18 µg/L         5.717      164.18 ppb          5.717   3.48%
   QC value within limits for P 214.914  Recovery = 109.45%
Pb 220.353†               85.5      12.891 µg/L        1.1070      12.891 ppb         1.1070   8.59%
   QC value within limits for Pb 220.353  Recovery = 128.91%
S 181.975 Axial†          64.4      111.92 µg/L         5.960      111.92 ppb          5.960   5.33%
   QC value within limits for S 181.975 Axial  Recovery = 111.92%
Sb 206.836†               50.1      16.238 µg/L        0.2895      16.238 ppb         0.2895   1.78%
   QC value greater than the upper limit for Sb 206.836  Recovery = 162.38%
Se 196.026†               47.5      35.406 µg/L        2.7009      35.406 ppb         2.7009   7.63%
   QC value within limits for Se 196.026  Recovery = 118.02%
SiO2†                   2004.0      250.75 µg/L         0.470      250.75 ppb          0.470   0.19%
   QC value within limits for SiO2  Recovery = 117.72%
Si 251.611†             2235.7      105.17 µg/L         0.736      105.17 ppb          0.736   0.70%
   QC value within limits for Si 251.611  Recovery = 105.17%
Sn 189.927†               52.9      11.569 µg/L        0.2695      11.569 ppb         0.2695   2.33%
   QC value within limits for Sn 189.927  Recovery = 115.69%
Sr 421.552†             1076.3      5.2552 µg/L       0.04699      5.2552 ppb        0.04699   0.89%
   QC value within limits for Sr 421.552  Recovery = 105.10%
Ti 334.940†             2047.4      5.1055 µg/L       0.16256      5.1055 ppb        0.16256   3.18%
   QC value within limits for Ti 334.940  Recovery = 102.11%
Tl 190.801†               70.3      24.090 µg/L        0.1856      24.090 ppb         0.1856   0.77%
   QC value within limits for Tl 190.801  Recovery = 120.45%
U 367.007†               270.4       65.81 µg/L         5.979       65.81 ppb          5.979   9.08%
   QC value greater than the upper limit for U 367.007  Recovery = 131.62%
V 292.402†               548.2      5.5849 µg/L       0.22096      5.5849 ppb        0.22096   3.96%
   QC value within limits for V 292.402  Recovery = 111.70%
Zn 213.857†             1300.6      11.926 µg/L        0.1477      11.926 ppb         0.1477   1.24%
   QC value within limits for Zn 213.857  Recovery = 119.26%
QC Failed.  Continue with analysis.
```

Sequence No.: 22 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 8:05:32**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20002.6	20002.6	95.3	%			08:06:01
1	Al 396.153Radial†	-148.1	18.5	5.5033	µg/L	5.5033	ppb	08:06:01
1	Ca 317.933Radial†	91.5	0.2	0.0758	µg/L	0.0758	ppb	08:06:21
1	Fe 238.204 Radial†	34.5	3.7	2.0238	µg/L	2.0238	ppb	08:06:21
1	K 766.490 Radial†	704.6	49.7	23.526	µg/L	23.526	ppb	08:06:01
1	Mg 279.077 IEC†	1.8	-8.0	-42.348	µg/L	-42.348	ppb	08:06:21
1	Na 589.592 Radial†	-87.5	-46.4	-96.620	µg/L	-96.620	ppb	08:06:01
1	Sr 421.552†	-641.0	-60.3	-0.2945	µg/L	-0.2945	ppb	08:06:01
1	Sc 361.383	667502.1	667502.1	93.672	%			08:07:18
1	Y 371.029	578467.1	578467.1	93.433	%			08:07:18
1	Ag 328.068†	-415.5	-64.4	-0.4119	µg/L	-0.4119	ppb	08:07:23
1	As 188.979†	-8.7	-0.4	-0.2495	µg/L	-0.2495	ppb	08:07:43
1	B 249.677†	106.0	16.1	0.4591	µg/L	0.4591	ppb	08:07:43
1	Ba 233.527†	-164.0	-4.3	-0.0408	µg/L	-0.0408	ppb	08:07:43
1	Be 313.107†	-7792.7	-324.7	-0.1832	µg/L	-0.1832	ppb	08:07:23
1	Cd 226.502†	-213.6	-2.8	-0.0425	µg/L	-0.0425	ppb	08:07:43
1	Co 228.616†	-23.1	-3.8	-0.0917	µg/L	-0.0917	ppb	08:07:43
1	Cr 267.716†	197.8	17.5	0.3192	µg/L	0.3192	ppb	08:07:43
1	Cu 324.752†	6351.2	297.0	1.2035	µg/L	1.2035	ppb	08:07:23
1	Mn 257.610†	480.7	8.5	0.0137	µg/L	0.0137	ppb	08:07:43
1	Mo 202.031†	22.5	1.9	0.1310	µg/L	0.1310	ppb	08:07:43
1	Ni 231.604†	-146.2	-27.4	-0.7971	µg/L	-0.7971	ppb	08:07:43
1	P 214.914†	119.0	2.2	1.6096	µg/L	1.6096	ppb	08:07:43
1	Pb 220.353†	138.6	-2.9	-0.4560	µg/L	-0.4560	ppb	08:07:43
1	S 181.975 Axial†	55.7	-2.2	-3.8254	µg/L	-3.8254	ppb	08:07:43
1	Sb 206.836†	71.4	10.5	3.3782	µg/L	3.3782	ppb	08:07:43
1	Se 196.026†	5.2	10.9	8.0890	µg/L	8.0890	ppb	08:07:43
1	SiO2†	2884.0	128.5	16.302	µg/L	16.302	ppb	08:07:23
1	Si 251.611†	181.0	11.2	0.5242	µg/L	0.5242	ppb	08:07:43
1	Sn 189.927†	24.8	-0.3	-0.0654	µg/L	-0.0654	ppb	08:07:43
1	Ti 334.940†	-78.8	-76.8	-0.2030	µg/L	-0.2030	ppb	08:07:23
1	Tl 190.801†	-51.2	-6.3	-2.1357	µg/L	-2.1357	ppb	08:07:43
1	U 367.007†	365.1	95.3	23.38	µg/L	23.38	ppb	08:07:23
1	V 292.402†	-115.4	-63.0	-0.5966	µg/L	-0.5966	ppb	08:07:23
1	Zn 213.857†	1232.4	114.3	1.0573	µg/L	1.0573	ppb	08:07:43
2	Sc RADIAL	19639.8	19639.8	93.6	%			08:06:26
2	Al 396.153Radial†	-153.0	10.4	3.0816	µg/L	3.0816	ppb	08:06:26
2	Ca 317.933Radial†	90.4	0.8	0.3730	µg/L	0.3730	ppb	08:06:46
2	Fe 238.204 Radial†	31.3	0.9	0.5199	µg/L	0.5199	ppb	08:06:46
2	K 766.490 Radial†	654.1	9.5	4.4959	µg/L	4.4959	ppb	08:06:26
2	Mg 279.077 IEC†	3.6	-6.0	-31.774	µg/L	-31.774	ppb	08:06:46
2	Na 589.592 Radial†	-89.6	-50.4	-104.82	µg/L	-104.82	ppb	08:06:26
2	Sr 421.552†	-651.9	-84.4	-0.4122	µg/L	-0.4122	ppb	08:06:26
2	Sc 361.383	665872.4	665872.4	93.443	%			08:07:48
2	Y 371.029	577788.9	577788.9	93.323	%			08:07:48
2	Ag 328.068†	-315.6	41.4	0.2613	µg/L	0.2613	ppb	08:07:53
2	As 188.979†	-11.7	-3.7	-2.0995	µg/L	-2.0995	ppb	08:08:13
2	B 249.677†	116.2	27.3	0.7750	µg/L	0.7750	ppb	08:08:13
2	Ba 233.527†	-161.7	-2.3	-0.0214	µg/L	-0.0214	ppb	08:08:13
2	Be 313.107†	-7762.5	-312.8	-0.1788	µg/L	-0.1788	ppb	08:07:53
2	Cd 226.502†	-203.3	7.7	0.1148	µg/L	0.1148	ppb	08:08:13
2	Co 228.616†	-2.0	18.7	0.4568	µg/L	0.4568	ppb	08:08:13
2	Cr 267.716†	192.0	11.8	0.2200	µg/L	0.2200	ppb	08:08:13
2	Cu 324.752†	6347.2	309.4	1.2652	µg/L	1.2652	ppb	08:07:53
2	Mn 257.610†	483.0	12.2	0.0185	µg/L	0.0185	ppb	08:08:13
2	Mo 202.031†	29.2	9.2	0.6273	µg/L	0.6273	ppb	08:08:13
2	Ni 231.604†	-142.5	-23.8	-0.6941	µg/L	-0.6941	ppb	08:08:13
2	P 214.914†	122.6	6.4	4.7689	µg/L	4.7689	ppb	08:08:13
2	Pb 220.353†	155.5	15.6	2.3538	µg/L	2.3538	ppb	08:08:13

2	S 181.975 Axial†	58.3	0.8	1.3107 µg/L	1.3107 ppb	08:08:13
2	Sb 206.836†	70.3	9.5	3.0904 µg/L	3.0904 ppb	08:08:13
2	Se 196.026†	-5.3	-0.4	-0.2471 µg/L	-0.2471 ppb	08:08:13
2	SiO2†	2860.8	111.3	13.993 µg/L	13.993 ppb	08:07:53
2	Si 251.611†	187.5	18.6	0.8593 µg/L	0.8593 ppb	08:08:13
2	Sn 189.927†	34.3	9.9	2.1634 µg/L	2.1634 ppb	08:08:13
2	Ti 334.940†	-182.8	-188.3	-0.4770 µg/L	-0.4770 ppb	08:07:53
2	Tl 190.801†	-47.5	-2.4	-0.8026 µg/L	-0.8026 ppb	08:08:13
2	U 367.007†	316.1	43.9	10.76 µg/L	10.76 ppb	08:07:53
2	V 292.402†	-82.3	-27.8	-0.2563 µg/L	-0.2563 ppb	08:07:53
2	Zn 213.857†	1200.2	83.1	0.7693 µg/L	0.7693 ppb	08:08:13
3	Sc RADIAL	19788.4	19788.4	94.3 %		08:06:51
3	Al 396.153Radial†	-97.2	70.8	21.101 µg/L	21.101 ppb	08:06:51
3	Ca 317.933Radial†	98.0	8.1	3.8232 µg/L	3.8232 ppb	08:07:11
3	Fe 238.204 Radial†	32.5	2.1	1.1240 µg/L	1.1240 ppb	08:07:11
3	K 766.490 Radial†	642.3	-8.3	-3.9322 µg/L	-3.9322 ppb	08:06:51
3	Mg 279.077 IEC†	2.8	-7.0	-36.723 µg/L	-36.723 ppb	08:07:11
3	Na 589.592 Radial†	-84.9	-44.6	-92.791 µg/L	-92.791 ppb	08:06:51
3	Sr 421.552†	-629.6	-55.5	-0.2713 µg/L	-0.2713 ppb	08:06:51
3	Sc 361.383	666295.5	666295.5	93.502 %		08:08:18
3	Y 371.029	578200.4	578200.4	93.390 %		08:08:18
3	Ag 328.068†	-400.5	-49.2	-0.3089 µg/L	-0.3089 ppb	08:08:23
3	As 188.979†	-8.2	0.0	0.0080 µg/L	0.0080 ppb	08:08:43
3	B 249.677†	122.4	33.9	0.9625 µg/L	0.9625 ppb	08:08:43
3	Ba 233.527†	-164.7	-5.4	-0.0495 µg/L	-0.0495 ppb	08:08:43
3	Be 313.107†	-7805.3	-353.3	-0.2017 µg/L	-0.2017 ppb	08:08:23
3	Cd 226.502†	-229.9	-20.6	-0.3061 µg/L	-0.3061 ppb	08:08:43
3	Co 228.616†	-8.0	12.3	0.2982 µg/L	0.2982 ppb	08:08:43
3	Cr 267.716†	205.9	26.6	0.5061 µg/L	0.5061 ppb	08:08:43
3	Cu 324.752†	6380.3	340.4	1.3910 µg/L	1.3910 ppb	08:08:23
3	Mn 257.610†	463.6	-8.8	-0.0113 µg/L	-0.0113 ppb	08:08:43
3	Mo 202.031†	22.5	2.0	0.1335 µg/L	0.1335 ppb	08:08:43
3	Ni 231.604†	-132.2	-12.7	-0.3698 µg/L	-0.3698 ppb	08:08:43
3	P 214.914†	126.3	10.3	7.6726 µg/L	7.6726 ppb	08:08:43
3	Pb 220.353†	142.2	1.3	0.1739 µg/L	0.1739 ppb	08:08:43
3	S 181.975 Axial†	54.4	-3.5	-6.0519 µg/L	-6.0519 ppb	08:08:43
3	Sb 206.836†	69.2	8.3	2.6663 µg/L	2.6663 ppb	08:08:43
3	Se 196.026†	2.1	7.6	5.6509 µg/L	5.6509 ppb	08:08:43
3	SiO2†	2932.9	186.4	23.383 µg/L	23.383 ppb	08:08:23
3	Si 251.611†	187.6	18.6	0.8687 µg/L	0.8687 ppb	08:08:43
3	Sn 189.927†	32.2	7.7	1.6694 µg/L	1.6694 ppb	08:08:43
3	Ti 334.940†	-111.7	-112.3	-0.2873 µg/L	-0.2873 ppb	08:08:23
3	Tl 190.801†	-42.2	3.3	1.1182 µg/L	1.1182 ppb	08:08:43
3	U 367.007†	326.2	54.4	13.35 µg/L	13.35 ppb	08:08:23
3	V 292.402†	-10.8	48.6	0.4909 µg/L	0.4909 ppb	08:08:23
3	Zn 213.857†	1238.6	123.4	1.1380 µg/L	1.1380 ppb	08:08:43

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	666556.7	93.539	%	0.1187				0.13%
Sc RADIAL	19810.3	94.4	%	0.87				0.92%
Y 371.029	578152.1	93.382	%	0.0552				0.06%
Ag 328.068†	-24.1	-0.1531	µg/L	0.36262	-0.1531	ppb	0.36262	236.78%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	33.2	9.8954	µg/L	9.77978	9.8954	ppb	9.77978	98.83%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.4	-0.7803	µg/L	1.14965	-0.7803	ppb	1.14965	147.33%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	25.8	0.7322	µg/L	0.25439	0.7322	ppb	0.25439	34.74%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-4.0	-0.0372	µg/L	0.01441	-0.0372	ppb	0.01441	38.70%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-330.3	-0.1879	µg/L	0.01213	-0.1879	ppb	0.01213	6.46%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	3.0	1.4240	µg/L	2.08309	1.4240	ppb	2.08309	146.28%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	-5.2	-0.0779	µg/L	0.21266	-0.0779	ppb	0.21266	272.85%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	9.1	0.2211	µg/L	0.28224	0.2211	ppb	0.28224	127.65%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              18.6      0.3484 µg/L       0.14529      0.3484 ppb        0.14529  41.70%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             315.6      1.2866 µg/L       0.09555      1.2866 ppb        0.09555   7.43%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        2.2      1.2226 µg/L       0.75679      1.2226 ppb        0.75679  61.90%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        17.0      8.0301 µg/L      14.06634      8.0301 ppb       14.06634 175.17%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          -7.0     -36.949 µg/L        5.2907     -36.949 ppb         5.2907  14.32%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               4.0      0.0069 µg/L       0.01597      0.0069 ppb        0.01597 229.86%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               4.4      0.2973 µg/L       0.28580      0.2973 ppb        0.28580  96.14%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -47.1     -98.078 µg/L        6.1469     -98.078 ppb         6.1469   6.27%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†             -21.3     -0.6203 µg/L       0.22298     -0.6203 ppb        0.22298  35.95%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                6.3      4.6837 µg/L       3.03236      4.6837 ppb        3.03236  64.74%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               4.6      0.6906 µg/L       1.47439      0.6906 ppb        1.47439 213.50%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -1.6     -2.8555 µg/L       3.77591     -2.8555 ppb        3.77591 132.23%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               9.4      3.0450 µg/L       0.35816      3.0450 ppb        0.35816  11.76%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               6.0      4.4976 µg/L       4.28609      4.4976 ppb        4.28609  95.30%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   142.1      17.893 µg/L        4.8926      17.893 ppb         4.8926  27.34%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              16.1      0.7507 µg/L       0.19622      0.7507 ppb        0.19622  26.14%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               5.8      1.2558 µg/L       1.17051      1.2558 ppb        1.17051  93.21%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             -66.8     -0.3260 µg/L       0.07555     -0.3260 ppb        0.07555  23.18%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†            -125.8     -0.3224 µg/L       0.14030     -0.3224 ppb        0.14030  43.51%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†              -1.8     -0.6067 µg/L       1.63578     -0.6067 ppb        1.63578 269.61%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               64.5       15.83 µg/L         6.664       15.83 ppb          6.664  42.10%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              -14.1     -0.1207 µg/L       0.55628     -0.1207 ppb        0.55628 460.90%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             106.9      0.9882 µg/L       0.19383      0.9882 ppb        0.19383  19.61%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 24 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 8:12:10**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20135.1	20135.1	96.0	%			08:12:39
1	Al 396.153Radial†	16439.5	17303.1	5138.4	µg/L	5138.4	ppb	08:12:39
1	Ca 317.933Radial†	10423.0	10764.5	5104.6	µg/L	5104.6	ppb	08:12:59
1	Fe 238.204 Radial†	9220.5	9574.9	5227.4	µg/L	5227.4	ppb	08:12:59
1	K 766.490 Radial†	11158.6	10937.5	5171.8	µg/L	5171.8	ppb	08:12:39
1	Mg 279.077 IEC†	978.6	1009.8	5349.6	µg/L	5349.6	ppb	08:12:59
1	Na 589.592 Radial†	4657.7	4898.6	10197	µg/L	10197	ppb	08:12:59
1	Sr 421.552†	100132.0	104945.2	512.47	µg/L	512.47	ppb	08:12:39
1	Sc 361.383	680417.8	680417.8	95.484	%			08:13:56
1	Y 371.029	585757.3	585757.3	94.611	%			08:13:56
1	Ag 328.068†	79044.4	83161.8	532.10	µg/L	532.10	ppb	08:14:02
1	As 188.979†	866.6	916.4	514.74	µg/L	514.74	ppb	08:14:22
1	B 249.677†	17605.8	18341.4	519.71	µg/L	519.71	ppb	08:14:02
1	Ba 233.527†	53549.5	56252.8	525.08	µg/L	525.08	ppb	08:14:02
1	Be 313.107†	856266.1	904756.0	523.92	µg/L	523.92	ppb	08:13:56
1	Cd 226.502†	33800.6	35624.4	529.00	µg/L	529.00	ppb	08:14:02
1	Co 228.616†	20933.7	21944.5	532.82	µg/L	532.82	ppb	08:14:02
1	Cr 267.716†	25746.8	26770.8	523.47	µg/L	523.47	ppb	08:14:02
1	Cu 324.752†	126880.1	126397.4	521.93	µg/L	521.93	ppb	08:14:02
1	Mn 257.610†	348059.8	364016.0	519.68	µg/L	519.68	ppb	08:14:02
1	Mo 202.031†	7300.0	7623.2	519.96	µg/L	519.96	ppb	08:14:22
1	Ni 231.604†	17520.8	18478.1	537.41	µg/L	537.41	ppb	08:14:02
1	P 214.914†	3424.7	3461.8	2577.1	µg/L	2577.1	ppb	08:14:22
1	Pb 220.353†	3434.1	3445.7	522.07	µg/L	522.07	ppb	08:14:22
1	S 181.975 Axial†	634.4	602.7	1047.8	µg/L	1047.8	ppb	08:14:22
1	Sb 206.836†	1610.5	1620.9	518.60	µg/L	518.60	ppb	08:14:22
1	Se 196.026†	674.0	711.2	531.56	µg/L	531.56	ppb	08:14:22
1	SiO2†	46279.2	45517.6	5704.7	µg/L	5704.7	ppb	08:14:02
1	Si 251.611†	53886.5	56252.9	2642.7	µg/L	2642.7	ppb	08:14:02
1	Sn 189.927†	2313.2	2395.8	525.63	µg/L	525.63	ppb	08:14:22
1	Ti 334.940†	198888.3	208301.6	522.04	µg/L	522.04	ppb	08:14:02
1	Tl 190.801†	1392.5	1506.8	517.89	µg/L	517.89	ppb	08:14:22
1	U 367.007†	2314.6	2129.6	498.0	µg/L	498.0	ppb	08:14:02
1	V 292.402†	50584.8	53037.3	527.67	µg/L	527.67	ppb	08:14:02
1	Zn 213.857†	56256.3	57715.5	527.27	µg/L	527.27	ppb	08:14:02
2	Sc RADIAL	20158.8	20158.8	96.1	%			08:13:04
2	Al 396.153Radial†	16397.0	17238.7	5119.4	µg/L	5119.4	ppb	08:13:04
2	Ca 317.933Radial†	10458.2	10788.3	5115.9	µg/L	5115.9	ppb	08:13:24
2	Fe 238.204 Radial†	9245.9	9590.1	5235.5	µg/L	5235.5	ppb	08:13:24
2	K 766.490 Radial†	11189.9	10956.4	5180.8	µg/L	5180.8	ppb	08:13:04
2	Mg 279.077 IEC†	982.0	1012.1	5362.0	µg/L	5362.0	ppb	08:13:24
2	Na 589.592 Radial†	4572.6	4804.2	10000	µg/L	10000	ppb	08:13:24
2	Sr 421.552†	100097.7	104786.8	511.70	µg/L	511.70	ppb	08:13:04
2	Sc 361.383	678776.8	678776.8	95.254	%			08:14:27
2	Y 371.029	584570.5	584570.5	94.419	%			08:14:27
2	Ag 328.068†	77967.0	82230.8	526.15	µg/L	526.15	ppb	08:14:32
2	As 188.979†	866.6	918.6	515.93	µg/L	515.93	ppb	08:14:52
2	B 249.677†	17309.2	18074.6	512.15	µg/L	512.15	ppb	08:14:32
2	Ba 233.527†	52534.6	55322.9	516.40	µg/L	516.40	ppb	08:14:32
2	Be 313.107†	846417.5	896584.8	519.18	µg/L	519.18	ppb	08:14:27
2	Cd 226.502†	33034.5	34905.7	518.31	µg/L	518.31	ppb	08:14:32
2	Co 228.616†	20447.7	21487.3	521.72	µg/L	521.72	ppb	08:14:32
2	Cr 267.716†	25293.6	26360.3	515.45	µg/L	515.45	ppb	08:14:32
2	Cu 324.752†	124982.8	124726.9	515.05	µg/L	515.05	ppb	08:14:32
2	Mn 257.610†	341434.7	357942.1	511.01	µg/L	511.01	ppb	08:14:32
2	Mo 202.031†	7225.4	7563.3	515.88	µg/L	515.88	ppb	08:14:52
2	Ni 231.604†	17139.9	18122.6	527.08	µg/L	527.08	ppb	08:14:32
2	P 214.914†	3399.4	3444.0	2563.9	µg/L	2563.9	ppb	08:14:52
2	Pb 220.353†	3391.8	3409.9	516.67	µg/L	516.67	ppb	08:14:52

2	S 181.975 Axial†	633.9	603.8	1049.7 µg/L	1049.7 ppb	08:14:52
2	Sb 206.836†	1588.7	1602.2	512.68 µg/L	512.68 ppb	08:14:52
2	Se 196.026†	663.5	701.9	524.61 µg/L	524.61 ppb	08:14:52
2	SiO2†	45579.2	44899.9	5627.2 µg/L	5627.2 ppb	08:14:32
2	Si 251.611†	52961.1	55417.8	2603.4 µg/L	2603.4 ppb	08:14:32
2	Sn 189.927†	2283.7	2370.7	520.14 µg/L	520.14 ppb	08:14:52
2	Ti 334.940†	195648.6	205404.1	514.78 µg/L	514.78 ppb	08:14:32
2	Tl 190.801†	1385.0	1502.4	516.35 µg/L	516.35 ppb	08:14:52
2	U 367.007†	2260.3	2078.5	485.4 µg/L	485.4 ppb	08:14:32
2	V 292.402†	49731.2	52269.2	520.06 µg/L	520.06 ppb	08:14:32
2	Zn 213.857†	55249.6	56801.1	518.92 µg/L	518.92 ppb	08:14:32
3	Sc RADIAL	19900.2	19900.2	94.9 %		08:13:29
3	Al 396.153Radial†	16352.6	17413.7	5171.4 µg/L	5171.4 ppb	08:13:29
3	Ca 317.933Radial†	10488.2	10961.4	5198.0 µg/L	5198.0 ppb	08:13:50
3	Fe 238.204 Radial†	9270.1	9740.6	5317.7 µg/L	5317.7 ppb	08:13:50
3	K 766.490 Radial†	11156.4	11072.4	5235.7 µg/L	5235.7 ppb	08:13:29
3	Mg 279.077 IEC†	983.6	1027.1	5441.3 µg/L	5441.3 ppb	08:13:50
3	Na 589.592 Radial†	4606.7	4902.0	10204 µg/L	10204 ppb	08:13:50
3	Sr 421.552†	99149.5	105141.0	513.43 µg/L	513.43 ppb	08:13:29
3	Sc 361.383	676252.3	676252.3	94.900 %		08:14:58
3	Y 371.029	582419.4	582419.4	94.071 %		08:14:58
3	Ag 328.068†	78559.4	83160.7	532.12 µg/L	532.12 ppb	08:15:03
3	As 188.979†	867.9	923.4	518.64 µg/L	518.64 ppb	08:15:23
3	B 249.677†	17504.8	18348.6	519.91 µg/L	519.91 ppb	08:15:03
3	Ba 233.527†	52965.7	55983.1	522.57 µg/L	522.57 ppb	08:15:03
3	Be 313.107†	847012.6	900528.9	521.47 µg/L	521.47 ppb	08:14:58
3	Cd 226.502†	33504.6	35530.5	527.59 µg/L	527.59 ppb	08:15:03
3	Co 228.616†	20688.7	21821.4	529.83 µg/L	529.83 ppb	08:15:03
3	Cr 267.716†	25574.6	26755.5	523.17 µg/L	523.17 ppb	08:15:03
3	Cu 324.752†	125991.3	126279.3	521.46 µg/L	521.46 ppb	08:15:03
3	Mn 257.610†	345082.4	363124.0	518.41 µg/L	518.41 ppb	08:15:03
3	Mo 202.031†	7273.1	7641.9	521.25 µg/L	521.25 ppb	08:15:23
3	Ni 231.604†	17403.0	18467.0	537.09 µg/L	537.09 ppb	08:15:03
3	P 214.914†	3413.4	3472.1	2584.7 µg/L	2584.7 ppb	08:15:23
3	Pb 220.353†	3422.5	3455.5	523.58 µg/L	523.58 ppb	08:15:23
3	S 181.975 Axial†	637.4	610.0	1060.5 µg/L	1060.5 ppb	08:15:23
3	Sb 206.836†	1586.4	1605.9	513.80 µg/L	513.80 ppb	08:15:23
3	Se 196.026†	671.5	712.9	532.85 µg/L	532.85 ppb	08:15:23
3	SiO2†	46037.6	45561.6	5710.2 µg/L	5710.2 ppb	08:15:03
3	Si 251.611†	53447.4	56137.8	2637.2 µg/L	2637.2 ppb	08:15:03
3	Sn 189.927†	2314.6	2412.2	529.24 µg/L	529.24 ppb	08:15:23
3	Ti 334.940†	197618.8	208246.9	521.90 µg/L	521.90 ppb	08:15:03
3	Tl 190.801†	1392.3	1515.6	520.89 µg/L	520.89 ppb	08:15:23
3	U 367.007†	2304.6	2134.0	498.6 µg/L	498.6 ppb	08:15:03
3	V 292.402†	50267.6	53029.4	527.61 µg/L	527.61 ppb	08:15:03
3	Zn 213.857†	55775.0	57571.3	525.93 µg/L	525.93 ppb	08:15:03

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	678482.3	95.213	%	0.2945				0.31%
Sc RADIAL	20064.7	95.6	%	0.68				0.71%
Y 371.029	584249.1	94.367	%	0.2733				0.29%
Ag 328.068†	82851.1	530.12	µg/L	3.440	530.12	ppb	3.440	0.65%
QC value within limits for Ag 328.068 Recovery = 106.02%								
Al 396.153Radial†	17318.5	5143.1	µg/L	26.28	5143.1	ppb	26.28	0.51%
QC value within limits for Al 396.153Radial Recovery = 102.86%								
As 188.979†	919.4	516.43	µg/L	1.998	516.43	ppb	1.998	0.39%
QC value within limits for As 188.979 Recovery = 103.29%								
B 249.677†	18254.9	517.26	µg/L	4.425	517.26	ppb	4.425	0.86%
QC value within limits for B 249.677 Recovery = 103.45%								
Ba 233.527†	55853.0	521.35	µg/L	4.466	521.35	ppb	4.466	0.86%
QC value within limits for Ba 233.527 Recovery = 104.27%								
Be 313.107†	900623.3	521.52	µg/L	2.367	521.52	ppb	2.367	0.45%
QC value within limits for Be 313.107 Recovery = 104.30%								
Ca 317.933Radial†	10838.1	5139.5	µg/L	50.97	5139.5	ppb	50.97	0.99%
QC value within limits for Ca 317.933Radial Recovery = 102.79%								
Cd 226.502†	35353.5	524.97	µg/L	5.808	524.97	ppb	5.808	1.11%
QC value within limits for Cd 226.502 Recovery = 104.99%								
Co 228.616†	21751.1	528.12	µg/L	5.743	528.12	ppb	5.743	1.09%

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   QC value within limits for Co 228.616  Recovery = 105.62%
Cr 267.716†           26628.9      520.70 µg/L         4.547      520.70 ppb          4.547   0.87%
   QC value within limits for Cr 267.716  Recovery = 104.14%
Cu 324.752†          125801.2      519.48 µg/L         3.846      519.48 ppb          3.846   0.74%
   QC value within limits for Cu 324.752  Recovery = 103.90%
Fe 238.204 Radial†     9635.2      5260.2 µg/L         49.97      5260.2 ppb          49.97   0.95%
   QC value within limits for Fe 238.204 Radial  Recovery = 105.20%
K 766.490 Radial†     10988.8      5196.1 µg/L         34.58      5196.1 ppb          34.58   0.67%
   QC value within limits for K 766.490 Radial  Recovery = 103.92%
Mg 279.077 IEC†        1016.3      5384.3 µg/L         49.74      5384.3 ppb          49.74   0.92%
   QC value within limits for Mg 279.077 IEC  Recovery = 107.69%
Mn 257.610†          361694.0      516.37 µg/L         4.680      516.37 ppb          4.680   0.91%
   QC value within limits for Mn 257.610  Recovery = 103.27%
Mo 202.031†            7609.4      519.03 µg/L         2.799      519.03 ppb          2.799   0.54%
   QC value within limits for Mo 202.031  Recovery = 103.81%
Na 589.592 Radial†     4868.3       10134 µg/L         115.5       10134 ppb          115.5   1.14%
   QC value within limits for Na 589.592 Radial  Recovery = 101.34%
Ni 231.604†           18355.9      533.86 µg/L         5.878      533.86 ppb          5.878   1.10%
   QC value within limits for Ni 231.604  Recovery = 106.77%
P 214.914†             3459.3      2575.2 µg/L         10.54      2575.2 ppb          10.54   0.41%
   QC value within limits for P 214.914  Recovery = 103.01%
Pb 220.353†            3437.0      520.77 µg/L         3.636      520.77 ppb          3.636   0.70%
   QC value within limits for Pb 220.353  Recovery = 104.15%
S 181.975 Axial†        605.5      1052.7 µg/L          6.86      1052.7 ppb           6.86   0.65%
   QC value within limits for S 181.975 Axial  Recovery = 105.27%
Sb 206.836†            1609.7      515.03 µg/L         3.150      515.03 ppb          3.150   0.61%
   QC value within limits for Sb 206.836  Recovery = 103.01%
Se 196.026†             708.6      529.67 µg/L         4.435      529.67 ppb          4.435   0.84%
   QC value within limits for Se 196.026  Recovery = 105.93%
SiO2†                 45326.3      5680.7 µg/L         46.39      5680.7 ppb          46.39   0.82%
   QC value within limits for SiO2  Recovery = 106.23%
Si 251.611†           55936.2      2627.8 µg/L         21.28      2627.8 ppb          21.28   0.81%
   QC value within limits for Si 251.611  Recovery = 105.11%
Sn 189.927†            2392.9      525.00 µg/L         4.583      525.00 ppb          4.583   0.87%
   QC value within limits for Sn 189.927  Recovery = 105.00%
Sr 421.552†          104957.7      512.53 µg/L         0.866      512.53 ppb          0.866   0.17%
   QC value within limits for Sr 421.552  Recovery = 102.51%
Ti 334.940†          207317.6      519.57 µg/L         4.152      519.57 ppb          4.152   0.80%
   QC value within limits for Ti 334.940  Recovery = 103.91%
Tl 190.801†            1508.3      518.38 µg/L         2.308      518.38 ppb          2.308   0.45%
   QC value within limits for Tl 190.801  Recovery = 103.68%
U 367.007†             2114.0       494.0 µg/L          7.47       494.0 ppb           7.47   1.51%
   QC value within limits for U 367.007  Recovery = 98.80%
V 292.402†            52778.6      525.11 µg/L         4.375      525.11 ppb          4.375   0.83%
   QC value within limits for V 292.402  Recovery = 105.02%
Zn 213.857†           57362.6      524.04 µg/L         4.488      524.04 ppb          4.488   0.86%
   QC value within limits for Zn 213.857  Recovery = 104.81%
All analyte(s) passed QC.
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Sequence No.: 25 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 8:15:31**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19825.7	19825.7	94.5	%			08:15:59
1	Al 396.153Radial†	-169.8	-5.9	-1.8433	µg/L	-1.8433	ppb	08:15:59
1	Ca 317.933Radial†	92.8	2.4	1.1420	µg/L	1.1420	ppb	08:16:19
1	Fe 238.204 Radial†	34.2	3.8	2.0662	µg/L	2.0662	ppb	08:16:19
1	K 766.490 Radial†	669.3	18.9	8.9633	µg/L	8.9633	ppb	08:15:59
1	Mg 279.077 IEC†	9.2	-0.2	-0.7122	µg/L	-0.7122	ppb	08:16:19
1	Na 589.592 Radial†	-90.4	-50.3	-104.63	µg/L	-104.63	ppb	08:15:59
1	Sr 421.552†	-557.0	22.6	0.1103	µg/L	0.1103	ppb	08:15:59
1	Sc 361.383	665973.6	665973.6	93.457	%			08:17:16
1	Y 371.029	577785.5	577785.5	93.323	%			08:17:16
1	Ag 328.068†	-362.7	-8.9	-0.0569	µg/L	-0.0569	ppb	08:17:21
1	As 188.979†	-14.7	-7.0	-3.9244	µg/L	-3.9244	ppb	08:17:41
1	B 249.677†	132.6	44.8	1.2733	µg/L	1.2733	ppb	08:17:41
1	Ba 233.527†	-156.0	3.9	0.0357	µg/L	0.0357	ppb	08:17:41
1	Be 313.107†	-7691.2	-235.3	-0.1332	µg/L	-0.1332	ppb	08:17:21
1	Cd 226.502†	-199.3	12.0	0.1778	µg/L	0.1778	ppb	08:17:41
1	Co 228.616†	-3.8	16.8	0.4110	µg/L	0.4110	ppb	08:17:41
1	Cr 267.716†	197.0	17.1	0.3213	µg/L	0.3213	ppb	08:17:41
1	Cu 324.752†	6284.5	241.2	0.9820	µg/L	0.9820	ppb	08:17:21
1	Mn 257.610†	481.4	10.4	0.0151	µg/L	0.0151	ppb	08:17:41
1	Mo 202.031†	54.6	36.3	2.4780	µg/L	2.4780	ppb	08:17:41
1	Ni 231.604†	-140.3	-21.4	-0.6230	µg/L	-0.6230	ppb	08:17:41
1	P 214.914†	110.5	-6.6	-5.0195	µg/L	-5.0195	ppb	08:17:41
1	Pb 220.353†	157.6	17.8	2.6972	µg/L	2.6972	ppb	08:17:41
1	S 181.975 Axial†	60.2	2.7	4.7940	µg/L	4.7940	ppb	08:17:41
1	Sb 206.836†	83.1	23.2	7.5081	µg/L	7.5081	ppb	08:17:41
1	Se 196.026†	-8.1	-3.4	-2.4631	µg/L	-2.4631	ppb	08:17:41
1	SiO2†	2915.7	169.5	21.316	µg/L	21.316	ppb	08:17:21
1	Si 251.611†	190.8	22.1	1.0051	µg/L	1.0051	ppb	08:17:41
1	Sn 189.927†	32.0	7.4	1.6166	µg/L	1.6166	ppb	08:17:41
1	Ti 334.940†	-156.6	-160.3	-0.4083	µg/L	-0.4083	ppb	08:17:21
1	Tl 190.801†	-36.2	9.7	3.3232	µg/L	3.3232	ppb	08:17:41
1	U 367.007†	328.3	56.9	13.94	µg/L	13.94	ppb	08:17:21
1	V 292.402†	-67.6	-12.1	-0.0783	µg/L	-0.0783	ppb	08:17:21
1	Zn 213.857†	1222.8	107.1	0.9903	µg/L	0.9903	ppb	08:17:41
2	Sc RADIAL	19753.7	19753.7	94.2	%			08:16:24
2	Al 396.153Radial†	-115.1	51.6	15.288	µg/L	15.288	ppb	08:16:24
2	Ca 317.933Radial†	99.1	9.4	4.4538	µg/L	4.4538	ppb	08:16:44
2	Fe 238.204 Radial†	36.4	6.2	3.3843	µg/L	3.3843	ppb	08:16:44
2	K 766.490 Radial†	656.7	8.1	3.8539	µg/L	3.8539	ppb	08:16:24
2	Mg 279.077 IEC†	14.5	5.5	29.028	µg/L	29.028	ppb	08:16:44
2	Na 589.592 Radial†	-70.9	-29.9	-62.174	µg/L	-62.174	ppb	08:16:24
2	Sr 421.552†	-638.8	-66.5	-0.3247	µg/L	-0.3247	ppb	08:16:24
2	Sc 361.383	663505.6	663505.6	93.111	%			08:17:46
2	Y 371.029	575712.1	575712.1	92.988	%			08:17:46
2	Ag 328.068†	-262.9	96.8	0.6138	µg/L	0.6138	ppb	08:17:51
2	As 188.979†	-9.0	-0.9	-0.5009	µg/L	-0.5009	ppb	08:18:11
2	B 249.677†	125.8	38.1	1.0822	µg/L	1.0822	ppb	08:18:11
2	Ba 233.527†	-172.8	-14.7	-0.1377	µg/L	-0.1377	ppb	08:18:11
2	Be 313.107†	-7789.6	-371.5	-0.2122	µg/L	-0.2122	ppb	08:17:51
2	Cd 226.502†	-215.0	-5.6	-0.0845	µg/L	-0.0845	ppb	08:18:11
2	Co 228.616†	-12.6	7.3	0.1801	µg/L	0.1801	ppb	08:18:11
2	Cr 267.716†	200.0	21.1	0.4000	µg/L	0.4000	ppb	08:18:11
2	Cu 324.752†	6335.4	320.9	1.3106	µg/L	1.3106	ppb	08:17:51
2	Mn 257.610†	476.8	7.4	0.0101	µg/L	0.0101	ppb	08:18:11
2	Mo 202.031†	52.3	34.1	2.3236	µg/L	2.3236	ppb	08:18:11
2	Ni 231.604†	-143.0	-24.9	-0.7238	µg/L	-0.7238	ppb	08:18:11
2	P 214.914†	119.3	3.3	2.4580	µg/L	2.4580	ppb	08:18:11
2	Pb 220.353†	122.8	-19.0	-2.8863	µg/L	-2.8863	ppb	08:18:11

2	S 181.975 Axial†	54.7	-2.9	-4.9508 µg/L	-4.9508 ppb	08:18:11
2	Sb 206.836†	74.0	13.7	4.4618 µg/L	4.4618 ppb	08:18:11
2	Se 196.026†	-3.8	1.2	0.9241 µg/L	0.9241 ppb	08:18:11
2	SiO2†	2857.6	118.8	14.999 µg/L	14.999 ppb	08:17:51
2	Si 251.611†	183.1	14.6	0.6529 µg/L	0.6529 ppb	08:18:11
2	Sn 189.927†	32.9	8.6	1.8717 µg/L	1.8717 ppb	08:18:11
2	Ti 334.940†	-19.7	-13.9	-0.0413 µg/L	-0.0413 ppb	08:17:51
2	Tl 190.801†	-36.8	8.9	3.0636 µg/L	3.0636 ppb	08:18:11
2	U 367.007†	326.3	56.0	13.73 µg/L	13.73 ppb	08:17:51
2	V 292.402†	-73.0	-18.3	-0.1407 µg/L	-0.1407 ppb	08:17:51
2	Zn 213.857†	1224.0	113.3	1.0473 µg/L	1.0473 ppb	08:18:11
3	Sc RADIAL	19596.3	19596.3	93.4 %		08:16:49
3	Al 396.153Radial†	-154.3	8.7	2.5534 µg/L	2.5534 ppb	08:16:49
3	Ca 317.933Radial†	86.1	-3.6	-1.7190 µg/L	-1.7190 ppb	08:17:09
3	Fe 238.204 Radial†	35.4	5.5	2.9963 µg/L	2.9963 ppb	08:17:09
3	K 766.490 Radial†	716.3	77.5	36.704 µg/L	36.704 ppb	08:16:49
3	Mg 279.077 IEC†	4.6	-4.9	-26.077 µg/L	-26.077 ppb	08:17:09
3	Na 589.592 Radial†	-49.8	-7.9	-16.412 µg/L	-16.412 ppb	08:16:49
3	Sr 421.552†	-577.4	-6.1	-0.0300 µg/L	-0.0300 ppb	08:16:49
3	Sc 361.383	669554.9	669554.9	93.960 %		08:18:16
3	Y 371.029	581067.1	581067.1	93.853 %		08:18:16
3	Ag 328.068†	-400.5	-47.1	-0.3001 µg/L	-0.3001 ppb	08:18:21
3	As 188.979†	-5.5	2.9	1.6215 µg/L	1.6215 ppb	08:18:41
3	B 249.677†	149.7	62.3	1.7704 µg/L	1.7704 ppb	08:18:41
3	Ba 233.527†	-162.1	-1.7	-0.0160 µg/L	-0.0160 ppb	08:18:41
3	Be 313.107†	-7879.2	-391.3	-0.2241 µg/L	-0.2241 ppb	08:18:21
3	Cd 226.502†	-199.9	12.5	0.1853 µg/L	0.1853 ppb	08:18:41
3	Co 228.616†	-17.9	1.8	0.0460 µg/L	0.0460 ppb	08:18:41
3	Cr 267.716†	188.7	7.2	0.1294 µg/L	0.1294 ppb	08:18:41
3	Cu 324.752†	6267.5	187.1	0.7609 µg/L	0.7609 ppb	08:18:21
3	Mn 257.610†	488.7	15.5	0.0232 µg/L	0.0232 ppb	08:18:41
3	Mo 202.031†	32.2	12.2	0.8339 µg/L	0.8339 ppb	08:18:41
3	Ni 231.604†	-124.2	-3.5	-0.1031 µg/L	-0.1031 ppb	08:18:41
3	P 214.914†	119.7	2.6	1.9076 µg/L	1.9076 ppb	08:18:41
3	Pb 220.353†	160.2	19.6	2.9608 µg/L	2.9608 ppb	08:18:41
3	S 181.975 Axial†	60.8	3.0	5.2885 µg/L	5.2885 ppb	08:18:41
3	Sb 206.836†	74.6	13.6	4.4176 µg/L	4.4176 ppb	08:18:41
3	Se 196.026†	-6.8	-2.0	-1.4448 µg/L	-1.4448 ppb	08:18:41
3	SiO2†	2882.8	117.8	14.812 µg/L	14.812 ppb	08:18:21
3	Si 251.611†	187.0	17.0	0.7808 µg/L	0.7808 ppb	08:18:41
3	Sn 189.927†	36.9	12.5	2.7340 µg/L	2.7340 ppb	08:18:41
3	Ti 334.940†	-102.5	-101.8	-0.2605 µg/L	-0.2605 ppb	08:18:21
3	Tl 190.801†	-35.1	11.1	3.7974 µg/L	3.7974 ppb	08:18:41
3	U 367.007†	321.8	48.1	11.79 µg/L	11.79 ppb	08:18:21
3	V 292.402†	-91.1	-36.7	-0.3408 µg/L	-0.3408 ppb	08:18:21
3	Zn 213.857†	1222.5	99.8	0.9197 µg/L	0.9197 ppb	08:18:41

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	666344.7	93.509	%	0.4268				0.46%
Sc RADIAL	19725.2	94.0	%	0.56				0.59%
Y 371.029	578188.2	93.388	%	0.4361				0.47%
Ag 328.068†	13.6	0.0856	µg/L	0.47333	0.0856	ppb	0.47333	552.78%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	18.1	5.3327	µg/L	8.89732	5.3327	ppb	8.89732	166.85%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.6	-0.9346	µg/L	2.79825	-0.9346	ppb	2.79825	299.40%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	48.4	1.3753	µg/L	0.35526	1.3753	ppb	0.35526	25.83%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-4.2	-0.0394	µg/L	0.08903	-0.0394	ppb	0.08903	226.24%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-332.7	-0.1899	µg/L	0.04939	-0.1899	ppb	0.04939	26.01%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	2.7	1.2923	µg/L	3.08919	1.2923	ppb	3.08919	239.05%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	6.3	0.0929	µg/L	0.15363	0.0929	ppb	0.15363	165.43%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	8.6	0.2124	µg/L	0.18465	0.2124	ppb	0.18465	86.95%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              15.2      0.2836 µg/L       0.13917      0.2836 ppb        0.13917  49.08%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             249.7      1.0178 µg/L       0.27662      1.0178 ppb        0.27662  27.18%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        5.2      2.8156 µg/L       0.67737      2.8156 ppb        0.67737  24.06%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        34.9      16.507 µg/L       17.6768      16.507 ppb        17.6768 107.09%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           0.1      0.7462 µg/L      27.58178      0.7462 ppb       27.58178 >999.9%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              11.1      0.0161 µg/L       0.00665      0.0161 ppb        0.00665  41.17%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              27.6      1.8785 µg/L       0.90796      1.8785 ppb        0.90796  48.33%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -29.3     -61.071 µg/L       44.1183     -61.071 ppb        44.1183  72.24%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†             -16.6     -0.4833 µg/L       0.33307     -0.4833 ppb        0.33307  68.91%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -0.2     -0.2180 µg/L       4.16735     -0.2180 ppb        4.16735 >999.9%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               6.1      0.9239 µg/L       3.30236      0.9239 ppb        3.30236 357.44%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          1.0      1.7106 µg/L       5.77419      1.7106 ppb        5.77419 337.56%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              16.9      5.4625 µg/L       1.77166      5.4625 ppb        1.77166  32.43%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†              -1.4     -0.9946 µg/L       1.73789     -0.9946 ppb        1.73789 174.73%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   135.4      17.042 µg/L        3.7023      17.042 ppb         3.7023  21.72%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              17.9      0.8129 µg/L       0.17829      0.8129 ppb        0.17829  21.93%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               9.5      2.0741 µg/L       0.58554      2.0741 ppb        0.58554  28.23%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             -16.7     -0.0815 µg/L       0.22203     -0.0815 ppb        0.22203 272.59%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -92.0     -0.2367 µg/L       0.18468     -0.2367 ppb        0.18468  78.02%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               9.9      3.3947 µg/L       0.37209      3.3947 ppb        0.37209  10.96%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               53.7       13.15 µg/L         1.186       13.15 ppb          1.186   9.02%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              -22.4     -0.1866 µg/L       0.13714     -0.1866 ppb        0.13714  73.49%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             106.8      0.9857 µg/L       0.06393      0.9857 ppb        0.06393   6.49%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 9 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 8:44:13**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20042.0	20042.0	95.5	%			08:44:43
1	Al 396.153Radial†	15727.4	16637.2	4940.6	µg/L	4940.6	ppb	08:44:43
1	Ca 317.933Radial†	9955.5	10325.5	4896.5	µg/L	4896.5	ppb	08:45:04
1	Fe 238.204 Radial†	8825.8	9206.4	5026.1	µg/L	5026.1	ppb	08:45:04
1	K 766.490 Radial†	10786.5	10602.0	5013.3	µg/L	5013.3	ppb	08:44:43
1	Mg 279.077 IEC†	939.0	973.0	5155.0	µg/L	5155.0	ppb	08:45:04
1	Na 589.592 Radial†	4483.1	4738.3	9863.1	µg/L	9863.1	ppb	08:45:04
1	Sr 421.552†	95724.3	100815.8	492.31	µg/L	492.31	ppb	08:44:43
1	Sc 361.383	678492.1	678492.1	95.214	%			08:46:01
1	Y 371.029	585214.6	585214.6	94.523	%			08:46:01
1	Ag 328.068†	75743.1	79929.5	511.41	µg/L	511.41	ppb	08:46:06
1	As 188.979†	844.3	895.5	502.97	µg/L	502.97	ppb	08:46:26
1	B 249.677†	16751.7	17496.7	495.78	µg/L	495.78	ppb	08:46:06
1	Ba 233.527†	50842.1	53568.5	500.03	µg/L	500.03	ppb	08:46:06
1	Be 313.107†	821494.7	870782.1	504.24	µg/L	504.24	ppb	08:46:01
1	Cd 226.502†	32151.1	33992.5	504.76	µg/L	504.76	ppb	08:46:06
1	Co 228.616†	19838.2	20856.3	506.40	µg/L	506.40	ppb	08:46:06
1	Cr 267.716†	24497.2	25534.9	499.31	µg/L	499.31	ppb	08:46:06
1	Cu 324.752†	121978.5	121626.6	502.23	µg/L	502.23	ppb	08:46:06
1	Mn 257.610†	331736.5	347906.8	496.68	µg/L	496.68	ppb	08:46:06
1	Mo 202.031†	7040.8	7372.6	502.88	µg/L	502.88	ppb	08:46:26
1	Ni 231.604†	16740.6	17710.7	515.10	µg/L	515.10	ppb	08:46:06
1	P 214.914†	3309.4	3350.9	2494.6	µg/L	2494.6	ppb	08:46:26
1	Pb 220.353†	3327.6	3344.0	506.67	µg/L	506.67	ppb	08:46:26
1	S 181.975 Axial†	614.2	583.4	1014.2	µg/L	1014.2	ppb	08:46:26
1	Sb 206.836†	1549.6	1561.7	499.81	µg/L	499.81	ppb	08:46:26
1	Se 196.026†	652.4	690.5	516.07	µg/L	516.07	ppb	08:46:26
1	SiO2†	44432.9	43716.0	5478.8	µg/L	5478.8	ppb	08:46:06
1	Si 251.611†	51626.3	54039.3	2538.6	µg/L	2538.6	ppb	08:46:06
1	Sn 189.927†	2222.4	2307.3	506.21	µg/L	506.21	ppb	08:46:26
1	Ti 334.940†	189988.6	199545.8	500.09	µg/L	500.09	ppb	08:46:06
1	Tl 190.801†	1343.7	1459.6	501.64	µg/L	501.64	ppb	08:46:26
1	U 367.007†	2218.6	2035.7	475.9	µg/L	475.9	ppb	08:46:06
1	V 292.402†	48330.3	50819.8	505.65	µg/L	505.65	ppb	08:46:06
1	Zn 213.857†	53705.1	55203.3	504.31	µg/L	504.31	ppb	08:46:06
2	Sc RADIAL	19940.8	19940.8	95.0	%			08:45:09
2	Al 396.153Radial†	15867.1	16867.7	5009.4	µg/L	5009.4	ppb	08:45:09
2	Ca 317.933Radial†	9959.2	10382.3	4923.4	µg/L	4923.4	ppb	08:45:29
2	Fe 238.204 Radial†	8830.0	9257.6	5054.0	µg/L	5054.0	ppb	08:45:29
2	K 766.490 Radial†	10828.6	10703.5	5061.3	µg/L	5061.3	ppb	08:45:09
2	Mg 279.077 IEC†	937.6	976.6	5173.5	µg/L	5173.5	ppb	08:45:29
2	Na 589.592 Radial†	4415.9	4691.3	9765.3	µg/L	9765.3	ppb	08:45:29
2	Sr 421.552†	96415.6	102051.5	498.34	µg/L	498.34	ppb	08:45:09
2	Sc 361.383	678780.6	678780.6	95.254	%			08:46:31
2	Y 371.029	584770.9	584770.9	94.451	%			08:46:31
2	Ag 328.068†	76077.1	80246.3	513.43	µg/L	513.43	ppb	08:46:37
2	As 188.979†	845.9	896.8	503.71	µg/L	503.71	ppb	08:46:57
2	B 249.677†	16826.1	17567.4	497.78	µg/L	497.78	ppb	08:46:37
2	Ba 233.527†	50900.8	53607.4	500.39	µg/L	500.39	ppb	08:46:37
2	Be 313.107†	816820.0	865507.7	501.19	µg/L	501.19	ppb	08:46:31
2	Cd 226.502†	32065.8	33888.5	503.21	µg/L	503.21	ppb	08:46:37
2	Co 228.616†	19852.7	20862.6	506.55	µg/L	506.55	ppb	08:46:37
2	Cr 267.716†	24527.2	25555.5	499.72	µg/L	499.72	ppb	08:46:37
2	Cu 324.752†	122204.0	121808.9	502.99	µg/L	502.99	ppb	08:46:37
2	Mn 257.610†	331556.0	347569.3	496.20	µg/L	496.20	ppb	08:46:37
2	Mo 202.031†	7004.5	7331.4	500.07	µg/L	500.07	ppb	08:46:57
2	Ni 231.604†	16610.3	17566.5	510.90	µg/L	510.90	ppb	08:46:37
2	P 214.914†	3285.3	3324.1	2474.5	µg/L	2474.5	ppb	08:46:57
2	Pb 220.353†	3288.5	3301.5	500.21	µg/L	500.21	ppb	08:46:57

2	S 181.975 Axial†	602.6	570.9	992.56 µg/L	992.56 ppb	08:46:57
2	Sb 206.836†	1548.6	1560.0	499.20 µg/L	499.20 ppb	08:46:57
2	Se 196.026†	647.3	684.9	511.88 µg/L	511.88 ppb	08:46:57
2	SiO2†	44478.2	43743.8	5482.2 µg/L	5482.2 ppb	08:46:37
2	Si 251.611†	51542.7	53928.4	2533.5 µg/L	2533.5 ppb	08:46:37
2	Sn 189.927†	2209.1	2292.4	502.96 µg/L	502.96 ppb	08:46:57
2	Ti 334.940†	190159.9	199640.8	500.34 µg/L	500.34 ppb	08:46:37
2	Tl 190.801†	1336.9	1452.0	499.02 µg/L	499.02 ppb	08:46:57
2	U 367.007†	2194.9	2009.9	469.4 µg/L	469.4 ppb	08:46:37
2	V 292.402†	48342.2	50810.8	505.53 µg/L	505.53 ppb	08:46:37
2	Zn 213.857†	53744.9	55221.1	504.50 µg/L	504.50 ppb	08:46:37
3	Sc RADIAL	19975.6	19975.6	95.2 %		08:45:34
3	Al 396.153Radial†	15909.2	16882.9	5013.8 µg/L	5013.8 ppb	08:45:34
3	Ca 317.933Radial†	9974.5	10380.1	4922.3 µg/L	4922.3 ppb	08:45:54
3	Fe 238.204 Radial†	8856.7	9269.5	5060.6 µg/L	5060.6 ppb	08:45:54
3	K 766.490 Radial†	10809.9	10664.1	5042.6 µg/L	5042.6 ppb	08:45:34
3	Mg 279.077 IEC†	942.0	979.5	5189.3 µg/L	5189.3 ppb	08:45:54
3	Na 589.592 Radial†	4414.8	4682.1	9746.1 µg/L	9746.1 ppb	08:45:54
3	Sr 421.552†	96344.4	101800.1	497.11 µg/L	497.11 ppb	08:45:34
3	Sc 361.383	676165.4	676165.4	94.887 %		08:47:02
3	Y 371.029	583167.2	583167.2	94.192 %		08:47:02
3	Ag 328.068†	76018.8	80493.8	515.02 µg/L	515.02 ppb	08:47:07
3	As 188.979†	841.1	895.2	502.82 µg/L	502.82 ppb	08:47:27
3	B 249.677†	16822.7	17632.1	499.61 µg/L	499.61 ppb	08:47:07
3	Ba 233.527†	50944.4	53860.1	502.75 µg/L	502.75 ppb	08:47:07
3	Be 313.107†	817069.8	869087.6	503.26 µg/L	503.26 ppb	08:47:02
3	Cd 226.502†	32070.8	34024.1	505.23 µg/L	505.23 ppb	08:47:07
3	Co 228.616†	19894.4	20987.1	509.58 µg/L	509.58 ppb	08:47:07
3	Cr 267.716†	24552.2	25681.4	502.17 µg/L	502.17 ppb	08:47:07
3	Cu 324.752†	122163.0	122261.8	504.85 µg/L	504.85 ppb	08:47:07
3	Mn 257.610†	332248.2	349645.0	499.16 µg/L	499.16 ppb	08:47:07
3	Mo 202.031†	7036.6	7393.7	504.31 µg/L	504.31 ppb	08:47:27
3	Ni 231.604†	16679.6	17706.9	514.99 µg/L	514.99 ppb	08:47:07
3	P 214.914†	3308.7	3362.1	2502.9 µg/L	2502.9 ppb	08:47:27
3	Pb 220.353†	3303.5	3330.7	504.64 µg/L	504.64 ppb	08:47:27
3	S 181.975 Axial†	617.4	589.0	1024.0 µg/L	1024.0 ppb	08:47:27
3	Sb 206.836†	1555.9	1574.0	503.72 µg/L	503.72 ppb	08:47:27
3	Se 196.026†	648.7	689.0	514.94 µg/L	514.94 ppb	08:47:27
3	SiO2†	44487.4	43934.1	5506.1 µg/L	5506.1 ppb	08:47:07
3	Si 251.611†	51705.2	54309.0	2551.3 µg/L	2551.3 ppb	08:47:07
3	Sn 189.927†	2224.0	2317.0	508.35 µg/L	508.35 ppb	08:47:27
3	Ti 334.940†	190403.0	200669.1	502.91 µg/L	502.91 ppb	08:47:07
3	Tl 190.801†	1341.5	1462.2	502.54 µg/L	502.54 ppb	08:47:27
3	U 367.007†	2220.1	2045.3	478.1 µg/L	478.1 ppb	08:47:07
3	V 292.402†	48437.5	51107.5	508.50 µg/L	508.50 ppb	08:47:07
3	Zn 213.857†	53882.0	55583.9	507.81 µg/L	507.81 ppb	08:47:07

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	677812.7	95.119	%	0.2012				0.21%
Sc RADIAL	19986.1	95.3	%	0.25				0.26%
Y 371.029	584384.2	94.389	%	0.1740				0.18%
Ag 328.068†	80223.2	513.28	µg/L	1.807	513.28	ppb	1.807	0.35%
QC value within limits for Ag 328.068 Recovery = 102.66%								
Al 396.153Radial†	16795.9	4987.9	µg/L	41.05	4987.9	ppb	41.05	0.82%
QC value within limits for Al 396.153Radial Recovery = 99.76%								
As 188.979†	895.9	503.17	µg/L	0.479	503.17	ppb	0.479	0.10%
QC value within limits for As 188.979 Recovery = 100.63%								
B 249.677†	17565.4	497.72	µg/L	1.919	497.72	ppb	1.919	0.39%
QC value within limits for B 249.677 Recovery = 99.54%								
Ba 233.527†	53678.7	501.06	µg/L	1.478	501.06	ppb	1.478	0.30%
QC value within limits for Ba 233.527 Recovery = 100.21%								
Be 313.107†	868459.2	502.90	µg/L	1.560	502.90	ppb	1.560	0.31%
QC value within limits for Be 313.107 Recovery = 100.58%								
Ca 317.933Radial†	10362.6	4914.1	µg/L	15.26	4914.1	ppb	15.26	0.31%
QC value within limits for Ca 317.933Radial Recovery = 98.28%								
Cd 226.502†	33968.3	504.40	µg/L	1.056	504.40	ppb	1.056	0.21%
QC value within limits for Cd 226.502 Recovery = 100.88%								
Co 228.616†	20902.0	507.51	µg/L	1.792	507.51	ppb	1.792	0.35%

QC value within limits for Co 228.616 Recovery = 101.50%

Cr 267.716†	25590.6	500.40 µg/L	1.550	500.40 ppb	1.550	0.31%

QC value within limits for Cr 267.716 Recovery = 100.08%

Cu 324.752†	121899.1	503.35 µg/L	1.351	503.35 ppb	1.351	0.27%

QC value within limits for Cu 324.752 Recovery = 100.67%

Fe 238.204 Radial†	9244.5	5046.9 µg/L	18.32	5046.9 ppb	18.32	0.36%

QC value within limits for Fe 238.204 Radial Recovery = 100.94%

K 766.490 Radial†	10656.5	5039.1 µg/L	24.22	5039.1 ppb	24.22	0.48%

QC value within limits for K 766.490 Radial Recovery = 100.78%

Mg 279.077 IEC†	976.4	5172.6 µg/L	17.18	5172.6 ppb	17.18	0.33%

QC value within limits for Mg 279.077 IEC Recovery = 103.45%

Mn 257.610†	348373.7	497.35 µg/L	1.590	497.35 ppb	1.590	0.32%

QC value within limits for Mn 257.610 Recovery = 99.47%

Mo 202.031†	7365.9	502.42 µg/L	2.159	502.42 ppb	2.159	0.43%

QC value within limits for Mo 202.031 Recovery = 100.48%

Na 589.592 Radial†	4703.9	9791.5 µg/L	62.74	9791.5 ppb	62.74	0.64%

QC value within limits for Na 589.592 Radial Recovery = 97.92%

Ni 231.604†	17661.4	513.66 µg/L	2.391	513.66 ppb	2.391	0.47%

QC value within limits for Ni 231.604 Recovery = 102.73%

P 214.914†	3345.7	2490.7 µg/L	14.59	2490.7 ppb	14.59	0.59%

QC value within limits for P 214.914 Recovery = 99.63%

Pb 220.353†	3325.4	503.84 µg/L	3.305	503.84 ppb	3.305	0.66%

QC value within limits for Pb 220.353 Recovery = 100.77%

S 181.975 Axial†	581.1	1010.3 µg/L	16.09	1010.3 ppb	16.09	1.59%

QC value within limits for S 181.975 Axial Recovery = 101.03%

Sb 206.836†	1565.3	500.91 µg/L	2.454	500.91 ppb	2.454	0.49%

QC value within limits for Sb 206.836 Recovery = 100.18%

Se 196.026†	688.1	514.30 µg/L	2.171	514.30 ppb	2.171	0.42%

QC value within limits for Se 196.026 Recovery = 102.86%

SiO2†	43798.0	5489.0 µg/L	14.90	5489.0 ppb	14.90	0.27%

QC value within limits for SiO2 Recovery = 102.65%

Si 251.611†	54092.2	2541.2 µg/L	9.19	2541.2 ppb	9.19	0.36%

QC value within limits for Si 251.611 Recovery = 101.65%

Sn 189.927†	2305.6	505.84 µg/L	2.714	505.84 ppb	2.714	0.54%

QC value within limits for Sn 189.927 Recovery = 101.17%

Sr 421.552†	101555.8	495.92 µg/L	3.189	495.92 ppb	3.189	0.64%

QC value within limits for Sr 421.552 Recovery = 99.18%

Ti 334.940†	199951.9	501.11 µg/L	1.560	501.11 ppb	1.560	0.31%

QC value within limits for Ti 334.940 Recovery = 100.22%

Tl 190.801†	1457.9	501.07 µg/L	1.830	501.07 ppb	1.830	0.37%

QC value within limits for Tl 190.801 Recovery = 100.21%

U 367.007†	2030.3	474.5 µg/L	4.51	474.5 ppb	4.51	0.95%

QC value within limits for U 367.007 Recovery = 94.89%

V 292.402†	50912.7	506.56 µg/L	1.680	506.56 ppb	1.680	0.33%

QC value within limits for V 292.402 Recovery = 101.31%

Zn 213.857†	55336.1	505.54 µg/L	1.970	505.54 ppb	1.970	0.39%

QC value within limits for Zn 213.857 Recovery = 101.11%

All analyte(s) passed QC.

Sequence No.: 10 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/15/2012 8:47:35**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19976.8	19976.8	95.2	%			08:48:04
1	Al 396.153Radial†	523.3	723.4	215.21	µg/L	215.21	ppb	08:48:04
1	Ca 317.933Radial†	528.9	459.6	217.95	µg/L	217.95	ppb	08:48:25
1	Fe 238.204 Radial†	222.4	201.2	109.77	µg/L	109.77	ppb	08:48:25
1	K 766.490 Radial†	978.8	338.6	160.24	µg/L	160.24	ppb	08:48:04
1	Mg 279.077 IEC†	61.5	54.7	289.89	µg/L	289.89	ppb	08:48:25
1	Na 589.592 Radial†	64.6	113.2	235.69	µg/L	235.69	ppb	08:48:04
1	Sr 421.552†	446.8	1081.2	5.2791	µg/L	5.2791	ppb	08:48:04
1	Sc 361.383	674924.0	674924.0	94.713	%			08:49:21
1	Y 371.029	585245.7	585245.7	94.528	%			08:49:21
1	Ag 328.068†	428.4	831.5	5.3326	µg/L	5.3326	ppb	08:49:26
1	As 188.979†	34.9	45.7	25.635	µg/L	25.635	ppb	08:49:46
1	B 249.677†	1808.2	1812.2	51.484	µg/L	51.484	ppb	08:49:26
1	Ba 233.527†	381.0	573.1	5.3471	µg/L	5.3471	ppb	08:49:46
1	Be 313.107†	781.2	8819.2	5.1194	µg/L	5.1194	ppb	08:49:26
1	Cd 226.502†	132.0	364.7	5.4060	µg/L	5.4060	ppb	08:49:46
1	Co 228.616†	195.6	227.4	5.5309	µg/L	5.5309	ppb	08:49:46
1	Cr 267.716†	438.1	269.0	5.2087	µg/L	5.2087	ppb	08:49:46
1	Cu 324.752†	8831.1	2840.8	11.675	µg/L	11.675	ppb	08:49:26
1	Mn 257.610†	7423.4	7333.1	10.464	µg/L	10.464	ppb	08:49:26
1	Mo 202.031†	183.5	171.7	11.709	µg/L	11.709	ppb	08:49:46
1	Ni 231.604†	39.5	170.4	4.9571	µg/L	4.9571	ppb	08:49:46
1	P 214.914†	322.7	215.9	161.47	µg/L	161.47	ppb	08:49:46
1	Pb 220.353†	206.0	66.6	10.033	µg/L	10.033	ppb	08:49:46
1	S 181.975 Axial†	117.3	62.2	108.10	µg/L	108.10	ppb	08:49:46
1	Sb 206.836†	112.7	53.3	17.260	µg/L	17.260	ppb	08:49:46
1	Se 196.026†	40.0	47.5	35.387	µg/L	35.387	ppb	08:49:46
1	SiO2†	4538.2	1841.2	230.38	µg/L	230.38	ppb	08:49:26
1	Si 251.611†	2197.8	2138.4	100.60	µg/L	100.60	ppb	08:49:46
1	Sn 189.927†	67.2	44.2	9.6700	µg/L	9.6700	ppb	08:49:46
1	Ti 334.940†	1859.7	1970.7	4.9165	µg/L	4.9165	ppb	08:49:26
1	Tl 190.801†	17.0	66.4	22.753	µg/L	22.753	ppb	08:49:46
1	U 367.007†	509.4	243.4	59.19	µg/L	59.19	ppb	08:49:26
1	V 292.402†	408.5	491.4	5.0125	µg/L	5.0125	ppb	08:49:26
1	Zn 213.857†	2319.8	1248.0	11.443	µg/L	11.443	ppb	08:49:46
2	Sc RADIAL	19852.2	19852.2	94.6	%			08:48:30
2	Al 396.153Radial†	493.4	695.2	206.78	µg/L	206.78	ppb	08:48:30
2	Ca 317.933Radial†	528.6	462.8	219.46	µg/L	219.46	ppb	08:48:50
2	Fe 238.204 Radial†	222.0	202.2	110.34	µg/L	110.34	ppb	08:48:50
2	K 766.490 Radial†	1020.7	389.4	184.26	µg/L	184.26	ppb	08:48:30
2	Mg 279.077 IEC†	64.4	58.2	308.38	µg/L	308.38	ppb	08:48:50
2	Na 589.592 Radial†	105.6	157.0	326.81	µg/L	326.81	ppb	08:48:30
2	Sr 421.552†	425.3	1061.5	5.1826	µg/L	5.1826	ppb	08:48:30
2	Sc 361.383	668249.0	668249.0	93.777	%			08:49:51
2	Y 371.029	579743.3	579743.3	93.639	%			08:49:51
2	Ag 328.068†	441.7	850.1	5.4499	µg/L	5.4499	ppb	08:49:56
2	As 188.979†	44.7	56.5	31.694	µg/L	31.694	ppb	08:50:16
2	B 249.677†	1810.2	1833.4	52.088	µg/L	52.088	ppb	08:49:56
2	Ba 233.527†	380.5	576.6	5.3794	µg/L	5.3794	ppb	08:50:16
2	Be 313.107†	812.3	8860.6	5.1440	µg/L	5.1440	ppb	08:49:56
2	Cd 226.502†	121.2	354.5	5.2551	µg/L	5.2551	ppb	08:50:16
2	Co 228.616†	195.0	228.8	5.5649	µg/L	5.5649	ppb	08:50:16
2	Cr 267.716†	457.6	294.3	5.7012	µg/L	5.7012	ppb	08:50:16
2	Cu 324.752†	8744.0	2841.0	11.674	µg/L	11.674	ppb	08:49:56
2	Mn 257.610†	7425.0	7413.1	10.577	µg/L	10.577	ppb	08:49:56
2	Mo 202.031†	188.9	179.3	12.233	µg/L	12.233	ppb	08:50:16
2	Ni 231.604†	52.5	184.6	5.3706	µg/L	5.3706	ppb	08:50:16
2	P 214.914†	320.0	216.4	161.90	µg/L	161.90	ppb	08:50:16
2	Pb 220.353†	212.2	75.4	11.367	µg/L	11.367	ppb	08:50:16

2	S 181.975 Axial†	115.4	61.4	106.75 µg/L	106.75 ppb	08:50:16
2	Sb 206.836†	98.9	39.8	12.899 µg/L	12.899 ppb	08:50:16
2	Se 196.026†	36.0	43.7	32.546 µg/L	32.546 ppb	08:50:16
2	SiO2†	4504.5	1853.2	231.91 µg/L	231.91 ppb	08:49:56
2	Si 251.611†	2198.8	2162.7	101.73 µg/L	101.73 ppb	08:50:16
2	Sn 189.927†	75.4	53.7	11.751 µg/L	11.751 ppb	08:50:16
2	Ti 334.940†	1875.8	2007.6	5.0073 µg/L	5.0073 ppb	08:49:56
2	Tl 190.801†	25.1	75.2	25.757 µg/L	25.757 ppb	08:50:16
2	U 367.007†	515.8	255.6	62.19 µg/L	62.19 ppb	08:49:56
2	V 292.402†	389.8	475.9	4.8693 µg/L	4.8693 ppb	08:49:56
2	Zn 213.857†	2327.4	1280.6	11.741 µg/L	11.741 ppb	08:50:16
3	Sc RADIAL	19658.3	19658.3	93.7 %		08:48:55
3	Al 396.153Radial†	489.2	695.9	207.01 µg/L	207.01 ppb	08:48:55
3	Ca 317.933Radial†	516.4	455.3	215.90 µg/L	215.90 ppb	08:49:15
3	Fe 238.204 Radial†	216.9	199.0	108.59 µg/L	108.59 ppb	08:49:15
3	K 766.490 Radial†	1028.5	408.4	193.25 µg/L	193.25 ppb	08:48:55
3	Mg 279.077 IEC†	64.3	58.7	311.12 µg/L	311.12 ppb	08:49:15
3	Na 589.592 Radial†	58.7	108.0	224.85 µg/L	224.85 ppb	08:48:55
3	Sr 421.552†	341.0	975.9	4.7649 µg/L	4.7649 ppb	08:48:55
3	Sc 361.383	674968.1	674968.1	94.719 %		08:50:22
3	Y 371.029	585189.5	585189.5	94.519 %		08:50:22
3	Ag 328.068†	474.1	879.7	5.6411 µg/L	5.6411 ppb	08:50:27
3	As 188.979†	45.0	56.3	31.603 µg/L	31.603 ppb	08:50:47
3	B 249.677†	1840.1	1845.7	52.440 µg/L	52.440 ppb	08:50:27
3	Ba 233.527†	373.9	565.6	5.2776 µg/L	5.2776 ppb	08:50:47
3	Be 313.107†	780.6	8818.6	5.1198 µg/L	5.1198 ppb	08:50:27
3	Cd 226.502†	130.8	363.4	5.3872 µg/L	5.3872 ppb	08:50:47
3	Co 228.616†	184.4	215.5	5.2414 µg/L	5.2414 ppb	08:50:47
3	Cr 267.716†	483.3	316.6	6.1373 µg/L	6.1373 ppb	08:50:47
3	Cu 324.752†	8722.0	2725.0	11.195 µg/L	11.195 ppb	08:50:27
3	Mn 257.610†	7462.0	7373.4	10.521 µg/L	10.521 ppb	08:50:27
3	Mo 202.031†	187.9	176.3	12.026 µg/L	12.026 ppb	08:50:47
3	Ni 231.604†	51.6	183.2	5.3293 µg/L	5.3293 ppb	08:50:47
3	P 214.914†	329.8	223.4	167.12 µg/L	167.12 ppb	08:50:47
3	Pb 220.353†	222.1	83.6	12.611 µg/L	12.611 ppb	08:50:47
3	S 181.975 Axial†	111.7	56.3	97.807 µg/L	97.807 ppb	08:50:47
3	Sb 206.836†	106.0	46.1	14.943 µg/L	14.943 ppb	08:50:47
3	Se 196.026†	41.2	48.8	36.353 µg/L	36.353 ppb	08:50:47
3	SiO2†	4576.9	1881.8	235.50 µg/L	235.50 ppb	08:50:27
3	Si 251.611†	2195.0	2135.3	100.44 µg/L	100.44 ppb	08:50:47
3	Sn 189.927†	77.5	55.0	12.041 µg/L	12.041 ppb	08:50:47
3	Ti 334.940†	1871.6	1983.2	4.9458 µg/L	4.9458 ppb	08:50:27
3	Tl 190.801†	14.2	63.5	21.753 µg/L	21.753 ppb	08:50:47
3	U 367.007†	521.7	256.4	62.38 µg/L	62.38 ppb	08:50:27
3	V 292.402†	455.0	540.6	5.5035 µg/L	5.5035 ppb	08:50:27
3	Zn 213.857†	2311.3	1238.9	11.357 µg/L	11.357 ppb	08:50:47

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	672713.7	94.403	%	0.5426				0.57%
Sc RADIAL	19829.1	94.5	%	0.77				0.81%
Y 371.029	583392.8	94.229	%	0.5105				0.54%
Ag 328.068†	853.8	5.4745	µg/L	0.15575	5.4745	ppb	0.15575	2.84%
QC value within limits for Ag 328.068 Recovery = 109.49%								
Al 396.153Radial†	704.8	209.66	µg/L	4.801	209.66	ppb	4.801	2.29%
QC value within limits for Al 396.153Radial Recovery = 104.83%								
As 188.979†	52.8	29.644	µg/L	3.4722	29.644	ppb	3.4722	11.71%
QC value within limits for As 188.979 Recovery = 98.81%								
B 249.677†	1830.4	52.004	µg/L	0.4836	52.004	ppb	0.4836	0.93%
QC value within limits for B 249.677 Recovery = 104.01%								
Ba 233.527†	571.7	5.3347	µg/L	0.05206	5.3347	ppb	0.05206	0.98%
QC value within limits for Ba 233.527 Recovery = 106.69%								
Be 313.107†	8832.8	5.1277	µg/L	0.01412	5.1277	ppb	0.01412	0.28%
QC value within limits for Be 313.107 Recovery = 102.55%								
Ca 317.933Radial†	459.2	217.77	µg/L	1.787	217.77	ppb	1.787	0.82%
QC value within limits for Ca 317.933Radial Recovery = 108.89%								
Cd 226.502†	360.9	5.3494	µg/L	0.08225	5.3494	ppb	0.08225	1.54%
QC value within limits for Cd 226.502 Recovery = 106.99%								
Co 228.616†	223.9	5.4458	µg/L	0.17776	5.4458	ppb	0.17776	3.26%

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   QC value within limits for Co 228.616  Recovery = 108.92%
Cr 267.716†              293.3      5.6824 µg/L       0.46461      5.6824 ppb        0.46461   8.18%
   QC value within limits for Cr 267.716  Recovery = 113.65%
Cu 324.752†             2802.3      11.515 µg/L        0.2769      11.515 ppb         0.2769   2.40%
   QC value within limits for Cu 324.752  Recovery = 115.15%
Fe 238.204 Radial†       200.8      109.57 µg/L         0.892      109.57 ppb          0.892   0.81%
   QC value within limits for Fe 238.204 Radial  Recovery = 109.57%
K 766.490 Radial†        378.8      179.25 µg/L        17.071      179.25 ppb         17.071   9.52%
   QC value within limits for K 766.490 Radial  Recovery = 119.50%
Mg 279.077 IEC†           57.2      303.13 µg/L        11.547      303.13 ppb         11.547   3.81%
   QC value within limits for Mg 279.077 IEC  Recovery = 101.04%
Mn 257.610†             7373.2      10.521 µg/L        0.0568      10.521 ppb         0.0568   0.54%
   QC value within limits for Mn 257.610  Recovery = 105.21%
Mo 202.031†              175.8      11.989 µg/L        0.2635      11.989 ppb         0.2635   2.20%
   QC value within limits for Mo 202.031  Recovery = 119.89%
Na 589.592 Radial†       126.1      262.45 µg/L        56.001      262.45 ppb         56.001  21.34%
   QC value within limits for Na 589.592 Radial  Recovery = 87.48%
Ni 231.604†              179.4      5.2190 µg/L       0.22774      5.2190 ppb        0.22774   4.36%
   QC value within limits for Ni 231.604  Recovery = 104.38%
P 214.914†               218.6      163.50 µg/L         3.146      163.50 ppb          3.146   1.92%
   QC value within limits for P 214.914  Recovery = 109.00%
Pb 220.353†               75.2      11.337 µg/L        1.2895      11.337 ppb         1.2895  11.37%
   QC value within limits for Pb 220.353  Recovery = 113.37%
S 181.975 Axial†          60.0      104.22 µg/L         5.594      104.22 ppb          5.594   5.37%
   QC value within limits for S 181.975 Axial  Recovery = 104.22%
Sb 206.836†               46.4      15.034 µg/L        2.1819      15.034 ppb         2.1819  14.51%
   QC value greater than the upper limit for Sb 206.836  Recovery = 150.34%
Se 196.026†               46.7      34.762 µg/L        1.9788      34.762 ppb         1.9788   5.69%
   QC value within limits for Se 196.026  Recovery = 115.87%
SiO2†                   1858.7      232.59 µg/L         2.628      232.59 ppb          2.628   1.13%
   QC value within limits for SiO2  Recovery = 109.20%
Si 251.611†             2145.4      100.92 µg/L         0.703      100.92 ppb          0.703   0.70%
   QC value within limits for Si 251.611  Recovery = 100.92%
Sn 189.927†               51.0      11.154 µg/L        1.2934      11.154 ppb         1.2934  11.60%
   QC value within limits for Sn 189.927  Recovery = 111.54%
Sr 421.552†             1039.5      5.0755 µg/L       0.27329      5.0755 ppb        0.27329   5.38%
   QC value within limits for Sr 421.552  Recovery = 101.51%
Ti 334.940†             1987.2      4.9565 µg/L       0.04631      4.9565 ppb        0.04631   0.93%
   QC value within limits for Ti 334.940  Recovery = 99.13%
Tl 190.801†               68.3      23.421 µg/L        2.0839      23.421 ppb         2.0839   8.90%
   QC value within limits for Tl 190.801  Recovery = 117.11%
U 367.007†                251.8       61.25 µg/L         1.787       61.25 ppb          1.787   2.92%
   QC value within limits for U 367.007  Recovery = 122.50%
V 292.402†                502.6      5.1284 µg/L       0.33260      5.1284 ppb        0.33260   6.49%
   QC value within limits for V 292.402  Recovery = 102.57%
Zn 213.857†             1255.8      11.514 µg/L        0.2012      11.514 ppb         0.2012   1.75%
   QC value within limits for Zn 213.857  Recovery = 115.14%
QC Failed.  Continue with analysis.
```

Sequence No.: 11 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 8:50:54**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20139.1	20139.1	96.0	%			08:51:23
1	Al 396.153Radial†	-174.6	-8.1	-2.4179	µg/L	-2.4179	ppb	08:51:23
1	Ca 317.933Radial†	87.0	-5.2	-2.4677	µg/L	-2.4677	ppb	08:51:43
1	Fe 238.204 Radial†	31.1	-0.1	-0.0303	µg/L	-0.0303	ppb	08:51:43
1	K 766.490 Radial†	736.8	78.2	37.023	µg/L	37.023	ppb	08:51:23
1	Mg 279.077 IEC†	8.3	-1.3	-6.5733	µg/L	-6.5733	ppb	08:51:43
1	Na 589.592 Radial†	-67.3	-24.7	-51.345	µg/L	-51.345	ppb	08:51:23
1	Sr 421.552†	-641.3	-56.1	-0.2738	µg/L	-0.2738	ppb	08:51:23
1	Sc 361.383	673980.8	673980.8	94.581	%			08:52:40
1	Y 371.029	583968.3	583968.3	94.322	%			08:52:40
1	Ag 328.068†	-352.1	6.9	0.0392	µg/L	0.0392	ppb	08:52:45
1	As 188.979†	-8.5	-0.2	-0.1368	µg/L	-0.1368	ppb	08:53:05
1	B 249.677†	132.0	42.6	1.2108	µg/L	1.2108	ppb	08:53:05
1	Ba 233.527†	-151.6	10.5	0.0973	µg/L	0.0973	ppb	08:53:05
1	Be 313.107†	-7745.4	-194.8	-0.1098	µg/L	-0.1098	ppb	08:52:45
1	Cd 226.502†	-186.5	28.0	0.4166	µg/L	0.4166	ppb	08:53:05
1	Co 228.616†	-24.7	-5.3	-0.1272	µg/L	-0.1272	ppb	08:53:05
1	Cr 267.716†	202.6	20.6	0.3871	µg/L	0.3871	ppb	08:53:05
1	Cu 324.752†	6218.9	91.9	0.3662	µg/L	0.3662	ppb	08:52:45
1	Mn 257.610†	435.2	-44.5	-0.0633	µg/L	-0.0633	ppb	08:53:05
1	Mo 202.031†	26.9	6.3	0.4303	µg/L	0.4303	ppb	08:53:05
1	Ni 231.604†	-134.0	-13.0	-0.3771	µg/L	-0.3771	ppb	08:53:05
1	P 214.914†	135.9	18.9	14.152	µg/L	14.152	ppb	08:53:05
1	Pb 220.353†	141.4	-1.4	-0.2195	µg/L	-0.2195	ppb	08:53:05
1	S 181.975 Axial†	57.3	-1.1	-1.9374	µg/L	-1.9374	ppb	08:53:05
1	Sb 206.836†	75.7	14.3	4.6074	µg/L	4.6074	ppb	08:53:05
1	Se 196.026†	-2.9	2.3	1.7206	µg/L	1.7206	ppb	08:53:05
1	SiO2†	2861.7	75.4	9.5780	µg/L	9.5780	ppb	08:52:45
1	Si 251.611†	176.8	4.9	0.2212	µg/L	0.2212	ppb	08:53:05
1	Sn 189.927†	30.0	5.0	1.0847	µg/L	1.0847	ppb	08:53:05
1	Ti 334.940†	-64.2	-60.6	-0.1586	µg/L	-0.1586	ppb	08:52:45
1	Tl 190.801†	-48.5	-2.9	-0.9821	µg/L	-0.9821	ppb	08:53:05
1	U 367.007†	333.8	58.5	14.36	µg/L	14.36	ppb	08:52:45
1	V 292.402†	-125.6	-72.7	-0.6950	µg/L	-0.6950	ppb	08:52:45
1	Zn 213.857†	1202.7	70.3	0.6498	µg/L	0.6498	ppb	08:53:05
2	Sc RADIAL	20001.6	20001.6	95.3	%			08:51:48
2	Al 396.153Radial†	-172.1	-6.7	-1.9942	µg/L	-1.9942	ppb	08:51:48
2	Ca 317.933Radial†	82.3	-9.5	-4.4824	µg/L	-4.4824	ppb	08:52:08
2	Fe 238.204 Radial†	33.9	3.1	1.7150	µg/L	1.7150	ppb	08:52:08
2	K 766.490 Radial†	672.3	15.9	7.5378	µg/L	7.5378	ppb	08:51:48
2	Mg 279.077 IEC†	-1.3	-11.2	-59.226	µg/L	-59.226	ppb	08:52:08
2	Na 589.592 Radial†	-73.9	-32.1	-66.760	µg/L	-66.760	ppb	08:51:48
2	Sr 421.552†	-623.6	-42.1	-0.2055	µg/L	-0.2055	ppb	08:51:48
2	Sc 361.383	670266.5	670266.5	94.060	%			08:53:10
2	Y 371.029	580879.1	580879.1	93.823	%			08:53:10
2	Ag 328.068†	-293.8	66.8	0.4195	µg/L	0.4195	ppb	08:53:15
2	As 188.979†	-8.3	-0.1	-0.0428	µg/L	-0.0428	ppb	08:53:35
2	B 249.677†	121.0	31.6	0.8990	µg/L	0.8990	ppb	08:53:35
2	Ba 233.527†	-167.1	-6.8	-0.0649	µg/L	-0.0649	ppb	08:53:35
2	Be 313.107†	-7637.4	-125.4	-0.0721	µg/L	-0.0721	ppb	08:53:15
2	Cd 226.502†	-209.2	2.8	0.0415	µg/L	0.0415	ppb	08:53:35
2	Co 228.616†	-30.7	-11.8	-0.2863	µg/L	-0.2863	ppb	08:53:35
2	Cr 267.716†	191.8	10.3	0.1977	µg/L	0.1977	ppb	08:53:35
2	Cu 324.752†	6270.0	182.8	0.7507	µg/L	0.7507	ppb	08:53:15
2	Mn 257.610†	457.9	-17.8	-0.0235	µg/L	-0.0235	ppb	08:53:35
2	Mo 202.031†	21.3	0.6	0.0379	µg/L	0.0379	ppb	08:53:35
2	Ni 231.604†	-118.9	2.3	0.0670	µg/L	0.0670	ppb	08:53:35
2	P 214.914†	122.7	5.6	4.1766	µg/L	4.1766	ppb	08:53:35
2	Pb 220.353†	146.6	5.0	0.7518	µg/L	0.7518	ppb	08:53:35

2	S 181.975 Axial†	52.5	-5.9	-10.190 µg/L	-10.190 ppb		08:53:35
2	Sb 206.836†	66.4	4.9	1.5615 µg/L	1.5615 ppb		08:53:35
2	Se 196.026†	-1.6	3.6	2.7054 µg/L	2.7054 ppb		08:53:35
2	SiO2†	2833.4	62.0	7.7628 µg/L	7.7628 ppb		08:53:15
2	Si 251.611†	170.7	-0.6	-0.0268 µg/L	-0.0268 ppb		08:53:35
2	Sn 189.927†	22.8	-2.5	-0.5448 µg/L	-0.5448 ppb		08:53:35
2	Ti 334.940†	-87.4	-85.7	-0.2154 µg/L	-0.2154 ppb		08:53:15
2	Tl 190.801†	-39.1	6.8	2.3323 µg/L	2.3323 ppb		08:53:35
2	U 367.007†	284.5	8.0	1.952 µg/L	1.952 ppb		08:53:15
2	V 292.402†	-132.2	-80.4	-0.7857 µg/L	-0.7857 ppb		08:53:15
2	Zn 213.857†	1194.0	68.1	0.6267 µg/L	0.6267 ppb		08:53:35
3	Sc RADIAL	19988.2	19988.2	95.3 %			08:52:13
3	Al 396.153Radial†	-137.6	29.4	8.7349 µg/L	8.7349 ppb		08:52:13
3	Ca 317.933Radial†	90.9	-0.4	-0.1927 µg/L	-0.1927 ppb		08:52:33
3	Fe 238.204 Radial†	36.2	5.5	3.0032 µg/L	3.0032 ppb		08:52:33
3	K 766.490 Radial†	676.4	20.7	9.7989 µg/L	9.7989 ppb		08:52:13
3	Mg 279.077 IEC†	4.9	-4.7	-24.699 µg/L	-24.699 ppb		08:52:33
3	Na 589.592 Radial†	-83.1	-41.8	-86.966 µg/L	-86.966 ppb		08:52:13
3	Sr 421.552†	-615.7	-34.3	-0.1674 µg/L	-0.1674 ppb		08:52:13
3	Sc 361.383	668739.3	668739.3	93.845 %			08:53:40
3	Y 371.029	579470.5	579470.5	93.595 %			08:53:40
3	Ag 328.068†	-401.6	-48.9	-0.3112 µg/L	-0.3112 ppb		08:53:45
3	As 188.979†	-8.0	0.3	0.1471 µg/L	0.1471 ppb		08:54:05
3	B 249.677†	121.9	32.9	0.9350 µg/L	0.9350 ppb		08:54:05
3	Ba 233.527†	-162.9	-2.7	-0.0259 µg/L	-0.0259 ppb		08:54:05
3	Be 313.107†	-7802.6	-319.9	-0.1816 µg/L	-0.1816 ppb		08:53:45
3	Cd 226.502†	-231.9	-21.8	-0.3251 µg/L	-0.3251 ppb		08:54:05
3	Co 228.616†	-14.2	5.7	0.1385 µg/L	0.1385 ppb		08:54:05
3	Cr 267.716†	194.1	13.2	0.2399 µg/L	0.2399 ppb		08:54:05
3	Cu 324.752†	6243.9	170.2	0.6862 µg/L	0.6862 ppb		08:53:45
3	Mn 257.610†	449.9	-25.2	-0.0349 µg/L	-0.0349 ppb		08:54:05
3	Mo 202.031†	28.8	8.6	0.5871 µg/L	0.5871 ppb		08:54:05
3	Ni 231.604†	-137.3	-17.6	-0.5130 µg/L	-0.5130 ppb		08:54:05
3	P 214.914†	121.4	4.5	3.3500 µg/L	3.3500 ppb		08:54:05
3	Pb 220.353†	151.7	10.7	1.6136 µg/L	1.6136 ppb		08:54:05
3	S 181.975 Axial†	55.8	-2.2	-3.8452 µg/L	-3.8452 ppb		08:54:05
3	Sb 206.836†	76.7	16.1	5.1901 µg/L	5.1901 ppb		08:54:05
3	Se 196.026†	-3.3	1.8	1.3777 µg/L	1.3777 ppb		08:54:05
3	SiO2†	2874.8	113.1	14.307 µg/L	14.307 ppb		08:53:45
3	Si 251.611†	181.8	11.7	0.5368 µg/L	0.5368 ppb		08:54:05
3	Sn 189.927†	32.3	7.7	1.6750 µg/L	1.6750 ppb		08:54:05
3	Ti 334.940†	-23.4	-17.6	-0.0522 µg/L	-0.0522 ppb		08:53:45
3	Tl 190.801†	-47.8	-2.5	-0.8559 µg/L	-0.8559 ppb		08:54:05
3	U 367.007†	344.7	72.9	17.87 µg/L	17.87 ppb		08:53:45
3	V 292.402†	-88.0	-33.6	-0.3073 µg/L	-0.3073 ppb		08:53:45
3	Zn 213.857†	1203.5	81.1	0.7496 µg/L	0.7496 ppb		08:54:05

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	670995.5	94.162	%	0.3783				0.40%
Sc RADIAL	20042.9	95.5	%	0.40				0.42%
Y 371.029	581439.3	93.913	%	0.3716				0.40%
Ag 328.068†	8.3	0.0492	µg/L	0.36542	0.0492	ppb	0.36542	743.37%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	4.9	1.4409	µg/L	6.32032	1.4409	ppb	6.32032	438.64%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-0.0	-0.0108	µg/L	0.14465	-0.0108	ppb	0.14465	>999.9%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	35.7	1.0149	µg/L	0.17062	1.0149	ppb	0.17062	16.81%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	0.3	0.0022	µg/L	0.08466	0.0022	ppb	0.08466	>999.9%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-213.4	-0.1212	µg/L	0.05560	-0.1212	ppb	0.05560	45.88%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-5.0	-2.3810	µg/L	2.14616	-2.3810	ppb	2.14616	90.14%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	3.0	0.0444	µg/L	0.37085	0.0444	ppb	0.37085	836.19%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	-3.8	-0.0916	µg/L	0.21462	-0.0916	ppb	0.21462	234.18%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              14.7      0.2749 µg/L       0.09947      0.2749 ppb        0.09947  36.18%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             148.3      0.6011 µg/L       0.20592      0.6011 ppb        0.20592  34.26%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        2.9      1.5627 µg/L       1.52245      1.5627 ppb        1.52245  97.43%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        38.3      18.120 µg/L       16.4097      18.120 ppb        16.4097  90.56%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          -5.7     -30.166 µg/L       26.7489     -30.166 ppb        26.7489  88.67%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†             -29.2     -0.0406 µg/L       0.02048     -0.0406 ppb        0.02048  50.49%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               5.2      0.3518 µg/L       0.28287      0.3518 ppb        0.28287  80.42%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -32.8     -68.357 µg/L       17.8643     -68.357 ppb        17.8643  26.13%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -9.4     -0.2744 µg/L       0.30337     -0.2744 ppb        0.30337 110.58%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                9.7      7.2261 µg/L       6.01191      7.2261 ppb        6.01191  83.20%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               4.8      0.7153 µg/L       0.91709      0.7153 ppb        0.91709 128.21%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -3.1     -5.3242 µg/L       4.32047     -5.3242 ppb        4.32047  81.15%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              11.7      3.7863 µg/L       1.94868      3.7863 ppb        1.94868  51.47%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               2.6      1.9346 µg/L       0.68921      1.9346 ppb        0.68921  35.63%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    83.5      10.549 µg/L        3.3783      10.549 ppb         3.3783  32.02%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               5.3      0.2437 µg/L       0.28249      0.2437 ppb        0.28249 115.90%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               3.4      0.7383 µg/L       1.14974      0.7383 ppb        1.14974 155.74%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             -44.1     -0.2156 µg/L       0.05390     -0.2156 ppb        0.05390  25.01%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -54.6     -0.1420 µg/L       0.08283     -0.1420 ppb        0.08283  58.31%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               0.5      0.1647 µg/L       1.87820      0.1647 ppb        1.87820 >999.9%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               46.5       11.39 µg/L         8.364       11.39 ppb          8.364  73.40%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              -62.2     -0.5960 µg/L       0.25412     -0.5960 ppb        0.25412  42.64%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              73.2      0.6754 µg/L       0.06533      0.6754 ppb        0.06533   9.67%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 13 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 8:57:17**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19970.6	19970.6	95.2	%			08:57:46
1	Al 396.153Radial†	15667.0	16632.5	4939.4	µg/L	4939.4	ppb	08:57:46
1	Ca 317.933Radial†	9988.1	10397.1	4930.4	µg/L	4930.4	ppb	08:58:06
1	Fe 238.204 Radial†	8842.6	9257.1	5053.7	µg/L	5053.7	ppb	08:58:06
1	K 766.490 Radial†	10693.8	10545.0	4986.3	µg/L	4986.3	ppb	08:57:46
1	Mg 279.077 IEC†	939.7	977.3	5177.4	µg/L	5177.4	ppb	08:58:06
1	Na 589.592 Radial†	4462.6	4733.5	9853.1	µg/L	9853.1	ppb	08:58:06
1	Sr 421.552†	95020.3	100434.4	490.44	µg/L	490.44	ppb	08:57:46
1	Sc 361.383	682108.1	682108.1	95.721	%			08:59:03
1	Y 371.029	587693.7	587693.7	94.923	%			08:59:03
1	Ag 328.068†	76177.5	79961.6	511.62	µg/L	511.62	ppb	08:59:09
1	As 188.979†	838.7	885.0	497.08	µg/L	497.08	ppb	08:59:29
1	B 249.677†	16840.2	17495.9	495.74	µg/L	495.74	ppb	08:59:09
1	Ba 233.527†	51204.6	53664.2	500.92	µg/L	500.92	ppb	08:59:09
1	Be 313.107†	823428.2	868228.2	502.76	µg/L	502.76	ppb	08:59:03
1	Cd 226.502†	32217.2	33882.5	503.12	µg/L	503.12	ppb	08:59:09
1	Co 228.616†	19981.9	20895.8	507.36	µg/L	507.36	ppb	08:59:09
1	Cr 267.716†	24548.0	25451.6	497.69	µg/L	497.69	ppb	08:59:09
1	Cu 324.752†	122677.2	121677.4	502.45	µg/L	502.45	ppb	08:59:09
1	Mn 257.610†	333460.2	347860.5	496.62	µg/L	496.62	ppb	08:59:09
1	Mo 202.031†	7015.3	7306.8	498.39	µg/L	498.39	ppb	08:59:29
1	Ni 231.604†	16751.4	17628.9	512.72	µg/L	512.72	ppb	08:59:09
1	P 214.914†	3300.3	3323.0	2473.6	µg/L	2473.6	ppb	08:59:29
1	Pb 220.353†	3279.6	3275.4	496.29	µg/L	496.29	ppb	08:59:29
1	S 181.975 Axial†	616.3	582.2	1012.1	µg/L	1012.1	ppb	08:59:29
1	Sb 206.836†	1542.2	1545.4	494.50	µg/L	494.50	ppb	08:59:29
1	Se 196.026†	649.7	684.1	511.27	µg/L	511.27	ppb	08:59:29
1	SiO2†	44637.1	43682.0	5474.3	µg/L	5474.3	ppb	08:59:09
1	Si 251.611†	51833.2	53968.0	2535.4	µg/L	2535.4	ppb	08:59:09
1	Sn 189.927†	2216.5	2288.8	502.18	µg/L	502.18	ppb	08:59:29
1	Ti 334.940†	191026.3	199572.0	500.17	µg/L	500.17	ppb	08:59:09
1	Tl 190.801†	1344.1	1452.6	499.24	µg/L	499.24	ppb	08:59:29
1	U 367.007†	2179.2	1982.1	462.6	µg/L	462.6	ppb	08:59:09
1	V 292.402†	48583.5	50815.3	505.54	µg/L	505.54	ppb	08:59:09
1	Zn 213.857†	53972.0	55183.1	504.14	µg/L	504.14	ppb	08:59:09
2	Sc RADIAL	19930.6	19930.6	95.0	%			08:58:11
2	Al 396.153Radial†	15828.9	16836.1	4999.8	µg/L	4999.8	ppb	08:58:11
2	Ca 317.933Radial†	10016.4	10447.9	4954.5	µg/L	4954.5	ppb	08:58:31
2	Fe 238.204 Radial†	8847.0	9280.4	5066.5	µg/L	5066.5	ppb	08:58:31
2	K 766.490 Radial†	10791.7	10670.5	5045.7	µg/L	5045.7	ppb	08:58:11
2	Mg 279.077 IEC†	946.6	986.5	5226.4	µg/L	5226.4	ppb	08:58:31
2	Na 589.592 Radial†	4377.0	4652.9	9685.2	µg/L	9685.2	ppb	08:58:31
2	Sr 421.552†	96033.6	101701.5	496.63	µg/L	496.63	ppb	08:58:11
2	Sc 361.383	678187.3	678187.3	95.171	%			08:59:34
2	Y 371.029	584145.4	584145.4	94.350	%			08:59:34
2	Ag 328.068†	76396.5	80651.9	516.02	µg/L	516.02	ppb	08:59:39
2	As 188.979†	847.9	899.7	505.34	µg/L	505.34	ppb	08:59:59
2	B 249.677†	16849.9	17607.8	498.92	µg/L	498.92	ppb	08:59:39
2	Ba 233.527†	51086.5	53849.3	502.65	µg/L	502.65	ppb	08:59:39
2	Be 313.107†	819793.4	869382.1	503.43	µg/L	503.43	ppb	08:59:34
2	Cd 226.502†	32190.4	34049.0	505.60	µg/L	505.60	ppb	08:59:39
2	Co 228.616†	19916.6	20948.0	508.63	µg/L	508.63	ppb	08:59:39
2	Cr 267.716†	24548.2	25600.1	500.59	µg/L	500.59	ppb	08:59:39
2	Cu 324.752†	122646.4	122385.9	505.36	µg/L	505.36	ppb	08:59:39
2	Mn 257.610†	333076.0	349470.8	498.91	µg/L	498.91	ppb	08:59:39
2	Mo 202.031†	7053.8	7389.6	504.03	µg/L	504.03	ppb	08:59:59
2	Ni 231.604†	16728.8	17706.2	514.97	µg/L	514.97	ppb	08:59:39
2	P 214.914†	3291.1	3333.2	2481.2	µg/L	2481.2	ppb	08:59:59
2	Pb 220.353†	3311.2	3328.3	504.29	µg/L	504.29	ppb	08:59:59

2	S 181.975 Axial†	613.7	583.2	1013.9 µg/L	1013.9 ppb	08:59:59
2	Sb 206.836†	1547.0	1559.8	499.18 µg/L	499.18 ppb	08:59:59
2	Se 196.026†	650.1	688.3	514.47 µg/L	514.47 ppb	08:59:59
2	SiO2†	44646.6	43961.6	5509.4 µg/L	5509.4 ppb	08:59:39
2	Si 251.611†	51803.1	54249.4	2548.5 µg/L	2548.5 ppb	08:59:39
2	Sn 189.927†	2240.5	2327.4	510.62 µg/L	510.62 ppb	08:59:59
2	Ti 334.940†	190926.5	200620.9	502.79 µg/L	502.79 ppb	08:59:39
2	Tl 190.801†	1353.4	1470.5	505.36 µg/L	505.36 ppb	08:59:59
2	U 367.007†	2213.8	2031.7	474.7 µg/L	474.7 ppb	08:59:39
2	V 292.402†	48608.6	51135.0	508.76 µg/L	508.76 ppb	08:59:39
2	Zn 213.857†	53875.4	55407.6	506.19 µg/L	506.19 ppb	08:59:39
3	Sc RADIAL	19866.7	19866.7	94.7 %		08:58:36
3	Al 396.153Radial†	15842.4	16903.8	5019.9 µg/L	5019.9 ppb	08:58:36
3	Ca 317.933Radial†	10016.8	10482.2	4970.8 µg/L	4970.8 ppb	08:58:57
3	Fe 238.204 Radial†	8845.9	9309.1	5082.1 µg/L	5082.1 ppb	08:58:57
3	K 766.490 Radial†	10864.0	10783.4	5099.0 µg/L	5099.0 ppb	08:58:36
3	Mg 279.077 IEC†	943.8	986.8	5227.8 µg/L	5227.8 ppb	08:58:57
3	Na 589.592 Radial†	4462.5	4758.0	9904.0 µg/L	9904.0 ppb	08:58:57
3	Sr 421.552†	96020.6	102012.6	498.15 µg/L	498.15 ppb	08:58:36
3	Sc 361.383	676078.0	676078.0	94.875 %		09:00:05
3	Y 371.029	582374.3	582374.3	94.064 %		09:00:05
3	Ag 328.068†	76593.3	81109.7	518.95 µg/L	518.95 ppb	09:00:10
3	As 188.979†	840.8	895.1	502.73 µg/L	502.73 ppb	09:00:30
3	B 249.677†	16971.7	17791.5	504.14 µg/L	504.14 ppb	09:00:10
3	Ba 233.527†	51435.9	54385.1	507.65 µg/L	507.65 ppb	09:00:10
3	Be 313.107†	824036.7	876542.0	507.58 µg/L	507.58 ppb	09:00:05
3	Cd 226.502†	32535.1	34517.7	512.56 µg/L	512.56 ppb	09:00:10
3	Co 228.616†	20003.3	21104.7	512.43 µg/L	512.43 ppb	09:00:10
3	Cr 267.716†	24760.7	25904.6	506.54 µg/L	506.54 ppb	09:00:10
3	Cu 324.752†	123117.1	123284.1	509.07 µg/L	509.07 ppb	09:00:10
3	Mn 257.610†	334903.9	352489.4	503.22 µg/L	503.22 ppb	09:00:10
3	Mo 202.031†	7059.5	7418.7	506.02 µg/L	506.02 ppb	09:00:30
3	Ni 231.604†	16814.0	17850.9	519.17 µg/L	519.17 ppb	09:00:10
3	P 214.914†	3330.3	3385.4	2520.3 µg/L	2520.3 ppb	09:00:30
3	Pb 220.353†	3321.3	3349.8	507.55 µg/L	507.55 ppb	09:00:30
3	S 181.975 Axial†	623.4	595.4	1035.1 µg/L	1035.1 ppb	09:00:30
3	Sb 206.836†	1544.3	1562.0	499.78 µg/L	499.78 ppb	09:00:30
3	Se 196.026†	656.5	697.3	521.10 µg/L	521.10 ppb	09:00:30
3	SiO2†	44823.3	44294.2	5551.2 µg/L	5551.2 ppb	09:00:10
3	Si 251.611†	51978.5	54604.1	2565.2 µg/L	2565.2 ppb	09:00:10
3	Sn 189.927†	2244.8	2339.3	513.24 µg/L	513.24 ppb	09:00:30
3	Ti 334.940†	191827.6	202196.6	506.74 µg/L	506.74 ppb	09:00:10
3	Tl 190.801†	1350.7	1472.1	505.94 µg/L	505.94 ppb	09:00:30
3	U 367.007†	2231.1	2057.2	480.9 µg/L	480.9 ppb	09:00:10
3	V 292.402†	48828.3	51526.0	512.63 µg/L	512.63 ppb	09:00:10
3	Zn 213.857†	54317.6	56050.3	512.08 µg/L	512.08 ppb	09:00:10

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	678791.1	95.256	%	0.4294				0.45%
Sc RADIAL	19922.6	95.0	%	0.25				0.26%
Y 371.029	584737.8	94.446	%	0.4375				0.46%
Ag 328.068†	80574.4	515.53	µg/L	3.691	515.53	ppb	3.691	0.72%
QC value within limits for Ag 328.068 Recovery = 103.11%								
Al 396.153Radial†	16790.8	4986.4	µg/L	41.94	4986.4	ppb	41.94	0.84%
QC value within limits for Al 396.153Radial Recovery = 99.73%								
As 188.979†	893.3	501.72	µg/L	4.223	501.72	ppb	4.223	0.84%
QC value within limits for As 188.979 Recovery = 100.34%								
B 249.677†	17631.7	499.60	µg/L	4.238	499.60	ppb	4.238	0.85%
QC value within limits for B 249.677 Recovery = 99.92%								
Ba 233.527†	53966.2	503.74	µg/L	3.495	503.74	ppb	3.495	0.69%
QC value within limits for Ba 233.527 Recovery = 100.75%								
Be 313.107†	871384.1	504.59	µg/L	2.609	504.59	ppb	2.609	0.52%
QC value within limits for Be 313.107 Recovery = 100.92%								
Ca 317.933Radial†	10442.4	4951.9	µg/L	20.30	4951.9	ppb	20.30	0.41%
QC value within limits for Ca 317.933Radial Recovery = 99.04%								
Cd 226.502†	34149.7	507.09	µg/L	4.896	507.09	ppb	4.896	0.97%
QC value within limits for Cd 226.502 Recovery = 101.42%								
Co 228.616†	20982.8	509.47	µg/L	2.639	509.47	ppb	2.639	0.52%

QC value within limits for Co 228.616 Recovery = 101.89%

Cr 267.716†	25652.1	501.60 µg/L	4.510	501.60 ppb	4.510	0.90%
QC value within limits for Cr 267.716 Recovery = 100.32%						
Cu 324.752†	122449.1	505.63 µg/L	3.316	505.63 ppb	3.316	0.66%
QC value within limits for Cu 324.752 Recovery = 101.13%						
Fe 238.204 Radial†	9282.2	5067.4 µg/L	14.22	5067.4 ppb	14.22	0.28%
QC value within limits for Fe 238.204 Radial Recovery = 101.35%						
K 766.490 Radial†	10666.3	5043.7 µg/L	56.41	5043.7 ppb	56.41	1.12%
QC value within limits for K 766.490 Radial Recovery = 100.87%						
Mg 279.077 IEC†	983.5	5210.5 µg/L	28.71	5210.5 ppb	28.71	0.55%
QC value within limits for Mg 279.077 IEC Recovery = 104.21%						
Mn 257.610†	349940.3	499.58 µg/L	3.353	499.58 ppb	3.353	0.67%
QC value within limits for Mn 257.610 Recovery = 99.92%						
Mo 202.031†	7371.7	502.81 µg/L	3.959	502.81 ppb	3.959	0.79%
QC value within limits for Mo 202.031 Recovery = 100.56%						
Na 589.592 Radial†	4714.8	9814.1 µg/L	114.47	9814.1 ppb	114.47	1.17%
QC value within limits for Na 589.592 Radial Recovery = 98.14%						
Ni 231.604†	17728.7	515.62 µg/L	3.277	515.62 ppb	3.277	0.64%
QC value within limits for Ni 231.604 Recovery = 103.12%						
P 214.914†	3347.2	2491.7 µg/L	25.01	2491.7 ppb	25.01	1.00%
QC value within limits for P 214.914 Recovery = 99.67%						
Pb 220.353†	3317.9	502.71 µg/L	5.795	502.71 ppb	5.795	1.15%
QC value within limits for Pb 220.353 Recovery = 100.54%						
S 181.975 Axial†	586.9	1020.4 µg/L	12.83	1020.4 ppb	12.83	1.26%
QC value within limits for S 181.975 Axial Recovery = 102.04%						
Sb 206.836†	1555.7	497.82 µg/L	2.891	497.82 ppb	2.891	0.58%
QC value within limits for Sb 206.836 Recovery = 99.56%						
Se 196.026†	689.9	515.62 µg/L	5.012	515.62 ppb	5.012	0.97%
QC value within limits for Se 196.026 Recovery = 103.12%						
SiO2†	43979.3	5511.6 µg/L	38.51	5511.6 ppb	38.51	0.70%
QC value within limits for SiO2 Recovery = 103.07%						
Si 251.611†	54273.8	2549.7 µg/L	14.96	2549.7 ppb	14.96	0.59%
QC value within limits for Si 251.611 Recovery = 101.99%						
Sn 189.927†	2318.5	508.68 µg/L	5.775	508.68 ppb	5.775	1.14%
QC value within limits for Sn 189.927 Recovery = 101.74%						
Sr 421.552†	101382.8	495.08 µg/L	4.082	495.08 ppb	4.082	0.82%
QC value within limits for Sr 421.552 Recovery = 99.02%						
Ti 334.940†	200796.5	503.23 µg/L	3.308	503.23 ppb	3.308	0.66%
QC value within limits for Ti 334.940 Recovery = 100.65%						
Tl 190.801†	1465.1	503.52 µg/L	3.711	503.52 ppb	3.711	0.74%
QC value within limits for Tl 190.801 Recovery = 100.70%						
U 367.007†	2023.7	472.8 µg/L	9.30	472.8 ppb	9.30	1.97%
QC value within limits for U 367.007 Recovery = 94.55%						
V 292.402†	51158.8	508.98 µg/L	3.552	508.98 ppb	3.552	0.70%
QC value within limits for V 292.402 Recovery = 101.80%						
Zn 213.857†	55547.0	507.47 µg/L	4.122	507.47 ppb	4.122	0.81%
QC value within limits for Zn 213.857 Recovery = 101.49%						

All analyte(s) passed QC.

Sequence No.: 14 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 9:00:38**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19637.4	19637.4	93.6	%			09:01:06
1	Al 396.153Radial†	-118.6	47.1	13.981	µg/L	13.981	ppb	09:01:06
1	Ca 317.933Radial†	87.3	-2.5	-1.2029	µg/L	-1.2029	ppb	09:01:26
1	Fe 238.204 Radial†	32.3	2.1	1.1568	µg/L	1.1568	ppb	09:01:26
1	K 766.490 Radial†	712.4	71.8	33.967	µg/L	33.967	ppb	09:01:06
1	Mg 279.077 IEC†	2.8	-6.9	-36.297	µg/L	-36.297	ppb	09:01:26
1	Na 589.592 Radial†	-84.9	-45.3	-94.260	µg/L	-94.260	ppb	09:01:06
1	Sr 421.552†	-600.3	-29.3	-0.1432	µg/L	-0.1432	ppb	09:01:06
1	Sc 361.383	668065.6	668065.6	93.751	%			09:02:23
1	Y 371.029	578986.0	578986.0	93.517	%			09:02:23
1	Ag 328.068†	-275.4	85.4	0.5406	µg/L	0.5406	ppb	09:02:28
1	As 188.979†	-14.1	-6.3	-3.5336	µg/L	-3.5336	ppb	09:02:48
1	B 249.677†	126.4	37.8	1.0742	µg/L	1.0742	ppb	09:02:48
1	Ba 233.527†	-144.6	16.5	0.1538	µg/L	0.1538	ppb	09:02:48
1	Be 313.107†	-7683.3	-201.1	-0.1141	µg/L	-0.1141	ppb	09:02:28
1	Cd 226.502†	-211.0	0.2	0.0020	µg/L	0.0020	ppb	09:02:48
1	Co 228.616†	2.6	23.6	0.5766	µg/L	0.5766	ppb	09:02:48
1	Cr 267.716†	217.9	38.8	0.7477	µg/L	0.7477	ppb	09:02:48
1	Cu 324.752†	6320.7	258.7	1.0570	µg/L	1.0570	ppb	09:02:28
1	Mn 257.610†	475.4	2.4	0.0047	µg/L	0.0047	ppb	09:02:48
1	Mo 202.031†	41.7	22.4	1.5276	µg/L	1.5276	ppb	09:02:48
1	Ni 231.604†	-125.7	-5.4	-0.1575	µg/L	-0.1575	ppb	09:02:48
1	P 214.914†	126.2	9.8	7.2985	µg/L	7.2985	ppb	09:02:48
1	Pb 220.353†	139.9	-1.6	-0.2516	µg/L	-0.2516	ppb	09:02:48
1	S 181.975 Axial†	62.9	5.5	9.4818	µg/L	9.4818	ppb	09:02:48
1	Sb 206.836†	78.9	18.4	5.9468	µg/L	5.9468	ppb	09:02:48
1	Se 196.026†	0.9	6.3	4.7057	µg/L	4.7057	ppb	09:02:48
1	SiO2†	2883.1	125.0	15.748	µg/L	15.748	ppb	09:02:28
1	Si 251.611†	182.4	12.5	0.5649	µg/L	0.5649	ppb	09:02:48
1	Sn 189.927†	32.5	7.9	1.7247	µg/L	1.7247	ppb	09:02:48
1	Ti 334.940†	-90.3	-89.0	-0.2282	µg/L	-0.2282	ppb	09:02:28
1	Tl 190.801†	-42.6	2.9	1.0106	µg/L	1.0106	ppb	09:02:48
1	U 367.007†	317.4	44.1	10.82	µg/L	10.82	ppb	09:02:28
1	V 292.402†	-77.7	-22.7	-0.1941	µg/L	-0.1941	ppb	09:02:28
1	Zn 213.857†	1192.6	70.8	0.6523	µg/L	0.6523	ppb	09:02:48
2	Sc RADIAL	19709.9	19709.9	93.9	%			09:01:31
2	Al 396.153Radial†	-149.2	15.0	4.3805	µg/L	4.3805	ppb	09:01:31
2	Ca 317.933Radial†	97.6	8.1	3.8262	µg/L	3.8262	ppb	09:01:51
2	Fe 238.204 Radial†	30.3	-0.2	-0.1066	µg/L	-0.1066	ppb	09:01:51
2	K 766.490 Radial†	716.6	73.5	34.768	µg/L	34.768	ppb	09:01:31
2	Mg 279.077 IEC†	5.5	-4.0	-21.084	µg/L	-21.084	ppb	09:01:51
2	Na 589.592 Radial†	-80.4	-40.2	-83.734	µg/L	-83.734	ppb	09:01:31
2	Sr 421.552†	-625.9	-54.2	-0.2648	µg/L	-0.2648	ppb	09:01:31
2	Sc 361.383	666277.2	666277.2	93.500	%			09:02:53
2	Y 371.029	577499.0	577499.0	93.277	%			09:02:53
2	Ag 328.068†	-290.2	68.8	0.4340	µg/L	0.4340	ppb	09:02:58
2	As 188.979†	-14.1	-6.3	-3.5507	µg/L	-3.5507	ppb	09:03:18
2	B 249.677†	118.2	29.4	0.8356	µg/L	0.8356	ppb	09:03:18
2	Ba 233.527†	-154.0	6.1	0.0561	µg/L	0.0561	ppb	09:03:18
2	Be 313.107†	-7831.9	-381.9	-0.2178	µg/L	-0.2178	ppb	09:02:58
2	Cd 226.502†	-224.2	-14.6	-0.2163	µg/L	-0.2163	ppb	09:03:18
2	Co 228.616†	-12.1	7.9	0.1946	µg/L	0.1946	ppb	09:03:18
2	Cr 267.716†	193.2	13.0	0.2388	µg/L	0.2388	ppb	09:03:18
2	Cu 324.752†	6296.6	251.0	1.0206	µg/L	1.0206	ppb	09:02:58
2	Mn 257.610†	455.0	-18.0	-0.0250	µg/L	-0.0250	ppb	09:03:18
2	Mo 202.031†	51.9	33.5	2.2818	µg/L	2.2818	ppb	09:03:18
2	Ni 231.604†	-118.5	1.9	0.0557	µg/L	0.0557	ppb	09:03:18
2	P 214.914†	113.6	-3.3	-2.5403	µg/L	-2.5403	ppb	09:03:18
2	Pb 220.353†	176.1	37.4	5.6635	µg/L	5.6635	ppb	09:03:18

2	S 181.975 Axial†	60.5	3.1	5.3996 µg/L	5.3996 ppb	09:03:18
2	Sb 206.836†	78.2	18.0	5.8323 µg/L	5.8323 ppb	09:03:18
2	Se 196.026†	-1.1	4.2	3.1268 µg/L	3.1268 ppb	09:03:18
2	SiO2†	2861.7	110.3	13.950 µg/L	13.950 ppb	09:02:58
2	Si 251.611†	184.7	15.5	0.6912 µg/L	0.6912 ppb	09:03:18
2	Sn 189.927†	39.4	15.3	3.3420 µg/L	3.3420 ppb	09:03:18
2	Ti 334.940†	-124.2	-125.5	-0.3217 µg/L	-0.3217 ppb	09:02:58
2	Tl 190.801†	-33.5	12.6	4.3022 µg/L	4.3022 ppb	09:03:18
2	U 367.007†	335.1	63.9	15.68 µg/L	15.68 ppb	09:02:58
2	V 292.402†	-94.2	-40.5	-0.3583 µg/L	-0.3583 ppb	09:02:58
2	Zn 213.857†	1207.8	90.5	0.8329 µg/L	0.8329 ppb	09:03:18
3	Sc RADIAL	19785.9	19785.9	94.3 %		09:01:56
3	Al 396.153Radial†	-168.3	-4.6	-1.4609 µg/L	-1.4609 ppb	09:01:56
3	Ca 317.933Radial†	98.5	8.6	4.0739 µg/L	4.0739 ppb	09:02:16
3	Fe 238.204 Radial†	30.7	0.1	0.0521 µg/L	0.0521 ppb	09:02:16
3	K 766.490 Radial†	686.5	38.6	18.269 µg/L	18.269 ppb	09:01:56
3	Mg 279.077 IEC†	11.7	2.6	13.662 µg/L	13.662 ppb	09:02:16
3	Na 589.592 Radial†	-85.2	-45.0	-93.637 µg/L	-93.637 ppb	09:01:56
3	Sr 421.552†	-606.7	-31.3	-0.1530 µg/L	-0.1530 ppb	09:01:56
3	Sc 361.383	670777.9	670777.9	94.131 %		09:03:23
3	Y 371.029	582082.1	582082.1	94.017 %		09:03:23
3	Ag 328.068†	-344.6	13.1	0.0841 µg/L	0.0841 ppb	09:03:28
3	As 188.979†	-5.0	3.5	1.9589 µg/L	1.9589 ppb	09:03:48
3	B 249.677†	117.3	27.6	0.7842 µg/L	0.7842 ppb	09:03:48
3	Ba 233.527†	-172.8	-12.8	-0.1191 µg/L	-0.1191 ppb	09:03:48
3	Be 313.107†	-7770.7	-260.7	-0.1476 µg/L	-0.1476 ppb	09:03:28
3	Cd 226.502†	-201.4	11.3	0.1686 µg/L	0.1686 ppb	09:03:48
3	Co 228.616†	-16.0	3.9	0.0964 µg/L	0.0964 ppb	09:03:48
3	Cr 267.716†	214.8	34.6	0.6608 µg/L	0.6608 ppb	09:03:48
3	Cu 324.752†	6238.0	143.7	0.5783 µg/L	0.5783 ppb	09:03:28
3	Mn 257.610†	468.1	-7.4	-0.0109 µg/L	-0.0109 ppb	09:03:48
3	Mo 202.031†	51.0	32.1	2.1869 µg/L	2.1869 ppb	09:03:48
3	Ni 231.604†	-122.4	-1.4	-0.0395 µg/L	-0.0395 ppb	09:03:48
3	P 214.914†	135.2	18.8	14.044 µg/L	14.044 ppb	09:03:48
3	Pb 220.353†	134.7	-7.8	-1.1753 µg/L	-1.1753 ppb	09:03:48
3	S 181.975 Axial†	60.4	2.5	4.3058 µg/L	4.3058 ppb	09:03:48
3	Sb 206.836†	83.1	22.5	7.2868 µg/L	7.2868 ppb	09:03:48
3	Se 196.026†	2.3	7.8	5.7788 µg/L	5.7788 ppb	09:03:48
3	SiO2†	2932.2	164.7	20.761 µg/L	20.761 ppb	09:03:28
3	Si 251.611†	196.8	27.1	1.2449 µg/L	1.2449 ppb	09:03:48
3	Sn 189.927†	30.0	5.1	1.1024 µg/L	1.1024 ppb	09:03:48
3	Ti 334.940†	2.5	9.9	0.0174 µg/L	0.0174 ppb	09:03:28
3	Tl 190.801†	-43.2	2.6	0.8825 µg/L	0.8825 ppb	09:03:48
3	U 367.007†	338.5	65.2	15.99 µg/L	15.99 ppb	09:03:28
3	V 292.402†	-36.8	21.1	0.2468 µg/L	0.2468 ppb	09:03:28
3	Zn 213.857†	1217.1	91.7	0.8446 µg/L	0.8446 ppb	09:03:48

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	668373.5	93.794	%	0.3180				0.34%
Sc RADIAL	19711.1	94.0	%	0.35				0.38%
Y 371.029	579522.4	93.603	%	0.3777				0.40%
Ag 328.068†	55.7	0.3529	µg/L	0.23877	0.3529	ppb	0.23877	67.66%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	19.2	5.6335	µg/L	7.79686	5.6335	ppb	7.79686	138.40%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-3.0	-1.7084	µg/L	3.17606	-1.7084	ppb	3.17606	185.90%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	31.6	0.8980	µg/L	0.15473	0.8980	ppb	0.15473	17.23%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	3.3	0.0303	µg/L	0.13828	0.0303	ppb	0.13828	457.11%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-281.2	-0.1598	µg/L	0.05296	-0.1598	ppb	0.05296	33.13%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	4.7	2.2324	µg/L	2.97763	2.2324	ppb	2.97763	133.38%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	-1.0	-0.0152	µg/L	0.19305	-0.0152	ppb	0.19305	>999.9%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	11.8	0.2892	µg/L	0.25367	0.2892	ppb	0.25367	87.72%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	28.8	0.5491 µg/L	0.27218	0.5491 ppb	0.27218	49.57%

QC value within limits for Cr 267.716 Recovery = Not calculated

Cu 324.752†	217.8	0.8853 µg/L	0.26649	0.8853 ppb	0.26649	30.10%

QC value within limits for Cu 324.752 Recovery = Not calculated

Fe 238.204 Radial†	0.7	0.3674 µg/L	0.68818	0.3674 ppb	0.68818	187.30%

QC value within limits for Fe 238.204 Radial Recovery = Not calculated

K 766.490 Radial†	61.3	29.001 µg/L	9.3031	29.001 ppb	9.3031	32.08%

QC value within limits for K 766.490 Radial Recovery = Not calculated

Mg 279.077 IEC†	-2.8	-14.573 µg/L	25.6082	-14.573 ppb	25.6082	175.73%

QC value within limits for Mg 279.077 IEC Recovery = Not calculated

Mn 257.610†	-7.6	-0.0104 µg/L	0.01484	-0.0104 ppb	0.01484	142.39%

QC value within limits for Mn 257.610 Recovery = Not calculated

Mo 202.031†	29.3	1.9988 µg/L	0.41084	1.9988 ppb	0.41084	20.55%

QC value within limits for Mo 202.031 Recovery = Not calculated

Na 589.592 Radial†	-43.5	-90.544 µg/L	5.9052	-90.544 ppb	5.9052	6.52%

QC value within limits for Na 589.592 Radial Recovery = Not calculated

Ni 231.604†	-1.6	-0.0471 µg/L	0.10678	-0.0471 ppb	0.10678	226.71%

QC value within limits for Ni 231.604 Recovery = Not calculated

P 214.914†	8.4	6.2674 µg/L	8.34017	6.2674 ppb	8.34017	133.07%

QC value within limits for P 214.914 Recovery = Not calculated

Pb 220.353†	9.4	1.4122 µg/L	3.71056	1.4122 ppb	3.71056	262.75%

QC value within limits for Pb 220.353 Recovery = Not calculated

S 181.975 Axial†	3.7	6.3957 µg/L	2.72800	6.3957 ppb	2.72800	42.65%

QC value within limits for S 181.975 Axial Recovery = Not calculated

Sb 206.836†	19.6	6.3553 µg/L	0.80874	6.3553 ppb	0.80874	12.73%

QC value within limits for Sb 206.836 Recovery = Not calculated

Se 196.026†	6.1	4.5371 µg/L	1.33403	4.5371 ppb	1.33403	29.40%

QC value within limits for Se 196.026 Recovery = Not calculated

SiO2†	133.4	16.820 µg/L	3.5299	16.820 ppb	3.5299	20.99%

QC value within limits for SiO2 Recovery = Not calculated

Si 251.611†	18.4	0.8337 µg/L	0.36172	0.8337 ppb	0.36172	43.39%

QC value within limits for Si 251.611 Recovery = Not calculated

Sn 189.927†	9.4	2.0563 µg/L	1.15604	2.0563 ppb	1.15604	56.22%

QC value within limits for Sn 189.927 Recovery = Not calculated

Sr 421.552†	-38.3	-0.1870 µg/L	0.06752	-0.1870 ppb	0.06752	36.11%

QC value within limits for Sr 421.552 Recovery = Not calculated

Ti 334.940†	-68.2	-0.1775 µg/L	0.17514	-0.1775 ppb	0.17514	98.67%

QC value within limits for Ti 334.940 Recovery = Not calculated

Tl 190.801†	6.0	2.0651 µg/L	1.93844	2.0651 ppb	1.93844	93.87%

QC value within limits for Tl 190.801 Recovery = Not calculated

U 367.007†	57.7	14.16 µg/L	2.896	14.16 ppb	2.896	20.45%

QC value within limits for U 367.007 Recovery = Not calculated

V 292.402†	-14.0	-0.1019 µg/L	0.31288	-0.1019 ppb	0.31288	307.15%

QC value within limits for V 292.402 Recovery = Not calculated

Zn 213.857†	84.3	0.7766 µg/L	0.10783	0.7766 ppb	0.10783	13.89%

QC value within limits for Zn 213.857 Recovery = Not calculated

All analyte(s) passed QC.

Sequence No.: 8 **Autosampler Location:** 7
Sample ID: CCV **Date Collected:** 6/15/2012 9:23:12
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19827.8	19827.8	94.5	%			09:23:42
1	Al 396.153Radial†	16073.2	17181.0	5102.2	µg/L	5102.2	ppb	09:23:42
1	Ca 317.933Radial†	10102.0	10593.1	5023.3	µg/L	5023.3	ppb	09:24:02
1	Fe 238.204 Radial†	9004.8	9495.6	5183.9	µg/L	5183.9	ppb	09:24:02
1	K 766.490 Radial†	10949.9	10896.8	5152.6	µg/L	5152.6	ppb	09:23:42
1	Mg 279.077 IEC†	962.7	1008.8	5344.2	µg/L	5344.2	ppb	09:24:02
1	Na 589.592 Radial†	4472.3	4777.5	9944.7	µg/L	9944.7	ppb	09:24:02
1	Sr 421.552†	97538.3	103817.4	506.96	µg/L	506.96	ppb	09:23:42
1	Sc 361.383	668802.5	668802.5	93.854	%			09:24:59
1	Y 371.029	575667.0	575667.0	92.981	%			09:24:59
1	Ag 328.068†	77340.9	82784.4	529.65	µg/L	529.65	ppb	09:25:05
1	As 188.979†	846.7	910.9	511.62	µg/L	511.62	ppb	09:25:25
1	B 249.677†	17123.4	18147.6	514.23	µg/L	514.23	ppb	09:25:05
1	Ba 233.527†	51734.8	55293.3	516.13	µg/L	516.13	ppb	09:25:05
1	Be 313.107†	826811.1	888946.7	514.76	µg/L	514.76	ppb	09:24:59
1	Cd 226.502†	32501.8	34855.3	517.57	µg/L	517.57	ppb	09:25:05
1	Co 228.616†	20113.6	21451.5	520.85	µg/L	520.85	ppb	09:25:05
1	Cr 267.716†	24829.1	26261.4	513.51	µg/L	513.51	ppb	09:25:05
1	Cu 324.752†	124259.2	125912.7	519.92	µg/L	519.92	ppb	09:25:05
1	Mn 257.610†	336917.8	358475.2	511.77	µg/L	511.77	ppb	09:25:05
1	Mo 202.031†	7103.1	7546.2	514.71	µg/L	514.71	ppb	09:25:25
1	Ni 231.604†	16858.3	18090.8	526.15	µg/L	526.15	ppb	09:25:05
1	P 214.914†	3320.8	3413.4	2540.9	µg/L	2540.9	ppb	09:25:25
1	Pb 220.353†	3340.1	3407.9	516.34	µg/L	516.34	ppb	09:25:25
1	S 181.975 Axial†	618.0	596.8	1037.5	µg/L	1037.5	ppb	09:25:25
1	Sb 206.836†	1567.5	1604.4	513.43	µg/L	513.43	ppb	09:25:25
1	Se 196.026†	654.3	702.4	525.02	µg/L	525.02	ppb	09:25:25
1	SiO2†	45081.5	45083.3	5650.0	µg/L	5650.0	ppb	09:25:05
1	Si 251.611†	52323.4	55567.5	2610.5	µg/L	2610.5	ppb	09:25:05
1	Sn 189.927†	2230.2	2349.5	515.49	µg/L	515.49	ppb	09:25:25
1	Ti 334.940†	193200.9	205859.4	515.92	µg/L	515.92	ppb	09:25:05
1	Tl 190.801†	1369.0	1507.1	517.94	µg/L	517.94	ppb	09:25:25
1	U 367.007†	2237.9	2090.0	488.5	µg/L	488.5	ppb	09:25:05
1	V 292.402†	49081.3	52355.4	520.89	µg/L	520.89	ppb	09:25:05
1	Zn 213.857†	54475.2	56841.1	519.30	µg/L	519.30	ppb	09:25:05
2	Sc RADIAL	19860.8	19860.8	94.7	%			09:24:07
2	Al 396.153Radial†	16145.3	17228.9	5116.4	µg/L	5116.4	ppb	09:24:07
2	Ca 317.933Radial†	10146.4	10622.3	5037.2	µg/L	5037.2	ppb	09:24:27
2	Fe 238.204 Radial†	9023.3	9499.3	5186.0	µg/L	5186.0	ppb	09:24:27
2	K 766.490 Radial†	10988.3	10918.2	5162.8	µg/L	5162.8	ppb	09:24:07
2	Mg 279.077 IEC†	963.8	1008.2	5341.3	µg/L	5341.3	ppb	09:24:27
2	Na 589.592 Radial†	4422.4	4716.9	9818.6	µg/L	9818.6	ppb	09:24:27
2	Sr 421.552†	98390.6	104546.6	510.53	µg/L	510.53	ppb	09:24:07
2	Sc 361.383	668525.0	668525.0	93.815	%			09:25:30
2	Y 371.029	575643.3	575643.3	92.977	%			09:25:30
2	Ag 328.068†	77053.5	82512.3	527.92	µg/L	527.92	ppb	09:25:35
2	As 188.979†	842.1	906.4	509.06	µg/L	509.06	ppb	09:25:56
2	B 249.677†	17000.8	18024.6	510.74	µg/L	510.74	ppb	09:25:35
2	Ba 233.527†	51467.8	55031.6	513.69	µg/L	513.69	ppb	09:25:35
2	Be 313.107†	828953.2	891595.6	516.30	µg/L	516.30	ppb	09:25:30
2	Cd 226.502†	32349.5	34707.4	515.37	µg/L	515.37	ppb	09:25:35
2	Co 228.616†	20052.0	21394.7	519.48	µg/L	519.48	ppb	09:25:35
2	Cr 267.716†	24821.0	26263.7	513.56	µg/L	513.56	ppb	09:25:35
2	Cu 324.752†	123653.8	125322.4	517.48	µg/L	517.48	ppb	09:25:35
2	Mn 257.610†	335611.1	357231.3	509.99	µg/L	509.99	ppb	09:25:35
2	Mo 202.031†	7151.1	7600.5	518.42	µg/L	518.42	ppb	09:25:56
2	Ni 231.604†	16866.2	18106.8	526.62	µg/L	526.62	ppb	09:25:35
2	P 214.914†	3330.0	3424.7	2549.4	µg/L	2549.4	ppb	09:25:56
2	Pb 220.353†	3358.4	3428.9	519.54	µg/L	519.54	ppb	09:25:56

2	S 181.975 Axial†	615.6	594.5	1033.6 µg/L	1033.6 ppb	09:25:56
2	Sb 206.836†	1574.1	1612.2	515.97 µg/L	515.97 ppb	09:25:56
2	Se 196.026†	640.9	688.5	514.65 µg/L	514.65 ppb	09:25:56
2	SiO2†	44900.7	44910.4	5628.6 µg/L	5628.6 ppb	09:25:35
2	Si 251.611†	52091.8	55343.8	2599.9 µg/L	2599.9 ppb	09:25:35
2	Sn 189.927†	2243.8	2365.0	518.88 µg/L	518.88 ppb	09:25:56
2	Ti 334.940†	192701.0	205411.9	514.80 µg/L	514.80 ppb	09:25:35
2	Tl 190.801†	1382.0	1521.5	522.89 µg/L	522.89 ppb	09:25:56
2	U 367.007†	2239.7	2092.9	489.2 µg/L	489.2 ppb	09:25:35
2	V 292.402†	48922.6	52208.0	519.48 µg/L	519.48 ppb	09:25:35
2	Zn 213.857†	54322.8	56702.6	518.02 µg/L	518.02 ppb	09:25:35
3	Sc RADIAL	19731.3	19731.3	94.0 %		09:24:33
3	Al 396.153Radial†	16104.9	17297.8	5136.9 µg/L	5136.9 ppb	09:24:33
3	Ca 317.933Radial†	10073.8	10615.4	5033.9 µg/L	5033.9 ppb	09:24:53
3	Fe 238.204 Radial†	8956.9	9491.3	5181.7 µg/L	5181.7 ppb	09:24:53
3	K 766.490 Radial†	10871.4	10870.1	5139.9 µg/L	5139.9 ppb	09:24:33
3	Mg 279.077 IEC†	955.5	1006.1	5329.8 µg/L	5329.8 ppb	09:24:53
3	Na 589.592 Radial†	4484.1	4813.2	10019 µg/L	10019 ppb	09:24:53
3	Sr 421.552†	97880.4	104686.2	511.21 µg/L	511.21 ppb	09:24:33
3	Sc 361.383	671487.5	671487.5	94.231 %		09:26:01
3	Y 371.029	578045.6	578045.6	93.365 %		09:26:01
3	Ag 328.068†	78087.2	83247.0	532.61 µg/L	532.61 ppb	09:26:06
3	As 188.979†	847.7	908.4	510.20 µg/L	510.20 ppb	09:26:26
3	B 249.677†	17275.6	18236.3	516.74 µg/L	516.74 ppb	09:26:06
3	Ba 233.527†	52266.4	55637.1	519.34 µg/L	519.34 ppb	09:26:06
3	Be 313.107†	833512.8	892536.0	516.84 µg/L	516.84 ppb	09:26:01
3	Cd 226.502†	33005.2	35251.1	523.46 µg/L	523.46 ppb	09:26:06
3	Co 228.616†	20402.5	21672.4	526.22 µg/L	526.22 ppb	09:26:06
3	Cr 267.716†	25137.3	26482.6	517.85 µg/L	517.85 ppb	09:26:06
3	Cu 324.752†	125063.3	126236.6	521.27 µg/L	521.27 ppb	09:26:06
3	Mn 257.610†	340598.8	360946.1	515.29 µg/L	515.29 ppb	09:26:06
3	Mo 202.031†	7189.5	7607.6	518.90 µg/L	518.90 ppb	09:26:26
3	Ni 231.604†	17134.8	18312.5	532.60 µg/L	532.60 ppb	09:26:06
3	P 214.914†	3360.8	3441.8	2562.1 µg/L	2562.1 ppb	09:26:26
3	Pb 220.353†	3398.5	3455.7	523.59 µg/L	523.59 ppb	09:26:26
3	S 181.975 Axial†	624.7	601.3	1045.4 µg/L	1045.4 ppb	09:26:26
3	Sb 206.836†	1576.9	1607.7	514.44 µg/L	514.44 ppb	09:26:26
3	Se 196.026†	664.5	710.5	530.96 µg/L	530.96 ppb	09:26:26
3	SiO2†	45526.2	45363.1	5685.0 µg/L	5685.0 ppb	09:26:06
3	Si 251.611†	52944.8	56004.1	2631.0 µg/L	2631.0 ppb	09:26:06
3	Sn 189.927†	2262.3	2374.1	520.88 µg/L	520.88 ppb	09:26:26
3	Ti 334.940†	195027.9	206975.1	518.72 µg/L	518.72 ppb	09:26:06
3	Tl 190.801†	1376.8	1509.5	518.77 µg/L	518.77 ppb	09:26:26
3	U 367.007†	2214.6	2055.8	480.1 µg/L	480.1 ppb	09:26:06
3	V 292.402†	49666.8	52767.6	524.98 µg/L	524.98 ppb	09:26:06
3	Zn 213.857†	55339.5	57526.2	525.57 µg/L	525.57 ppb	09:26:06

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	669605.0	93.967	%	0.2296				0.24%
Sc RADIAL	19806.6	94.4	%	0.32				0.34%
Y 371.029	576452.0	93.108	%	0.2229				0.24%
Ag 328.068†	82847.9	530.06	µg/L	2.373	530.06	ppb	2.373	0.45%
QC value within limits for Ag 328.068 Recovery = 106.01%								
Al 396.153Radial†	17235.9	5118.5	µg/L	17.43	5118.5	ppb	17.43	0.34%
QC value within limits for Al 396.153Radial Recovery = 102.37%								
As 188.979†	908.5	510.29	µg/L	1.280	510.29	ppb	1.280	0.25%
QC value within limits for As 188.979 Recovery = 102.06%								
B 249.677†	18136.2	513.90	µg/L	3.014	513.90	ppb	3.014	0.59%
QC value within limits for B 249.677 Recovery = 102.78%								
Ba 233.527†	55320.7	516.39	µg/L	2.835	516.39	ppb	2.835	0.55%
QC value within limits for Ba 233.527 Recovery = 103.28%								
Be 313.107†	891026.1	515.96	µg/L	1.077	515.96	ppb	1.077	0.21%
QC value within limits for Be 313.107 Recovery = 103.19%								
Ca 317.933Radial†	10610.3	5031.5	µg/L	7.24	5031.5	ppb	7.24	0.14%
QC value within limits for Ca 317.933Radial Recovery = 100.63%								
Cd 226.502†	34937.9	518.80	µg/L	4.181	518.80	ppb	4.181	0.81%
QC value within limits for Cd 226.502 Recovery = 103.76%								
Co 228.616†	21506.2	522.18	µg/L	3.562	522.18	ppb	3.562	0.68%

```
   QC value within limits for Co 228.616  Recovery = 104.44%
Cr 267.716†          26335.9      514.97 µg/L         2.491      514.97 ppb          2.491   0.48%
   QC value within limits for Cr 267.716  Recovery = 102.99%
Cu 324.752†         125823.9      519.56 µg/L         1.918      519.56 ppb          1.918   0.37%
   QC value within limits for Cu 324.752  Recovery = 103.91%
Fe 238.204 Radial†    9495.4      5183.9 µg/L          2.17      5183.9 ppb           2.17   0.04%
   QC value within limits for Fe 238.204 Radial  Recovery = 103.68%
K 766.490 Radial†    10895.0      5151.8 µg/L         11.45      5151.8 ppb          11.45   0.22%
   QC value within limits for K 766.490 Radial  Recovery = 103.04%
Mg 279.077 IEC†       1007.7      5338.4 µg/L          7.62      5338.4 ppb           7.62   0.14%
   QC value within limits for Mg 279.077 IEC  Recovery = 106.77%
Mn 257.610†         358884.2      512.35 µg/L         2.698      512.35 ppb          2.698   0.53%
   QC value within limits for Mn 257.610  Recovery = 102.47%
Mo 202.031†           7584.7      517.34 µg/L         2.291      517.34 ppb          2.291   0.44%
   QC value within limits for Mo 202.031  Recovery = 103.47%
Na 589.592 Radial†    4769.2      9927.4 µg/L        101.30      9927.4 ppb         101.30   1.02%
   QC value within limits for Na 589.592 Radial  Recovery = 99.27%
Ni 231.604†          18170.0      528.46 µg/L         3.594      528.46 ppb          3.594   0.68%
   QC value within limits for Ni 231.604  Recovery = 105.69%
P 214.914†            3426.6      2550.8 µg/L         10.67      2550.8 ppb          10.67   0.42%
   QC value within limits for P 214.914  Recovery = 102.03%
Pb 220.353†           3430.9      519.82 µg/L         3.633      519.82 ppb          3.633   0.70%
   QC value within limits for Pb 220.353  Recovery = 103.96%
S 181.975 Axial†       597.5      1038.8 µg/L          6.03      1038.8 ppb           6.03   0.58%
   QC value within limits for S 181.975 Axial  Recovery = 103.88%
Sb 206.836†           1608.1      514.62 µg/L         1.280      514.62 ppb          1.280   0.25%
   QC value within limits for Sb 206.836  Recovery = 102.92%
Se 196.026†            700.5      523.54 µg/L         8.251      523.54 ppb          8.251   1.58%
   QC value within limits for Se 196.026  Recovery = 104.71%
SiO2†                45118.9      5654.5 µg/L         28.50      5654.5 ppb          28.50   0.50%
   QC value within limits for SiO2  Recovery = 105.74%
Si 251.611†          55638.5      2613.8 µg/L         15.81      2613.8 ppb          15.81   0.60%
   QC value within limits for Si 251.611  Recovery = 104.55%
Sn 189.927†           2362.8      518.42 µg/L         2.722      518.42 ppb          2.722   0.53%
   QC value within limits for Sn 189.927  Recovery = 103.68%
Sr 421.552†         104350.1      509.57 µg/L         2.279      509.57 ppb          2.279   0.45%
   QC value within limits for Sr 421.552  Recovery = 101.91%
Ti 334.940†         206082.1      516.48 µg/L         2.020      516.48 ppb          2.020   0.39%
   QC value within limits for Ti 334.940  Recovery = 103.30%
Tl 190.801†           1512.7      519.87 µg/L         2.650      519.87 ppb          2.650   0.51%
   QC value within limits for Tl 190.801  Recovery = 103.97%
U 367.007†            2079.6       485.9 µg/L          5.05       485.9 ppb           5.05   1.04%
   QC value within limits for U 367.007  Recovery = 97.19%
V 292.402†           52443.7      521.78 µg/L         2.856      521.78 ppb          2.856   0.55%
   QC value within limits for V 292.402  Recovery = 104.36%
Zn 213.857†          57023.3      520.96 µg/L         4.040      520.96 ppb          4.040   0.78%
   QC value within limits for Zn 213.857  Recovery = 104.19%
All analyte(s) passed QC.
```

Sequence No.: 9 **Autosampler Location:** 8
Sample ID: CCB **Date Collected:** 6/15/2012 9:26:34
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19736.8	19736.8	94.1	%			09:27:02
1	Al 396.153Radial†	-137.1	28.0	8.2856	µg/L	8.2856	ppb	09:27:02
1	Ca 317.933Radial†	86.9	-3.4	-1.6149	µg/L	-1.6149	ppb	09:27:22
1	Fe 238.204 Radial†	41.2	11.3	6.1775	µg/L	6.1775	ppb	09:27:22
1	K 766.490 Radial†	744.4	102.0	48.262	µg/L	48.262	ppb	09:27:02
1	Mg 279.077 IEC†	10.8	1.6	8.8103	µg/L	8.8103	ppb	09:27:22
1	Na 589.592 Radial†	-80.3	-40.0	-83.262	µg/L	-83.262	ppb	09:27:02
1	Sr 421.552†	-611.8	-38.3	-0.1872	µg/L	-0.1872	ppb	09:27:02
1	Sc 361.383	653009.9	653009.9	91.638	%			09:28:19
1	Y 371.029	566283.1	566283.1	91.465	%			09:28:19
1	Ag 328.068†	-364.1	-18.2	-0.1150	µg/L	-0.1150	ppb	09:28:19
1	As 188.979†	-2.6	6.0	3.3387	µg/L	3.3387	ppb	09:28:39
1	B 249.677†	149.9	66.6	1.8901	µg/L	1.8901	ppb	09:28:39
1	Ba 233.527†	-169.9	-14.6	-0.1362	µg/L	-0.1362	ppb	09:28:39
1	Be 313.107†	-7567.1	-263.2	-0.1476	µg/L	-0.1476	ppb	09:28:19
1	Cd 226.502†	-207.3	-1.0	-0.0157	µg/L	-0.0157	ppb	09:28:39
1	Co 228.616†	-2.6	18.0	0.4396	µg/L	0.4396	ppb	09:28:39
1	Cr 267.716†	191.2	15.0	0.2705	µg/L	0.2705	ppb	09:28:39
1	Cu 324.752†	6308.9	401.3	1.6342	µg/L	1.6342	ppb	09:28:19
1	Mn 257.610†	483.1	22.6	0.0325	µg/L	0.0325	ppb	09:28:39
1	Mo 202.031†	47.2	29.4	2.0049	µg/L	2.0049	ppb	09:28:39
1	Ni 231.604†	-151.7	-36.8	-1.0720	µg/L	-1.0720	ppb	09:28:39
1	P 214.914†	118.8	4.8	3.5198	µg/L	3.5198	ppb	09:28:39
1	Pb 220.353†	136.5	-1.9	-0.2987	µg/L	-0.2987	ppb	09:28:39
1	S 181.975 Axial†	59.7	3.5	6.1005	µg/L	6.1005	ppb	09:28:39
1	Sb 206.836†	83.6	25.5	8.2520	µg/L	8.2520	ppb	09:28:39
1	Se 196.026†	-6.6	-1.9	-1.3925	µg/L	-1.3925	ppb	09:28:39
1	SiO2†	2824.2	131.6	16.702	µg/L	16.702	ppb	09:28:19
1	Si 251.611†	201.7	38.1	1.7635	µg/L	1.7635	ppb	09:28:39
1	Sn 189.927†	32.5	8.6	1.8827	µg/L	1.8827	ppb	09:28:39
1	Ti 334.940†	-96.7	-98.3	-0.2571	µg/L	-0.2571	ppb	09:28:19
1	Tl 190.801†	-34.4	10.9	3.7445	µg/L	3.7445	ppb	09:28:39
1	U 367.007†	356.7	94.9	23.25	µg/L	23.25	ppb	09:28:19
1	V 292.402†	-74.2	-20.8	-0.1616	µg/L	-0.1616	ppb	09:28:19
1	Zn 213.857†	1232.5	143.6	1.3284	µg/L	1.3284	ppb	09:28:39
2	Sc RADIAL	19497.4	19497.4	92.9	%			09:27:27
2	Al 396.153Radial†	-155.3	6.7	1.9304	µg/L	1.9304	ppb	09:27:27
2	Ca 317.933Radial†	92.8	4.1	1.9318	µg/L	1.9318	ppb	09:27:47
2	Fe 238.204 Radial†	45.1	16.1	8.7604	µg/L	8.7604	ppb	09:27:47
2	K 766.490 Radial†	702.5	66.6	31.541	µg/L	31.541	ppb	09:27:27
2	Mg 279.077 IEC†	7.3	-2.1	-10.769	µg/L	-10.769	ppb	09:27:47
2	Na 589.592 Radial†	-88.9	-50.3	-104.71	µg/L	-104.71	ppb	09:27:27
2	Sr 421.552†	-605.4	-39.4	-0.1924	µg/L	-0.1924	ppb	09:27:27
2	Sc 361.383	653537.2	653537.2	91.712	%			09:28:44
2	Y 371.029	566551.6	566551.6	91.508	%			09:28:44
2	Ag 328.068†	-352.7	-5.5	-0.0309	µg/L	-0.0309	ppb	09:28:44
2	As 188.979†	-14.7	-7.2	-4.0598	µg/L	-4.0598	ppb	09:29:04
2	B 249.677†	148.2	64.6	1.8366	µg/L	1.8366	ppb	09:29:04
2	Ba 233.527†	-168.3	-12.7	-0.1187	µg/L	-0.1187	ppb	09:29:04
2	Be 313.107†	-7637.6	-333.4	-0.1900	µg/L	-0.1900	ppb	09:28:44
2	Cd 226.502†	-205.9	0.7	0.0093	µg/L	0.0093	ppb	09:29:04
2	Co 228.616†	-11.9	7.9	0.1942	µg/L	0.1942	ppb	09:29:04
2	Cr 267.716†	215.0	40.8	0.7842	µg/L	0.7842	ppb	09:29:04
2	Cu 324.752†	6295.3	380.9	1.5580	µg/L	1.5580	ppb	09:28:44
2	Mn 257.610†	472.1	10.2	0.0157	µg/L	0.0157	ppb	09:29:04
2	Mo 202.031†	47.4	29.7	2.0221	µg/L	2.0221	ppb	09:29:04
2	Ni 231.604†	-127.2	-10.0	-0.2898	µg/L	-0.2898	ppb	09:29:04
2	P 214.914†	105.6	-9.6	-7.2903	µg/L	-7.2903	ppb	09:29:04
2	Pb 220.353†	154.3	17.3	2.6247	µg/L	2.6247	ppb	09:29:04

2	S 181.975 Axial†	62.4	6.3	11.045 µg/L	11.045 ppb	09:29:04
2	Sb 206.836†	78.2	19.5	6.3100 µg/L	6.3100 ppb	09:29:04
2	Se 196.026†	-7.1	-2.4	-1.7491 µg/L	-1.7491 ppb	09:29:04
2	SiO2†	2867.2	176.1	22.149 µg/L	22.149 ppb	09:28:44
2	Si 251.611†	194.6	30.1	1.3858 µg/L	1.3858 ppb	09:29:04
2	Sn 189.927†	34.3	10.6	2.3221 µg/L	2.3221 ppb	09:29:04
2	Ti 334.940†	-36.7	-32.7	-0.0888 µg/L	-0.0888 ppb	09:28:44
2	Tl 190.801†	-41.1	3.6	1.2540 µg/L	1.2540 ppb	09:29:04
2	U 367.007†	323.7	58.5	14.31 µg/L	14.31 ppb	09:28:44
2	V 292.402†	-32.3	25.0	0.2818 µg/L	0.2818 ppb	09:28:44
2	Zn 213.857†	1239.6	150.3	1.3845 µg/L	1.3845 ppb	09:29:04
3	Sc RADIAL	19725.1	19725.1	94.0 %		09:27:52
3	Al 396.153Radial†	-125.9	39.9	11.791 µg/L	11.791 ppb	09:27:52
3	Ca 317.933Radial†	92.0	2.0	0.9596 µg/L	0.9596 ppb	09:28:12
3	Fe 238.204 Radial†	34.5	4.2	2.3118 µg/L	2.3118 ppb	09:28:12
3	K 766.490 Radial†	645.6	-2.7	-1.2521 µg/L	-1.2521 ppb	09:27:52
3	Mg 279.077 IEC†	6.7	-2.8	-14.529 µg/L	-14.529 ppb	09:28:12
3	Na 589.592 Radial†	-85.4	-45.4	-94.548 µg/L	-94.548 ppb	09:27:52
3	Sr 421.552†	-594.6	-20.4	-0.0997 µg/L	-0.0997 ppb	09:27:52
3	Sc 361.383	654950.8	654950.8	91.910 %		09:29:10
3	Y 371.029	568183.3	568183.3	91.772 %		09:29:10
3	Ag 328.068†	-351.6	-3.4	-0.0209 µg/L	-0.0209 ppb	09:29:10
3	As 188.979†	-4.4	4.0	2.2186 µg/L	2.2186 ppb	09:29:30
3	B 249.677†	128.8	43.1	1.2232 µg/L	1.2232 ppb	09:29:30
3	Ba 233.527†	-175.4	-20.0	-0.1866 µg/L	-0.1866 ppb	09:29:30
3	Be 313.107†	-7717.7	-402.5	-0.2308 µg/L	-0.2308 ppb	09:29:10
3	Cd 226.502†	-221.2	-15.4	-0.2296 µg/L	-0.2296 ppb	09:29:30
3	Co 228.616†	-1.5	19.2	0.4704 µg/L	0.4704 ppb	09:29:30
3	Cr 267.716†	187.7	10.6	0.1965 µg/L	0.1965 ppb	09:29:30
3	Cu 324.752†	6341.6	416.5	1.7071 µg/L	1.7071 ppb	09:29:10
3	Mn 257.610†	476.1	13.4	0.0198 µg/L	0.0198 ppb	09:29:30
3	Mo 202.031†	53.9	36.5	2.4911 µg/L	2.4911 ppb	09:29:30
3	Ni 231.604†	-130.3	-13.0	-0.3799 µg/L	-0.3799 ppb	09:29:30
3	P 214.914†	115.5	0.8	0.5531 µg/L	0.5531 ppb	09:29:30
3	Pb 220.353†	144.2	6.0	0.9107 µg/L	0.9107 ppb	09:29:30
3	S 181.975 Axial†	58.7	2.2	3.8685 µg/L	3.8685 ppb	09:29:30
3	Sb 206.836†	77.3	18.4	5.9568 µg/L	5.9568 ppb	09:29:30
3	Se 196.026†	-4.1	0.8	0.6433 µg/L	0.6433 ppb	09:29:30
3	SiO2†	2892.3	196.6	24.645 µg/L	24.645 ppb	09:29:10
3	Si 251.611†	191.0	25.8	1.1773 µg/L	1.1773 ppb	09:29:30
3	Sn 189.927†	32.0	8.1	1.7637 µg/L	1.7637 ppb	09:29:30
3	Ti 334.940†	-108.8	-111.1	-0.2834 µg/L	-0.2834 ppb	09:29:10
3	Tl 190.801†	-37.1	8.0	2.7471 µg/L	2.7471 ppb	09:29:30
3	U 367.007†	309.8	42.7	10.45 µg/L	10.45 ppb	09:29:10
3	V 292.402†	-57.7	-2.6	0.0117 µg/L	0.0117 ppb	09:29:10
3	Zn 213.857†	1244.8	153.0	1.4112 µg/L	1.4112 ppb	09:29:30

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	653832.7	91.754	%	0.1408				0.15%
Sc RADIAL	19653.1	93.7	%	0.64				0.69%
Y 371.029	567006.0	91.582	%	0.1661				0.18%
Ag 328.068†	-9.0	-0.0556	µg/L	0.05171	-0.0556	ppb	0.05171	93.01%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	24.9	7.3356	µg/L	4.99842	7.3356	ppb	4.99842	68.14%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	0.9	0.4992	µg/L	3.98767	0.4992	ppb	3.98767	798.87%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	58.1	1.6500	µg/L	0.37059	1.6500	ppb	0.37059	22.46%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-15.8	-0.1472	µg/L	0.03525	-0.1472	ppb	0.03525	23.95%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-333.0	-0.1895	µg/L	0.04160	-0.1895	ppb	0.04160	21.96%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	0.9	0.4255	µg/L	1.83266	0.4255	ppb	1.83266	430.71%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	-5.2	-0.0787	µg/L	0.13131	-0.0787	ppb	0.13131	166.90%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	15.0	0.3680	µg/L	0.15136	0.3680	ppb	0.15136	41.13%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              22.1      0.4171 µg/L       0.32008      0.4171 ppb        0.32008  76.75%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             399.6      1.6331 µg/L       0.07457      1.6331 ppb        0.07457   4.57%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†       10.5      5.7499 µg/L       3.24548      5.7499 ppb        3.24548  56.44%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        55.3      26.184 µg/L       25.1880      26.184 ppb        25.1880  96.20%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          -1.1     -5.4957 µg/L      12.53116     -5.4957 ppb       12.53116 228.02%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              15.4      0.0227 µg/L       0.00877      0.0227 ppb        0.00877  38.69%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              31.9      2.1727 µg/L       0.27590      2.1727 ppb        0.27590  12.70%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -45.2     -94.171 µg/L       10.7268     -94.171 ppb        10.7268  11.39%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†             -19.9     -0.5806 µg/L       0.42799     -0.5806 ppb        0.42799  73.72%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -1.4     -1.0724 µg/L       5.58538     -1.0724 ppb        5.58538 520.81%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               7.2      1.0789 µg/L       1.46898      1.0789 ppb        1.46898 136.15%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          4.0      7.0046 µg/L       3.67253      7.0046 ppb        3.67253  52.43%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              21.1      6.8396 µg/L       1.23583      6.8396 ppb        1.23583  18.07%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†              -1.2     -0.8328 µg/L       1.29067     -0.8328 ppb        1.29067 154.98%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   168.1      21.165 µg/L        4.0618      21.165 ppb         4.0618  19.19%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              31.3      1.4422 µg/L       0.29710      1.4422 ppb        0.29710  20.60%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               9.1      1.9895 µg/L       0.29413      1.9895 ppb        0.29413  14.78%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             -32.7     -0.1598 µg/L       0.05207     -0.1598 ppb        0.05207  32.59%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -80.7     -0.2098 µg/L       0.10561     -0.2098 ppb        0.10561  50.35%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               7.5      2.5819 µg/L       1.25349      2.5819 ppb        1.25349  48.55%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               65.3       16.00 µg/L         6.561       16.00 ppb          6.561  41.00%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                0.5      0.0440 µg/L       0.22350      0.0440 ppb        0.22350 508.45%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             149.0      1.3747 µg/L       0.04224      1.3747 ppb        0.04224   3.07%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 18 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 9:50:28**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20485.8	20485.8	97.6	%			09:50:58
1	Al 396.153Radial†	16323.7	16891.2	5016.6	µg/L	5016.6	ppb	09:50:58
1	Ca 317.933Radial†	10047.2	10193.7	4834.0	µg/L	4834.0	ppb	09:51:18
1	Fe 238.204 Radial†	9075.5	9262.0	5056.4	µg/L	5056.4	ppb	09:51:18
1	K 766.490 Radial†	10911.3	10485.2	4958.0	µg/L	4958.0	ppb	09:50:58
1	Mg 279.077 IEC†	1013.7	1028.2	5446.9	µg/L	5446.9	ppb	09:51:18
1	Na 589.592 Radial†	4448.3	4601.0	9577.2	µg/L	9577.2	ppb	09:51:18
1	Sr 421.552†	97898.7	100871.8	492.58	µg/L	492.58	ppb	09:50:58
1	Sc 361.383	690789.8	690789.8	96.940	%			09:52:15
1	Y 371.029	594396.8	594396.8	96.006	%			09:52:15
1	Ag 328.068†	76972.1	79781.2	510.46	µg/L	510.46	ppb	09:52:20
1	As 188.979†	850.2	885.9	497.58	µg/L	497.58	ppb	09:52:40
1	B 249.677†	17040.7	17481.7	495.35	µg/L	495.35	ppb	09:52:20
1	Ba 233.527†	51512.5	53309.5	497.61	µg/L	497.61	ppb	09:52:20
1	Be 313.107†	827782.8	861908.9	499.10	µg/L	499.10	ppb	09:52:15
1	Cd 226.502†	32361.5	33608.3	499.05	µg/L	499.05	ppb	09:52:20
1	Co 228.616†	20065.9	20720.2	503.09	µg/L	503.09	ppb	09:52:20
1	Cr 267.716†	24780.0	25368.6	496.07	µg/L	496.07	ppb	09:52:20
1	Cu 324.752†	123399.6	120811.9	498.88	µg/L	498.88	ppb	09:52:20
1	Mn 257.610†	335671.8	345763.7	493.62	µg/L	493.62	ppb	09:52:20
1	Mo 202.031†	7056.5	7257.2	495.01	µg/L	495.01	ppb	09:52:40
1	Ni 231.604†	16871.8	17533.1	509.93	µg/L	509.93	ppb	09:52:20
1	P 214.914†	3316.7	3296.6	2454.0	µg/L	2454.0	ppb	09:52:40
1	Pb 220.353†	3396.6	3353.0	507.98	µg/L	507.98	ppb	09:52:40
1	S 181.975 Axial†	617.6	575.4	1000.3	µg/L	1000.3	ppb	09:52:40
1	Sb 206.836†	1555.6	1538.9	492.40	µg/L	492.40	ppb	09:52:40
1	Se 196.026†	659.3	685.4	512.28	µg/L	512.28	ppb	09:52:40
1	SiO2†	44914.3	43381.9	5436.8	µg/L	5436.8	ppb	09:52:20
1	Si 251.611†	52144.7	53608.7	2518.5	µg/L	2518.5	ppb	09:52:20
1	Sn 189.927†	2226.1	2269.6	497.96	µg/L	497.96	ppb	09:52:40
1	Ti 334.940†	192365.1	198445.0	497.34	µg/L	497.34	ppb	09:52:20
1	Tl 190.801†	1357.7	1449.0	497.98	µg/L	497.98	ppb	09:52:40
1	U 367.007†	2203.3	1978.4	461.7	µg/L	461.7	ppb	09:52:20
1	V 292.402†	48902.6	50506.5	502.47	µg/L	502.47	ppb	09:52:20
1	Zn 213.857†	54218.6	54728.9	499.97	µg/L	499.97	ppb	09:52:20
2	Sc RADIAL	20179.4	20179.4	96.2	%			09:51:23
2	Al 396.153Radial†	16003.7	16812.4	4992.7	µg/L	4992.7	ppb	09:51:23
2	Ca 317.933Radial†	10071.9	10375.6	4920.2	µg/L	4920.2	ppb	09:51:43
2	Fe 238.204 Radial†	9009.6	9334.5	5096.0	µg/L	5096.0	ppb	09:51:43
2	K 766.490 Radial†	10815.7	10555.5	4991.2	µg/L	4991.2	ppb	09:51:23
2	Mg 279.077 IEC†	989.4	1018.7	5396.8	µg/L	5396.8	ppb	09:51:43
2	Na 589.592 Radial†	4411.8	4632.2	9642.2	µg/L	9642.2	ppb	09:51:43
2	Sr 421.552†	96481.8	100920.9	492.82	µg/L	492.82	ppb	09:51:23
2	Sc 361.383	674992.9	674992.9	94.723	%			09:52:46
2	Y 371.029	581866.6	581866.6	93.982	%			09:52:46
2	Ag 328.068†	76932.9	81598.0	522.06	µg/L	522.06	ppb	09:52:51
2	As 188.979†	844.3	900.1	505.56	µg/L	505.56	ppb	09:53:11
2	B 249.677†	16982.9	17832.0	505.29	µg/L	505.29	ppb	09:52:51
2	Ba 233.527†	51380.9	54414.1	507.92	µg/L	507.92	ppb	09:52:51
2	Be 313.107†	812396.1	865649.2	501.27	µg/L	501.27	ppb	09:52:46
2	Cd 226.502†	32307.1	34332.2	509.80	µg/L	509.80	ppb	09:52:51
2	Co 228.616†	20000.3	21135.3	513.17	µg/L	513.17	ppb	09:52:51
2	Cr 267.716†	24752.5	25937.8	507.18	µg/L	507.18	ppb	09:52:51
2	Cu 324.752†	123572.2	123973.2	511.90	µg/L	511.90	ppb	09:52:51
2	Mn 257.610†	334942.2	353097.3	504.08	µg/L	504.08	ppb	09:52:51
2	Mo 202.031†	7046.8	7417.3	505.93	µg/L	505.93	ppb	09:53:11
2	Ni 231.604†	16772.1	17835.1	518.72	µg/L	518.72	ppb	09:52:51
2	P 214.914†	3293.7	3352.4	2495.4	µg/L	2495.4	ppb	09:53:11
2	Pb 220.353†	3368.2	3405.0	515.90	µg/L	515.90	ppb	09:53:11

2	S 181.975 Axial†	621.9	594.9	1034.2 µg/L	1034.2 ppb	09:53:11
2	Sb 206.836†	1549.9	1570.5	502.50 µg/L	502.50 ppb	09:53:11
2	Se 196.026†	650.3	691.8	517.11 µg/L	517.11 ppb	09:53:11
2	SiO2†	44866.5	44415.7	5566.5 µg/L	5566.5 ppb	09:52:51
2	Si 251.611†	52213.0	54939.8	2581.0 µg/L	2581.0 ppb	09:52:51
2	Sn 189.927†	2218.6	2315.4	508.01 µg/L	508.01 ppb	09:53:11
2	Ti 334.940†	192173.9	202887.2	508.46 µg/L	508.46 ppb	09:52:51
2	Tl 190.801†	1357.9	1482.0	509.34 µg/L	509.34 ppb	09:53:11
2	U 367.007†	2253.2	2084.3	487.5 µg/L	487.5 ppb	09:52:51
2	V 292.402†	48853.1	51634.9	513.71 µg/L	513.71 ppb	09:52:51
2	Zn 213.857†	54176.4	55993.3	511.55 µg/L	511.55 ppb	09:52:51
3	Sc RADIAL	20196.5	20196.5	96.3 %		09:51:48
3	Al 396.153Radial†	15955.7	16748.4	4973.8 µg/L	4973.8 ppb	09:51:48
3	Ca 317.933Radial†	10138.9	10436.3	4949.0 µg/L	4949.0 ppb	09:52:08
3	Fe 238.204 Radial†	9014.1	9331.3	5094.2 µg/L	5094.2 ppb	09:52:08
3	K 766.490 Radial†	10837.6	10568.6	4997.5 µg/L	4997.5 ppb	09:51:48
3	Mg 279.077 IEC†	971.9	999.8	5296.3 µg/L	5296.3 ppb	09:52:08
3	Na 589.592 Radial†	4517.9	4738.5	9863.5 µg/L	9863.5 ppb	09:52:08
3	Sr 421.552†	96498.2	100853.0	492.49 µg/L	492.49 ppb	09:51:48
3	Sc 361.383	684979.8	684979.8	96.124 %		09:53:17
3	Y 371.029	590126.4	590126.4	95.316 %		09:53:17
3	Ag 328.068†	76210.8	79662.6	509.71 µg/L	509.71 ppb	09:53:22
3	As 188.979†	840.7	883.3	496.13 µg/L	496.13 ppb	09:53:42
3	B 249.677†	16898.7	17483.0	495.38 µg/L	495.38 ppb	09:53:22
3	Ba 233.527†	51066.4	53296.1	497.48 µg/L	497.48 ppb	09:53:22
3	Be 313.107†	825636.7	866919.3	502.01 µg/L	502.01 ppb	09:53:17
3	Cd 226.502†	32102.6	33622.1	499.24 µg/L	499.24 ppb	09:53:22
3	Co 228.616†	19886.8	20709.4	502.83 µg/L	502.83 ppb	09:53:22
3	Cr 267.716†	24527.6	25322.9	495.16 µg/L	495.16 ppb	09:53:22
3	Cu 324.752†	122559.6	121017.8	499.72 µg/L	499.72 ppb	09:53:22
3	Mn 257.610†	332691.1	345600.0	493.39 µg/L	493.39 ppb	09:53:22
3	Mo 202.031†	7061.7	7324.3	499.58 µg/L	499.58 ppb	09:53:42
3	Ni 231.604†	16702.1	17504.1	509.09 µg/L	509.09 ppb	09:53:22
3	P 214.914†	3319.6	3328.6	2477.9 µg/L	2477.9 ppb	09:53:42
3	Pb 220.353†	3351.9	3336.1	505.48 µg/L	505.48 ppb	09:53:42
3	S 181.975 Axial†	618.3	581.6	1011.1 µg/L	1011.1 ppb	09:53:42
3	Sb 206.836†	1558.5	1555.6	497.87 µg/L	497.87 ppb	09:53:42
3	Se 196.026†	655.2	687.0	513.46 µg/L	513.46 ppb	09:53:42
3	SiO2†	44521.8	43366.6	5435.1 µg/L	5435.1 ppb	09:53:22
3	Si 251.611†	51779.3	53684.9	2522.0 µg/L	2522.0 ppb	09:53:22
3	Sn 189.927†	2216.2	2278.8	499.98 µg/L	499.98 ppb	09:53:42
3	Ti 334.940†	190826.2	198527.2	497.54 µg/L	497.54 ppb	09:53:22
3	Tl 190.801†	1362.9	1466.3	503.91 µg/L	503.91 ppb	09:53:42
3	U 367.007†	2238.1	2033.9	475.1 µg/L	475.1 ppb	09:53:22
3	V 292.402†	48473.2	50487.7	502.35 µg/L	502.35 ppb	09:53:22
3	Zn 213.857†	53886.8	54858.1	501.16 µg/L	501.16 ppb	09:53:22

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	683587.5	95.929	%	1.1212				1.17%
Sc RADIAL	20287.2	96.7	%	0.82				0.85%
Y 371.029	588796.6	95.101	%	1.0289				1.08%
Ag 328.068†	80347.2	514.08	µg/L	6.924	514.08	ppb	6.924	1.35%
QC value within limits for Ag 328.068 Recovery = 102.82%								
Al 396.153Radial†	16817.3	4994.4	µg/L	21.43	4994.4	ppb	21.43	0.43%
QC value within limits for Al 396.153Radial Recovery = 99.89%								
As 188.979†	889.8	499.76	µg/L	5.076	499.76	ppb	5.076	1.02%
QC value within limits for As 188.979 Recovery = 99.95%								
B 249.677†	17598.9	498.67	µg/L	5.729	498.67	ppb	5.729	1.15%
QC value within limits for B 249.677 Recovery = 99.73%								
Ba 233.527†	53673.3	501.01	µg/L	5.991	501.01	ppb	5.991	1.20%
QC value within limits for Ba 233.527 Recovery = 100.20%								
Be 313.107†	864825.8	500.79	µg/L	1.510	500.79	ppb	1.510	0.30%
QC value within limits for Be 313.107 Recovery = 100.16%								
Ca 317.933Radial†	10335.2	4901.1	µg/L	59.88	4901.1	ppb	59.88	1.22%
QC value within limits for Ca 317.933Radial Recovery = 98.02%								
Cd 226.502†	33854.2	502.70	µg/L	6.155	502.70	ppb	6.155	1.22%
QC value within limits for Cd 226.502 Recovery = 100.54%								
Co 228.616†	20855.0	506.36	µg/L	5.895	506.36	ppb	5.895	1.16%

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   QC value within limits for Co 228.616  Recovery = 101.27%
Cr 267.716†          25543.1      499.47 µg/L         6.694      499.47 ppb          6.694   1.34%
   QC value within limits for Cr 267.716  Recovery = 99.89%
Cu 324.752†         121934.3      503.50 µg/L         7.288      503.50 ppb          7.288   1.45%
   QC value within limits for Cu 324.752  Recovery = 100.70%
Fe 238.204 Radial†    9309.3      5082.2 µg/L         22.38      5082.2 ppb          22.38   0.44%
   QC value within limits for Fe 238.204 Radial  Recovery = 101.64%
K 766.490 Radial†    10536.4      4982.2 µg/L         21.22      4982.2 ppb          21.22   0.43%
   QC value within limits for K 766.490 Radial  Recovery = 99.64%
Mg 279.077 IEC†       1015.6      5380.0 µg/L         76.68      5380.0 ppb          76.68   1.43%
   QC value within limits for Mg 279.077 IEC  Recovery = 107.60%
Mn 257.610†         348153.6      497.03 µg/L         6.110      497.03 ppb          6.110   1.23%
   QC value within limits for Mn 257.610  Recovery = 99.41%
Mo 202.031†           7332.9      500.17 µg/L         5.484      500.17 ppb          5.484   1.10%
   QC value within limits for Mo 202.031  Recovery = 100.03%
Na 589.592 Radial†    4657.2      9694.3 µg/L        150.10      9694.3 ppb         150.10   1.55%
   QC value within limits for Na 589.592 Radial  Recovery = 96.94%
Ni 231.604†          17624.1      512.58 µg/L         5.330      512.58 ppb          5.330   1.04%
   QC value within limits for Ni 231.604  Recovery = 102.52%
P 214.914†            3325.8      2475.8 µg/L         20.79      2475.8 ppb          20.79   0.84%
   QC value within limits for P 214.914  Recovery = 99.03%
Pb 220.353†           3364.7      509.79 µg/L         5.441      509.79 ppb          5.441   1.07%
   QC value within limits for Pb 220.353  Recovery = 101.96%
S 181.975 Axial†       584.0      1015.2 µg/L         17.34      1015.2 ppb          17.34   1.71%
   QC value within limits for S 181.975 Axial  Recovery = 101.52%
Sb 206.836†           1555.0      497.59 µg/L         5.056      497.59 ppb          5.056   1.02%
   QC value within limits for Sb 206.836  Recovery = 99.52%
Se 196.026†            688.1      514.28 µg/L         2.518      514.28 ppb          2.518   0.49%
   QC value within limits for Se 196.026  Recovery = 102.86%
SiO2†                43721.4      5479.4 µg/L         75.38      5479.4 ppb          75.38   1.38%
   QC value within limits for SiO2  Recovery = 102.47%
Si 251.611†          54077.8      2540.5 µg/L         35.14      2540.5 ppb          35.14   1.38%
   QC value within limits for Si 251.611  Recovery = 101.62%
Sn 189.927†           2287.9      501.99 µg/L         5.315      501.99 ppb          5.315   1.06%
   QC value within limits for Sn 189.927  Recovery = 100.40%
Sr 421.552†         100881.9      492.63 µg/L         0.171      492.63 ppb          0.171   0.03%
   QC value within limits for Sr 421.552  Recovery = 98.53%
Ti 334.940†         199953.1      501.11 µg/L         6.366      501.11 ppb          6.366   1.27%
   QC value within limits for Ti 334.940  Recovery = 100.22%
Tl 190.801†           1465.7      503.74 µg/L         5.682      503.74 ppb          5.682   1.13%
   QC value within limits for Tl 190.801  Recovery = 100.75%
U 367.007†            2032.2       474.8 µg/L         12.91       474.8 ppb          12.91   2.72%
   QC value within limits for U 367.007  Recovery = 94.95%
V 292.402†           50876.4      506.17 µg/L         6.524      506.17 ppb          6.524   1.29%
   QC value within limits for V 292.402  Recovery = 101.23%
Zn 213.857†          55193.4      504.23 µg/L         6.370      504.23 ppb          6.370   1.26%
   QC value within limits for Zn 213.857  Recovery = 100.85%
All analyte(s) passed QC.
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Sequence No.: 19 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 9:53:50**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19945.4	19945.4	95.1	%			09:54:18
1	Al 396.153Radial†	-128.9	38.3	11.355	µg/L	11.355	ppb	09:54:18
1	Ca 317.933Radial†	99.0	8.3	3.9491	µg/L	3.9491	ppb	09:54:38
1	Fe 238.204 Radial†	38.4	7.9	4.3149	µg/L	4.3149	ppb	09:54:38
1	K 766.490 Radial†	607.8	-49.9	-23.621	µg/L	-23.621	ppb	09:54:18
1	Mg 279.077 IEC†	8.5	-1.0	-5.0210	µg/L	-5.0210	ppb	09:54:38
1	Na 589.592 Radial†	-104.4	-64.4	-134.07	µg/L	-134.07	ppb	09:54:18
1	Sr 421.552†	-587.4	-5.9	-0.0289	µg/L	-0.0289	ppb	09:54:18
1	Sc 361.383	659952.2	659952.2	92.612	%			09:55:35
1	Y 371.029	572504.8	572504.8	92.470	%			09:55:35
1	Ag 328.068†	-305.7	49.1	0.3129	µg/L	0.3129	ppb	09:55:35
1	As 188.979†	-7.8	0.3	0.1733	µg/L	0.1733	ppb	09:55:55
1	B 249.677†	147.4	62.2	1.7681	µg/L	1.7681	ppb	09:55:55
1	Ba 233.527†	-154.0	4.5	0.0419	µg/L	0.0419	ppb	09:55:55
1	Be 313.107†	-7602.1	-214.1	-0.1197	µg/L	-0.1197	ppb	09:55:35
1	Cd 226.502†	-196.2	13.4	0.1981	µg/L	0.1981	ppb	09:55:55
1	Co 228.616†	-21.1	-1.9	-0.0446	µg/L	-0.0446	ppb	09:55:55
1	Cr 267.716†	197.5	19.7	0.3643	µg/L	0.3643	ppb	09:55:55
1	Cu 324.752†	6305.4	325.1	1.3216	µg/L	1.3216	ppb	09:55:35
1	Mn 257.610†	486.7	20.9	0.0304	µg/L	0.0304	ppb	09:55:55
1	Mo 202.031†	38.2	19.2	1.3093	µg/L	1.3093	ppb	09:55:55
1	Ni 231.604†	-138.0	-20.3	-0.5900	µg/L	-0.5900	ppb	09:55:55
1	P 214.914†	135.2	21.2	15.841	µg/L	15.841	ppb	09:55:55
1	Pb 220.353†	175.2	38.3	5.7859	µg/L	5.7859	ppb	09:55:55
1	S 181.975 Axial†	60.8	4.0	6.9033	µg/L	6.9033	ppb	09:55:55
1	Sb 206.836†	68.4	8.1	2.6443	µg/L	2.6443	ppb	09:55:55
1	Se 196.026†	-5.2	-0.3	-0.1990	µg/L	-0.1990	ppb	09:55:55
1	SiO2†	2792.3	64.8	8.3481	µg/L	8.3481	ppb	09:55:35
1	Si 251.611†	209.7	44.4	2.0723	µg/L	2.0723	ppb	09:55:55
1	Sn 189.927†	28.7	4.3	0.9246	µg/L	0.9246	ppb	09:55:55
1	Ti 334.940†	-34.4	-29.9	-0.0843	µg/L	-0.0843	ppb	09:55:35
1	Tl 190.801†	-40.0	5.2	1.7850	µg/L	1.7850	ppb	09:55:55
1	U 367.007†	351.4	85.0	20.84	µg/L	20.84	ppb	09:55:35
1	V 292.402†	-49.5	6.7	0.0985	µg/L	0.0985	ppb	09:55:35
1	Zn 213.857†	1252.7	151.3	1.3963	µg/L	1.3963	ppb	09:55:55
2	Sc RADIAL	20096.9	20096.9	95.8	%			09:54:43
2	Al 396.153Radial†	-101.7	67.6	20.096	µg/L	20.096	ppb	09:54:43
2	Ca 317.933Radial†	93.9	2.2	1.0413	µg/L	1.0413	ppb	09:55:03
2	Fe 238.204 Radial†	38.5	7.8	4.2433	µg/L	4.2433	ppb	09:55:03
2	K 766.490 Radial†	734.6	77.6	36.739	µg/L	36.739	ppb	09:54:43
2	Mg 279.077 IEC†	6.3	-3.3	-17.385	µg/L	-17.385	ppb	09:55:03
2	Na 589.592 Radial†	-105.4	-64.7	-134.61	µg/L	-134.61	ppb	09:54:43
2	Sr 421.552†	-580.4	6.1	0.0296	µg/L	0.0296	ppb	09:54:43
2	Sc 361.383	660254.5	660254.5	92.655	%			09:56:00
2	Y 371.029	572656.5	572656.5	92.495	%			09:56:00
2	Ag 328.068†	-290.4	65.8	0.4165	µg/L	0.4165	ppb	09:56:00
2	As 188.979†	-11.4	-3.5	-1.9864	µg/L	-1.9864	ppb	09:56:20
2	B 249.677†	140.9	55.1	1.5648	µg/L	1.5648	ppb	09:56:20
2	Ba 233.527†	-163.1	-5.2	-0.0487	µg/L	-0.0487	ppb	09:56:20
2	Be 313.107†	-7555.4	-160.0	-0.0898	µg/L	-0.0898	ppb	09:56:00
2	Cd 226.502†	-204.6	4.5	0.0658	µg/L	0.0658	ppb	09:56:20
2	Co 228.616†	-10.9	9.1	0.2223	µg/L	0.2223	ppb	09:56:20
2	Cr 267.716†	211.3	34.4	0.6592	µg/L	0.6592	ppb	09:56:20
2	Cu 324.752†	6298.0	314.0	1.2827	µg/L	1.2827	ppb	09:56:00
2	Mn 257.610†	481.0	14.6	0.0217	µg/L	0.0217	ppb	09:56:20
2	Mo 202.031†	42.6	23.9	1.6324	µg/L	1.6324	ppb	09:56:20
2	Ni 231.604†	-128.1	-9.6	-0.2798	µg/L	-0.2798	ppb	09:56:20
2	P 214.914†	123.3	8.3	6.1454	µg/L	6.1454	ppb	09:56:20
2	Pb 220.353†	176.5	39.7	5.9936	µg/L	5.9936	ppb	09:56:20

2	S 181.975 Axial†	54.5	-2.9	-4.9488 µg/L	-4.9488 ppb		09:56:20
2	Sb 206.836†	79.1	19.7	6.3685 µg/L	6.3685 ppb		09:56:20
2	Se 196.026†	-1.3	3.9	2.9187 µg/L	2.9187 ppb		09:56:20
2	SiO2†	2872.3	149.7	18.842 µg/L	18.842 ppb		09:56:00
2	Si 251.611†	211.6	46.3	2.1554 µg/L	2.1554 ppb		09:56:20
2	Sn 189.927†	34.6	10.6	2.3021 µg/L	2.3021 ppb		09:56:20
2	Ti 334.940†	-41.8	-37.9	-0.1011 µg/L	-0.1011 ppb		09:56:00
2	Tl 190.801†	-42.9	2.1	0.7406 µg/L	0.7406 ppb		09:56:20
2	U 367.007†	323.3	54.5	13.35 µg/L	13.35 ppb		09:56:00
2	V 292.402†	-83.6	-30.0	-0.2632 µg/L	-0.2632 ppb		09:56:00
2	Zn 213.857†	1255.8	154.1	1.4201 µg/L	1.4201 ppb		09:56:20
3	Sc RADIAL	20080.9	20080.9	95.7 %			09:55:08
3	Al 396.153Radial†	-160.1	6.5	1.8485 µg/L	1.8485 ppb		09:55:08
3	Ca 317.933Radial†	86.6	-5.3	-2.5324 µg/L	-2.5324 ppb		09:55:28
3	Fe 238.204 Radial†	34.3	3.4	1.8430 µg/L	1.8430 ppb		09:55:28
3	K 766.490 Radial†	707.4	49.8	23.571 µg/L	23.571 ppb		09:55:08
3	Mg 279.077 IEC†	5.4	-4.3	-22.519 µg/L	-22.519 ppb		09:55:28
3	Na 589.592 Radial†	-101.9	-61.1	-127.14 µg/L	-127.14 ppb		09:55:08
3	Sr 421.552†	-606.2	-21.4	-0.1044 µg/L	-0.1044 ppb		09:55:08
3	Sc 361.383	666291.8	666291.8	93.502 %			09:56:25
3	Y 371.029	578199.5	578199.5	93.390 %			09:56:25
3	Ag 328.068†	-280.3	79.3	0.5046 µg/L	0.5046 ppb		09:56:25
3	As 188.979†	-12.4	-4.5	-2.5200 µg/L	-2.5200 ppb		09:56:45
3	B 249.677†	134.2	46.6	1.3236 µg/L	1.3236 ppb		09:56:45
3	Ba 233.527†	-149.4	11.0	0.1031 µg/L	0.1031 ppb		09:56:45
3	Be 313.107†	-7615.4	-150.3	-0.0840 µg/L	-0.0840 ppb		09:56:25
3	Cd 226.502†	-194.7	17.1	0.2532 µg/L	0.2532 ppb		09:56:45
3	Co 228.616†	-24.3	-5.2	-0.1218 µg/L	-0.1218 ppb		09:56:45
3	Cr 267.716†	189.4	9.0	0.1604 µg/L	0.1604 ppb		09:56:45
3	Cu 324.752†	6318.0	273.9	1.1153 µg/L	1.1153 ppb		09:56:25
3	Mn 257.610†	463.4	-9.0	-0.0120 µg/L	-0.0120 ppb		09:56:45
3	Mo 202.031†	54.9	36.7	2.5011 µg/L	2.5011 ppb		09:56:45
3	Ni 231.604†	-130.7	-11.1	-0.3228 µg/L	-0.3228 ppb		09:56:45
3	P 214.914†	127.5	11.5	8.6019 µg/L	8.6019 ppb		09:56:45
3	Pb 220.353†	193.0	55.6	8.4093 µg/L	8.4093 ppb		09:56:45
3	S 181.975 Axial†	57.8	0.1	0.2096 µg/L	0.2096 ppb		09:56:45
3	Sb 206.836†	84.4	24.6	7.9668 µg/L	7.9668 ppb		09:56:45
3	Se 196.026†	5.3	11.0	8.1918 µg/L	8.1918 ppb		09:56:45
3	SiO2†	2886.4	136.7	17.230 µg/L	17.230 ppb		09:56:25
3	Si 251.611†	213.2	46.0	2.1297 µg/L	2.1297 ppb		09:56:45
3	Sn 189.927†	34.5	10.1	2.1981 µg/L	2.1981 ppb		09:56:45
3	Ti 334.940†	-66.7	-64.0	-0.1673 µg/L	-0.1673 ppb		09:56:25
3	Tl 190.801†	-43.8	1.6	0.5549 µg/L	0.5549 ppb		09:56:45
3	U 367.007†	332.0	60.6	14.86 µg/L	14.86 ppb		09:56:25
3	V 292.402†	-44.2	12.9	0.1676 µg/L	0.1676 ppb		09:56:25
3	Zn 213.857†	1269.2	156.1	1.4398 µg/L	1.4398 ppb		09:56:45

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	662166.2	92.923	%	0.5018				0.54%
Sc RADIAL	20041.1	95.5	%	0.40				0.42%
Y 371.029	574453.6	92.785	%	0.5241				0.56%
Ag 328.068†	64.7	0.4113	µg/L	0.09591	0.4113	ppb	0.09591	23.32%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	37.5	11.100	µg/L	9.1266	11.100	ppb	9.1266	82.22%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-2.6	-1.4444	µg/L	1.42607	-1.4444	ppb	1.42607	98.73%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	54.6	1.5522	µg/L	0.22250	1.5522	ppb	0.22250	14.33%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	3.5	0.0321	µg/L	0.07634	0.0321	ppb	0.07634	237.80%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-174.8	-0.0978	µg/L	0.01915	-0.0978	ppb	0.01915	19.58%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	1.7	0.8193	µg/L	3.24643	0.8193	ppb	3.24643	396.22%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	11.6	0.1724	µg/L	0.09632	0.1724	ppb	0.09632	55.88%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	0.7	0.0186	µg/L	0.18055	0.0186	ppb	0.18055	970.53%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	21.0	0.3946 µg/L	0.25076	0.3946 ppb	0.25076	63.54%

QC value within limits for Cr 267.716 Recovery = Not calculated

Cu 324.752†	304.3	1.2399 µg/L	0.10965	1.2399 ppb	0.10965	8.84%

QC value within limits for Cu 324.752 Recovery = Not calculated

Fe 238.204 Radial†	6.4	3.4671 µg/L	1.40695	3.4671 ppb	1.40695	40.58%

QC value within limits for Fe 238.204 Radial Recovery = Not calculated

K 766.490 Radial†	25.8	12.230 µg/L	31.7384	12.230 ppb	31.7384	259.52%

QC value within limits for K 766.490 Radial Recovery = Not calculated

Mg 279.077 IEC†	-2.9	-14.975 µg/L	8.9946	-14.975 ppb	8.9946	60.06%

QC value within limits for Mg 279.077 IEC Recovery = Not calculated

Mn 257.610†	8.8	0.0134 µg/L	0.02237	0.0134 ppb	0.02237	167.28%

QC value within limits for Mn 257.610 Recovery = Not calculated

Mo 202.031†	26.6	1.8143 µg/L	0.61637	1.8143 ppb	0.61637	33.97%

QC value within limits for Mo 202.031 Recovery = Not calculated

Na 589.592 Radial†	-63.4	-131.94 µg/L	4.169	-131.94 ppb	4.169	3.16%

QC value within limits for Na 589.592 Radial Recovery = Not calculated

Ni 231.604†	-13.7	-0.3975 µg/L	0.16807	-0.3975 ppb	0.16807	42.28%

QC value within limits for Ni 231.604 Recovery = Not calculated

P 214.914†	13.7	10.196 µg/L	5.0408	10.196 ppb	5.0408	49.44%

QC value within limits for P 214.914 Recovery = Not calculated

Pb 220.353†	44.5	6.7296 µg/L	1.45839	6.7296 ppb	1.45839	21.67%

QC value within limits for Pb 220.353 Recovery = Not calculated

S 181.975 Axial†	0.4	0.7214 µg/L	5.94263	0.7214 ppb	5.94263	823.80%

QC value within limits for S 181.975 Axial Recovery = Not calculated

Sb 206.836†	17.5	5.6598 µg/L	2.73112	5.6598 ppb	2.73112	48.25%

QC value within limits for Sb 206.836 Recovery = Not calculated

Se 196.026†	4.9	3.6372 µg/L	4.24129	3.6372 ppb	4.24129	116.61%

QC value within limits for Se 196.026 Recovery = Not calculated

SiO2†	117.0	14.807 µg/L	5.6511	14.807 ppb	5.6511	38.17%

QC value within limits for SiO2 Recovery = Not calculated

Si 251.611†	45.6	2.1191 µg/L	0.04252	2.1191 ppb	0.04252	2.01%

QC value within limits for Si 251.611 Recovery = Not calculated

Sn 189.927†	8.3	1.8083 µg/L	0.76705	1.8083 ppb	0.76705	42.42%

QC value within limits for Sn 189.927 Recovery = Not calculated

Sr 421.552†	-7.1	-0.0346 µg/L	0.06720	-0.0346 ppb	0.06720	194.43%

QC value within limits for Sr 421.552 Recovery = Not calculated

Ti 334.940†	-43.9	-0.1175 µg/L	0.04386	-0.1175 ppb	0.04386	37.31%

QC value within limits for Ti 334.940 Recovery = Not calculated

Tl 190.801†	3.0	1.0269 µg/L	0.66312	1.0269 ppb	0.66312	64.58%

QC value within limits for Tl 190.801 Recovery = Not calculated

U 367.007†	66.7	16.35 µg/L	3.963	16.35 ppb	3.963	24.24%

QC value within limits for U 367.007 Recovery = Not calculated

V 292.402†	-3.5	0.0009 µg/L	0.23136	0.0009 ppb	0.23136	>999.9%

QC value within limits for V 292.402 Recovery = Not calculated

Zn 213.857†	153.8	1.4187 µg/L	0.02178	1.4187 ppb	0.02178	1.54%

QC value within limits for Zn 213.857 Recovery = Not calculated

All analyte(s) passed QC.

Sequence No.: 7 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 10:13:47**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20356.1	20356.1	97.0	%			10:14:18
1	Al 396.153Radial†	15900.9	16561.9	4918.2	µg/L	4918.2	ppb	10:14:18
1	Ca 317.933Radial†	10063.7	10276.3	4873.1	µg/L	4873.1	ppb	10:14:38
1	Fe 238.204 Radial†	8983.7	9226.6	5037.0	µg/L	5037.0	ppb	10:14:38
1	K 766.490 Radial†	10804.7	10446.5	4939.7	µg/L	4939.7	ppb	10:14:18
1	Mg 279.077 IEC†	951.3	970.5	5141.6	µg/L	5141.6	ppb	10:14:38
1	Na 589.592 Radial†	4429.6	4610.7	9597.4	µg/L	9597.4	ppb	10:14:38
1	Sr 421.552†	96779.6	100357.2	490.07	µg/L	490.07	ppb	10:14:18
1	Sc 361.383	679076.0	679076.0	95.296	%			10:15:35
1	Y 371.029	585333.9	585333.9	94.542	%			10:15:35
1	Ag 328.068†	75709.8	79826.2	510.73	µg/L	510.73	ppb	10:15:40
1	As 188.979†	832.2	882.1	495.39	µg/L	495.39	ppb	10:16:00
1	B 249.677†	16624.8	17348.4	491.57	µg/L	491.57	ppb	10:15:40
1	Ba 233.527†	50496.1	53159.6	496.21	µg/L	496.21	ppb	10:15:40
1	Be 313.107†	813078.9	861209.0	498.70	µg/L	498.70	ppb	10:15:35
1	Cd 226.502†	31677.6	33466.5	496.94	µg/L	496.94	ppb	10:15:40
1	Co 228.616†	19663.7	20655.1	501.52	µg/L	501.52	ppb	10:15:40
1	Cr 267.716†	24300.1	25306.0	494.83	µg/L	494.83	ppb	10:15:40
1	Cu 324.752†	121526.7	121042.4	499.81	µg/L	499.81	ppb	10:15:40
1	Mn 257.610†	329141.8	344884.5	492.37	µg/L	492.37	ppb	10:15:40
1	Mo 202.031†	7021.1	7345.6	501.03	µg/L	501.03	ppb	10:16:00
1	Ni 231.604†	16497.2	17440.2	507.23	µg/L	507.23	ppb	10:15:40
1	P 214.914†	3300.2	3338.2	2485.1	µg/L	2485.1	ppb	10:16:00
1	Pb 220.353†	3320.5	3333.5	505.09	µg/L	505.09	ppb	10:16:00
1	S 181.975 Axial†	609.1	577.5	1004.0	µg/L	1004.0	ppb	10:16:00
1	Sb 206.836†	1544.8	1555.4	497.83	µg/L	497.83	ppb	10:16:00
1	Se 196.026†	651.0	688.5	514.54	µg/L	514.54	ppb	10:16:00
1	SiO2†	44014.9	43237.3	5418.9	µg/L	5418.9	ppb	10:15:40
1	Si 251.611†	51128.5	53470.3	2511.9	µg/L	2511.9	ppb	10:15:40
1	Sn 189.927†	2214.4	2296.9	503.93	µg/L	503.93	ppb	10:16:00
1	Ti 334.940†	188813.6	198141.1	496.57	µg/L	496.57	ppb	10:15:40
1	Tl 190.801†	1338.1	1452.6	499.21	µg/L	499.21	ppb	10:16:00
1	U 367.007†	2219.9	2035.0	475.7	µg/L	475.7	ppb	10:15:40
1	V 292.402†	48003.1	50432.8	501.82	µg/L	501.82	ppb	10:15:40
1	Zn 213.857†	53287.9	54717.0	499.88	µg/L	499.88	ppb	10:15:40
2	Sc RADIAL	20226.9	20226.9	96.4	%			10:14:43
2	Al 396.153Radial†	15895.1	16660.7	4947.6	µg/L	4947.6	ppb	10:14:43
2	Ca 317.933Radial†	10043.2	10321.2	4894.4	µg/L	4894.4	ppb	10:15:03
2	Fe 238.204 Radial†	8940.5	9240.9	5044.9	µg/L	5044.9	ppb	10:15:03
2	K 766.490 Radial†	10749.9	10460.8	4946.4	µg/L	4946.4	ppb	10:14:43
2	Mg 279.077 IEC†	951.4	976.9	5175.6	µg/L	5175.6	ppb	10:15:03
2	Na 589.592 Radial†	4447.4	4658.4	9696.7	µg/L	9696.7	ppb	10:15:03
2	Sr 421.552†	96862.7	101080.7	493.60	µg/L	493.60	ppb	10:14:43
2	Sc 361.383	676810.1	676810.1	94.978	%			10:16:05
2	Y 371.029	583721.4	583721.4	94.282	%			10:16:05
2	Ag 328.068†	76006.8	80404.9	514.43	µg/L	514.43	ppb	10:16:11
2	As 188.979†	837.8	890.9	500.38	µg/L	500.38	ppb	10:16:31
2	B 249.677†	16812.4	17604.4	498.84	µg/L	498.84	ppb	10:16:11
2	Ba 233.527†	50777.2	53632.9	500.63	µg/L	500.63	ppb	10:16:11
2	Be 313.107†	817539.2	868761.6	503.08	µg/L	503.08	ppb	10:16:05
2	Cd 226.502†	32040.3	33959.7	504.27	µg/L	504.27	ppb	10:16:11
2	Co 228.616†	19773.4	20839.8	506.00	µg/L	506.00	ppb	10:16:11
2	Cr 267.716†	24450.1	25549.3	499.58	µg/L	499.58	ppb	10:16:11
2	Cu 324.752†	121783.6	121739.7	502.68	µg/L	502.68	ppb	10:16:11
2	Mn 257.610†	330881.6	347872.6	496.63	µg/L	496.63	ppb	10:16:11
2	Mo 202.031†	7008.7	7357.2	501.83	µg/L	501.83	ppb	10:16:31
2	Ni 231.604†	16630.1	17638.1	512.99	µg/L	512.99	ppb	10:16:11
2	P 214.914†	3293.9	3343.3	2488.8	µg/L	2488.8	ppb	10:16:31
2	Pb 220.353†	3332.4	3357.7	508.74	µg/L	508.74	ppb	10:16:31

2	S 181.975 Axial†	617.0	588.0	1022.2 µg/L	1022.2 ppb	10:16:31
2	Sb 206.836†	1537.6	1553.2	497.04 µg/L	497.04 ppb	10:16:31
2	Se 196.026†	654.3	694.2	518.81 µg/L	518.81 ppb	10:16:31
2	SiO2†	44239.6	43628.5	5468.0 µg/L	5468.0 ppb	10:16:11
2	Si 251.611†	51418.6	53955.4	2534.7 µg/L	2534.7 ppb	10:16:11
2	Sn 189.927†	2217.2	2307.7	506.30 µg/L	506.30 ppb	10:16:31
2	Ti 334.940†	189714.0	199752.5	500.61 µg/L	500.61 ppb	10:16:11
2	Tl 190.801†	1349.7	1469.5	505.03 µg/L	505.03 ppb	10:16:31
2	U 367.007†	2254.5	2079.3	486.5 µg/L	486.5 ppb	10:16:11
2	V 292.402†	48262.0	50874.1	506.18 µg/L	506.18 ppb	10:16:11
2	Zn 213.857†	53616.4	55250.1	504.75 µg/L	504.75 ppb	10:16:11
3	Sc RADIAL	20180.2	20180.2	96.2 %		10:15:08
3	Al 396.153Radial†	15890.5	16694.0	4957.6 µg/L	4957.6 ppb	10:15:08
3	Ca 317.933Radial†	10063.5	10366.5	4915.9 µg/L	4915.9 ppb	10:15:28
3	Fe 238.204 Radial†	8914.0	9234.9	5041.6 µg/L	5041.6 ppb	10:15:28
3	K 766.490 Radial†	10809.0	10548.0	4987.7 µg/L	4987.7 ppb	10:15:08
3	Mg 279.077 IEC†	947.9	975.6	5168.3 µg/L	5168.3 ppb	10:15:28
3	Na 589.592 Radial†	4410.7	4630.8	9639.4 µg/L	9639.4 ppb	10:15:28
3	Sr 421.552†	97045.2	101502.9	495.66 µg/L	495.66 ppb	10:15:08
3	Sc 361.383	678325.2	678325.2	95.191 %		10:16:36
3	Y 371.029	584121.2	584121.2	94.346 %		10:16:36
3	Ag 328.068†	75953.5	80170.1	512.93 µg/L	512.93 ppb	10:16:42
3	As 188.979†	834.7	885.7	497.45 µg/L	497.45 ppb	10:17:02
3	B 249.677†	16706.6	17453.7	494.55 µg/L	494.55 ppb	10:16:42
3	Ba 233.527†	50688.5	53420.3	498.65 µg/L	498.65 ppb	10:16:42
3	Be 313.107†	812989.2	862059.1	499.19 µg/L	499.19 ppb	10:16:36
3	Cd 226.502†	31865.5	33700.7	500.42 µg/L	500.42 ppb	10:16:42
3	Co 228.616†	19787.4	20808.0	505.23 µg/L	505.23 ppb	10:16:42
3	Cr 267.716†	24289.1	25322.7	495.15 µg/L	495.15 ppb	10:16:42
3	Cu 324.752†	122130.5	121817.8	503.01 µg/L	503.01 ppb	10:16:42
3	Mn 257.610†	330808.3	347017.4	495.41 µg/L	495.41 ppb	10:16:42
3	Mo 202.031†	7000.9	7332.5	500.14 µg/L	500.14 ppb	10:17:02
3	Ni 231.604†	16576.7	17542.9	510.22 µg/L	510.22 ppb	10:16:42
3	P 214.914†	3269.7	3310.0	2463.9 µg/L	2463.9 ppb	10:17:02
3	Pb 220.353†	3312.0	3328.5	504.31 µg/L	504.31 ppb	10:17:02
3	S 181.975 Axial†	612.1	581.4	1010.7 µg/L	1010.7 ppb	10:17:02
3	Sb 206.836†	1547.0	1559.5	499.14 µg/L	499.14 ppb	10:17:02
3	Se 196.026†	640.5	678.2	506.95 µg/L	506.95 ppb	10:17:02
3	SiO2†	44249.8	43535.2	5456.1 µg/L	5456.1 ppb	10:16:42
3	Si 251.611†	51421.0	53836.9	2529.2 µg/L	2529.2 ppb	10:16:42
3	Sn 189.927†	2202.3	2286.8	501.74 µg/L	501.74 ppb	10:17:02
3	Ti 334.940†	189672.1	199262.3	499.38 µg/L	499.38 ppb	10:16:42
3	Tl 190.801†	1337.7	1453.7	499.61 µg/L	499.61 ppb	10:17:02
3	U 367.007†	2235.0	2053.5	480.2 µg/L	480.2 ppb	10:16:42
3	V 292.402†	48222.8	50719.3	504.63 µg/L	504.63 ppb	10:16:42
3	Zn 213.857†	53567.6	55072.8	503.14 µg/L	503.14 ppb	10:16:42

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	678070.4	95.155	%	0.1620				0.17%
Sc RADIAL	20254.4	96.5	%	0.43				0.45%
Y 371.029	584392.2	94.390	%	0.1356				0.14%
Ag 328.068†	80133.7	512.70	µg/L	1.861	512.70	ppb	1.861	0.36%
QC value within limits for Ag 328.068 Recovery = 102.54%								
Al 396.153Radial†	16638.9	4941.2	µg/L	20.48	4941.2	ppb	20.48	0.41%
QC value within limits for Al 396.153Radial Recovery = 98.82%								
As 188.979†	886.2	497.74	µg/L	2.503	497.74	ppb	2.503	0.50%
QC value within limits for As 188.979 Recovery = 99.55%								
B 249.677†	17468.9	494.98	µg/L	3.653	494.98	ppb	3.653	0.74%
QC value within limits for B 249.677 Recovery = 99.00%								
Ba 233.527†	53404.3	498.50	µg/L	2.213	498.50	ppb	2.213	0.44%
QC value within limits for Ba 233.527 Recovery = 99.70%								
Be 313.107†	864009.9	500.32	µg/L	2.396	500.32	ppb	2.396	0.48%
QC value within limits for Be 313.107 Recovery = 100.06%								
Ca 317.933Radial†	10321.3	4894.5	µg/L	21.38	4894.5	ppb	21.38	0.44%
QC value within limits for Ca 317.933Radial Recovery = 97.89%								
Cd 226.502†	33709.0	500.54	µg/L	3.668	500.54	ppb	3.668	0.73%
QC value within limits for Cd 226.502 Recovery = 100.11%								
Co 228.616†	20767.6	504.25	µg/L	2.394	504.25	ppb	2.394	0.47%

QC value within limits for Co 228.616 Recovery = 100.85%

Cr 267.716†	25392.7	496.52 µg/L	2.655	496.52 ppb	2.655	0.53%

QC value within limits for Cr 267.716 Recovery = 99.30%

Cu 324.752†	121533.3	501.84 µg/L	1.760	501.84 ppb	1.760	0.35%

QC value within limits for Cu 324.752 Recovery = 100.37%

Fe 238.204 Radial†	9234.1	5041.2 µg/L	3.95	5041.2 ppb	3.95	0.08%

QC value within limits for Fe 238.204 Radial Recovery = 100.82%

K 766.490 Radial†	10485.1	4958.0 µg/L	26.00	4958.0 ppb	26.00	0.52%

QC value within limits for K 766.490 Radial Recovery = 99.16%

Mg 279.077 IEC†	974.3	5161.8 µg/L	17.88	5161.8 ppb	17.88	0.35%

QC value within limits for Mg 279.077 IEC Recovery = 103.24%

Mn 257.610†	346591.5	494.80 µg/L	2.195	494.80 ppb	2.195	0.44%

QC value within limits for Mn 257.610 Recovery = 98.96%

Mo 202.031†	7345.1	501.00 µg/L	0.843	501.00 ppb	0.843	0.17%

QC value within limits for Mo 202.031 Recovery = 100.20%

Na 589.592 Radial†	4633.3	9644.5 µg/L	49.84	9644.5 ppb	49.84	0.52%

QC value within limits for Na 589.592 Radial Recovery = 96.45%

Ni 231.604†	17540.4	510.15 µg/L	2.878	510.15 ppb	2.878	0.56%

QC value within limits for Ni 231.604 Recovery = 102.03%

P 214.914†	3330.5	2479.3 µg/L	13.43	2479.3 ppb	13.43	0.54%

QC value within limits for P 214.914 Recovery = 99.17%

Pb 220.353†	3339.9	506.05 µg/L	2.363	506.05 ppb	2.363	0.47%

QC value within limits for Pb 220.353 Recovery = 101.21%

S 181.975 Axial†	582.3	1012.3 µg/L	9.21	1012.3 ppb	9.21	0.91%

QC value within limits for S 181.975 Axial Recovery = 101.23%

Sb 206.836†	1556.0	498.00 µg/L	1.059	498.00 ppb	1.059	0.21%

QC value within limits for Sb 206.836 Recovery = 99.60%

Se 196.026†	687.0	513.43 µg/L	6.005	513.43 ppb	6.005	1.17%

QC value within limits for Se 196.026 Recovery = 102.69%

SiO2†	43467.0	5447.7 µg/L	25.60	5447.7 ppb	25.60	0.47%

QC value within limits for SiO2 Recovery = 101.87%

Si 251.611†	53754.2	2525.2 µg/L	11.91	2525.2 ppb	11.91	0.47%

QC value within limits for Si 251.611 Recovery = 101.01%

Sn 189.927†	2297.2	503.99 µg/L	2.280	503.99 ppb	2.280	0.45%

QC value within limits for Sn 189.927 Recovery = 100.80%

Sr 421.552†	100980.3	493.11 µg/L	2.829	493.11 ppb	2.829	0.57%

QC value within limits for Sr 421.552 Recovery = 98.62%

Ti 334.940†	199052.0	498.85 µg/L	2.069	498.85 ppb	2.069	0.41%

QC value within limits for Ti 334.940 Recovery = 99.77%

Tl 190.801†	1458.6	501.28 µg/L	3.249	501.28 ppb	3.249	0.65%

QC value within limits for Tl 190.801 Recovery = 100.26%

U 367.007†	2055.9	480.8 µg/L	5.43	480.8 ppb	5.43	1.13%

QC value within limits for U 367.007 Recovery = 96.16%

V 292.402†	50675.4	504.21 µg/L	2.208	504.21 ppb	2.208	0.44%

QC value within limits for V 292.402 Recovery = 100.84%

Zn 213.857†	55013.3	502.59 µg/L	2.482	502.59 ppb	2.482	0.49%

QC value within limits for Zn 213.857 Recovery = 100.52%

All analyte(s) passed QC.

Sequence No.: 8 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 10:17:09**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19818.4	19818.4	94.5	%			10:17:37
1	Al 396.153Radial†	-132.3	33.8	9.9937	µg/L	9.9937	ppb	10:17:37
1	Ca 317.933Radial†	96.5	6.3	3.0078	µg/L	3.0078	ppb	10:17:57
1	Fe 238.204 Radial†	53.3	23.9	13.063	µg/L	13.063	ppb	10:17:57
1	K 766.490 Radial†	672.8	22.9	10.855	µg/L	10.855	ppb	10:17:37
1	Mg 279.077 IEC†	4.7	-4.9	-25.931	µg/L	-25.931	ppb	10:17:57
1	Na 589.592 Radial†	-88.3	-48.1	-100.16	µg/L	-100.16	ppb	10:17:37
1	Sr 421.552†	-595.9	-18.8	-0.0918	µg/L	-0.0918	ppb	10:17:37
1	Sc 361.383	665489.3	665489.3	93.389	%			10:18:54
1	Y 371.029	577482.5	577482.5	93.274	%			10:18:54
1	Ag 328.068†	-277.8	81.7	0.5217	µg/L	0.5217	ppb	10:18:59
1	As 188.979†	-12.9	-5.0	-2.8298	µg/L	-2.8298	ppb	10:19:19
1	B 249.677†	141.1	54.1	1.5343	µg/L	1.5343	ppb	10:19:19
1	Ba 233.527†	-165.2	-6.1	-0.0573	µg/L	-0.0573	ppb	10:19:19
1	Be 313.107†	-7565.4	-106.5	-0.0569	µg/L	-0.0569	ppb	10:18:59
1	Cd 226.502†	-221.3	-11.7	-0.1756	µg/L	-0.1756	ppb	10:19:19
1	Co 228.616†	-0.2	20.6	0.5027	µg/L	0.5027	ppb	10:19:19
1	Cr 267.716†	203.5	24.3	0.4528	µg/L	0.4528	ppb	10:19:19
1	Cu 324.752†	6238.5	196.8	0.7935	µg/L	0.7935	ppb	10:18:59
1	Mn 257.610†	476.0	5.1	0.0093	µg/L	0.0093	ppb	10:19:19
1	Mo 202.031†	45.6	26.8	1.8267	µg/L	1.8267	ppb	10:19:19
1	Ni 231.604†	-135.7	-16.6	-0.4829	µg/L	-0.4829	ppb	10:19:19
1	P 214.914†	136.0	20.9	15.599	µg/L	15.599	ppb	10:19:19
1	Pb 220.353†	179.3	41.1	6.2159	µg/L	6.2159	ppb	10:19:19
1	S 181.975 Axial†	58.8	1.3	2.2507	µg/L	2.2507	ppb	10:19:19
1	Sb 206.836†	78.6	18.4	5.9719	µg/L	5.9719	ppb	10:19:19
1	Se 196.026†	2.5	7.9	5.9364	µg/L	5.9364	ppb	10:19:19
1	SiO2†	2812.3	61.0	7.9217	µg/L	7.9217	ppb	10:18:59
1	Si 251.611†	172.9	3.1	0.1174	µg/L	0.1174	ppb	10:19:19
1	Sn 189.927†	30.6	6.0	1.2991	µg/L	1.2991	ppb	10:19:19
1	Ti 334.940†	-109.5	-110.0	-0.2862	µg/L	-0.2862	ppb	10:18:59
1	Tl 190.801†	-41.0	4.5	1.5540	µg/L	1.5540	ppb	10:19:19
1	U 367.007†	362.7	94.0	22.99	µg/L	22.99	ppb	10:18:59
1	V 292.402†	-54.3	2.0	0.0607	µg/L	0.0607	ppb	10:18:59
1	Zn 213.857†	1288.8	178.7	1.6475	µg/L	1.6475	ppb	10:19:19
2	Sc RADIAL	19715.0	19715.0	94.0	%			10:18:02
2	Al 396.153Radial†	-173.7	-11.0	-3.3518	µg/L	-3.3518	ppb	10:18:02
2	Ca 317.933Radial†	102.3	13.1	6.2016	µg/L	6.2016	ppb	10:18:22
2	Fe 238.204 Radial†	37.3	7.2	3.9367	µg/L	3.9367	ppb	10:18:22
2	K 766.490 Radial†	656.6	9.4	4.4625	µg/L	4.4625	ppb	10:18:02
2	Mg 279.077 IEC†	3.6	-6.0	-31.828	µg/L	-31.828	ppb	10:18:22
2	Na 589.592 Radial†	-107.2	-68.7	-142.93	µg/L	-142.93	ppb	10:18:02
2	Sr 421.552†	-619.4	-47.1	-0.2302	µg/L	-0.2302	ppb	10:18:02
2	Sc 361.383	665907.3	665907.3	93.448	%			10:19:24
2	Y 371.029	576773.1	576773.1	93.159	%			10:19:24
2	Ag 328.068†	-341.2	14.0	0.0903	µg/L	0.0903	ppb	10:19:29
2	As 188.979†	-14.6	-6.8	-3.8234	µg/L	-3.8234	ppb	10:19:49
2	B 249.677†	140.1	52.9	1.5033	µg/L	1.5033	ppb	10:19:49
2	Ba 233.527†	-155.4	4.5	0.0423	µg/L	0.0423	ppb	10:19:49
2	Be 313.107†	-7767.2	-317.3	-0.1826	µg/L	-0.1826	ppb	10:19:29
2	Cd 226.502†	-221.4	-11.6	-0.1738	µg/L	-0.1738	ppb	10:19:49
2	Co 228.616†	-10.3	9.8	0.2406	µg/L	0.2406	ppb	10:19:49
2	Cr 267.716†	193.0	13.0	0.2485	µg/L	0.2485	ppb	10:19:49
2	Cu 324.752†	6330.4	291.0	1.1949	µg/L	1.1949	ppb	10:19:29
2	Mn 257.610†	444.6	-28.9	-0.0398	µg/L	-0.0398	ppb	10:19:49
2	Mo 202.031†	44.6	25.6	1.7471	µg/L	1.7471	ppb	10:19:49
2	Ni 231.604†	-122.1	-2.0	-0.0583	µg/L	-0.0583	ppb	10:19:49
2	P 214.914†	128.4	12.6	9.4284	µg/L	9.4284	ppb	10:19:49
2	Pb 220.353†	180.3	42.1	6.3750	µg/L	6.3750	ppb	10:19:49

2	S 181.975 Axial†	68.1	11.2	19.421 µg/L	19.421 ppb	10:19:49
2	Sb 206.836†	76.2	15.8	5.1254 µg/L	5.1254 ppb	10:19:49
2	Se 196.026†	-3.5	1.6	1.1851 µg/L	1.1851 ppb	10:19:49
2	SiO2†	2828.4	76.4	9.5917 µg/L	9.5917 ppb	10:19:29
2	Si 251.611†	175.5	5.7	0.2391 µg/L	0.2391 ppb	10:19:49
2	Sn 189.927†	34.4	10.0	2.1829 µg/L	2.1829 ppb	10:19:49
2	Ti 334.940†	-107.4	-107.7	-0.2719 µg/L	-0.2719 ppb	10:19:29
2	Tl 190.801†	-38.1	7.6	2.6150 µg/L	2.6150 ppb	10:19:49
2	U 367.007†	293.1	19.2	4.690 µg/L	4.690 ppb	10:19:29
2	V 292.402†	-51.3	5.3	0.0765 µg/L	0.0765 ppb	10:19:29
2	Zn 213.857†	1266.5	154.0	1.4184 µg/L	1.4184 ppb	10:19:49
3	Sc RADIAL	19812.7	19812.7	94.4 %		10:18:27
3	Al 396.153Radial†	-171.0	-7.3	-2.2240 µg/L	-2.2240 ppb	10:18:27
3	Ca 317.933Radial†	92.7	2.3	1.0887 µg/L	1.0887 ppb	10:18:47
3	Fe 238.204 Radial†	35.8	5.5	2.9961 µg/L	2.9961 ppb	10:18:47
3	K 766.490 Radial†	719.3	72.4	34.250 µg/L	34.250 ppb	10:18:27
3	Mg 279.077 IEC†	3.8	-5.8	-30.567 µg/L	-30.567 ppb	10:18:47
3	Na 589.592 Radial†	-99.7	-60.2	-125.36 µg/L	-125.36 ppb	10:18:27
3	Sr 421.552†	-604.9	-28.5	-0.1394 µg/L	-0.1394 ppb	10:18:27
3	Sc 361.383	668911.1	668911.1	93.869 %		10:19:54
3	Y 371.029	579679.1	579679.1	93.629 %		10:19:54
3	Ag 328.068†	-374.5	-19.9	-0.1252 µg/L	-0.1252 ppb	10:19:59
3	As 188.979†	-7.7	0.6	0.3261 µg/L	0.3261 ppb	10:20:19
3	B 249.677†	103.1	12.8	0.3649 µg/L	0.3649 ppb	10:20:19
3	Ba 233.527†	-167.2	-7.3	-0.0682 µg/L	-0.0682 ppb	10:20:19
3	Be 313.107†	-7676.2	-183.1	-0.1006 µg/L	-0.1006 ppb	10:19:59
3	Cd 226.502†	-216.7	-5.6	-0.0846 µg/L	-0.0846 ppb	10:20:19
3	Co 228.616†	-16.8	3.0	0.0746 µg/L	0.0746 ppb	10:20:19
3	Cr 267.716†	201.8	21.3	0.3903 µg/L	0.3903 ppb	10:20:19
3	Cu 324.752†	6296.4	224.4	0.9021 µg/L	0.9021 ppb	10:19:59
3	Mn 257.610†	453.9	-21.1	-0.0289 µg/L	-0.0289 ppb	10:20:19
3	Mo 202.031†	42.7	23.5	1.5990 µg/L	1.5990 ppb	10:20:19
3	Ni 231.604†	-139.1	-19.5	-0.5677 µg/L	-0.5677 ppb	10:20:19
3	P 214.914†	125.3	8.7	6.4530 µg/L	6.4530 ppb	10:20:19
3	Pb 220.353†	184.0	45.1	6.8227 µg/L	6.8227 ppb	10:20:19
3	S 181.975 Axial†	58.3	0.5	0.8608 µg/L	0.8608 ppb	10:20:19
3	Sb 206.836†	85.5	25.4	8.2008 µg/L	8.2008 ppb	10:20:19
3	Se 196.026†	1.9	7.4	5.4991 µg/L	5.4991 ppb	10:20:19
3	SiO2†	2855.8	92.0	11.823 µg/L	11.823 ppb	10:19:59
3	Si 251.611†	170.3	-0.6	-0.0486 µg/L	-0.0486 ppb	10:20:19
3	Sn 189.927†	25.6	0.5	0.0920 µg/L	0.0920 ppb	10:20:19
3	Ti 334.940†	-66.1	-63.1	-0.1702 µg/L	-0.1702 ppb	10:19:59
3	Tl 190.801†	-40.5	5.3	1.8105 µg/L	1.8105 ppb	10:20:19
3	U 367.007†	378.2	108.5	26.60 µg/L	26.60 ppb	10:19:59
3	V 292.402†	-56.8	-0.3	0.0379 µg/L	0.0379 ppb	10:19:59
3	Zn 213.857†	1254.4	135.1	1.2472 µg/L	1.2472 ppb	10:20:19

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	666769.2	93.569	%	0.2620				0.28%
Sc RADIAL	19782.0	94.3	%	0.28				0.29%
Y 371.029	577978.2	93.354	%	0.2447				0.26%
Ag 328.068†	25.3	0.1623	µg/L	0.32939	0.1623	ppb	0.32939	203.00%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	5.2	1.4726	µg/L	7.40101	1.4726	ppb	7.40101	502.58%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-3.7	-2.1091	µg/L	2.16662	-2.1091	ppb	2.16662	102.73%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	39.9	1.1342	µg/L	0.66639	1.1342	ppb	0.66639	58.76%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-3.0	-0.0277	µg/L	0.06087	-0.0277	ppb	0.06087	219.48%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-202.3	-0.1134	µg/L	0.06383	-0.1134	ppb	0.06383	56.30%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	7.2	3.4327	µg/L	2.58278	3.4327	ppb	2.58278	75.24%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	-9.6	-0.1446	µg/L	0.05203	-0.1446	ppb	0.05203	35.97%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	11.1	0.2726	µg/L	0.21583	0.2726	ppb	0.21583	79.17%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              19.5      0.3639 µg/L       0.10469      0.3639 ppb        0.10469  28.77%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             237.4      0.9635 µg/L       0.20763      0.9635 ppb        0.20763  21.55%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†       12.2      6.6653 µg/L       5.56066      6.6653 ppb        5.56066  83.43%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        34.9      16.522 µg/L       15.6814      16.522 ppb        15.6814  94.91%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          -5.6     -29.442 µg/L        3.1057     -29.442 ppb         3.1057  10.55%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†             -15.0     -0.0198 µg/L       0.02577     -0.0198 ppb        0.02577 130.04%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              25.3      1.7243 µg/L       0.11553      1.7243 ppb        0.11553   6.70%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -59.0     -122.82 µg/L        21.498     -122.82 ppb         21.498  17.50%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†             -12.7     -0.3696 µg/L       0.27294     -0.3696 ppb        0.27294  73.84%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               14.0      10.493 µg/L        4.6650      10.493 ppb         4.6650  44.46%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              42.8      6.4712 µg/L       0.31459      6.4712 ppb        0.31459   4.86%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          4.3      7.5107 µg/L      10.33771      7.5107 ppb       10.33771 137.64%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              19.9      6.4327 µg/L       1.58864      6.4327 ppb        1.58864  24.70%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               5.6      4.2068 µg/L       2.62600      4.2068 ppb        2.62600  62.42%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    76.5      9.7788 µg/L       1.95729      9.7788 ppb        1.95729  20.02%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               2.7      0.1026 µg/L       0.14446      0.1026 ppb        0.14446 140.74%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               5.5      1.1913 µg/L       1.04959      1.1913 ppb        1.04959  88.10%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             -31.5     -0.1538 µg/L       0.07034     -0.1538 ppb        0.07034  45.73%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -93.6     -0.2428 µg/L       0.06323     -0.2428 ppb        0.06323  26.05%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               5.8      1.9932 µg/L       0.55360      1.9932 ppb        0.55360  27.77%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               73.9       18.09 µg/L        11.746       18.09 ppb         11.746  64.92%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                2.3      0.0584 µg/L       0.01941      0.0584 ppb        0.01941  33.25%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             155.9      1.4377 µg/L       0.20084      1.4377 ppb        0.20084  13.97%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 16 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 10:37:03**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20035.5	20035.5	95.5	%			10:37:33
1	Al 396.153Radial†	16170.1	17106.0	5079.9	µg/L	5079.9	ppb	10:37:33
1	Ca 317.933Radial†	10284.7	10673.6	5061.6	µg/L	5061.6	ppb	10:37:53
1	Fe 238.204 Radial†	9135.7	9533.8	5204.8	µg/L	5204.8	ppb	10:37:53
1	K 766.490 Radial†	10979.2	10807.4	5110.3	µg/L	5110.3	ppb	10:37:33
1	Mg 279.077 IEC†	983.1	1019.6	5401.3	µg/L	5401.3	ppb	10:37:53
1	Na 589.592 Radial†	4536.5	4795.7	9982.5	µg/L	9982.5	ppb	10:37:53
1	Sr 421.552†	98601.8	103861.3	507.18	µg/L	507.18	ppb	10:37:33
1	Sc 361.383	676245.1	676245.1	94.899	%			10:38:50
1	Y 371.029	582721.5	582721.5	94.120	%			10:38:50
1	Ag 328.068†	77276.8	81810.0	523.46	µg/L	523.46	ppb	10:38:55
1	As 188.979†	865.3	920.6	517.08	µg/L	517.08	ppb	10:39:15
1	B 249.677†	17171.7	17997.8	509.97	µg/L	509.97	ppb	10:38:55
1	Ba 233.527†	52135.4	55108.8	514.40	µg/L	514.40	ppb	10:38:55
1	Be 313.107†	836575.1	889539.9	515.11	µg/L	515.11	ppb	10:38:50
1	Cd 226.502†	32888.2	34881.4	517.95	µg/L	517.95	ppb	10:38:55
1	Co 228.616†	20302.0	21414.2	519.95	µg/L	519.95	ppb	10:38:55
1	Cr 267.716†	25159.9	26318.7	514.63	µg/L	514.63	ppb	10:38:55
1	Cu 324.752†	123899.8	124076.8	512.35	µg/L	512.35	ppb	10:38:55
1	Mn 257.610†	338864.5	356575.6	509.06	µg/L	509.06	ppb	10:38:55
1	Mo 202.031†	7178.5	7542.3	514.45	µg/L	514.45	ppb	10:39:15
1	Ni 231.604†	17041.2	18085.9	526.01	µg/L	526.01	ppb	10:38:55
1	P 214.914†	3352.0	3407.4	2536.5	µg/L	2536.5	ppb	10:39:15
1	Pb 220.353†	3391.3	3422.8	518.61	µg/L	518.61	ppb	10:39:15
1	S 181.975 Axial†	621.7	593.4	1031.7	µg/L	1031.7	ppb	10:39:15
1	Sb 206.836†	1580.4	1599.7	511.87	µg/L	511.87	ppb	10:39:15
1	Se 196.026†	653.3	693.7	518.58	µg/L	518.58	ppb	10:39:15
1	SiO2†	45174.5	44652.6	5596.5	µg/L	5596.5	ppb	10:38:55
1	Si 251.611†	52535.4	55177.4	2592.1	µg/L	2592.1	ppb	10:38:55
1	Sn 189.927†	2270.9	2366.2	519.14	µg/L	519.14	ppb	10:39:15
1	Ti 334.940†	193970.9	204405.1	512.27	µg/L	512.27	ppb	10:38:55
1	Tl 190.801†	1382.7	1505.5	517.38	µg/L	517.38	ppb	10:39:15
1	U 367.007†	2277.9	2105.9	492.3	µg/L	492.3	ppb	10:38:55
1	V 292.402†	49345.1	52057.8	517.97	µg/L	517.97	ppb	10:38:55
1	Zn 213.857†	54818.8	56564.3	516.75	µg/L	516.75	ppb	10:38:55
2	Sc RADIAL	20150.8	20150.8	96.0	%			10:37:58
2	Al 396.153Radial†	16258.6	17101.3	5078.6	µg/L	5078.6	ppb	10:37:58
2	Ca 317.933Radial†	10242.6	10568.2	5011.6	µg/L	5011.6	ppb	10:38:18
2	Fe 238.204 Radial†	9084.8	9426.2	5146.1	µg/L	5146.1	ppb	10:38:18
2	K 766.490 Radial†	10999.5	10762.8	5089.2	µg/L	5089.2	ppb	10:37:58
2	Mg 279.077 IEC†	966.2	996.1	5276.8	µg/L	5276.8	ppb	10:38:18
2	Na 589.592 Radial†	4444.6	4672.8	9726.8	µg/L	9726.8	ppb	10:38:18
2	Sr 421.552†	98785.0	103461.4	505.23	µg/L	505.23	ppb	10:37:58
2	Sc 361.383	674089.0	674089.0	94.596	%			10:39:21
2	Y 371.029	580818.3	580818.3	93.813	%			10:39:21
2	Ag 328.068†	77140.0	81925.8	524.18	µg/L	524.18	ppb	10:39:26
2	As 188.979†	846.3	903.4	507.44	µg/L	507.44	ppb	10:39:46
2	B 249.677†	17051.0	17928.0	508.00	µg/L	508.00	ppb	10:39:26
2	Ba 233.527†	51860.1	54993.4	513.33	µg/L	513.33	ppb	10:39:26
2	Be 313.107†	833999.0	889636.3	515.16	µg/L	515.16	ppb	10:39:21
2	Cd 226.502†	32749.1	34845.2	517.43	µg/L	517.43	ppb	10:39:26
2	Co 228.616†	20221.5	21397.5	519.54	µg/L	519.54	ppb	10:39:26
2	Cr 267.716†	24951.3	26183.0	511.98	µg/L	511.98	ppb	10:39:26
2	Cu 324.752†	123767.3	124354.3	513.50	µg/L	513.50	ppb	10:39:26
2	Mn 257.610†	337844.9	356639.9	509.15	µg/L	509.15	ppb	10:39:26
2	Mo 202.031†	7123.1	7508.0	512.11	µg/L	512.11	ppb	10:39:46
2	Ni 231.604†	16956.9	18054.2	525.09	µg/L	525.09	ppb	10:39:26
2	P 214.914†	3335.6	3401.4	2532.0	µg/L	2532.0	ppb	10:39:46
2	Pb 220.353†	3365.3	3406.7	516.16	µg/L	516.16	ppb	10:39:46

2	S 181.975 Axial†	608.1	581.2	1010.5 µg/L	1010.5 ppb	10:39:46
2	Sb 206.836†	1571.6	1595.7	510.60 µg/L	510.60 ppb	10:39:46
2	Se 196.026†	662.5	705.7	527.38 µg/L	527.38 ppb	10:39:46
2	SiO2†	45099.9	44726.0	5605.4 µg/L	5605.4 ppb	10:39:26
2	Si 251.611†	52414.4	55226.5	2594.5 µg/L	2594.5 ppb	10:39:26
2	Sn 189.927†	2248.8	2350.5	515.71 µg/L	515.71 ppb	10:39:46
2	Ti 334.940†	193456.5	204515.1	512.55 µg/L	512.55 ppb	10:39:26
2	Tl 190.801†	1352.5	1478.2	508.04 µg/L	508.04 ppb	10:39:46
2	U 367.007†	2236.6	2069.9	483.7 µg/L	483.7 ppb	10:39:26
2	V 292.402†	49232.6	52105.2	518.40 µg/L	518.40 ppb	10:39:26
2	Zn 213.857†	54585.5	56502.5	516.19 µg/L	516.19 ppb	10:39:26
3	Sc RADIAL	19824.7	19824.7	94.5 %		10:38:23
3	Al 396.153Radial†	16037.4	17145.7	5091.8 µg/L	5091.8 ppb	10:38:23
3	Ca 317.933Radial†	10217.1	10716.6	5081.9 µg/L	5081.9 ppb	10:38:43
3	Fe 238.204 Radial†	9035.8	9529.9	5202.6 µg/L	5202.6 ppb	10:38:43
3	K 766.490 Radial†	10934.9	10882.8	5146.1 µg/L	5146.1 ppb	10:38:23
3	Mg 279.077 IEC†	972.3	1019.1	5398.8 µg/L	5398.8 ppb	10:38:43
3	Na 589.592 Radial†	4418.9	4721.8	9828.7 µg/L	9828.7 ppb	10:38:43
3	Sr 421.552†	97656.0	103958.3	507.65 µg/L	507.65 ppb	10:38:23
3	Sc 361.383	675998.9	675998.9	94.864 %		10:39:52
3	Y 371.029	582399.4	582399.4	94.068 %		10:39:52
3	Ag 328.068†	77068.7	81620.3	522.24 µg/L	522.24 ppb	10:39:57
3	As 188.979†	846.8	901.4	506.28 µg/L	506.28 ppb	10:40:17
3	B 249.677†	17026.1	17850.9	505.80 µg/L	505.80 ppb	10:39:57
3	Ba 233.527†	51781.4	54755.7	511.11 µg/L	511.11 ppb	10:39:57
3	Be 313.107†	835222.7	888435.3	514.47 µg/L	514.47 ppb	10:39:52
3	Cd 226.502†	32657.4	34650.7	514.52 µg/L	514.52 ppb	10:39:57
3	Co 228.616†	20231.5	21347.6	518.33 µg/L	518.33 ppb	10:39:57
3	Cr 267.716†	24931.6	26087.8	510.12 µg/L	510.12 ppb	10:39:57
3	Cu 324.752†	123542.0	123747.2	511.00 µg/L	511.00 ppb	10:39:57
3	Mn 257.610†	337206.8	354958.3	506.75 µg/L	506.75 ppb	10:39:57
3	Mo 202.031†	7153.0	7518.2	512.81 µg/L	512.81 ppb	10:40:17
3	Ni 231.604†	16938.4	17984.1	523.05 µg/L	523.05 ppb	10:39:57
3	P 214.914†	3357.9	3414.8	2542.2 µg/L	2542.2 ppb	10:40:17
3	Pb 220.353†	3389.9	3422.6	518.58 µg/L	518.58 ppb	10:40:17
3	S 181.975 Axial†	620.6	592.6	1030.2 µg/L	1030.2 ppb	10:40:17
3	Sb 206.836†	1565.6	1584.6	507.10 µg/L	507.10 ppb	10:40:17
3	Se 196.026†	669.6	711.2	531.51 µg/L	531.51 ppb	10:40:17
3	SiO2†	45133.7	44626.9	5592.9 µg/L	5592.9 ppb	10:39:57
3	Si 251.611†	52492.7	55152.5	2591.0 µg/L	2591.0 ppb	10:39:57
3	Sn 189.927†	2258.2	2353.7	516.40 µg/L	516.40 ppb	10:40:17
3	Ti 334.940†	193011.3	203468.0	509.93 µg/L	509.93 ppb	10:39:57
3	Tl 190.801†	1375.3	1498.2	514.88 µg/L	514.88 ppb	10:40:17
3	U 367.007†	2235.2	2061.8	481.5 µg/L	481.5 ppb	10:39:57
3	V 292.402†	49019.7	51733.8	514.76 µg/L	514.76 ppb	10:39:57
3	Zn 213.857†	54557.8	56310.2	514.43 µg/L	514.43 ppb	10:39:57

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	675444.3	94.786	%	0.1656				0.17%
Sc RADIAL	20003.7	95.3	%	0.79				0.83%
Y 371.029	581979.7	94.000	%	0.1645				0.18%
Ag 328.068†	81785.4	523.29	µg/L	0.984	523.29	ppb	0.984	0.19%
QC value within limits for Ag 328.068 Recovery = 104.66%								
Al 396.153Radial†	17117.7	5083.4	µg/L	7.27	5083.4	ppb	7.27	0.14%
QC value within limits for Al 396.153Radial Recovery = 101.67%								
As 188.979†	908.5	510.27	µg/L	5.925	510.27	ppb	5.925	1.16%
QC value within limits for As 188.979 Recovery = 102.05%								
B 249.677†	17925.6	507.92	µg/L	2.090	507.92	ppb	2.090	0.41%
QC value within limits for B 249.677 Recovery = 101.58%								
Ba 233.527†	54952.6	512.95	µg/L	1.681	512.95	ppb	1.681	0.33%
QC value within limits for Ba 233.527 Recovery = 102.59%								
Be 313.107†	889203.8	514.91	µg/L	0.387	514.91	ppb	0.387	0.08%
QC value within limits for Be 313.107 Recovery = 102.98%								
Ca 317.933Radial†	10652.8	5051.7	µg/L	36.21	5051.7	ppb	36.21	0.72%
QC value within limits for Ca 317.933Radial Recovery = 101.03%								
Cd 226.502†	34792.4	516.63	µg/L	1.847	516.63	ppb	1.847	0.36%
QC value within limits for Cd 226.502 Recovery = 103.33%								
Co 228.616†	21386.4	519.27	µg/L	0.839	519.27	ppb	0.839	0.16%

QC value within limits for Co 228.616 Recovery = 103.85%

Cr 267.716†	26196.5	512.25 µg/L	2.265	512.25 ppb	2.265	0.44%
QC value within limits for Cr 267.716 Recovery = 102.45%						
Cu 324.752†	124059.4	512.28 µg/L	1.248	512.28 ppb	1.248	0.24%
QC value within limits for Cu 324.752 Recovery = 102.46%						
Fe 238.204 Radial†	9496.6	5184.5 µg/L	33.29	5184.5 ppb	33.29	0.64%
QC value within limits for Fe 238.204 Radial Recovery = 103.69%						
K 766.490 Radial†	10817.7	5115.2 µg/L	28.73	5115.2 ppb	28.73	0.56%
QC value within limits for K 766.490 Radial Recovery = 102.30%						
Mg 279.077 IEC†	1011.6	5359.0 µg/L	71.16	5359.0 ppb	71.16	1.33%
QC value within limits for Mg 279.077 IEC Recovery = 107.18%						
Mn 257.610†	356058.0	508.32 µg/L	1.359	508.32 ppb	1.359	0.27%
QC value within limits for Mn 257.610 Recovery = 101.66%						
Mo 202.031†	7522.8	513.12 µg/L	1.204	513.12 ppb	1.204	0.23%
QC value within limits for Mo 202.031 Recovery = 102.62%						
Na 589.592 Radial†	4730.1	9846.0 µg/L	128.75	9846.0 ppb	128.75	1.31%
QC value within limits for Na 589.592 Radial Recovery = 98.46%						
Ni 231.604†	18041.4	524.72 µg/L	1.515	524.72 ppb	1.515	0.29%
QC value within limits for Ni 231.604 Recovery = 104.94%						
P 214.914†	3407.9	2536.9 µg/L	5.07	2536.9 ppb	5.07	0.20%
QC value within limits for P 214.914 Recovery = 101.48%						
Pb 220.353†	3417.3	517.78 µg/L	1.407	517.78 ppb	1.407	0.27%
QC value within limits for Pb 220.353 Recovery = 103.56%						
S 181.975 Axial†	589.1	1024.1 µg/L	11.86	1024.1 ppb	11.86	1.16%
QC value within limits for S 181.975 Axial Recovery = 102.41%						
Sb 206.836†	1593.3	509.86 µg/L	2.470	509.86 ppb	2.470	0.48%
QC value within limits for Sb 206.836 Recovery = 101.97%						
Se 196.026†	703.5	525.83 µg/L	6.604	525.83 ppb	6.604	1.26%
QC value within limits for Se 196.026 Recovery = 105.17%						
SiO2†	44668.5	5598.2 µg/L	6.41	5598.2 ppb	6.41	0.11%
QC value within limits for SiO2 Recovery = 104.69%						
Si 251.611†	55185.5	2592.5 µg/L	1.78	2592.5 ppb	1.78	0.07%
QC value within limits for Si 251.611 Recovery = 103.70%						
Sn 189.927†	2356.8	517.08 µg/L	1.816	517.08 ppb	1.816	0.35%
QC value within limits for Sn 189.927 Recovery = 103.42%						
Sr 421.552†	103760.3	506.69 µg/L	1.286	506.69 ppb	1.286	0.25%
QC value within limits for Sr 421.552 Recovery = 101.34%						
Ti 334.940†	204129.4	511.58 µg/L	1.441	511.58 ppb	1.441	0.28%
QC value within limits for Ti 334.940 Recovery = 102.32%						
Tl 190.801†	1493.9	513.43 µg/L	4.835	513.43 ppb	4.835	0.94%
QC value within limits for Tl 190.801 Recovery = 102.69%						
U 367.007†	2079.2	485.8 µg/L	5.70	485.8 ppb	5.70	1.17%
QC value within limits for U 367.007 Recovery = 97.17%						
V 292.402†	51965.6	517.04 µg/L	1.991	517.04 ppb	1.991	0.39%
QC value within limits for V 292.402 Recovery = 103.41%						
Zn 213.857†	56459.0	515.79 µg/L	1.212	515.79 ppb	1.212	0.23%
QC value within limits for Zn 213.857 Recovery = 103.16%						

All analyte(s) passed QC.

Sequence No.: 17 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 10:40:25**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19961.6	19961.6	95.1	%			10:40:53
1	Al 396.153Radial†	-151.8	14.3	4.1903	µg/L	4.1903	ppb	10:40:53
1	Ca 317.933Radial†	95.4	4.4	2.0864	µg/L	2.0864	ppb	10:41:13
1	Fe 238.204 Radial†	38.9	8.4	4.5876	µg/L	4.5876	ppb	10:41:13
1	K 766.490 Radial†	673.8	18.8	8.9180	µg/L	8.9180	ppb	10:40:53
1	Mg 279.077 IEC†	8.0	-1.5	-7.9186	µg/L	-7.9186	ppb	10:41:13
1	Na 589.592 Radial†	-93.7	-53.1	-110.53	µg/L	-110.53	ppb	10:40:53
1	Sr 421.552†	-596.0	-14.4	-0.0704	µg/L	-0.0704	ppb	10:40:53
1	Sc 361.383	666594.1	666594.1	93.544	%			10:42:10
1	Y 371.029	577691.9	577691.9	93.308	%			10:42:10
1	Ag 328.068†	-341.1	14.5	0.0900	µg/L	0.0900	ppb	10:42:15
1	As 188.979†	-7.9	0.3	0.1616	µg/L	0.1616	ppb	10:42:35
1	B 249.677†	114.7	25.6	0.7274	µg/L	0.7274	ppb	10:42:35
1	Ba 233.527†	-159.1	0.8	0.0062	µg/L	0.0062	ppb	10:42:35
1	Be 313.107†	-7611.5	-142.4	-0.0803	µg/L	-0.0803	ppb	10:42:15
1	Cd 226.502†	-205.3	5.8	0.0850	µg/L	0.0850	ppb	10:42:35
1	Co 228.616†	-5.8	14.6	0.3569	µg/L	0.3569	ppb	10:42:35
1	Cr 267.716†	205.1	25.7	0.4915	µg/L	0.4915	ppb	10:42:35
1	Cu 324.752†	6277.7	227.7	0.9303	µg/L	0.9303	ppb	10:42:15
1	Mn 257.610†	453.9	-19.4	-0.0270	µg/L	-0.0270	ppb	10:42:35
1	Mo 202.031†	47.7	28.9	1.9711	µg/L	1.9711	ppb	10:42:35
1	Ni 231.604†	-132.3	-12.7	-0.3699	µg/L	-0.3699	ppb	10:42:35
1	P 214.914†	122.1	5.7	4.2649	µg/L	4.2649	ppb	10:42:35
1	Pb 220.353†	164.4	24.9	3.7625	µg/L	3.7625	ppb	10:42:35
1	S 181.975 Axial†	57.0	-0.8	-1.2930	µg/L	-1.2930	ppb	10:42:35
1	Sb 206.836†	77.8	17.5	5.6594	µg/L	5.6594	ppb	10:42:35
1	Se 196.026†	-6.0	-1.1	-0.7887	µg/L	-0.7887	ppb	10:42:35
1	SiO2†	2869.1	116.8	14.707	µg/L	14.707	ppb	10:42:15
1	Si 251.611†	192.2	23.4	1.0715	µg/L	1.0715	ppb	10:42:35
1	Sn 189.927†	31.6	7.0	1.5242	µg/L	1.5242	ppb	10:42:35
1	Ti 334.940†	-24.0	-18.4	-0.0507	µg/L	-0.0507	ppb	10:42:15
1	Tl 190.801†	-34.4	11.7	3.9918	µg/L	3.9918	ppb	10:42:35
1	U 367.007†	313.5	40.7	9.952	µg/L	9.952	ppb	10:42:15
1	V 292.402†	-109.1	-56.5	-0.5225	µg/L	-0.5225	ppb	10:42:15
1	Zn 213.857†	1215.0	97.6	0.9002	µg/L	0.9002	ppb	10:42:35
2	Sc RADIAL	19501.5	19501.5	93.0	%			10:41:18
2	Al 396.153Radial†	-156.8	5.2	1.4757	µg/L	1.4757	ppb	10:41:18
2	Ca 317.933Radial†	93.1	4.3	2.0283	µg/L	2.0283	ppb	10:41:38
2	Fe 238.204 Radial†	35.2	5.4	2.9471	µg/L	2.9471	ppb	10:41:38
2	K 766.490 Radial†	682.1	44.5	21.050	µg/L	21.050	ppb	10:41:18
2	Mg 279.077 IEC†	6.9	-2.5	-13.052	µg/L	-13.052	ppb	10:41:38
2	Na 589.592 Radial†	-81.2	-42.0	-87.400	µg/L	-87.400	ppb	10:41:18
2	Sr 421.552†	-626.0	-61.5	-0.3001	µg/L	-0.3001	ppb	10:41:18
2	Sc 361.383	661104.8	661104.8	92.774	%			10:42:40
2	Y 371.029	572958.3	572958.3	92.543	%			10:42:40
2	Ag 328.068†	-326.2	27.6	0.1741	µg/L	0.1741	ppb	10:42:45
2	As 188.979†	-14.5	-6.9	-3.8762	µg/L	-3.8762	ppb	10:43:05
2	B 249.677†	144.6	58.9	1.6729	µg/L	1.6729	ppb	10:43:05
2	Ba 233.527†	-163.5	-5.5	-0.0514	µg/L	-0.0514	ppb	10:43:05
2	Be 313.107†	-7668.9	-271.8	-0.1557	µg/L	-0.1557	ppb	10:42:45
2	Cd 226.502†	-214.9	-6.4	-0.0957	µg/L	-0.0957	ppb	10:43:05
2	Co 228.616†	-11.5	8.4	0.2072	µg/L	0.2072	ppb	10:43:05
2	Cr 267.716†	180.2	0.6	0.0030	µg/L	0.0030	ppb	10:43:05
2	Cu 324.752†	6288.8	295.4	1.2100	µg/L	1.2100	ppb	10:42:45
2	Mn 257.610†	455.7	-13.4	-0.0184	µg/L	-0.0184	ppb	10:43:05
2	Mo 202.031†	44.7	26.1	1.7809	µg/L	1.7809	ppb	10:43:05
2	Ni 231.604†	-142.6	-25.0	-0.7282	µg/L	-0.7282	ppb	10:43:05
2	P 214.914†	127.2	12.3	9.1972	µg/L	9.1972	ppb	10:43:05
2	Pb 220.353†	174.7	37.4	5.6692	µg/L	5.6692	ppb	10:43:05

2	S 181.975 Axial†	52.6	-5.0	-8.6138 µg/L	-8.6138 ppb	10:43:05
2	Sb 206.836†	70.9	10.7	3.4643 µg/L	3.4643 ppb	10:43:05
2	Se 196.026†	-5.5	-0.6	-0.4347 µg/L	-0.4347 ppb	10:43:05
2	SiO2†	2828.9	98.9	12.429 µg/L	12.429 ppb	10:42:45
2	Si 251.611†	186.5	19.0	0.8704 µg/L	0.8704 ppb	10:43:05
2	Sn 189.927†	29.2	4.7	1.0299 µg/L	1.0299 ppb	10:43:05
2	Ti 334.940†	-158.6	-163.7	-0.4139 µg/L	-0.4139 ppb	10:42:45
2	Tl 190.801†	-38.4	7.1	2.4169 µg/L	2.4169 ppb	10:43:05
2	U 367.007†	302.8	31.9	7.816 µg/L	7.816 ppb	10:42:45
2	V 292.402†	-80.1	-26.1	-0.2299 µg/L	-0.2299 ppb	10:42:45
2	Zn 213.857†	1234.9	129.8	1.1998 µg/L	1.1998 ppb	10:43:05
3	Sc RADIAL	19752.9	19752.9	94.2 %		10:41:43
3	Al 396.153Radial†	-205.0	-43.9	-13.146 µg/L	-13.146 ppb	10:41:43
3	Ca 317.933Radial†	96.1	6.2	2.9585 µg/L	2.9585 ppb	10:42:03
3	Fe 238.204 Radial†	34.5	4.3	2.3228 µg/L	2.3228 ppb	10:42:03
3	K 766.490 Radial†	659.6	11.3	5.3318 µg/L	5.3318 ppb	10:41:43
3	Mg 279.077 IEC†	8.4	-0.9	-4.7904 µg/L	-4.7904 ppb	10:42:03
3	Na 589.592 Radial†	-110.1	-71.6	-148.94 µg/L	-148.94 ppb	10:41:43
3	Sr 421.552†	-648.7	-76.9	-0.3758 µg/L	-0.3758 ppb	10:41:43
3	Sc 361.383	659954.3	659954.3	92.613 %		10:43:10
3	Y 371.029	571886.5	571886.5	92.370 %		10:43:10
3	Ag 328.068†	-341.2	10.7	0.0682 µg/L	0.0682 ppb	10:43:15
3	As 188.979†	-5.3	3.0	1.7063 µg/L	1.7063 ppb	10:43:35
3	B 249.677†	131.1	44.5	1.2643 µg/L	1.2643 ppb	10:43:35
3	Ba 233.527†	-160.1	-2.0	-0.0189 µg/L	-0.0189 ppb	10:43:35
3	Be 313.107†	-7685.0	-303.6	-0.1745 µg/L	-0.1745 ppb	10:43:15
3	Cd 226.502†	-219.0	-11.2	-0.1678 µg/L	-0.1678 ppb	10:43:35
3	Co 228.616†	-5.5	14.9	0.3642 µg/L	0.3642 ppb	10:43:35
3	Cr 267.716†	205.0	27.7	0.5364 µg/L	0.5364 ppb	10:43:35
3	Cu 324.752†	6213.7	226.1	0.9272 µg/L	0.9272 ppb	10:43:15
3	Mn 257.610†	460.8	-7.1	-0.0098 µg/L	-0.0098 ppb	10:43:35
3	Mo 202.031†	42.7	24.0	1.6351 µg/L	1.6351 ppb	10:43:35
3	Ni 231.604†	-146.7	-29.7	-0.8635 µg/L	-0.8635 ppb	10:43:35
3	P 214.914†	127.0	12.4	9.2315 µg/L	9.2315 ppb	10:43:35
3	Pb 220.353†	161.0	23.0	3.4928 µg/L	3.4928 ppb	10:43:35
3	S 181.975 Axial†	60.2	3.4	5.8708 µg/L	5.8708 ppb	10:43:35
3	Sb 206.836†	73.3	13.4	4.3509 µg/L	4.3509 ppb	10:43:35
3	Se 196.026†	-3.0	2.1	1.5719 µg/L	1.5719 ppb	10:43:35
3	SiO2†	2846.6	123.3	15.464 µg/L	15.464 ppb	10:43:15
3	Si 251.611†	185.2	18.0	0.8201 µg/L	0.8201 ppb	10:43:35
3	Sn 189.927†	31.5	7.2	1.5723 µg/L	1.5723 ppb	10:43:35
3	Ti 334.940†	-68.7	-66.9	-0.1704 µg/L	-0.1704 ppb	10:43:15
3	Tl 190.801†	-38.0	7.4	2.5443 µg/L	2.5443 ppb	10:43:35
3	U 367.007†	293.0	22.0	5.383 µg/L	5.383 ppb	10:43:15
3	V 292.402†	-64.0	-8.9	-0.0632 µg/L	-0.0632 ppb	10:43:15
3	Zn 213.857†	1236.9	134.3	1.2419 µg/L	1.2419 ppb	10:43:35

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	662551.1	92.977	%	0.4979				0.54%
Sc RADIAL	19738.7	94.1	%	1.10				1.17%
Y 371.029	574178.9	92.740	%	0.4990				0.54%
Ag 328.068†	17.6	0.1108	µg/L	0.05592	0.1108	ppb	0.05592	50.48%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-8.1	-2.4932	µg/L	9.32453	-2.4932	ppb	9.32453	374.00%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.2	-0.6694	µg/L	2.88252	-0.6694	ppb	2.88252	430.60%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	43.0	1.2215	µg/L	0.47418	1.2215	ppb	0.47418	38.82%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-2.2	-0.0214	µg/L	0.02889	-0.0214	ppb	0.02889	135.13%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-239.3	-0.1368	µg/L	0.04984	-0.1368	ppb	0.04984	36.42%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	5.0	2.3578	µg/L	0.52108	2.3578	ppb	0.52108	22.10%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	-3.9	-0.0595	µg/L	0.13027	-0.0595	ppb	0.13027	218.93%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	12.6	0.3094	µg/L	0.08859	0.3094	ppb	0.08859	28.63%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	18.0	0.3436 µg/L	0.29583	0.3436 ppb	0.29583	86.09%

QC value within limits for Cr 267.716 Recovery = Not calculated

Cu 324.752†	249.7	1.0225 µg/L	0.16241	1.0225 ppb	0.16241	15.88%

QC value within limits for Cu 324.752 Recovery = Not calculated

Fe 238.204 Radial†	6.0	3.2859 µg/L	1.16980	3.2859 ppb	1.16980	35.60%

QC value within limits for Fe 238.204 Radial Recovery = Not calculated

K 766.490 Radial†	24.9	11.767 µg/L	8.2374	11.767 ppb	8.2374	70.01%

QC value within limits for K 766.490 Radial Recovery = Not calculated

Mg 279.077 IEC†	-1.6	-8.5870 µg/L	4.17121	-8.5870 ppb	4.17121	48.58%

QC value within limits for Mg 279.077 IEC Recovery = Not calculated

Mn 257.610†	-13.3	-0.0184 µg/L	0.00861	-0.0184 ppb	0.00861	46.79%

QC value within limits for Mn 257.610 Recovery = Not calculated

Mo 202.031†	26.3	1.7957 µg/L	0.16848	1.7957 ppb	0.16848	9.38%

QC value within limits for Mo 202.031 Recovery = Not calculated

Na 589.592 Radial†	-55.5	-115.62 µg/L	31.086	-115.62 ppb	31.086	26.89%

QC value within limits for Na 589.592 Radial Recovery = Not calculated

Ni 231.604†	-22.5	-0.6539 µg/L	0.25505	-0.6539 ppb	0.25505	39.01%

QC value within limits for Ni 231.604 Recovery = Not calculated

P 214.914†	10.1	7.5645 µg/L	2.85765	7.5645 ppb	2.85765	37.78%

QC value within limits for P 214.914 Recovery = Not calculated

Pb 220.353†	28.4	4.3082 µg/L	1.18636	4.3082 ppb	1.18636	27.54%

QC value within limits for Pb 220.353 Recovery = Not calculated

S 181.975 Axial†	-0.8	-1.3453 µg/L	7.24244	-1.3453 ppb	7.24244	538.34%

QC value within limits for S 181.975 Axial Recovery = Not calculated

Sb 206.836†	13.9	4.4915 µg/L	1.10425	4.4915 ppb	1.10425	24.59%

QC value within limits for Sb 206.836 Recovery = Not calculated

Se 196.026†	0.1	0.1162 µg/L	1.27312	0.1162 ppb	1.27312	>999.9%

QC value within limits for Se 196.026 Recovery = Not calculated

SiO2†	113.0	14.200 µg/L	1.5795	14.200 ppb	1.5795	11.12%

QC value within limits for SiO2 Recovery = Not calculated

Si 251.611†	20.1	0.9207 µg/L	0.13303	0.9207 ppb	0.13303	14.45%

QC value within limits for Si 251.611 Recovery = Not calculated

Sn 189.927†	6.3	1.3755 µg/L	0.30023	1.3755 ppb	0.30023	21.83%

QC value within limits for Sn 189.927 Recovery = Not calculated

Sr 421.552†	-50.9	-0.2488 µg/L	0.15901	-0.2488 ppb	0.15901	63.91%

QC value within limits for Sr 421.552 Recovery = Not calculated

Ti 334.940†	-83.0	-0.2116 µg/L	0.18508	-0.2116 ppb	0.18508	87.45%

QC value within limits for Ti 334.940 Recovery = Not calculated

Tl 190.801†	8.7	2.9844 µg/L	0.87483	2.9844 ppb	0.87483	29.31%

QC value within limits for Tl 190.801 Recovery = Not calculated

U 367.007†	31.5	7.717 µg/L	2.2863	7.717 ppb	2.2863	29.63%

QC value within limits for U 367.007 Recovery = Not calculated

V 292.402†	-30.5	-0.2719 µg/L	0.23250	-0.2719 ppb	0.23250	85.52%

QC value within limits for V 292.402 Recovery = Not calculated

Zn 213.857†	120.6	1.1140 µg/L	0.18631	1.1140 ppb	0.18631	16.73%

QC value within limits for Zn 213.857 Recovery = Not calculated

All analyte(s) passed QC.

Sequence No.: 3 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 10:54:06**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19963.1	19963.1	95.2	%			10:54:36
1	Al 396.153Radial†	15829.2	16809.2	4991.7	µg/L	4991.7	ppb	10:54:36
1	Ca 317.933Radial†	9956.3	10367.5	4916.4	µg/L	4916.4	ppb	10:54:56
1	Fe 238.204 Radial†	8789.6	9204.8	5025.3	µg/L	5025.3	ppb	10:54:56
1	K 766.490 Radial†	10814.9	10676.4	5048.4	µg/L	5048.4	ppb	10:54:36
1	Mg 279.077 IEC†	941.2	979.3	5188.1	µg/L	5188.1	ppb	10:54:56
1	Na 589.592 Radial†	4379.8	4648.3	9675.7	µg/L	9675.7	ppb	10:54:56
1	Sr 421.552†	96180.9	101691.4	496.58	µg/L	496.58	ppb	10:54:36
1	Sc 361.383	672280.7	672280.7	94.342	%			10:55:53
1	Y 371.029	579759.9	579759.9	93.642	%			10:55:53
1	Ag 328.068†	76181.8	81129.5	519.06	µg/L	519.06	ppb	10:55:58
1	As 188.979†	838.5	897.6	504.12	µg/L	504.12	ppb	10:56:18
1	B 249.677†	16780.4	17689.8	501.25	µg/L	501.25	ppb	10:55:58
1	Ba 233.527†	51044.0	54275.8	506.63	µg/L	506.63	ppb	10:55:58
1	Be 313.107†	815301.7	872189.2	505.06	µg/L	505.06	ppb	10:55:53
1	Cd 226.502†	32148.8	34302.0	509.37	µg/L	509.37	ppb	10:55:58
1	Co 228.616†	19925.1	21140.9	513.31	µg/L	513.31	ppb	10:55:58
1	Cr 267.716†	24523.7	25800.8	504.49	µg/L	504.49	ppb	10:55:58
1	Cu 324.752†	122054.7	122891.0	507.43	µg/L	507.43	ppb	10:55:58
1	Mn 257.610†	332465.3	351898.4	502.37	µg/L	502.37	ppb	10:55:58
1	Mo 202.031†	7028.9	7428.4	506.68	µg/L	506.68	ppb	10:56:18
1	Ni 231.604†	16659.8	17787.6	517.33	µg/L	517.33	ppb	10:55:58
1	P 214.914†	3289.3	3361.7	2502.6	µg/L	2502.6	ppb	10:56:18
1	Pb 220.353†	3308.3	3355.8	508.45	µg/L	508.45	ppb	10:56:18
1	S 181.975 Axial†	614.9	590.1	1025.9	µg/L	1025.9	ppb	10:56:18
1	Sb 206.836†	1549.7	1576.9	504.66	µg/L	504.66	ppb	10:56:18
1	Se 196.026†	638.4	682.0	509.82	µg/L	509.82	ppb	10:56:18
1	SiO2†	44372.5	44083.2	5525.0	µg/L	5525.0	ppb	10:55:58
1	Si 251.611†	51550.4	54459.8	2558.4	µg/L	2558.4	ppb	10:55:58
1	Sn 189.927†	2222.3	2328.8	510.93	µg/L	510.93	ppb	10:56:18
1	Ti 334.940†	190540.9	201974.7	506.18	µg/L	506.18	ppb	10:55:58
1	Tl 190.801†	1342.3	1471.2	505.62	µg/L	505.62	ppb	10:56:18
1	U 367.007†	2263.6	2104.9	492.9	µg/L	492.9	ppb	10:55:58
1	V 292.402†	48424.2	51388.4	511.30	µg/L	511.30	ppb	10:55:58
1	Zn 213.857†	53790.6	55815.1	509.93	µg/L	509.93	ppb	10:55:58
2	Sc RADIAL	19859.4	19859.4	94.7	%			10:55:01
2	Al 396.153Radial†	15736.2	16797.9	4988.4	µg/L	4988.4	ppb	10:55:01
2	Ca 317.933Radial†	9916.4	10380.1	4922.4	µg/L	4922.4	ppb	10:55:21
2	Fe 238.204 Radial†	8780.8	9243.8	5046.5	µg/L	5046.5	ppb	10:55:21
2	K 766.490 Radial†	10764.8	10682.9	5051.5	µg/L	5051.5	ppb	10:55:01
2	Mg 279.077 IEC†	937.4	980.4	5193.8	µg/L	5193.8	ppb	10:55:21
2	Na 589.592 Radial†	4404.8	4698.7	9780.7	µg/L	9780.7	ppb	10:55:21
2	Sr 421.552†	95377.6	101371.0	495.02	µg/L	495.02	ppb	10:55:01
2	Sc 361.383	675587.1	675587.1	94.806	%			10:56:24
2	Y 371.029	581938.9	581938.9	93.994	%			10:56:24
2	Ag 328.068†	75851.3	80385.7	514.32	µg/L	514.32	ppb	10:56:29
2	As 188.979†	826.3	880.4	494.47	µg/L	494.47	ppb	10:56:49
2	B 249.677†	16729.1	17548.5	497.24	µg/L	497.24	ppb	10:56:29
2	Ba 233.527†	50942.0	53903.6	503.16	µg/L	503.16	ppb	10:56:29
2	Be 313.107†	819657.1	872553.7	505.27	µg/L	505.27	ppb	10:56:24
2	Cd 226.502†	32153.4	34140.1	506.95	µg/L	506.95	ppb	10:56:29
2	Co 228.616†	19866.4	20975.6	509.30	µg/L	509.30	ppb	10:56:29
2	Cr 267.716†	24450.4	25596.2	500.51	µg/L	500.51	ppb	10:56:29
2	Cu 324.752†	121812.0	122001.8	503.78	µg/L	503.78	ppb	10:56:29
2	Mn 257.610†	332112.7	349801.8	499.38	µg/L	499.38	ppb	10:56:29
2	Mo 202.031†	7024.3	7387.0	503.86	µg/L	503.86	ppb	10:56:49
2	Ni 231.604†	16733.7	17779.1	517.09	µg/L	517.09	ppb	10:56:29
2	P 214.914†	3300.5	3356.5	2498.8	µg/L	2498.8	ppb	10:56:49
2	Pb 220.353†	3324.3	3355.6	508.42	µg/L	508.42	ppb	10:56:49

2	S 181.975 Axial†	610.6	582.4	1012.5 µg/L	1012.5 ppb	10:56:49
2	Sb 206.836†	1539.9	1558.5	498.76 µg/L	498.76 ppb	10:56:49
2	Se 196.026†	645.8	686.5	513.09 µg/L	513.09 ppb	10:56:49
2	SiO2†	44275.2	43750.4	5483.1 µg/L	5483.1 ppb	10:56:29
2	Si 251.611†	51504.6	54144.0	2543.6 µg/L	2543.6 ppb	10:56:29
2	Sn 189.927†	2214.4	2308.9	506.58 µg/L	506.58 ppb	10:56:49
2	Ti 334.940†	190031.3	200448.8	502.36 µg/L	502.36 ppb	10:56:29
2	Tl 190.801†	1343.1	1465.1	503.53 µg/L	503.53 ppb	10:56:49
2	U 367.007†	2192.3	2018.0	471.5 µg/L	471.5 ppb	10:56:29
2	V 292.402†	48299.7	51005.8	507.48 µg/L	507.48 ppb	10:56:29
2	Zn 213.857†	53737.9	55480.4	506.85 µg/L	506.85 ppb	10:56:29
3	Sc RADIAL	19772.1	19772.1	94.2 %		10:55:26
3	Al 396.153Radial†	15656.0	16786.2	4985.2 µg/L	4985.2 ppb	10:55:26
3	Ca 317.933Radial†	9922.0	10432.2	4947.1 µg/L	4947.1 ppb	10:55:46
3	Fe 238.204 Radial†	8781.1	9285.1	5068.9 µg/L	5068.9 ppb	10:55:46
3	K 766.490 Radial†	10618.1	10577.5	5001.7 µg/L	5001.7 ppb	10:55:26
3	Mg 279.077 IEC†	934.0	981.1	5197.7 µg/L	5197.7 ppb	10:55:46
3	Na 589.592 Radial†	4393.1	4706.8	9797.6 µg/L	9797.6 ppb	10:55:46
3	Sr 421.552†	95127.2	101550.1	495.89 µg/L	495.89 ppb	10:55:26
3	Sc 361.383	680255.7	680255.7	95.461 %		10:56:54
3	Y 371.029	586517.3	586517.3	94.733 %		10:56:54
3	Ag 328.068†	75380.3	79343.2	507.67 µg/L	507.67 ppb	10:57:00
3	As 188.979†	842.1	891.0	500.42 µg/L	500.42 ppb	10:57:20
3	B 249.677†	16671.2	17366.8	492.08 µg/L	492.08 ppb	10:57:00
3	Ba 233.527†	50578.8	53154.2	496.16 µg/L	496.16 ppb	10:57:00
3	Be 313.107†	824904.1	872116.7	505.01 µg/L	505.01 ppb	10:56:54
3	Cd 226.502†	31770.9	33506.6	497.53 µg/L	497.53 ppb	10:57:00
3	Co 228.616†	19676.2	20632.5	500.97 µg/L	500.97 ppb	10:57:00
3	Cr 267.716†	24236.7	25195.4	492.68 µg/L	492.68 ppb	10:57:00
3	Cu 324.752†	121140.3	120416.4	497.25 µg/L	497.25 ppb	10:57:00
3	Mn 257.610†	329205.8	344352.5	491.61 µg/L	491.61 ppb	10:57:00
3	Mo 202.031†	6974.4	7283.9	496.83 µg/L	496.83 ppb	10:57:20
3	Ni 231.604†	16491.6	17404.3	506.19 µg/L	506.19 ppb	10:57:00
3	P 214.914†	3286.1	3317.5	2469.7 µg/L	2469.7 ppb	10:57:20
3	Pb 220.353†	3302.6	3308.7	501.31 µg/L	501.31 ppb	10:57:20
3	S 181.975 Axial†	596.7	563.4	979.50 µg/L	979.50 ppb	10:57:20
3	Sb 206.836†	1530.7	1537.8	492.15 µg/L	492.15 ppb	10:57:20
3	Se 196.026†	645.8	681.8	509.59 µg/L	509.59 ppb	10:57:20
3	SiO2†	43997.5	43139.0	5406.4 µg/L	5406.4 ppb	10:57:00
3	Si 251.611†	51094.8	53341.9	2505.9 µg/L	2505.9 ppb	10:57:00
3	Sn 189.927†	2203.7	2281.7	500.63 µg/L	500.63 ppb	10:57:20
3	Ti 334.940†	188803.8	197787.3	495.69 µg/L	495.69 ppb	10:57:00
3	Tl 190.801†	1333.2	1445.0	496.63 µg/L	496.63 ppb	10:57:20
3	U 367.007†	2178.6	1987.7	463.9 µg/L	463.9 ppb	10:57:00
3	V 292.402†	47883.3	50220.0	499.67 µg/L	499.67 ppb	10:57:00
3	Zn 213.857†	53239.0	54568.8	498.52 µg/L	498.52 ppb	10:57:00

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	676041.2	94.870	%	0.5623				0.59%
Sc RADIAL	19864.9	94.7	%	0.46				0.48%
Y 371.029	582738.7	94.123	%	0.5571				0.59%
Ag 328.068†	80286.1	513.68	µg/L	5.722	513.68	ppb	5.722	1.11%
QC value within limits for Ag 328.068 Recovery = 102.74%								
Al 396.153Radial†	16797.8	4988.5	µg/L	3.25	4988.5	ppb	3.25	0.07%
QC value within limits for Al 396.153Radial Recovery = 99.77%								
As 188.979†	889.6	499.67	µg/L	4.872	499.67	ppb	4.872	0.98%
QC value within limits for As 188.979 Recovery = 99.93%								
B 249.677†	17535.0	496.86	µg/L	4.595	496.86	ppb	4.595	0.92%
QC value within limits for B 249.677 Recovery = 99.37%								
Ba 233.527†	53777.9	501.98	µg/L	5.335	501.98	ppb	5.335	1.06%
QC value within limits for Ba 233.527 Recovery = 100.40%								
Be 313.107†	872286.5	505.11	µg/L	0.135	505.11	ppb	0.135	0.03%
QC value within limits for Be 313.107 Recovery = 101.02%								
Ca 317.933Radial†	10393.3	4928.6	µg/L	16.27	4928.6	ppb	16.27	0.33%
QC value within limits for Ca 317.933Radial Recovery = 98.57%								
Cd 226.502†	33982.9	504.62	µg/L	6.255	504.62	ppb	6.255	1.24%
QC value within limits for Cd 226.502 Recovery = 100.92%								
Co 228.616†	20916.3	507.86	µg/L	6.296	507.86	ppb	6.296	1.24%

QC value within limits for Co 228.616 Recovery = 101.57%

Cr 267.716†	25530.8	499.23 µg/L	6.013	499.23 ppb	6.013	1.20%

QC value within limits for Cr 267.716 Recovery = 99.85%

Cu 324.752†	121769.7	502.82 µg/L	5.160	502.82 ppb	5.160	1.03%

QC value within limits for Cu 324.752 Recovery = 100.56%

Fe 238.204 Radial†	9244.6	5046.9 µg/L	21.82	5046.9 ppb	21.82	0.43%

QC value within limits for Fe 238.204 Radial Recovery = 100.94%

K 766.490 Radial†	10645.6	5033.9 µg/L	27.89	5033.9 ppb	27.89	0.55%

QC value within limits for K 766.490 Radial Recovery = 100.68%

Mg 279.077 IEC†	980.3	5193.2 µg/L	4.80	5193.2 ppb	4.80	0.09%

QC value within limits for Mg 279.077 IEC Recovery = 103.86%

Mn 257.610†	348684.2	497.79 µg/L	5.555	497.79 ppb	5.555	1.12%

QC value within limits for Mn 257.610 Recovery = 99.56%

Mo 202.031†	7366.4	502.45 µg/L	5.071	502.45 ppb	5.071	1.01%

QC value within limits for Mo 202.031 Recovery = 100.49%

Na 589.592 Radial†	4684.6	9751.3 µg/L	66.01	9751.3 ppb	66.01	0.68%

QC value within limits for Na 589.592 Radial Recovery = 97.51%

Ni 231.604†	17657.0	513.53 µg/L	6.365	513.53 ppb	6.365	1.24%

QC value within limits for Ni 231.604 Recovery = 102.71%

P 214.914†	3345.3	2490.3 µg/L	17.99	2490.3 ppb	17.99	0.72%

QC value within limits for P 214.914 Recovery = 99.61%

Pb 220.353†	3340.0	506.06 µg/L	4.112	506.06 ppb	4.112	0.81%

QC value within limits for Pb 220.353 Recovery = 101.21%

S 181.975 Axial†	578.6	1006.0 µg/L	23.89	1006.0 ppb	23.89	2.37%

QC value within limits for S 181.975 Axial Recovery = 100.60%

Sb 206.836†	1557.8	498.52 µg/L	6.260	498.52 ppb	6.260	1.26%

QC value within limits for Sb 206.836 Recovery = 99.70%

Se 196.026†	683.5	510.83 µg/L	1.955	510.83 ppb	1.955	0.38%

QC value within limits for Se 196.026 Recovery = 102.17%

SiO2†	43657.5	5471.5 µg/L	60.13	5471.5 ppb	60.13	1.10%

QC value within limits for SiO2 Recovery = 102.32%

Si 251.611†	53981.9	2536.0 µg/L	27.08	2536.0 ppb	27.08	1.07%

QC value within limits for Si 251.611 Recovery = 101.44%

Sn 189.927†	2306.5	506.05 µg/L	5.173	506.05 ppb	5.173	1.02%

QC value within limits for Sn 189.927 Recovery = 101.21%

Sr 421.552†	101537.5	495.83 µg/L	0.784	495.83 ppb	0.784	0.16%

QC value within limits for Sr 421.552 Recovery = 99.17%

Ti 334.940†	200070.3	501.41 µg/L	5.306	501.41 ppb	5.306	1.06%

QC value within limits for Ti 334.940 Recovery = 100.28%

Tl 190.801†	1460.4	501.93 µg/L	4.704	501.93 ppb	4.704	0.94%

QC value within limits for Tl 190.801 Recovery = 100.39%

U 367.007†	2036.9	476.1 µg/L	15.03	476.1 ppb	15.03	3.16%

QC value within limits for U 367.007 Recovery = 95.22%

V 292.402†	50871.4	506.15 µg/L	5.925	506.15 ppb	5.925	1.17%

QC value within limits for V 292.402 Recovery = 101.23%

Zn 213.857†	55288.1	505.10 µg/L	5.903	505.10 ppb	5.903	1.17%

QC value within limits for Zn 213.857 Recovery = 101.02%

All analyte(s) passed QC.

Sequence No.: 4 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/15/2012 10:57:27**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20048.4	20048.4	95.6	%			10:57:57
1	Al 396.153Radial†	467.3	662.8	197.15	µg/L	197.15	ppb	10:57:57
1	Ca 317.933Radial†	519.0	447.3	212.12	µg/L	212.12	ppb	10:58:17
1	Fe 238.204 Radial†	220.3	198.1	108.11	µg/L	108.11	ppb	10:58:17
1	K 766.490 Radial†	1012.9	370.7	175.41	µg/L	175.41	ppb	10:57:57
1	Mg 279.077 IEC†	55.7	48.4	256.52	µg/L	256.52	ppb	10:58:17
1	Na 589.592 Radial†	28.8	75.5	157.14	µg/L	157.14	ppb	10:57:57
1	Sr 421.552†	441.3	1073.8	5.2428	µg/L	5.2428	ppb	10:57:57
1	Sc 361.383	664216.6	664216.6	93.211	%			10:59:13
1	Y 371.029	576089.2	576089.2	93.049	%			10:59:13
1	Ag 328.068†	486.2	900.8	5.7747	µg/L	5.7747	ppb	10:59:18
1	As 188.979†	37.0	48.5	27.208	µg/L	27.208	ppb	10:59:38
1	B 249.677†	1815.2	1850.4	52.572	µg/L	52.572	ppb	10:59:18
1	Ba 233.527†	361.8	559.0	5.2162	µg/L	5.2162	ppb	10:59:38
1	Be 313.107†	802.8	8855.7	5.1405	µg/L	5.1405	ppb	10:59:18
1	Cd 226.502†	118.2	352.1	5.2194	µg/L	5.2194	ppb	10:59:38
1	Co 228.616†	181.6	215.6	5.2444	µg/L	5.2444	ppb	10:59:38
1	Cr 267.716†	449.3	288.4	5.5886	µg/L	5.5886	ppb	10:59:38
1	Cu 324.752†	8782.9	2939.4	12.080	µg/L	12.080	ppb	10:59:18
1	Mn 257.610†	7421.2	7457.1	10.642	µg/L	10.642	ppb	10:59:18
1	Mo 202.031†	178.2	169.1	11.536	µg/L	11.536	ppb	10:59:38
1	Ni 231.604†	32.4	163.4	4.7538	µg/L	4.7538	ppb	10:59:38
1	P 214.914†	324.8	223.6	167.28	µg/L	167.28	ppb	10:59:38
1	Pb 220.353†	218.3	83.3	12.561	µg/L	12.561	ppb	10:59:38
1	S 181.975 Axial†	112.9	59.5	103.31	µg/L	103.31	ppb	10:59:38
1	Sb 206.836†	106.2	48.2	15.597	µg/L	15.597	ppb	10:59:38
1	Se 196.026†	33.6	41.4	30.863	µg/L	30.863	ppb	10:59:38
1	SiO2†	4590.8	1974.9	247.03	µg/L	247.03	ppb	10:59:18
1	Si 251.611†	2162.5	2137.9	100.57	µg/L	100.57	ppb	10:59:38
1	Sn 189.927†	71.4	49.8	10.911	µg/L	10.911	ppb	10:59:38
1	Ti 334.940†	1823.0	1963.0	4.8972	µg/L	4.8972	ppb	10:59:18
1	Tl 190.801†	21.7	71.7	24.579	µg/L	24.579	ppb	10:59:38
1	U 367.007†	501.0	243.0	59.10	µg/L	59.10	ppb	10:59:18
1	V 292.402†	447.4	540.2	5.4897	µg/L	5.4897	ppb	10:59:18
1	Zn 213.857†	2288.2	1253.6	11.496	µg/L	11.496	ppb	10:59:38
2	Sc RADIAL	19890.8	19890.8	94.8	%			10:58:22
2	Al 396.153Radial†	477.8	677.8	201.59	µg/L	201.59	ppb	10:58:22
2	Ca 317.933Radial†	512.6	444.8	210.95	µg/L	210.95	ppb	10:58:42
2	Fe 238.204 Radial†	216.3	195.7	106.76	µg/L	106.76	ppb	10:58:42
2	K 766.490 Radial†	913.1	273.8	129.55	µg/L	129.55	ppb	10:58:22
2	Mg 279.077 IEC†	64.2	57.8	306.52	µg/L	306.52	ppb	10:58:42
2	Na 589.592 Radial†	39.4	87.0	181.06	µg/L	181.06	ppb	10:58:22
2	Sr 421.552†	448.3	1084.9	5.2969	µg/L	5.2969	ppb	10:58:22
2	Sc 361.383	670954.4	670954.4	94.156	%			10:59:43
2	Y 371.029	581680.9	581680.9	93.952	%			10:59:43
2	Ag 328.068†	434.3	840.4	5.3905	µg/L	5.3905	ppb	10:59:48
2	As 188.979†	41.5	52.9	29.686	µg/L	29.686	ppb	11:00:09
2	B 249.677†	1784.0	1797.7	51.074	µg/L	51.074	ppb	10:59:48
2	Ba 233.527†	366.0	559.5	5.2208	µg/L	5.2208	ppb	11:00:09
2	Be 313.107†	795.4	8839.1	5.1317	µg/L	5.1317	ppb	10:59:48
2	Cd 226.502†	127.1	360.2	5.3408	µg/L	5.3408	ppb	11:00:09
2	Co 228.616†	186.4	218.8	5.3239	µg/L	5.3239	ppb	11:00:09
2	Cr 267.716†	460.6	295.6	5.7262	µg/L	5.7262	ppb	11:00:09
2	Cu 324.752†	8660.1	2714.3	11.150	µg/L	11.150	ppb	10:59:48
2	Mn 257.610†	7269.3	7215.8	10.296	µg/L	10.296	ppb	10:59:48
2	Mo 202.031†	191.1	180.9	12.336	µg/L	12.336	ppb	11:00:09
2	Ni 231.604†	46.4	178.0	5.1781	µg/L	5.1781	ppb	11:00:09
2	P 214.914†	311.3	205.9	153.98	µg/L	153.98	ppb	11:00:09
2	Pb 220.353†	230.6	94.0	14.187	µg/L	14.187	ppb	11:00:09

2	S 181.975 Axial†	116.8	62.4	108.41 µg/L	108.41 ppb	11:00:09
2	Sb 206.836†	103.0	43.7	14.150 µg/L	14.150 ppb	11:00:09
2	Se 196.026†	40.4	48.2	35.906 µg/L	35.906 ppb	11:00:09
2	SiO2†	4492.5	1821.1	227.93 µg/L	227.93 ppb	10:59:48
2	Si 251.611†	2175.8	2128.8	100.13 µg/L	100.13 ppb	11:00:09
2	Sn 189.927†	69.7	47.2	10.340 µg/L	10.340 ppb	11:00:09
2	Ti 334.940†	1789.3	1907.6	4.7562 µg/L	4.7562 ppb	10:59:48
2	Tl 190.801†	20.3	70.0	23.989 µg/L	23.989 ppb	11:00:09
2	U 367.007†	519.7	257.5	62.66 µg/L	62.66 ppb	10:59:48
2	V 292.402†	443.4	531.1	5.4136 µg/L	5.4136 ppb	10:59:48
2	Zn 213.857†	2287.2	1227.9	11.257 µg/L	11.257 ppb	11:00:09
3	Sc RADIAL	19659.3	19659.3	93.7 %		10:58:47
3	Al 396.153Radial†	467.4	672.6	200.06 µg/L	200.06 ppb	10:58:47
3	Ca 317.933Radial†	513.3	451.9	214.32 µg/L	214.32 ppb	10:59:07
3	Fe 238.204 Radial†	214.8	196.7	107.35 µg/L	107.35 ppb	10:59:07
3	K 766.490 Radial†	1015.5	394.4	186.63 µg/L	186.63 ppb	10:58:47
3	Mg 279.077 IEC†	60.1	54.3	287.75 µg/L	287.75 ppb	10:59:07
3	Na 589.592 Radial†	37.5	85.4	177.72 µg/L	177.72 ppb	10:58:47
3	Sr 421.552†	401.0	1039.9	5.0774 µg/L	5.0774 ppb	10:58:47
3	Sc 361.383	665081.8	665081.8	93.332 %		11:00:14
3	Y 371.029	576789.5	576789.5	93.162 %		11:00:14
3	Ag 328.068†	389.5	796.4	5.1108 µg/L	5.1108 ppb	11:00:19
3	As 188.979†	42.6	54.5	30.577 µg/L	30.577 ppb	11:00:39
3	B 249.677†	1756.1	1784.6	50.701 µg/L	50.701 ppb	11:00:19
3	Ba 233.527†	372.4	569.9	5.3173 µg/L	5.3173 ppb	11:00:39
3	Be 313.107†	744.0	8791.5	5.1054 µg/L	5.1054 ppb	11:00:19
3	Cd 226.502†	120.6	354.5	5.2548 µg/L	5.2548 ppb	11:00:39
3	Co 228.616†	186.3	220.4	5.3616 µg/L	5.3616 ppb	11:00:39
3	Cr 267.716†	469.7	309.6	5.9942 µg/L	5.9942 ppb	11:00:39
3	Cu 324.752†	8661.8	2797.4	11.487 µg/L	11.487 ppb	11:00:19
3	Mn 257.610†	7329.9	7349.0	10.486 µg/L	10.486 ppb	11:00:19
3	Mo 202.031†	185.9	177.1	12.077 µg/L	12.077 ppb	11:00:39
3	Ni 231.604†	31.9	162.9	4.7374 µg/L	4.7374 ppb	11:00:39
3	P 214.914†	316.5	214.3	160.28 µg/L	160.28 ppb	11:00:39
3	Pb 220.353†	231.4	97.0	14.633 µg/L	14.633 ppb	11:00:39
3	S 181.975 Axial†	116.8	63.5	110.34 µg/L	110.34 ppb	11:00:39
3	Sb 206.836†	106.1	47.9	15.522 µg/L	15.522 ppb	11:00:39
3	Se 196.026†	27.2	34.4	25.692 µg/L	25.692 ppb	11:00:39
3	SiO2†	4476.8	1846.3	231.14 µg/L	231.14 ppb	11:00:19
3	Si 251.611†	2160.8	2133.1	100.33 µg/L	100.33 ppb	11:00:39
3	Sn 189.927†	78.1	56.9	12.447 µg/L	12.447 ppb	11:00:39
3	Ti 334.940†	1819.4	1956.7	4.8766 µg/L	4.8766 ppb	11:00:19
3	Tl 190.801†	21.5	71.5	24.508 µg/L	24.508 ppb	11:00:39
3	U 367.007†	538.6	282.6	68.81 µg/L	68.81 ppb	11:00:19
3	V 292.402†	421.4	511.6	5.2251 µg/L	5.2251 ppb	11:00:19
3	Zn 213.857†	2262.3	1222.6	11.212 µg/L	11.212 ppb	11:00:39

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	666750.9	93.566	%	0.5144				0.55%
Sc RADIAL	19866.2	94.7	%	0.93				0.99%
Y 371.029	578186.5	93.388	%	0.4921				0.53%
Ag 328.068†	845.9	5.4253	µg/L	0.33335	5.4253	ppb	0.33335	6.14%
QC value within limits for Ag 328.068 Recovery = 108.51%								
Al 396.153Radial†	671.1	199.60	µg/L	2.255	199.60	ppb	2.255	1.13%
QC value within limits for Al 396.153Radial Recovery = 99.80%								
As 188.979†	51.9	29.157	µg/L	1.7456	29.157	ppb	1.7456	5.99%
QC value within limits for As 188.979 Recovery = 97.19%								
B 249.677†	1810.9	51.449	µg/L	0.9901	51.449	ppb	0.9901	1.92%
QC value within limits for B 249.677 Recovery = 102.90%								
Ba 233.527†	562.8	5.2515	µg/L	0.05709	5.2515	ppb	0.05709	1.09%
QC value within limits for Ba 233.527 Recovery = 105.03%								
Be 313.107†	8828.8	5.1258	µg/L	0.01826	5.1258	ppb	0.01826	0.36%
QC value within limits for Be 313.107 Recovery = 102.52%								
Ca 317.933Radial†	448.0	212.46	µg/L	1.709	212.46	ppb	1.709	0.80%
QC value within limits for Ca 317.933Radial Recovery = 106.23%								
Cd 226.502†	355.6	5.2717	µg/L	0.06243	5.2717	ppb	0.06243	1.18%
QC value within limits for Cd 226.502 Recovery = 105.43%								
Co 228.616†	218.3	5.3100	µg/L	0.05982	5.3100	ppb	0.05982	1.13%

```
   QC value within limits for Co 228.616  Recovery = 106.20%
Cr 267.716†              297.9      5.7697 µg/L       0.20623      5.7697 ppb        0.20623   3.57%
   QC value within limits for Cr 267.716  Recovery = 115.39%
Cu 324.752†             2817.0      11.573 µg/L        0.4708      11.573 ppb         0.4708   4.07%
   QC value within limits for Cu 324.752  Recovery = 115.73%
Fe 238.204 Radial†       196.8      107.41 µg/L         0.674      107.41 ppb          0.674   0.63%
   QC value within limits for Fe 238.204 Radial  Recovery = 107.41%
K 766.490 Radial†        346.3      163.86 µg/L        30.244      163.86 ppb         30.244  18.46%
   QC value within limits for K 766.490 Radial  Recovery = 109.24%
Mg 279.077 IEC†           53.5      283.60 µg/L        25.258      283.60 ppb         25.258   8.91%
   QC value within limits for Mg 279.077 IEC  Recovery = 94.53%
Mn 257.610†             7340.6      10.475 µg/L        0.1733      10.475 ppb         0.1733   1.65%
   QC value within limits for Mn 257.610  Recovery = 104.75%
Mo 202.031†              175.7      11.983 µg/L        0.4084      11.983 ppb         0.4084   3.41%
   QC value within limits for Mo 202.031  Recovery = 119.83%
Na 589.592 Radial†        82.6      171.97 µg/L        12.955      171.97 ppb         12.955   7.53%
   QC value less than the lower limit for Na 589.592 Radial  Recovery = 57.32%
Ni 231.604†              168.1      4.8898 µg/L       0.24987      4.8898 ppb        0.24987   5.11%
   QC value within limits for Ni 231.604  Recovery = 97.80%
P 214.914†               214.6      160.51 µg/L         6.654      160.51 ppb          6.654   4.15%
   QC value within limits for P 214.914  Recovery = 107.01%
Pb 220.353†               91.4      13.793 µg/L        1.0908      13.793 ppb         1.0908   7.91%
   QC value greater than the upper limit for Pb 220.353  Recovery = 137.93%
S 181.975 Axial†          61.8      107.35 µg/L         3.634      107.35 ppb          3.634   3.39%
   QC value within limits for S 181.975 Axial  Recovery = 107.35%
Sb 206.836†               46.6      15.090 µg/L        0.8148      15.090 ppb         0.8148   5.40%
   QC value greater than the upper limit for Sb 206.836  Recovery = 150.90%
Se 196.026†               41.3      30.820 µg/L        5.1070      30.820 ppb         5.1070  16.57%
   QC value within limits for Se 196.026  Recovery = 102.73%
SiO2†                   1880.8      235.37 µg/L        10.226      235.37 ppb         10.226   4.34%
   QC value within limits for SiO2  Recovery = 110.50%
Si 251.611†             2133.3      100.35 µg/L         0.219      100.35 ppb          0.219   0.22%
   QC value within limits for Si 251.611  Recovery = 100.35%
Sn 189.927†               51.3      11.233 µg/L        1.0896      11.233 ppb         1.0896   9.70%
   QC value within limits for Sn 189.927  Recovery = 112.33%
Sr 421.552†             1066.2      5.2057 µg/L       0.11437      5.2057 ppb        0.11437   2.20%
   QC value within limits for Sr 421.552  Recovery = 104.11%
Ti 334.940†             1942.4      4.8433 µg/L       0.07615      4.8433 ppb        0.07615   1.57%
   QC value within limits for Ti 334.940  Recovery = 96.87%
Tl 190.801†               71.1      24.358 µg/L        0.3221      24.358 ppb         0.3221   1.32%
   QC value within limits for Tl 190.801  Recovery = 121.79%
U 367.007†                261.0       63.52 µg/L         4.914       63.52 ppb          4.914   7.73%
   QC value within limits for U 367.007  Recovery = 127.05%
V 292.402†                527.7      5.3762 µg/L       0.13622      5.3762 ppb        0.13622   2.53%
   QC value within limits for V 292.402  Recovery = 107.52%
Zn 213.857†             1234.7      11.322 µg/L        0.1528      11.322 ppb         0.1528   1.35%
   QC value within limits for Zn 213.857  Recovery = 113.22%
QC Failed.  Continue with analysis.
```

Sequence No.: 5 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 11:00:47**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	19790.2	19790.2	94.3	%			11:01:16
1	Al 396.153Radial†	-164.4	-0.4	-0.1406	µg/L	-0.1406	ppb	11:01:16
1	Ca 317.933Radial†	78.7	-12.4	-5.8952	µg/L	-5.8952	ppb	11:01:36
1	Fe 238.204 Radial†	29.6	-1.1	-0.5775	µg/L	-0.5775	ppb	11:01:36
1	K 766.490 Radial†	658.1	8.4	3.9676	µg/L	3.9676	ppb	11:01:16
1	Mg 279.077 IEC†	6.9	-2.6	-13.439	µg/L	-13.439	ppb	11:01:36
1	Na 589.592 Radial†	-110.5	-71.7	-149.28	µg/L	-149.28	ppb	11:01:16
1	Sr 421.552†	-669.9	-98.2	-0.4796	µg/L	-0.4796	ppb	11:01:16
1	Sc 361.383	665293.7	665293.7	93.362	%			11:02:32
1	Y 371.029	577194.4	577194.4	93.227	%			11:02:32
1	Ag 328.068†	-355.2	-1.3	-0.0074	µg/L	-0.0074	ppb	11:02:38
1	As 188.979†	-11.2	-3.3	-1.8276	µg/L	-1.8276	ppb	11:02:58
1	B 249.677†	124.2	36.0	1.0231	µg/L	1.0231	ppb	11:02:58
1	Ba 233.527†	-161.7	-2.4	-0.0222	µg/L	-0.0222	ppb	11:02:58
1	Be 313.107†	-7760.4	-317.8	-0.1797	µg/L	-0.1797	ppb	11:02:38
1	Cd 226.502†	-220.7	-11.1	-0.1646	µg/L	-0.1646	ppb	11:02:58
1	Co 228.616†	-16.2	3.5	0.0863	µg/L	0.0863	ppb	11:02:58
1	Cr 267.716†	189.6	9.4	0.1645	µg/L	0.1645	ppb	11:02:58
1	Cu 324.752†	6148.6	102.5	0.4045	µg/L	0.4045	ppb	11:02:38
1	Mn 257.610†	441.5	-31.7	-0.0449	µg/L	-0.0449	ppb	11:02:58
1	Mo 202.031†	24.6	4.2	0.2893	µg/L	0.2893	ppb	11:02:58
1	Ni 231.604†	-121.0	-0.9	-0.0259	µg/L	-0.0259	ppb	11:02:58
1	P 214.914†	124.6	8.6	6.4700	µg/L	6.4700	ppb	11:02:58
1	Pb 220.353†	162.1	22.7	3.4290	µg/L	3.4290	ppb	11:02:58
1	S 181.975 Axial†	53.8	-4.0	-6.9445	µg/L	-6.9445	ppb	11:02:58
1	Sb 206.836†	64.1	2.9	0.9412	µg/L	0.9412	ppb	11:02:58
1	Se 196.026†	-4.9	0.1	0.0879	µg/L	0.0879	ppb	11:02:58
1	SiO2†	2788.6	36.5	4.8092	µg/L	4.8092	ppb	11:02:38
1	Si 251.611†	179.1	9.8	0.4602	µg/L	0.4602	ppb	11:02:58
1	Sn 189.927†	24.0	-1.1	-0.2391	µg/L	-0.2391	ppb	11:02:58
1	Ti 334.940†	-248.4	-258.8	-0.6584	µg/L	-0.6584	ppb	11:02:38
1	Tl 190.801†	-46.8	-1.7	-0.5837	µg/L	-0.5837	ppb	11:02:58
1	U 367.007†	352.9	83.5	20.49	µg/L	20.49	ppb	11:02:38
1	V 292.402†	-42.5	14.7	0.1650	µg/L	0.1650	ppb	11:02:38
1	Zn 213.857†	1174.7	56.9	0.5244	µg/L	0.5244	ppb	11:02:58
2	Sc RADIAL	19849.8	19849.8	94.6	%			11:01:41
2	Al 396.153Radial†	-141.7	24.1	7.1484	µg/L	7.1484	ppb	11:01:41
2	Ca 317.933Radial†	87.7	-3.1	-1.4685	µg/L	-1.4685	ppb	11:02:01
2	Fe 238.204 Radial†	32.3	1.7	0.9410	µg/L	0.9410	ppb	11:02:01
2	K 766.490 Radial†	681.2	30.7	14.516	µg/L	14.516	ppb	11:01:41
2	Mg 279.077 IEC†	7.3	-2.1	-11.138	µg/L	-11.138	ppb	11:02:01
2	Na 589.592 Radial†	-86.9	-46.5	-96.758	µg/L	-96.758	ppb	11:01:41
2	Sr 421.552†	-607.1	-29.6	-0.1447	µg/L	-0.1447	ppb	11:01:41
2	Sc 361.383	661123.9	661123.9	92.777	%			11:03:03
2	Y 371.029	572894.0	572894.0	92.533	%			11:03:03
2	Ag 328.068†	-335.9	17.1	0.1089	µg/L	0.1089	ppb	11:03:08
2	As 188.979†	-11.4	-3.5	-1.9813	µg/L	-1.9813	ppb	11:03:28
2	B 249.677†	106.3	17.5	0.4990	µg/L	0.4990	ppb	11:03:28
2	Ba 233.527†	-160.7	-2.4	-0.0223	µg/L	-0.0223	ppb	11:03:28
2	Be 313.107†	-7672.3	-275.3	-0.1569	µg/L	-0.1569	ppb	11:03:08
2	Cd 226.502†	-225.9	-18.3	-0.2718	µg/L	-0.2718	ppb	11:03:28
2	Co 228.616†	-19.5	-0.2	-0.0022	µg/L	-0.0022	ppb	11:03:28
2	Cr 267.716†	209.6	32.3	0.6199	µg/L	0.6199	ppb	11:03:28
2	Cu 324.752†	6252.5	256.1	1.0448	µg/L	1.0448	ppb	11:03:08
2	Mn 257.610†	452.0	-17.4	-0.0244	µg/L	-0.0244	ppb	11:03:28
2	Mo 202.031†	30.7	11.0	0.7506	µg/L	0.7506	ppb	11:03:28
2	Ni 231.604†	-123.4	-4.4	-0.1266	µg/L	-0.1266	ppb	11:03:28
2	P 214.914†	130.3	15.6	11.657	µg/L	11.657	ppb	11:03:28
2	Pb 220.353†	148.2	8.9	1.3323	µg/L	1.3323	ppb	11:03:28

2	S 181.975 Axial†	60.7	3.8	6.6310 µg/L	6.6310 ppb	11:03:28
2	Sb 206.836†	73.4	13.4	4.3378 µg/L	4.3378 ppb	11:03:28
2	Se 196.026†	-2.9	2.2	1.6388 µg/L	1.6388 ppb	11:03:28
2	SiO2†	2743.6	6.9	1.0237 µg/L	1.0237 ppb	11:03:08
2	Si 251.611†	170.1	1.3	0.0488 µg/L	0.0488 ppb	11:03:28
2	Sn 189.927†	30.2	5.8	1.2681 µg/L	1.2681 ppb	11:03:28
2	Ti 334.940†	-212.8	-222.1	-0.5621 µg/L	-0.5621 ppb	11:03:08
2	Tl 190.801†	-42.7	2.4	0.8355 µg/L	0.8355 ppb	11:03:28
2	U 367.007†	315.1	45.2	11.08 µg/L	11.08 ppb	11:03:08
2	V 292.402†	-54.9	1.0	0.0295 µg/L	0.0295 ppb	11:03:08
2	Zn 213.857†	1190.0	81.3	0.7493 µg/L	0.7493 ppb	11:03:28
3	Sc RADIAL	19620.5	19620.5	93.5 %		11:02:06
3	Al 396.153Radial†	-203.5	-43.8	-13.076 µg/L	-13.076 ppb	11:02:06
3	Ca 317.933Radial†	81.5	-8.7	-4.1174 µg/L	-4.1174 ppb	11:02:26
3	Fe 238.204 Radial†	34.8	4.8	2.6152 µg/L	2.6152 ppb	11:02:26
3	K 766.490 Radial†	692.3	51.0	24.123 µg/L	24.123 ppb	11:02:06
3	Mg 279.077 IEC†	7.7	-1.6	-8.4892 µg/L	-8.4892 ppb	11:02:26
3	Na 589.592 Radial†	-98.2	-59.6	-124.05 µg/L	-124.05 ppb	11:02:06
3	Sr 421.552†	-592.6	-21.7	-0.1058 µg/L	-0.1058 ppb	11:02:06
3	Sc 361.383	663148.3	663148.3	93.061 %		11:03:33
3	Y 371.029	575224.1	575224.1	92.909 %		11:03:33
3	Ag 328.068†	-320.1	35.1	0.2218 µg/L	0.2218 ppb	11:03:38
3	As 188.979†	-12.3	-4.4	-2.4881 µg/L	-2.4881 ppb	11:03:58
3	B 249.677†	108.3	19.3	0.5493 µg/L	0.5493 ppb	11:03:58
3	Ba 233.527†	-142.2	18.0	0.1674 µg/L	0.1674 ppb	11:03:58
3	Be 313.107†	-7599.7	-171.9	-0.0938 µg/L	-0.0938 ppb	11:03:38
3	Cd 226.502†	-212.9	-3.5	-0.0534 µg/L	-0.0534 ppb	11:03:58
3	Co 228.616†	-20.8	-1.5	-0.0353 µg/L	-0.0353 ppb	11:03:58
3	Cr 267.716†	190.8	11.4	0.1945 µg/L	0.1945 ppb	11:03:58
3	Cu 324.752†	6197.8	176.7	0.7040 µg/L	0.7040 ppb	11:03:38
3	Mn 257.610†	419.1	-54.3	-0.0770 µg/L	-0.0770 ppb	11:03:58
3	Mo 202.031†	28.7	8.8	0.6008 µg/L	0.6008 ppb	11:03:58
3	Ni 231.604†	-138.0	-19.6	-0.5710 µg/L	-0.5710 ppb	11:03:58
3	P 214.914†	117.5	1.4	1.0528 µg/L	1.0528 ppb	11:03:58
3	Pb 220.353†	145.6	5.6	0.8312 µg/L	0.8312 ppb	11:03:58
3	S 181.975 Axial†	59.3	2.1	3.6492 µg/L	3.6492 ppb	11:03:58
3	Sb 206.836†	74.9	14.8	4.7934 µg/L	4.7934 ppb	11:03:58
3	Se 196.026†	-4.0	1.0	0.8110 µg/L	0.8110 ppb	11:03:58
3	SiO2†	2753.2	8.2	1.3748 µg/L	1.3748 ppb	11:03:38
3	Si 251.611†	171.5	2.3	0.0968 µg/L	0.0968 ppb	11:03:58
3	Sn 189.927†	28.3	3.6	0.7809 µg/L	0.7809 ppb	11:03:58
3	Ti 334.940†	-196.2	-203.5	-0.5233 µg/L	-0.5233 ppb	11:03:38
3	Tl 190.801†	-41.5	3.8	1.3157 µg/L	1.3157 ppb	11:03:58
3	U 367.007†	380.6	114.6	28.09 µg/L	28.09 ppb	11:03:38
3	V 292.402†	-81.6	-27.5	-0.2391 µg/L	-0.2391 ppb	11:03:38
3	Zn 213.857†	1206.2	94.8	0.8767 µg/L	0.8767 ppb	11:03:58

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	663188.6	93.066	%	0.2926				0.31%
Sc RADIAL	19753.5	94.2	%	0.57				0.60%
Y 371.029	575104.2	92.890	%	0.3477				0.37%
Ag 328.068†	17.0	0.1078	µg/L	0.11460	0.1078	ppb	0.11460	106.31%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-6.7	-2.0228	µg/L	10.24282	-2.0228	ppb	10.24282	506.37%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-3.7	-2.0990	µg/L	0.34561	-2.0990	ppb	0.34561	16.47%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	24.3	0.6904	µg/L	0.28921	0.6904	ppb	0.28921	41.89%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	4.4	0.0410	µg/L	0.10948	0.0410	ppb	0.10948	267.11%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-255.0	-0.1435	µg/L	0.04451	-0.1435	ppb	0.04451	31.02%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-8.1	-3.8270	µg/L	2.22761	-3.8270	ppb	2.22761	58.21%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	-11.0	-0.1633	µg/L	0.10921	-0.1633	ppb	0.10921	66.89%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	0.6	0.0163	µg/L	0.06288	0.0163	ppb	0.06288	386.39%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              17.7      0.3263 µg/L       0.25469      0.3263 ppb        0.25469  78.06%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             178.4      0.7178 µg/L       0.32038      0.7178 ppb        0.32038  44.64%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        1.8      0.9929 µg/L       1.59694      0.9929 ppb        1.59694 160.84%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        30.0      14.202 µg/L       10.0814      14.202 ppb        10.0814  70.98%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          -2.1     -11.022 µg/L        2.4772     -11.022 ppb         2.4772  22.47%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†             -34.5      -0.0487 µg/L       0.02649     -0.0487 ppb        0.02649  54.35%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               8.0      0.5469 µg/L       0.23529      0.5469 ppb        0.23529  43.02%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -59.3     -123.36 µg/L        26.266     -123.36 ppb         26.266  21.29%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -8.3      -0.2412 µg/L       0.29007     -0.2412 ppb        0.29007 120.28%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                8.6      6.3934 µg/L       5.30276      6.3934 ppb        5.30276  82.94%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              12.4      1.8642 µg/L       1.37816      1.8642 ppb        1.37816  73.93%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          0.6      1.1119 µg/L       7.13456      1.1119 ppb        7.13456 641.67%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              10.4      3.3575 µg/L       2.10488      3.3575 ppb        2.10488  62.69%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               1.1      0.8459 µg/L       0.77606      0.8459 ppb        0.77606  91.74%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    17.2      2.4026 µg/L       2.09160      2.4026 ppb        2.09160  87.06%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               4.5      0.2019 µg/L       0.22497      0.2019 ppb        0.22497 111.40%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               2.8      0.6033 µg/L       0.76917      0.6033 ppb        0.76917 127.49%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             -49.8      -0.2434 µg/L       0.20548     -0.2434 ppb        0.20548  84.44%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -228.1      -0.5812 µg/L       0.06955     -0.5812 ppb        0.06955  11.97%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               1.5      0.5225 µg/L       0.98763      0.5225 ppb        0.98763 189.02%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               81.1       19.89 µg/L         8.519       19.89 ppb          8.519  42.83%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -4.0      -0.0149 µg/L       0.20564     -0.0149 ppb        0.20564 >999.9%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              77.7      0.7168 µg/L       0.17836      0.7168 ppb        0.17836  24.88%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 13 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 11:26:53**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20775.8	20775.8	99.0	%			11:27:24
1	Al 396.153Radial†	16232.0	16565.3	4919.3	µg/L	4919.3	ppb	11:27:24
1	Ca 317.933Radial†	10273.8	10278.8	4874.3	µg/L	4874.3	ppb	11:27:44
1	Fe 238.204 Radial†	8996.7	9052.6	4942.1	µg/L	4942.1	ppb	11:27:44
1	K 766.490 Radial†	11075.4	10494.9	4962.6	µg/L	4962.6	ppb	11:27:24
1	Mg 279.077 IEC†	965.0	964.6	5110.2	µg/L	5110.2	ppb	11:27:44
1	Na 589.592 Radial†	4747.7	4839.7	10074	µg/L	10074	ppb	11:27:44
1	Sr 421.552†	99583.5	101173.4	494.05	µg/L	494.05	ppb	11:27:24
1	Sc 361.383	693001.3	693001.3	97.250	%			11:28:41
1	Y 371.029	597479.2	597479.2	96.504	%			11:28:41
1	Ag 328.068†	76510.2	79052.8	505.77	µg/L	505.77	ppb	11:28:46
1	As 188.979†	834.5	866.9	486.88	µg/L	486.88	ppb	11:29:06
1	B 249.677†	16848.2	17227.6	488.16	µg/L	488.16	ppb	11:28:46
1	Ba 233.527†	50966.0	52577.9	490.78	µg/L	490.78	ppb	11:28:46
1	Be 313.107†	821890.6	853125.2	494.02	µg/L	494.02	ppb	11:28:41
1	Cd 226.502†	31991.6	33121.5	491.82	µg/L	491.82	ppb	11:28:46
1	Co 228.616†	19814.2	20395.3	495.21	µg/L	495.21	ppb	11:28:46
1	Cr 267.716†	24493.7	24992.7	488.70	µg/L	488.70	ppb	11:28:46
1	Cu 324.752†	122962.4	119956.1	495.32	µg/L	495.32	ppb	11:28:46
1	Mn 257.610†	332618.5	341519.2	487.56	µg/L	487.56	ppb	11:28:46
1	Mo 202.031†	7122.2	7301.5	498.02	µg/L	498.02	ppb	11:29:06
1	Ni 231.604†	16608.5	17206.8	500.44	µg/L	500.44	ppb	11:28:46
1	P 214.914†	3335.1	3304.6	2460.1	µg/L	2460.1	ppb	11:29:06
1	Pb 220.353†	3329.5	3272.8	495.89	µg/L	495.89	ppb	11:29:06
1	S 181.975 Axial†	647.0	603.7	1049.5	µg/L	1049.5	ppb	11:29:06
1	Sb 206.836†	1561.9	1540.4	493.07	µg/L	493.07	ppb	11:29:06
1	Se 196.026†	660.5	684.5	511.51	µg/L	511.51	ppb	11:29:06
1	SiO2†	44983.9	43305.6	5427.0	µg/L	5427.0	ppb	11:28:46
1	Si 251.611†	52306.3	53603.3	2518.2	µg/L	2518.2	ppb	11:28:46
1	Sn 189.927†	2225.5	2261.7	496.22	µg/L	496.22	ppb	11:29:06
1	Ti 334.940†	191154.7	196567.1	492.63	µg/L	492.63	ppb	11:28:46
1	Tl 190.801†	1364.5	1451.5	498.83	µg/L	498.83	ppb	11:29:06
1	U 367.007†	2227.8	1996.4	466.6	µg/L	466.6	ppb	11:28:46
1	V 292.402†	48484.4	49915.6	496.69	µg/L	496.69	ppb	11:28:46
1	Zn 213.857†	53737.1	54055.3	493.84	µg/L	493.84	ppb	11:28:46
2	Sc RADIAL	20889.8	20889.8	99.6	%			11:27:49
2	Al 396.153Radial†	16299.1	16543.3	4912.9	µg/L	4912.9	ppb	11:27:49
2	Ca 317.933Radial†	10176.6	10124.6	4801.2	µg/L	4801.2	ppb	11:28:09
2	Fe 238.204 Radial†	8902.2	8908.1	4863.3	µg/L	4863.3	ppb	11:28:09
2	K 766.490 Radial†	11039.2	10397.5	4916.5	µg/L	4916.5	ppb	11:27:49
2	Mg 279.077 IEC†	955.8	950.0	5033.2	µg/L	5033.2	ppb	11:28:09
2	Na 589.592 Radial†	4654.4	4719.9	9824.7	µg/L	9824.7	ppb	11:28:09
2	Sr 421.552†	99361.6	100402.2	490.29	µg/L	490.29	ppb	11:27:49
2	Sc 361.383	691066.8	691066.8	96.979	%			11:29:11
2	Y 371.029	595119.4	595119.4	96.123	%			11:29:11
2	Ag 328.068†	76962.4	79739.2	510.14	µg/L	510.14	ppb	11:29:17
2	As 188.979†	835.7	870.5	488.94	µg/L	488.94	ppb	11:29:37
2	B 249.677†	16979.2	17411.2	493.39	µg/L	493.39	ppb	11:29:17
2	Ba 233.527†	51196.3	52962.1	494.38	µg/L	494.38	ppb	11:29:17
2	Be 313.107†	824335.9	858012.4	496.85	µg/L	496.85	ppb	11:29:11
2	Cd 226.502†	32083.6	33308.4	494.61	µg/L	494.61	ppb	11:29:17
2	Co 228.616†	19867.7	20507.5	497.92	µg/L	497.92	ppb	11:29:17
2	Cr 267.716†	24703.6	25279.6	494.30	µg/L	494.30	ppb	11:29:17
2	Cu 324.752†	123868.6	121244.4	500.61	µg/L	500.61	ppb	11:29:17
2	Mn 257.610†	333809.3	343704.4	490.67	µg/L	490.67	ppb	11:29:17
2	Mo 202.031†	7061.2	7259.1	495.13	µg/L	495.13	ppb	11:29:37
2	Ni 231.604†	16668.3	17316.2	503.62	µg/L	503.62	ppb	11:29:17
2	P 214.914†	3297.4	3275.3	2438.1	µg/L	2438.1	ppb	11:29:37
2	Pb 220.353†	3291.7	3243.4	491.39	µg/L	491.39	ppb	11:29:37

2	S 181.975 Axial†	633.1	591.1	1027.7 µg/L	1027.7 ppb	11:29:37
2	Sb 206.836†	1550.9	1533.5	490.70 µg/L	490.70 ppb	11:29:37
2	Se 196.026†	652.0	677.6	506.41 µg/L	506.41 ppb	11:29:37
2	SiO2†	45197.7	43655.6	5471.0 µg/L	5471.0 ppb	11:29:17
2	Si 251.611†	52524.0	53978.3	2535.9 µg/L	2535.9 ppb	11:29:17
2	Sn 189.927†	2223.1	2265.6	497.08 µg/L	497.08 ppb	11:29:37
2	Ti 334.940†	192437.8	198440.4	497.32 µg/L	497.32 ppb	11:29:17
2	Tl 190.801†	1347.7	1438.1	494.27 µg/L	494.27 ppb	11:29:37
2	U 367.007†	2281.3	2058.0	482.2 µg/L	482.2 ppb	11:29:17
2	V 292.402†	48848.3	50430.4	501.74 µg/L	501.74 ppb	11:29:17
2	Zn 213.857†	53917.5	54396.0	496.97 µg/L	496.97 ppb	11:29:17
3	Sc RADIAL	20683.5	20683.5	98.6 %		11:28:14
3	Al 396.153Radial†	16159.4	16564.8	4919.1 µg/L	4919.1 ppb	11:28:14
3	Ca 317.933Radial†	10135.8	10185.2	4829.9 µg/L	4829.9 ppb	11:28:34
3	Fe 238.204 Radial†	8904.3	8999.4	4913.2 µg/L	4913.2 ppb	11:28:34
3	K 766.490 Radial†	11096.8	10566.5	4996.4 µg/L	4996.4 ppb	11:28:14
3	Mg 279.077 IEC†	950.8	954.6	5057.2 µg/L	5057.2 ppb	11:28:34
3	Na 589.592 Radial†	4631.4	4743.2	9873.3 µg/L	9873.3 ppb	11:28:34
3	Sr 421.552†	98780.8	100808.3	492.27 µg/L	492.27 ppb	11:28:14
3	Sc 361.383	682341.6	682341.6	95.754 %		11:29:42
3	Y 371.029	589020.2	589020.2	95.138 %		11:29:42
3	Ag 328.068†	76385.6	80151.7	512.78 µg/L	512.78 ppb	11:29:47
3	As 188.979†	828.9	874.4	491.10 µg/L	491.10 ppb	11:30:08
3	B 249.677†	16822.4	17471.3	495.08 µg/L	495.08 ppb	11:29:47
3	Ba 233.527†	50837.5	53262.5	497.18 µg/L	497.18 ppb	11:29:47
3	Be 313.107†	814599.9	858713.9	497.26 µg/L	497.26 ppb	11:29:42
3	Cd 226.502†	31784.0	33418.6	496.25 µg/L	496.25 ppb	11:29:47
3	Co 228.616†	19760.3	20657.4	501.57 µg/L	501.57 ppb	11:29:47
3	Cr 267.716†	24480.3	25372.1	496.12 µg/L	496.12 ppb	11:29:47
3	Cu 324.752†	123290.5	122274.0	504.86 µg/L	504.86 ppb	11:29:47
3	Mn 257.610†	331220.9	345402.7	493.10 µg/L	493.10 ppb	11:29:47
3	Mo 202.031†	7045.5	7335.9	500.36 µg/L	500.36 ppb	11:30:08
3	Ni 231.604†	16559.6	17422.5	506.71 µg/L	506.71 ppb	11:29:47
3	P 214.914†	3265.1	3285.1	2445.3 µg/L	2445.3 ppb	11:30:08
3	Pb 220.353†	3308.8	3304.6	500.69 µg/L	500.69 ppb	11:30:08
3	S 181.975 Axial†	634.8	601.3	1045.3 µg/L	1045.3 ppb	11:30:08
3	Sb 206.836†	1536.9	1539.4	492.63 µg/L	492.63 ppb	11:30:08
3	Se 196.026†	650.3	684.4	511.49 µg/L	511.49 ppb	11:30:08
3	SiO2†	44746.2	43780.0	5486.6 µg/L	5486.6 ppb	11:29:47
3	Si 251.611†	51955.8	54077.5	2540.5 µg/L	2540.5 ppb	11:29:47
3	Sn 189.927†	2205.0	2276.0	499.36 µg/L	499.36 ppb	11:30:08
3	Ti 334.940†	191041.0	199519.1	500.03 µg/L	500.03 ppb	11:29:47
3	Tl 190.801†	1337.2	1445.0	496.62 µg/L	496.62 ppb	11:30:08
3	U 367.007†	2244.6	2049.7	479.9 µg/L	479.9 ppb	11:29:47
3	V 292.402†	48479.3	50689.1	504.33 µg/L	504.33 ppb	11:29:47
3	Zn 213.857†	53523.5	54695.4	499.70 µg/L	499.70 ppb	11:29:47

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	688803.2	96.661	%	0.7969				0.82%
Sc RADIAL	20783.0	99.1	%	0.49				0.50%
Y 371.029	593872.9	95.921	%	0.7050				0.74%
Ag 328.068†	79647.9	509.57	µg/L	3.540	509.57	ppb	3.540	0.69%
QC value within limits for Ag 328.068 Recovery = 101.91%								
Al 396.153Radial†	16557.8	4917.1	µg/L	3.66	4917.1	ppb	3.66	0.07%
QC value within limits for Al 396.153Radial Recovery = 98.34%								
As 188.979†	870.6	488.97	µg/L	2.113	488.97	ppb	2.113	0.43%
QC value within limits for As 188.979 Recovery = 97.79%								
B 249.677†	17370.0	492.21	µg/L	3.609	492.21	ppb	3.609	0.73%
QC value within limits for B 249.677 Recovery = 98.44%								
Ba 233.527†	52934.2	494.11	µg/L	3.205	494.11	ppb	3.205	0.65%
QC value within limits for Ba 233.527 Recovery = 98.82%								
Be 313.107†	856617.2	496.04	µg/L	1.764	496.04	ppb	1.764	0.36%
QC value within limits for Be 313.107 Recovery = 99.21%								
Ca 317.933Radial†	10196.2	4835.2	µg/L	36.84	4835.2	ppb	36.84	0.76%
QC value within limits for Ca 317.933Radial Recovery = 96.70%								
Cd 226.502†	33282.8	494.23	µg/L	2.237	494.23	ppb	2.237	0.45%
QC value within limits for Cd 226.502 Recovery = 98.85%								
Co 228.616†	20520.0	498.23	µg/L	3.189	498.23	ppb	3.189	0.64%

QC value within limits for Co 228.616 Recovery = 99.65%

Cr 267.716†	25214.8	493.04 µg/L	3.863	493.04 ppb	3.863	0.78%

QC value within limits for Cr 267.716 Recovery = 98.61%

Cu 324.752†	121158.2	500.27 µg/L	4.781	500.27 ppb	4.781	0.96%

QC value within limits for Cu 324.752 Recovery = 100.05%

Fe 238.204 Radial†	8986.7	4906.2 µg/L	39.84	4906.2 ppb	39.84	0.81%

QC value within limits for Fe 238.204 Radial Recovery = 98.12%

K 766.490 Radial†	10486.3	4958.5 µg/L	40.14	4958.5 ppb	40.14	0.81%

QC value within limits for K 766.490 Radial Recovery = 99.17%

Mg 279.077 IEC†	956.4	5066.9 µg/L	39.35	5066.9 ppb	39.35	0.78%

QC value within limits for Mg 279.077 IEC Recovery = 101.34%

Mn 257.610†	343542.1	490.44 µg/L	2.777	490.44 ppb	2.777	0.57%

QC value within limits for Mn 257.610 Recovery = 98.09%

Mo 202.031†	7298.8	497.84 µg/L	2.623	497.84 ppb	2.623	0.53%

QC value within limits for Mo 202.031 Recovery = 99.57%

Na 589.592 Radial†	4767.6	9924.0 µg/L	132.22	9924.0 ppb	132.22	1.33%

QC value within limits for Na 589.592 Radial Recovery = 99.24%

Ni 231.604†	17315.2	503.59 µg/L	3.136	503.59 ppb	3.136	0.62%

QC value within limits for Ni 231.604 Recovery = 100.72%

P 214.914†	3288.3	2447.8 µg/L	11.22	2447.8 ppb	11.22	0.46%

QC value within limits for P 214.914 Recovery = 97.91%

Pb 220.353†	3273.6	495.99 µg/L	4.651	495.99 ppb	4.651	0.94%

QC value within limits for Pb 220.353 Recovery = 99.20%

S 181.975 Axial†	598.7	1040.8 µg/L	11.58	1040.8 ppb	11.58	1.11%

QC value within limits for S 181.975 Axial Recovery = 104.08%

Sb 206.836†	1537.7	492.13 µg/L	1.262	492.13 ppb	1.262	0.26%

QC value within limits for Sb 206.836 Recovery = 98.43%

Se 196.026†	682.2	509.80 µg/L	2.941	509.80 ppb	2.941	0.58%

QC value within limits for Se 196.026 Recovery = 101.96%

SiO2†	43580.4	5461.6 µg/L	30.90	5461.6 ppb	30.90	0.57%

QC value within limits for SiO2 Recovery = 102.13%

Si 251.611†	53886.4	2531.5 µg/L	11.78	2531.5 ppb	11.78	0.47%

QC value within limits for Si 251.611 Recovery = 101.26%

Sn 189.927†	2267.8	497.55 µg/L	1.625	497.55 ppb	1.625	0.33%

QC value within limits for Sn 189.927 Recovery = 99.51%

Sr 421.552†	100794.6	492.20 µg/L	1.884	492.20 ppb	1.884	0.38%

QC value within limits for Sr 421.552 Recovery = 98.44%

Ti 334.940†	198175.5	496.66 µg/L	3.741	496.66 ppb	3.741	0.75%

QC value within limits for Ti 334.940 Recovery = 99.33%

Tl 190.801†	1444.9	496.58 µg/L	2.280	496.58 ppb	2.280	0.46%

QC value within limits for Tl 190.801 Recovery = 99.32%

U 367.007†	2034.7	476.2 µg/L	8.38	476.2 ppb	8.38	1.76%

QC value within limits for U 367.007 Recovery = 95.25%

V 292.402†	50345.0	500.92 µg/L	3.885	500.92 ppb	3.885	0.78%

QC value within limits for V 292.402 Recovery = 100.18%

Zn 213.857†	54382.3	496.84 µg/L	2.930	496.84 ppb	2.930	0.59%

QC value within limits for Zn 213.857 Recovery = 99.37%

All analyte(s) passed QC.

Sequence No.: 14 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 11:30:15**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20648.1	20648.1	98.4	%			11:30:43
1	Al 396.153Radial†	-186.6	-15.8	-4.7569	µg/L	-4.7569	ppb	11:30:43
1	Ca 317.933Radial†	107.5	13.4	6.3709	µg/L	6.3709	ppb	11:31:03
1	Fe 238.204 Radial†	33.3	1.4	0.7510	µg/L	0.7510	ppb	11:31:03
1	K 766.490 Radial†	728.8	51.2	24.231	µg/L	24.231	ppb	11:30:43
1	Mg 279.077 IEC†	4.9	-4.9	-25.749	µg/L	-25.749	ppb	11:31:03
1	Na 589.592 Radial†	62.4	108.8	226.40	µg/L	226.40	ppb	11:30:43
1	Sr 421.552†	-534.6	68.8	0.3360	µg/L	0.3360	ppb	11:30:43
1	Sc 361.383	673973.9	673973.9	94.580	%			11:32:00
1	Y 371.029	585706.4	585706.4	94.602	%			11:32:00
1	Ag 328.068†	-423.9	-69.0	-0.4366	µg/L	-0.4366	ppb	11:32:00
1	As 188.979†	-13.6	-5.6	-3.1487	µg/L	-3.1487	ppb	11:32:20
1	B 249.677†	140.4	51.5	1.4628	µg/L	1.4628	ppb	11:32:20
1	Ba 233.527†	-145.3	17.2	0.1607	µg/L	0.1607	ppb	11:32:20
1	Be 313.107†	-7444.1	123.7	0.0738	µg/L	0.0738	ppb	11:32:00
1	Cd 226.502†	-184.1	30.6	0.4546	µg/L	0.4546	ppb	11:32:20
1	Co 228.616†	-13.9	6.1	0.1517	µg/L	0.1517	ppb	11:32:20
1	Cr 267.716†	191.0	8.3	0.1529	µg/L	0.1529	ppb	11:32:20
1	Cu 324.752†	6290.6	167.8	0.6824	µg/L	0.6824	ppb	11:32:00
1	Mn 257.610†	483.1	6.1	0.0096	µg/L	0.0096	ppb	11:32:20
1	Mo 202.031†	39.6	19.8	1.3506	µg/L	1.3506	ppb	11:32:20
1	Ni 231.604†	-130.8	-9.6	-0.2785	µg/L	-0.2785	ppb	11:32:20
1	P 214.914†	119.0	1.0	0.7453	µg/L	0.7453	ppb	11:32:20
1	Pb 220.353†	147.0	4.5	0.6878	µg/L	0.6878	ppb	11:32:20
1	S 181.975 Axial†	77.8	20.6	35.746	µg/L	35.746	ppb	11:32:20
1	Sb 206.836†	82.6	21.6	6.9732	µg/L	6.9732	ppb	11:32:20
1	Se 196.026†	-3.9	1.2	0.8873	µg/L	0.8873	ppb	11:32:20
1	SiO2†	3053.8	278.5	34.831	µg/L	34.831	ppb	11:32:00
1	Si 251.611†	367.1	206.1	9.6936	µg/L	9.6936	ppb	11:32:20
1	Sn 189.927†	26.4	1.2	0.2562	µg/L	0.2562	ppb	11:32:20
1	Ti 334.940†	-106.4	-105.2	-0.2683	µg/L	-0.2683	ppb	11:32:00
1	Tl 190.801†	-34.4	12.0	4.1233	µg/L	4.1233	ppb	11:32:20
1	U 367.007†	318.4	42.2	10.36	µg/L	10.36	ppb	11:32:00
1	V 292.402†	-41.9	15.9	0.1802	µg/L	0.1802	ppb	11:32:00
1	Zn 213.857†	1214.0	82.3	0.7596	µg/L	0.7596	ppb	11:32:20
2	Sc RADIAL	20556.0	20556.0	98.0	%			11:31:08
2	Al 396.153Radial†	-143.7	27.1	8.0157	µg/L	8.0157	ppb	11:31:08
2	Ca 317.933Radial†	103.7	10.0	4.7399	µg/L	4.7399	ppb	11:31:28
2	Fe 238.204 Radial†	32.1	0.4	0.1960	µg/L	0.1960	ppb	11:31:28
2	K 766.490 Radial†	831.6	159.4	75.461	µg/L	75.461	ppb	11:31:08
2	Mg 279.077 IEC†	11.8	2.2	11.545	µg/L	11.545	ppb	11:31:28
2	Na 589.592 Radial†	17.8	63.6	132.40	µg/L	132.40	ppb	11:31:08
2	Sr 421.552†	-613.8	-14.4	-0.0704	µg/L	-0.0704	ppb	11:31:08
2	Sc 361.383	677100.4	677100.4	95.019	%			11:32:25
2	Y 371.029	588145.1	588145.1	94.996	%			11:32:25
2	Ag 328.068†	-277.8	86.8	0.5490	µg/L	0.5490	ppb	11:32:25
2	As 188.979†	-14.1	-6.0	-3.4071	µg/L	-3.4071	ppb	11:32:45
2	B 249.677†	123.5	33.0	0.9380	µg/L	0.9380	ppb	11:32:45
2	Ba 233.527†	-152.9	10.0	0.0924	µg/L	0.0924	ppb	11:32:45
2	Be 313.107†	-7656.8	-63.8	-0.0340	µg/L	-0.0340	ppb	11:32:25
2	Cd 226.502†	-210.3	4.0	0.0587	µg/L	0.0587	ppb	11:32:45
2	Co 228.616†	-16.3	3.7	0.0936	µg/L	0.0936	ppb	11:32:45
2	Cr 267.716†	186.5	2.7	0.0384	µg/L	0.0384	ppb	11:32:45
2	Cu 324.752†	6212.2	54.6	0.2129	µg/L	0.2129	ppb	11:32:25
2	Mn 257.610†	457.4	-23.2	-0.0334	µg/L	-0.0334	ppb	11:32:45
2	Mo 202.031†	49.0	29.5	2.0094	µg/L	2.0094	ppb	11:32:45
2	Ni 231.604†	-140.8	-19.5	-0.5667	µg/L	-0.5667	ppb	11:32:45
2	P 214.914†	111.0	-8.0	-6.0100	µg/L	-6.0100	ppb	11:32:45
2	Pb 220.353†	146.9	3.7	0.5611	µg/L	0.5611	ppb	11:32:45

2	S 181.975 Axial†	73.0	15.1	26.286 µg/L	26.286 ppb	11:32:45
2	Sb 206.836†	76.6	14.9	4.8371 µg/L	4.8371 ppb	11:32:45
2	Se 196.026†	1.5	6.8	5.1025 µg/L	5.1025 ppb	11:32:45
2	SiO2†	3013.0	220.6	27.663 µg/L	27.663 ppb	11:32:25
2	Si 251.611†	343.7	179.6	8.4347 µg/L	8.4347 ppb	11:32:45
2	Sn 189.927†	32.1	7.0	1.5252 µg/L	1.5252 ppb	11:32:45
2	Ti 334.940†	-136.1	-136.0	-0.3474 µg/L	-0.3474 ppb	11:32:25
2	Tl 190.801†	-33.0	13.7	4.6731 µg/L	4.6731 ppb	11:32:45
2	U 367.007†	334.4	57.5	14.11 µg/L	14.11 ppb	11:32:25
2	V 292.402†	-85.0	-29.3	-0.2532 µg/L	-0.2532 ppb	11:32:25
2	Zn 213.857†	1202.8	64.5	0.5980 µg/L	0.5980 ppb	11:32:45
3	Sc RADIAL	20332.8	20332.8	96.9 %		11:31:33
3	Al 396.153Radial†	-170.9	-2.5	-0.8048 µg/L	-0.8048 ppb	11:31:33
3	Ca 317.933Radial†	98.9	6.3	2.9656 µg/L	2.9656 ppb	11:31:53
3	Fe 238.204 Radial†	43.8	12.8	6.9731 µg/L	6.9731 ppb	11:31:53
3	K 766.490 Radial†	722.6	56.3	26.638 µg/L	26.638 ppb	11:31:33
3	Mg 279.077 IEC†	1.3	-8.6	-45.201 µg/L	-45.201 ppb	11:31:53
3	Na 589.592 Radial†	19.7	65.7	136.78 µg/L	136.78 ppb	11:31:33
3	Sr 421.552†	-586.9	6.4	0.0312 µg/L	0.0312 ppb	11:31:33
3	Sc 361.383	677970.5	677970.5	95.141 %		11:32:50
3	Y 371.029	589365.8	589365.8	95.193 %		11:32:50
3	Ag 328.068†	-298.1	65.9	0.4158 µg/L	0.4158 ppb	11:32:50
3	As 188.979†	-8.0	0.3	0.1829 µg/L	0.1829 ppb	11:33:10
3	B 249.677†	134.5	44.4	1.2614 µg/L	1.2614 ppb	11:33:10
3	Ba 233.527†	-150.7	12.4	0.1144 µg/L	0.1144 ppb	11:33:10
3	Be 313.107†	-7575.9	31.6	0.0216 µg/L	0.0216 ppb	11:32:50
3	Cd 226.502†	-214.0	0.4	0.0037 µg/L	0.0037 ppb	11:33:10
3	Co 228.616†	-12.7	7.5	0.1846 µg/L	0.1846 ppb	11:33:10
3	Cr 267.716†	198.2	14.7	0.2700 µg/L	0.2700 ppb	11:33:10
3	Cu 324.752†	6265.5	102.3	0.4089 µg/L	0.4089 ppb	11:32:50
3	Mn 257.610†	457.2	-24.1	-0.0324 µg/L	-0.0324 ppb	11:33:10
3	Mo 202.031†	42.6	22.6	1.5445 µg/L	1.5445 ppb	11:33:10
3	Ni 231.604†	-159.3	-38.7	-1.1262 µg/L	-1.1262 ppb	11:33:10
3	P 214.914†	113.8	-5.2	-3.9108 µg/L	-3.9108 ppb	11:33:10
3	Pb 220.353†	164.9	22.5	3.4032 µg/L	3.4032 ppb	11:33:10
3	S 181.975 Axial†	72.9	14.9	25.980 µg/L	25.980 ppb	11:33:10
3	Sb 206.836†	75.3	13.4	4.3390 µg/L	4.3390 ppb	11:33:10
3	Se 196.026†	-7.3	-2.3	-1.7013 µg/L	-1.7013 ppb	11:33:10
3	SiO2†	3031.2	235.8	29.577 µg/L	29.577 ppb	11:32:50
3	Si 251.611†	357.7	193.9	9.1122 µg/L	9.1122 ppb	11:33:10
3	Sn 189.927†	32.4	7.3	1.5939 µg/L	1.5939 ppb	11:33:10
3	Ti 334.940†	-137.5	-137.3	-0.3511 µg/L	-0.3511 ppb	11:32:50
3	Tl 190.801†	-36.8	9.8	3.3428 µg/L	3.3428 ppb	11:33:10
3	U 367.007†	341.8	64.8	15.86 µg/L	15.86 ppb	11:32:50
3	V 292.402†	-117.8	-63.6	-0.5927 µg/L	-0.5927 ppb	11:32:50
3	Zn 213.857†	1207.2	67.5	0.6284 µg/L	0.6284 ppb	11:33:10

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	676348.3	94.913	%	0.2949				0.31%
Sc RADIAL	20512.3	97.8	%	0.77				0.79%
Y 371.029	587739.1	94.931	%	0.3009				0.32%
Ag 328.068†	27.9	0.1760	µg/L	0.53475	0.1760	ppb	0.53475	303.76%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	3.0	0.8180	µg/L	6.53914	0.8180	ppb	6.53914	799.39%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-3.8	-2.1243	µg/L	2.00227	-2.1243	ppb	2.00227	94.25%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	43.0	1.2207	µg/L	0.26475	1.2207	ppb	0.26475	21.69%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	13.2	0.1225	µg/L	0.03487	0.1225	ppb	0.03487	28.47%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	30.5	0.0205	µg/L	0.05392	0.0205	ppb	0.05392	263.18%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	9.9	4.6921	µg/L	1.70314	4.6921	ppb	1.70314	36.30%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	11.6	0.1724	µg/L	0.24597	0.1724	ppb	0.24597	142.71%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	5.8	0.1433	µg/L	0.04610	0.1433	ppb	0.04610	32.17%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	8.6	0.1538 µg/L	0.11583	0.1538 ppb	0.11583	75.34%

QC value within limits for Cr 267.716 Recovery = Not calculated

Cu 324.752†	108.2	0.4347 µg/L	0.23582	0.4347 ppb	0.23582	54.24%

QC value within limits for Cu 324.752 Recovery = Not calculated

Fe 238.204 Radial†	4.8	2.6400 µg/L	3.76281	2.6400 ppb	3.76281	142.53%

QC value within limits for Fe 238.204 Radial Recovery = Not calculated

K 766.490 Radial†	89.0	42.110 µg/L	28.9078	42.110 ppb	28.9078	68.65%

QC value within limits for K 766.490 Radial Recovery = Not calculated

Mg 279.077 IEC†	-3.8	-19.801 µg/L	28.8365	-19.801 ppb	28.8365	145.63%

QC value within limits for Mg 279.077 IEC Recovery = Not calculated

Mn 257.610†	-13.7	-0.0187 µg/L	0.02454	-0.0187 ppb	0.02454	131.00%

QC value within limits for Mn 257.610 Recovery = Not calculated

Mo 202.031†	24.0	1.6348 µg/L	0.33857	1.6348 ppb	0.33857	20.71%

QC value within limits for Mo 202.031 Recovery = Not calculated

Na 589.592 Radial†	79.4	165.19 µg/L	53.054	165.19 ppb	53.054	32.12%

QC value within limits for Na 589.592 Radial Recovery = Not calculated

Ni 231.604†	-22.6	-0.6571 µg/L	0.43104	-0.6571 ppb	0.43104	65.59%

QC value within limits for Ni 231.604 Recovery = Not calculated

P 214.914†	-4.0	-3.0585 µg/L	3.45736	-3.0585 ppb	3.45736	113.04%

QC value within limits for P 214.914 Recovery = Not calculated

Pb 220.353†	10.3	1.5507 µg/L	1.60557	1.5507 ppb	1.60557	103.54%

QC value within limits for Pb 220.353 Recovery = Not calculated

S 181.975 Axial†	16.9	29.337 µg/L	5.5519	29.337 ppb	5.5519	18.92%

QC value within limits for S 181.975 Axial Recovery = Not calculated

Sb 206.836†	16.6	5.3831 µg/L	1.39939	5.3831 ppb	1.39939	26.00%

QC value within limits for Sb 206.836 Recovery = Not calculated

Se 196.026†	1.9	1.4295 µg/L	3.43413	1.4295 ppb	3.43413	240.23%

QC value within limits for Se 196.026 Recovery = Not calculated

SiO2†	245.0	30.690 µg/L	3.7114	30.690 ppb	3.7114	12.09%

QC value within limits for SiO2 Recovery = Not calculated

Si 251.611†	193.2	9.0802 µg/L	0.63004	9.0802 ppb	0.63004	6.94%

QC value within limits for Si 251.611 Recovery = Not calculated

Sn 189.927†	5.2	1.1251 µg/L	0.75326	1.1251 ppb	0.75326	66.95%

QC value within limits for Sn 189.927 Recovery = Not calculated

Sr 421.552†	20.3	0.0989 µg/L	0.21154	0.0989 ppb	0.21154	213.85%

QC value within limits for Sr 421.552 Recovery = Not calculated

Ti 334.940†	-126.2	-0.3223 µg/L	0.04679	-0.3223 ppb	0.04679	14.52%

QC value within limits for Ti 334.940 Recovery = Not calculated

Tl 190.801†	11.8	4.0464 µg/L	0.66846	4.0464 ppb	0.66846	16.52%

QC value within limits for Tl 190.801 Recovery = Not calculated

U 367.007†	54.9	13.45 µg/L	2.812	13.45 ppb	2.812	20.91%

QC value within limits for U 367.007 Recovery = Not calculated

V 292.402†	-25.7	-0.2219 µg/L	0.38739	-0.2219 ppb	0.38739	174.57%

QC value within limits for V 292.402 Recovery = Not calculated

Zn 213.857†	71.5	0.6620 µg/L	0.08588	0.6620 ppb	0.08588	12.97%

QC value within limits for Zn 213.857 Recovery = Not calculated

All analyte(s) passed QC.

Sequence No.: 9 **Autosampler Location:** 7
Sample ID: CCV **Date Collected:** 6/15/2012 12:05:31
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20589.7	20589.7	98.1	%			12:06:01
1	Al 396.153Radial†	17097.7	17595.6	5225.6	µg/L	5225.6	ppb	12:06:01
1	Ca 317.933Radial†	10701.2	10808.2	5125.4	µg/L	5125.4	ppb	12:06:21
1	Fe 238.204 Radial†	9367.0	9512.0	5193.0	µg/L	5193.0	ppb	12:06:21
1	K 766.490 Radial†	11513.4	11042.3	5221.4	µg/L	5221.4	ppb	12:06:01
1	Mg 279.077 IEC†	1002.3	1011.5	5358.5	µg/L	5358.5	ppb	12:06:21
1	Na 589.592 Radial†	4798.7	4935.0	10273	µg/L	10273	ppb	12:06:21
1	Sr 421.552†	103799.8	106378.9	519.47	µg/L	519.47	ppb	12:06:01
1	Sc 361.383	682058.9	682058.9	95.715	%			12:07:18
1	Y 371.029	587360.2	587360.2	94.869	%			12:07:18
1	Ag 328.068†	79394.9	83328.8	533.16	µg/L	533.16	ppb	12:07:24
1	As 188.979†	867.6	915.2	514.07	µg/L	514.07	ppb	12:07:44
1	B 249.677†	17480.4	18166.1	514.74	µg/L	514.74	ppb	12:07:24
1	Ba 233.527†	53526.5	56093.9	523.60	µg/L	523.60	ppb	12:07:24
1	Be 313.107†	874523.3	921673.0	533.71	µg/L	533.71	ppb	12:07:18
1	Cd 226.502†	33712.0	35446.7	526.36	µg/L	526.36	ppb	12:07:24
1	Co 228.616†	20900.3	21856.9	530.69	µg/L	530.69	ppb	12:07:24
1	Cr 267.716†	25799.0	26760.5	523.27	µg/L	523.27	ppb	12:07:24
1	Cu 324.752†	127035.8	126240.3	521.28	µg/L	521.28	ppb	12:07:24
1	Mn 257.610†	348443.7	363540.1	518.99	µg/L	518.99	ppb	12:07:24
1	Mo 202.031†	7324.2	7630.0	520.43	µg/L	520.43	ppb	12:07:44
1	Ni 231.604†	17463.4	18374.0	534.39	µg/L	534.39	ppb	12:07:24
1	P 214.914†	3436.8	3465.8	2580.1	µg/L	2580.1	ppb	12:07:44
1	Pb 220.353†	3436.7	3439.7	521.13	µg/L	521.13	ppb	12:07:44
1	S 181.975 Axial†	645.9	613.2	1066.0	µg/L	1066.0	ppb	12:07:44
1	Sb 206.836†	1605.9	1612.1	515.76	µg/L	515.76	ppb	12:07:44
1	Se 196.026†	674.7	710.3	530.85	µg/L	530.85	ppb	12:07:44
1	SiO2†	46377.0	45503.2	5702.9	µg/L	5702.9	ppb	12:07:24
1	Si 251.611†	54130.1	56371.6	2648.3	µg/L	2648.3	ppb	12:07:24
1	Sn 189.927†	2320.4	2397.5	526.01	µg/L	526.01	ppb	12:07:44
1	Ti 334.940†	199497.5	208436.9	522.37	µg/L	522.37	ppb	12:07:24
1	Tl 190.801†	1401.1	1512.2	519.74	µg/L	519.74	ppb	12:07:44
1	U 367.007†	2327.2	2136.9	500.0	µg/L	500.0	ppb	12:07:24
1	V 292.402†	50816.7	53152.1	528.80	µg/L	528.80	ppb	12:07:24
1	Zn 213.857†	56085.1	57394.9	524.34	µg/L	524.34	ppb	12:07:24
2	Sc RADIAL	20341.7	20341.7	97.0	%			12:06:27
2	Al 396.153Radial†	16923.4	17628.2	5236.2	µg/L	5236.2	ppb	12:06:27
2	Ca 317.933Radial†	10691.7	10931.3	5183.7	µg/L	5183.7	ppb	12:06:47
2	Fe 238.204 Radial†	9398.9	9661.3	5274.2	µg/L	5274.2	ppb	12:06:47
2	K 766.490 Radial†	11322.5	10988.4	5196.2	µg/L	5196.2	ppb	12:06:27
2	Mg 279.077 IEC†	1017.3	1039.3	5505.5	µg/L	5505.5	ppb	12:06:47
2	Na 589.592 Radial†	4751.0	4945.4	10294	µg/L	10294	ppb	12:06:47
2	Sr 421.552†	102423.3	106248.8	518.84	µg/L	518.84	ppb	12:06:27
2	Sc 361.383	710061.4	710061.4	99.644	%			12:07:49
2	Y 371.029	611382.4	611382.4	98.749	%			12:07:49
2	Ag 328.068†	79276.8	79939.0	511.52	µg/L	511.52	ppb	12:07:55
2	As 188.979†	866.2	878.1	493.24	µg/L	493.24	ppb	12:08:15
2	B 249.677†	17551.6	17517.3	496.33	µg/L	496.33	ppb	12:07:55
2	Ba 233.527†	53359.4	53720.7	501.44	µg/L	501.44	ppb	12:07:55
2	Be 313.107†	855189.4	866237.6	501.61	µg/L	501.61	ppb	12:07:49
2	Cd 226.502†	33488.5	33833.4	502.36	µg/L	502.36	ppb	12:07:55
2	Co 228.616†	20766.8	20861.8	506.53	µg/L	506.53	ppb	12:07:55
2	Cr 267.716†	25652.8	25550.8	499.62	µg/L	499.62	ppb	12:07:55
2	Cu 324.752†	126806.0	120775.6	498.76	µg/L	498.76	ppb	12:07:55
2	Mn 257.610†	346237.5	346969.3	495.36	µg/L	495.36	ppb	12:07:55
2	Mo 202.031†	7270.2	7274.1	496.17	µg/L	496.17	ppb	12:08:15
2	Ni 231.604†	17295.3	17485.7	508.56	µg/L	508.56	ppb	12:07:55
2	P 214.914†	3409.1	3296.4	2453.8	µg/L	2453.8	ppb	12:08:15
2	Pb 220.353†	3447.6	3309.1	501.30	µg/L	501.30	ppb	12:08:15

2	S 181.975 Axial†	647.0	587.7	1021.5 µg/L	1021.5 ppb	12:08:15
2	Sb 206.836†	1596.8	1536.8	491.66 µg/L	491.66 ppb	12:08:15
2	Se 196.026†	670.6	678.3	507.10 µg/L	507.10 ppb	12:08:15
2	SiO2†	46173.7	43388.3	5438.0 µg/L	5438.0 ppb	12:07:55
2	Si 251.611†	53847.3	53857.5	2530.2 µg/L	2530.2 ppb	12:07:55
2	Sn 189.927†	2304.6	2286.1	501.62 µg/L	501.62 ppb	12:08:15
2	Ti 334.940†	198491.7	199207.7	499.25 µg/L	499.25 ppb	12:07:55
2	Tl 190.801†	1402.0	1455.5	500.24 µg/L	500.24 ppb	12:08:15
2	U 367.007†	2323.9	2037.8	475.2 µg/L	475.2 ppb	12:07:55
2	V 292.402†	50391.3	50631.4	503.73 µg/L	503.73 ppb	12:07:55
2	Zn 213.857†	55780.7	54778.6	500.40 µg/L	500.40 ppb	12:07:55
3	Sc RADIAL	21109.5	21109.5	101 %		12:06:52
3	Al 396.153Radial†	16834.1	16904.5	5020.6 µg/L	5020.6 ppb	12:06:52
3	Ca 317.933Radial†	10643.0	10481.8	4970.6 µg/L	4970.6 ppb	12:07:12
3	Fe 238.204 Radial†	9346.9	9257.1	5053.7 µg/L	5053.7 ppb	12:07:12
3	K 766.490 Radial†	11348.8	10589.8	5007.5 µg/L	5007.5 ppb	12:06:52
3	Mg 279.077 IEC†	1010.7	994.6	5269.0 µg/L	5269.0 ppb	12:07:12
3	Na 589.592 Radial†	4682.9	4699.6	9782.4 µg/L	9782.4 ppb	12:07:12
3	Sr 421.552†	102029.1	102014.4	498.16 µg/L	498.16 ppb	12:06:52
3	Sc 361.383	714449.0	714449.0	100.26 %		12:08:20
3	Y 371.029	615695.4	615695.4	99.446 %		12:08:20
3	Ag 328.068†	79122.3	79296.3	507.37 µg/L	507.37 ppb	12:08:25
3	As 188.979†	876.9	883.4	496.23 µg/L	496.23 ppb	12:08:45
3	B 249.677†	17483.7	17341.3	491.36 µg/L	491.36 ppb	12:08:25
3	Ba 233.527†	53207.4	53240.3	496.96 µg/L	496.96 ppb	12:08:25
3	Be 313.107†	850265.0	856055.2	495.72 µg/L	495.72 ppb	12:08:20
3	Cd 226.502†	33455.0	33593.6	498.82 µg/L	498.82 ppb	12:08:25
3	Co 228.616†	20725.8	20692.9	502.43 µg/L	502.43 ppb	12:08:25
3	Cr 267.716†	25650.9	25390.8	496.49 µg/L	496.49 ppb	12:08:25
3	Cu 324.752†	126407.8	119596.8	493.87 µg/L	493.87 ppb	12:08:25
3	Mn 257.610†	345648.4	344247.7	491.46 µg/L	491.46 ppb	12:08:25
3	Mo 202.031†	7277.3	7236.3	493.58 µg/L	493.58 ppb	12:08:45
3	Ni 231.604†	17291.5	17375.3	505.34 µg/L	505.34 ppb	12:08:25
3	P 214.914†	3436.8	3303.1	2459.0 µg/L	2459.0 ppb	12:08:45
3	Pb 220.353†	3452.3	3292.5	498.82 µg/L	498.82 ppb	12:08:45
3	S 181.975 Axial†	645.0	581.7	1011.2 µg/L	1011.2 ppb	12:08:45
3	Sb 206.836†	1594.3	1524.4	487.71 µg/L	487.71 ppb	12:08:45
3	Se 196.026†	670.6	674.2	503.95 µg/L	503.95 ppb	12:08:45
3	SiO2†	46052.2	42982.5	5387.1 µg/L	5387.1 ppb	12:08:25
3	Si 251.611†	53670.5	53349.3	2506.3 µg/L	2506.3 ppb	12:08:25
3	Sn 189.927†	2324.0	2291.2	502.70 µg/L	502.70 ppb	12:08:45
3	Ti 334.940†	197727.2	197221.9	494.27 µg/L	494.27 ppb	12:08:25
3	Tl 190.801†	1404.5	1449.3	498.07 µg/L	498.07 ppb	12:08:45
3	U 367.007†	2317.1	2016.7	471.1 µg/L	471.1 ppb	12:08:25
3	V 292.402†	50376.7	50306.3	500.50 µg/L	500.50 ppb	12:08:25
3	Zn 213.857†	55651.9	54306.3	496.11 µg/L	496.11 ppb	12:08:25

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	702189.8	98.540	%	2.4658				2.50%
Sc RADIAL	20680.3	98.6	%	1.87				1.89%
Y 371.029	604812.7	97.688	%	2.4660				2.52%
Ag 328.068†	80854.7	517.35	µg/L	13.847	517.35	ppb	13.847	2.68%
QC value within limits for Ag 328.068 Recovery = 103.47%								
Al 396.153Radial†	17376.1	5160.8	µg/L	121.53	5160.8	ppb	121.53	2.35%
QC value within limits for Al 396.153Radial Recovery = 103.22%								
As 188.979†	892.3	501.18	µg/L	11.267	501.18	ppb	11.267	2.25%
QC value within limits for As 188.979 Recovery = 100.24%								
B 249.677†	17674.9	500.81	µg/L	12.315	500.81	ppb	12.315	2.46%
QC value within limits for B 249.677 Recovery = 100.16%								
Ba 233.527†	54351.6	507.34	µg/L	14.266	507.34	ppb	14.266	2.81%
QC value within limits for Ba 233.527 Recovery = 101.47%								
Be 313.107†	881321.9	510.35	µg/L	20.447	510.35	ppb	20.447	4.01%
QC value within limits for Be 313.107 Recovery = 102.07%								
Ca 317.933Radial†	10740.4	5093.2	µg/L	110.15	5093.2	ppb	110.15	2.16%
QC value within limits for Ca 317.933Radial Recovery = 101.86%								
Cd 226.502†	34291.2	509.18	µg/L	14.985	509.18	ppb	14.985	2.94%
QC value within limits for Cd 226.502 Recovery = 101.84%								
Co 228.616†	21137.2	513.22	µg/L	15.271	513.22	ppb	15.271	2.98%

QC value within limits for Co 228.616 Recovery = 102.64%

Cr 267.716†	25900.7	506.46 µg/L	14.640	506.46 ppb	14.640	2.89%

QC value within limits for Cr 267.716 Recovery = 101.29%

Cu 324.752†	122204.3	504.63 µg/L	14.620	504.63 ppb	14.620	2.90%

QC value within limits for Cu 324.752 Recovery = 100.93%

Fe 238.204 Radial†	9476.8	5173.6 µg/L	111.52	5173.6 ppb	111.52	2.16%

QC value within limits for Fe 238.204 Radial Recovery = 103.47%

K 766.490 Radial†	10873.5	5141.7 µg/L	116.88	5141.7 ppb	116.88	2.27%

QC value within limits for K 766.490 Radial Recovery = 102.83%

Mg 279.077 IEC†	1015.1	5377.7 µg/L	119.44	5377.7 ppb	119.44	2.22%

QC value within limits for Mg 279.077 IEC Recovery = 107.55%

Mn 257.610†	351585.7	501.94 µg/L	14.900	501.94 ppb	14.900	2.97%

QC value within limits for Mn 257.610 Recovery = 100.39%

Mo 202.031†	7380.1	503.39 µg/L	14.812	503.39 ppb	14.812	2.94%

QC value within limits for Mo 202.031 Recovery = 100.68%

Na 589.592 Radial†	4860.0	10116 µg/L	289.4	10116 ppb	289.4	2.86%

QC value within limits for Na 589.592 Radial Recovery = 101.16%

Ni 231.604†	17745.0	516.09 µg/L	15.922	516.09 ppb	15.922	3.09%

QC value within limits for Ni 231.604 Recovery = 103.22%

P 214.914†	3355.1	2497.6 µg/L	71.49	2497.6 ppb	71.49	2.86%

QC value within limits for P 214.914 Recovery = 99.91%

Pb 220.353†	3347.1	507.08 µg/L	12.228	507.08 ppb	12.228	2.41%

QC value within limits for Pb 220.353 Recovery = 101.42%

S 181.975 Axial†	594.2	1032.9 µg/L	29.12	1032.9 ppb	29.12	2.82%

QC value within limits for S 181.975 Axial Recovery = 103.29%

Sb 206.836†	1557.8	498.38 µg/L	15.186	498.38 ppb	15.186	3.05%

QC value within limits for Sb 206.836 Recovery = 99.68%

Se 196.026†	687.6	513.97 µg/L	14.710	513.97 ppb	14.710	2.86%

QC value within limits for Se 196.026 Recovery = 102.79%

SiO2†	43958.0	5509.3 µg/L	169.58	5509.3 ppb	169.58	3.08%

QC value within limits for SiO2 Recovery = 103.03%

Si 251.611†	54526.1	2561.6 µg/L	76.04	2561.6 ppb	76.04	2.97%

QC value within limits for Si 251.611 Recovery = 102.46%

Sn 189.927†	2324.9	510.11 µg/L	13.780	510.11 ppb	13.780	2.70%

QC value within limits for Sn 189.927 Recovery = 102.02%

Sr 421.552†	104880.7	512.16 µg/L	12.126	512.16 ppb	12.126	2.37%

QC value within limits for Sr 421.552 Recovery = 102.43%

Ti 334.940†	201622.2	505.30 µg/L	14.997	505.30 ppb	14.997	2.97%

QC value within limits for Ti 334.940 Recovery = 101.06%

Tl 190.801†	1472.3	506.02 µg/L	11.932	506.02 ppb	11.932	2.36%

QC value within limits for Tl 190.801 Recovery = 101.20%

U 367.007†	2063.8	482.1 µg/L	15.62	482.1 ppb	15.62	3.24%

QC value within limits for U 367.007 Recovery = 96.42%

V 292.402†	51363.2	511.01 µg/L	15.490	511.01 ppb	15.490	3.03%

QC value within limits for V 292.402 Recovery = 102.20%

Zn 213.857†	55493.3	506.95 µg/L	15.214	506.95 ppb	15.214	3.00%

QC value within limits for Zn 213.857 Recovery = 101.39%

All analyte(s) passed QC.

Sequence No.: 10 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 12:08:53**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21257.8	21257.8	101	%			12:09:21
1	Al 396.153Radial†	-189.4	-13.1	-4.0115	µg/L	-4.0115	ppb	12:09:21
1	Ca 317.933Radial†	109.1	11.8	5.6080	µg/L	5.6080	ppb	12:09:41
1	Fe 238.204 Radial†	41.3	8.3	4.5241	µg/L	4.5241	ppb	12:09:41
1	K 766.490 Radial†	674.1	-24.0	-11.379	µg/L	-11.379	ppb	12:09:21
1	Mg 279.077 IEC†	5.1	-4.9	-25.528	µg/L	-25.528	ppb	12:09:41
1	Na 589.592 Radial†	-55.5	-9.3	-19.450	µg/L	-19.450	ppb	12:09:21
1	Sr 421.552†	-575.4	44.1	0.2154	µg/L	0.2154	ppb	12:09:21
1	Sc 361.383	706705.6	706705.6	99.173	%			12:10:38
1	Y 371.029	612723.9	612723.9	98.966	%			12:10:38
1	Ag 328.068†	-355.6	20.5	0.1333	µg/L	0.1333	ppb	12:10:38
1	As 188.979†	-6.5	2.3	1.2698	µg/L	1.2698	ppb	12:10:58
1	B 249.677†	139.5	43.6	1.2397	µg/L	1.2397	ppb	12:10:58
1	Ba 233.527†	-140.4	29.2	0.2730	µg/L	0.2730	ppb	12:10:58
1	Be 313.107†	-7673.7	256.7	0.1519	µg/L	0.1519	ppb	12:10:38
1	Cd 226.502†	-194.8	28.8	0.4273	µg/L	0.4273	ppb	12:10:58
1	Co 228.616†	-16.0	4.7	0.1197	µg/L	0.1197	ppb	12:10:58
1	Cr 267.716†	195.6	3.6	0.0543	µg/L	0.0543	ppb	12:10:58
1	Cu 324.752†	6370.0	-60.1	-0.2600	µg/L	-0.2600	ppb	12:10:38
1	Mn 257.610†	507.2	6.8	0.0108	µg/L	0.0108	ppb	12:10:58
1	Mo 202.031†	64.6	43.1	2.9355	µg/L	2.9355	ppb	12:10:58
1	Ni 231.604†	-164.3	-37.0	-1.0772	µg/L	-1.0772	ppb	12:10:58
1	P 214.914†	118.4	-5.4	-4.0733	µg/L	-4.0733	ppb	12:10:58
1	Pb 220.353†	162.8	13.3	2.0219	µg/L	2.0219	ppb	12:10:58
1	S 181.975 Axial†	68.0	6.9	12.001	µg/L	12.001	ppb	12:10:58
1	Sb 206.836†	80.1	15.0	4.8965	µg/L	4.8965	ppb	12:10:58
1	Se 196.026†	-7.1	-1.9	-1.3742	µg/L	-1.3742	ppb	12:10:58
1	SiO2†	2923.5	-2.4	-0.0697	µg/L	-0.0697	ppb	12:10:38
1	Si 251.611†	226.7	46.5	2.1519	µg/L	2.1519	ppb	12:10:58
1	Sn 189.927†	31.2	4.7	1.0297	µg/L	1.0297	ppb	12:10:58
1	Ti 334.940†	-133.1	-127.0	-0.3252	µg/L	-0.3252	ppb	12:10:38
1	Tl 190.801†	-37.8	10.3	3.5266	µg/L	3.5266	ppb	12:10:58
1	U 367.007†	355.5	64.0	15.69	µg/L	15.69	ppb	12:10:38
1	V 292.402†	-29.2	30.8	0.3482	µg/L	0.3482	ppb	12:10:38
1	Zn 213.857†	1227.4	36.3	0.3412	µg/L	0.3412	ppb	12:10:58
2	Sc RADIAL	21235.1	21235.1	101	%			12:09:46
2	Al 396.153Radial†	-186.9	-10.9	-3.3681	µg/L	-3.3681	ppb	12:09:46
2	Ca 317.933Radial†	105.6	8.5	4.0253	µg/L	4.0253	ppb	12:10:06
2	Fe 238.204 Radial†	31.2	-1.6	-0.8655	µg/L	-0.8655	ppb	12:10:06
2	K 766.490 Radial†	674.4	-23.0	-10.884	µg/L	-10.884	ppb	12:09:46
2	Mg 279.077 IEC†	2.5	-7.4	-39.142	µg/L	-39.142	ppb	12:10:06
2	Na 589.592 Radial†	-89.8	-43.3	-90.200	µg/L	-90.200	ppb	12:09:46
2	Sr 421.552†	-615.4	4.0	0.0195	µg/L	0.0195	ppb	12:09:46
2	Sc 361.383	705936.3	705936.3	99.065	%			12:11:03
2	Y 371.029	612200.4	612200.4	98.882	%			12:11:03
2	Ag 328.068†	-319.3	56.9	0.3589	µg/L	0.3589	ppb	12:11:03
2	As 188.979†	-6.6	2.1	1.1753	µg/L	1.1753	ppb	12:11:23
2	B 249.677†	148.7	53.1	1.5081	µg/L	1.5081	ppb	12:11:23
2	Ba 233.527†	-140.6	28.9	0.2688	µg/L	0.2688	ppb	12:11:23
2	Be 313.107†	-7692.5	229.3	0.1367	µg/L	0.1367	ppb	12:11:03
2	Cd 226.502†	-214.3	8.9	0.1321	µg/L	0.1321	ppb	12:11:23
2	Co 228.616†	-5.3	15.5	0.3808	µg/L	0.3808	ppb	12:11:23
2	Cr 267.716†	204.7	13.0	0.2338	µg/L	0.2338	ppb	12:11:23
2	Cu 324.752†	6364.9	-58.3	-0.2560	µg/L	-0.2560	ppb	12:11:03
2	Mn 257.610†	491.5	-8.5	-0.0111	µg/L	-0.0111	ppb	12:11:23
2	Mo 202.031†	70.6	49.2	3.3531	µg/L	3.3531	ppb	12:11:23
2	Ni 231.604†	-143.7	-16.4	-0.4772	µg/L	-0.4772	ppb	12:11:23
2	P 214.914†	111.0	-12.8	-9.6079	µg/L	-9.6079	ppb	12:11:23
2	Pb 220.353†	137.2	-12.4	-1.8725	µg/L	-1.8725	ppb	12:11:23

2	S 181.975 Axial†	64.1	3.0	5.2762 µg/L	5.2762 ppb	12:11:23
2	Sb 206.836†	84.8	19.9	6.4604 µg/L	6.4604 ppb	12:11:23
2	Se 196.026†	-5.3	-0.1	-0.0221 µg/L	-0.0221 ppb	12:11:23
2	SiO2†	2906.6	-16.3	-1.7470 µg/L	-1.7470 ppb	12:11:03
2	Si 251.611†	233.2	53.4	2.4692 µg/L	2.4692 ppb	12:11:23
2	Sn 189.927†	33.9	7.4	1.6133 µg/L	1.6133 ppb	12:11:23
2	Ti 334.940†	-124.3	-118.3	-0.3049 µg/L	-0.3049 ppb	12:11:03
2	Tl 190.801†	-34.4	13.7	4.6950 µg/L	4.6950 ppb	12:11:23
2	U 367.007†	369.7	78.7	19.32 µg/L	19.32 ppb	12:11:03
2	V 292.402†	-86.6	-27.2	-0.2128 µg/L	-0.2128 ppb	12:11:03
2	Zn 213.857†	1199.8	9.8	0.0936 µg/L	0.0936 ppb	12:11:23
3	Sc RADIAL	21320.0	21320.0	102 %		12:10:11
3	Al 396.153Radial†	-188.6	-11.8	-3.6298 µg/L	-3.6298 ppb	12:10:11
3	Ca 317.933Radial†	106.9	9.4	4.4610 µg/L	4.4610 ppb	12:10:31
3	Fe 238.204 Radial†	39.3	6.3	3.4258 µg/L	3.4258 ppb	12:10:31
3	K 766.490 Radial†	702.9	2.4	1.1523 µg/L	1.1523 ppb	12:10:11
3	Mg 279.077 IEC†	10.1	0.0	0.2670 µg/L	0.2670 ppb	12:10:31
3	Na 589.592 Radial†	-71.5	-24.9	-51.866 µg/L	-51.866 ppb	12:10:11
3	Sr 421.552†	-602.6	19.0	0.0929 µg/L	0.0929 ppb	12:10:11
3	Sc 361.383	701235.8	701235.8	98.406 %		12:11:28
3	Y 371.029	607923.6	607923.6	98.191 %		12:11:28
3	Ag 328.068†	-346.1	27.4	0.1759 µg/L	0.1759 ppb	12:11:28
3	As 188.979†	-10.7	-2.1	-1.1997 µg/L	-1.1997 ppb	12:11:48
3	B 249.677†	137.6	42.9	1.2160 µg/L	1.2160 ppb	12:11:48
3	Ba 233.527†	-154.1	14.2	0.1322 µg/L	0.1322 ppb	12:11:48
3	Be 313.107†	-7603.4	267.8	0.1586 µg/L	0.1586 ppb	12:11:28
3	Cd 226.502†	-203.3	18.7	0.2771 µg/L	0.2771 ppb	12:11:48
3	Co 228.616†	1.8	22.7	0.5552 µg/L	0.5552 ppb	12:11:48
3	Cr 267.716†	199.4	9.0	0.1600 µg/L	0.1600 ppb	12:11:48
3	Cu 324.752†	6444.9	66.0	0.2587 µg/L	0.2587 ppb	12:11:28
3	Mn 257.610†	463.1	-34.0	-0.0483 µg/L	-0.0483 ppb	12:11:48
3	Mo 202.031†	69.3	48.3	3.2938 µg/L	3.2938 ppb	12:11:48
3	Ni 231.604†	-138.3	-11.8	-0.3443 µg/L	-0.3443 ppb	12:11:48
3	P 214.914†	117.4	-5.5	-4.1533 µg/L	-4.1533 ppb	12:11:48
3	Pb 220.353†	167.5	19.3	2.9291 µg/L	2.9291 ppb	12:11:48
3	S 181.975 Axial†	65.8	5.2	9.1275 µg/L	9.1275 ppb	12:11:48
3	Sb 206.836†	82.1	17.7	5.7677 µg/L	5.7677 ppb	12:11:48
3	Se 196.026†	7.6	13.0	9.7028 µg/L	9.7028 ppb	12:11:48
3	SiO2†	2909.2	6.1	1.0104 µg/L	1.0104 ppb	12:11:28
3	Si 251.611†	237.8	59.6	2.7625 µg/L	2.7625 ppb	12:11:48
3	Sn 189.927†	32.5	6.3	1.3638 µg/L	1.3638 ppb	12:11:48
3	Ti 334.940†	-109.3	-103.9	-0.2681 µg/L	-0.2681 ppb	12:11:28
3	Tl 190.801†	-33.1	14.8	5.0609 µg/L	5.0609 ppb	12:11:48
3	U 367.007†	358.1	69.5	17.04 µg/L	17.04 ppb	12:11:28
3	V 292.402†	-42.0	17.5	0.2229 µg/L	0.2229 ppb	12:11:28
3	Zn 213.857†	1216.5	34.9	0.3236 µg/L	0.3236 ppb	12:11:48

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	704625.9	98.881	%	0.4155				0.42%
Sc RADIAL	21270.9	101	%	0.2				0.21%
Y 371.029	610949.3	98.680	%	0.4253				0.43%
Ag 328.068†	34.9	0.2227	µg/L	0.11982	0.2227	ppb	0.11982	53.81%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-11.9	-3.6698	µg/L	0.32353	-3.6698	ppb	0.32353	8.82%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	0.8	0.4151	µg/L	1.39929	0.4151	ppb	1.39929	337.10%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	46.5	1.3212	µg/L	0.16221	1.3212	ppb	0.16221	12.28%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	24.1	0.2247	µg/L	0.08007	0.2247	ppb	0.08007	35.64%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	251.3	0.1491	µg/L	0.01120	0.1491	ppb	0.01120	7.51%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	9.9	4.6981	µg/L	0.81755	4.6981	ppb	0.81755	17.40%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	18.8	0.2789	µg/L	0.14760	0.2789	ppb	0.14760	52.93%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	14.3	0.3519	µg/L	0.21920	0.3519	ppb	0.21920	62.28%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	8.5	0.1494 µg/L	0.09021	0.1494 ppb	0.09021	60.39%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	-17.4	-0.0858 µg/L	0.29831	-0.0858 ppb	0.29831	347.79%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	4.3	2.3614 µg/L	2.84808	2.3614 ppb	2.84808	120.61%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	-14.9	-7.0368 µg/L	7.09634	-7.0368 ppb	7.09634	100.85%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	-4.1	-21.468 µg/L	20.0160	-21.468 ppb	20.0160	93.24%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	-11.9	-0.0162 µg/L	0.02988	-0.0162 ppb	0.02988	184.85%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	46.8	3.1942 µg/L	0.22594	3.1942 ppb	0.22594	7.07%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	-25.9	-53.839 µg/L	35.4164	-53.839 ppb	35.4164	65.78%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	-21.7	-0.6329 µg/L	0.39045	-0.6329 ppb	0.39045	61.69%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	-7.9	-5.9448 µg/L	3.17260	-5.9448 ppb	3.17260	53.37%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	6.8	1.0262 µg/L	2.55100	1.0262 ppb	2.55100	248.60%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	5.0	8.8016 µg/L	3.37427	8.8016 ppb	3.37427	38.34%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	17.6	5.7082 µg/L	0.78364	5.7082 ppb	0.78364	13.73%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	3.7	2.7688 µg/L	6.04294	2.7688 ppb	6.04294	218.25%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	-4.2	-0.2688 µg/L	1.38947	-0.2688 ppb	1.38947	516.97%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	53.1	2.4612 µg/L	0.30535	2.4612 ppb	0.30535	12.41%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	6.1	1.3356 µg/L	0.29279	1.3356 ppb	0.29279	21.92%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	22.4	0.1093 µg/L	0.09895	0.1093 ppb	0.09895	90.54%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	-116.4	-0.2994 µg/L	0.02894	-0.2994 ppb	0.02894	9.66%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	12.9	4.4275 µg/L	0.80133	4.4275 ppb	0.80133	18.10%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	70.8	17.35 µg/L	1.836	17.35 ppb	1.836	10.58%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	7.0	0.1195 µg/L	0.29446	0.1195 ppb	0.29446	246.50%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	27.0	0.2528 µg/L	0.13815	0.2528 ppb	0.13815	54.65%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 17 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 12:31:39**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21829.1	21829.1	104	%			12:32:09
1	Al 396.153Radial†	16356.3	15893.8	4719.7	µg/L	4719.7	ppb	12:32:09
1	Ca 317.933Radial†	10243.2	9748.9	4623.0	µg/L	4623.0	ppb	12:32:29
1	Fe 238.204 Radial†	9016.0	8632.8	4713.1	µg/L	4713.1	ppb	12:32:29
1	K 766.490 Radial†	11024.5	9906.3	4684.1	µg/L	4684.1	ppb	12:32:09
1	Mg 279.077 IEC†	969.5	921.8	4883.9	µg/L	4883.9	ppb	12:32:29
1	Na 589.592 Radial†	4533.1	4402.1	9163.2	µg/L	9163.2	ppb	12:32:29
1	Sr 421.552†	100225.2	96938.0	473.37	µg/L	473.37	ppb	12:32:09
1	Sc 361.383	723121.6	723121.6	101.48	%			12:33:26
1	Y 371.029	623721.0	623721.0	100.74	%			12:33:26
1	Ag 328.068†	78240.2	77480.6	495.69	µg/L	495.69	ppb	12:33:31
1	As 188.979†	855.2	851.6	478.30	µg/L	478.30	ppb	12:33:51
1	B 249.677†	17248.1	16900.0	478.89	µg/L	478.89	ppb	12:33:31
1	Ba 233.527†	52319.7	51729.0	482.86	µg/L	482.86	ppb	12:33:31
1	Be 313.107†	835212.6	831050.9	481.24	µg/L	481.24	ppb	12:33:26
1	Cd 226.502†	32775.2	32523.4	482.96	µg/L	482.96	ppb	12:33:31
1	Co 228.616†	20349.5	20074.1	487.41	µg/L	487.41	ppb	12:33:31
1	Cr 267.716†	25223.8	24663.0	482.25	µg/L	482.25	ppb	12:33:31
1	Cu 324.752†	125536.9	117226.5	484.03	µg/L	484.03	ppb	12:33:31
1	Mn 257.610†	339611.0	334163.5	477.05	µg/L	477.05	ppb	12:33:31
1	Mo 202.031†	7222.6	7095.4	483.96	µg/L	483.96	ppb	12:33:51
1	Ni 231.604†	17066.4	16946.7	492.87	µg/L	492.87	ppb	12:33:31
1	P 214.914†	3352.1	3178.5	2366.0	µg/L	2366.0	ppb	12:33:51
1	Pb 220.353†	3400.5	3200.1	484.86	µg/L	484.86	ppb	12:33:51
1	S 181.975 Axial†	620.8	550.1	956.38	µg/L	956.38	ppb	12:33:51
1	Sb 206.836†	1579.1	1490.4	476.90	µg/L	476.90	ppb	12:33:51
1	Se 196.026†	663.8	659.5	492.84	µg/L	492.84	ppb	12:33:51
1	SiO2†	45548.3	41935.1	5255.9	µg/L	5255.9	ppb	12:33:31
1	Si 251.611†	52861.6	51910.2	2438.6	µg/L	2438.6	ppb	12:33:31
1	Sn 189.927†	2270.0	2210.2	484.90	µg/L	484.90	ppb	12:33:51
1	Ti 334.940†	195333.3	192497.5	482.42	µg/L	482.42	ppb	12:33:31
1	Tl 190.801†	1370.6	1399.1	480.85	µg/L	480.85	ppb	12:33:51
1	U 367.007†	2317.8	1989.6	466.1	µg/L	466.1	ppb	12:33:31
1	V 292.402†	49737.9	49074.2	488.27	µg/L	488.27	ppb	12:33:31
1	Zn 213.857†	54802.2	52803.2	482.39	µg/L	482.39	ppb	12:33:31
2	Sc RADIAL	21658.8	21658.8	103	%			12:32:34
2	Al 396.153Radial†	16347.7	16009.1	4754.1	µg/L	4754.1	ppb	12:32:34
2	Ca 317.933Radial†	10289.2	9870.8	4680.9	µg/L	4680.9	ppb	12:32:54
2	Fe 238.204 Radial†	9074.6	8757.7	4781.2	µg/L	4781.2	ppb	12:32:54
2	K 766.490 Radial†	10951.7	9919.1	4690.1	µg/L	4690.1	ppb	12:32:34
2	Mg 279.077 IEC†	964.6	924.5	4897.8	µg/L	4897.8	ppb	12:32:54
2	Na 589.592 Radial†	4593.7	4495.1	9356.9	µg/L	9356.9	ppb	12:32:54
2	Sr 421.552†	99947.8	97426.8	475.76	µg/L	475.76	ppb	12:32:34
2	Sc 361.383	722960.6	722960.6	101.45	%			12:33:57
2	Y 371.029	624641.4	624641.4	100.89	%			12:33:57
2	Ag 328.068†	78687.4	77938.6	498.63	µg/L	498.63	ppb	12:34:02
2	As 188.979†	858.8	855.2	480.38	µg/L	480.38	ppb	12:34:22
2	B 249.677†	17347.2	17001.5	481.77	µg/L	481.77	ppb	12:34:02
2	Ba 233.527†	52554.9	51972.4	485.13	µg/L	485.13	ppb	12:34:02
2	Be 313.107†	838996.6	834963.9	483.50	µg/L	483.50	ppb	12:33:57
2	Cd 226.502†	33091.8	32842.7	487.70	µg/L	487.70	ppb	12:34:02
2	Co 228.616†	20408.8	20137.0	488.93	µg/L	488.93	ppb	12:34:02
2	Cr 267.716†	25469.7	24911.0	487.10	µg/L	487.10	ppb	12:34:02
2	Cu 324.752†	125977.7	117688.5	485.95	µg/L	485.95	ppb	12:34:02
2	Mn 257.610†	341361.0	335962.9	479.62	µg/L	479.62	ppb	12:34:02
2	Mo 202.031†	7206.0	7080.6	482.96	µg/L	482.96	ppb	12:34:22
2	Ni 231.604†	17135.4	17018.5	494.96	µg/L	494.96	ppb	12:34:02
2	P 214.914†	3358.1	3185.2	2371.0	µg/L	2371.0	ppb	12:34:22
2	Pb 220.353†	3382.4	3183.0	482.27	µg/L	482.27	ppb	12:34:22

2	S 181.975 Axial†	632.1	561.4	976.00 µg/L	976.00 ppb	12:34:22
2	Sb 206.836†	1587.4	1499.0	479.54 µg/L	479.54 ppb	12:34:22
2	Se 196.026†	667.2	662.9	495.42 µg/L	495.42 ppb	12:34:22
2	SiO2†	45658.3	42053.5	5270.9 µg/L	5270.9 ppb	12:34:02
2	Si 251.611†	53199.3	52254.7	2454.9 µg/L	2454.9 ppb	12:34:02
2	Sn 189.927†	2265.6	2206.4	484.08 µg/L	484.08 ppb	12:34:22
2	Ti 334.940†	196183.4	193378.3	484.63 µg/L	484.63 ppb	12:34:02
2	Tl 190.801†	1375.5	1404.3	482.63 µg/L	482.63 ppb	12:34:22
2	U 367.007†	2321.7	1994.0	466.8 µg/L	466.8 ppb	12:34:02
2	V 292.402†	49990.1	49333.7	490.82 µg/L	490.82 ppb	12:34:02
2	Zn 213.857†	55136.2	53144.5	485.51 µg/L	485.51 ppb	12:34:02
3	Sc RADIAL	21389.8	21389.8	102 %		12:32:59
3	Al 396.153Radial†	16417.6	16276.8	4834.1 µg/L	4834.1 ppb	12:32:59
3	Ca 317.933Radial†	10299.0	10005.8	4744.9 µg/L	4744.9 ppb	12:33:19
3	Fe 238.204 Radial†	9099.4	8892.5	4854.7 µg/L	4854.7 ppb	12:33:19
3	K 766.490 Radial†	11057.4	10156.2	4802.5 µg/L	4802.5 ppb	12:32:59
3	Mg 279.077 IEC†	981.1	952.4	5045.7 µg/L	5045.7 ppb	12:33:19
3	Na 589.592 Radial†	4622.9	4579.7	9532.9 µg/L	9532.9 ppb	12:33:19
3	Sr 421.552†	100498.9	99185.0	484.34 µg/L	484.34 ppb	12:32:59
3	Sc 361.383	727622.3	727622.3	102.11 %		12:34:27
3	Y 371.029	627829.8	627829.8	101.41 %		12:34:27
3	Ag 328.068†	78124.9	76890.8	491.96 µg/L	491.96 ppb	12:34:33
3	As 188.979†	853.7	844.8	474.52 µg/L	474.52 ppb	12:34:53
3	B 249.677†	17298.7	16844.4	477.30 µg/L	477.30 ppb	12:34:33
3	Ba 233.527†	52264.5	51356.0	479.38 µg/L	479.38 ppb	12:34:33
3	Be 313.107†	844387.4	834945.3	483.49 µg/L	483.49 ppb	12:34:27
3	Cd 226.502†	32918.2	32463.7	482.05 µg/L	482.05 ppb	12:34:33
3	Co 228.616†	20367.5	19967.8	484.82 µg/L	484.82 ppb	12:34:33
3	Cr 267.716†	25272.2	24556.7	480.18 µg/L	480.18 ppb	12:34:33
3	Cu 324.752†	125078.9	116012.8	479.05 µg/L	479.05 ppb	12:34:33
3	Mn 257.610†	339912.9	332389.1	474.53 µg/L	474.53 ppb	12:34:33
3	Mo 202.031†	7175.2	7004.9	477.80 µg/L	477.80 ppb	12:34:53
3	Ni 231.604†	17015.1	16792.4	488.39 µg/L	488.39 ppb	12:34:33
3	P 214.914†	3373.7	3179.3	2366.7 µg/L	2366.7 ppb	12:34:53
3	Pb 220.353†	3368.8	3148.4	476.99 µg/L	476.99 ppb	12:34:53
3	S 181.975 Axial†	623.9	549.4	955.12 µg/L	955.12 ppb	12:34:53
3	Sb 206.836†	1576.0	1477.7	472.77 µg/L	472.77 ppb	12:34:53
3	Se 196.026†	662.8	654.4	489.12 µg/L	489.12 ppb	12:34:53
3	SiO2†	45554.3	41663.3	5221.8 µg/L	5221.8 ppb	12:34:33
3	Si 251.611†	52915.3	51640.5	2426.0 µg/L	2426.0 ppb	12:34:33
3	Sn 189.927†	2266.9	2193.3	481.22 µg/L	481.22 ppb	12:34:53
3	Ti 334.940†	195232.8	191208.5	479.20 µg/L	479.20 ppb	12:34:33
3	Tl 190.801†	1363.2	1383.5	475.50 µg/L	475.50 ppb	12:34:53
3	U 367.007†	2305.5	1963.5	459.0 µg/L	459.0 ppb	12:34:33
3	V 292.402†	49714.4	48748.0	484.99 µg/L	484.99 ppb	12:34:33
3	Zn 213.857†	54838.7	52504.9	479.66 µg/L	479.66 ppb	12:34:33

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	724568.2	101.68	%	0.371				0.37%
Sc RADIAL	21625.9	103	%	1.1				1.02%
Y 371.029	625397.4	101.01	%	0.348				0.34%
Ag 328.068†	77436.6	495.43	µg/L	3.339	495.43	ppb	3.339	0.67%
QC value within limits for Ag 328.068 Recovery = 99.09%								
Al 396.153Radial†	16059.9	4769.3	µg/L	58.70	4769.3	ppb	58.70	1.23%
QC value within limits for Al 396.153Radial Recovery = 95.39%								
As 188.979†	850.5	477.73	µg/L	2.972	477.73	ppb	2.972	0.62%
QC value within limits for As 188.979 Recovery = 95.55%								
B 249.677†	16915.3	479.32	µg/L	2.267	479.32	ppb	2.267	0.47%
QC value within limits for B 249.677 Recovery = 95.86%								
Ba 233.527†	51685.8	482.46	µg/L	2.900	482.46	ppb	2.900	0.60%
QC value within limits for Ba 233.527 Recovery = 96.49%								
Be 313.107†	833653.4	482.74	µg/L	1.305	482.74	ppb	1.305	0.27%
QC value within limits for Be 313.107 Recovery = 96.55%								
Ca 317.933Radial†	9875.2	4682.9	µg/L	60.96	4682.9	ppb	60.96	1.30%
QC value within limits for Ca 317.933Radial Recovery = 93.66%								
Cd 226.502†	32609.9	484.24	µg/L	3.032	484.24	ppb	3.032	0.63%
QC value within limits for Cd 226.502 Recovery = 96.85%								
Co 228.616†	20059.6	487.05	µg/L	2.078	487.05	ppb	2.078	0.43%

QC value within limits for Co 228.616 Recovery = 97.41%						
Cr 267.716†	24710.2	483.18 µg/L	3.552	483.18 ppb	3.552	0.74%
QC value within limits for Cr 267.716 Recovery = 96.64%						
Cu 324.752†	116975.9	483.01 µg/L	3.558	483.01 ppb	3.558	0.74%
QC value within limits for Cu 324.752 Recovery = 96.60%						
Fe 238.204 Radial†	8761.0	4783.0 µg/L	70.84	4783.0 ppb	70.84	1.48%
QC value within limits for Fe 238.204 Radial Recovery = 95.66%						
K 766.490 Radial†	9993.9	4725.6 µg/L	66.68	4725.6 ppb	66.68	1.41%
QC value within limits for K 766.490 Radial Recovery = 94.51%						
Mg 279.077 IEC†	932.9	4942.5 µg/L	89.66	4942.5 ppb	89.66	1.81%
QC value within limits for Mg 279.077 IEC Recovery = 98.85%						
Mn 257.610†	334171.8	477.07 µg/L	2.548	477.07 ppb	2.548	0.53%
QC value within limits for Mn 257.610 Recovery = 95.41%						
Mo 202.031†	7060.3	481.57 µg/L	3.307	481.57 ppb	3.307	0.69%
QC value within limits for Mo 202.031 Recovery = 96.31%						
Na 589.592 Radial†	4492.3	9351.0 µg/L	184.91	9351.0 ppb	184.91	1.98%
QC value within limits for Na 589.592 Radial Recovery = 93.51%						
Ni 231.604†	16919.2	492.08 µg/L	3.360	492.08 ppb	3.360	0.68%
QC value within limits for Ni 231.604 Recovery = 98.42%						
P 214.914†	3181.0	2367.9 µg/L	2.68	2367.9 ppb	2.68	0.11%
QC value within limits for P 214.914 Recovery = 94.72%						
Pb 220.353†	3177.2	481.37 µg/L	4.009	481.37 ppb	4.009	0.83%
QC value within limits for Pb 220.353 Recovery = 96.27%						
S 181.975 Axial†	553.6	962.50 µg/L	11.711	962.50 ppb	11.711	1.22%
QC value within limits for S 181.975 Axial Recovery = 96.25%						
Sb 206.836†	1489.0	476.40 µg/L	3.413	476.40 ppb	3.413	0.72%
QC value within limits for Sb 206.836 Recovery = 95.28%						
Se 196.026†	658.9	492.46 µg/L	3.166	492.46 ppb	3.166	0.64%
QC value within limits for Se 196.026 Recovery = 98.49%						
SiO2†	41884.0	5249.5 µg/L	25.14	5249.5 ppb	25.14	0.48%
QC value within limits for SiO2 Recovery = 98.17%						
Si 251.611†	51935.1	2439.8 µg/L	14.47	2439.8 ppb	14.47	0.59%
QC value within limits for Si 251.611 Recovery = 97.59%						
Sn 189.927†	2203.3	483.40 µg/L	1.931	483.40 ppb	1.931	0.40%
QC value within limits for Sn 189.927 Recovery = 96.68%						
Sr 421.552†	97849.9	477.82 µg/L	5.771	477.82 ppb	5.771	1.21%
QC value within limits for Sr 421.552 Recovery = 95.56%						
Ti 334.940†	192361.5	482.08 µg/L	2.733	482.08 ppb	2.733	0.57%
QC value within limits for Ti 334.940 Recovery = 96.42%						
Tl 190.801†	1395.6	479.66 µg/L	3.709	479.66 ppb	3.709	0.77%
QC value within limits for Tl 190.801 Recovery = 95.93%						
U 367.007†	1982.4	464.0 µg/L	4.33	464.0 ppb	4.33	0.93%
QC value within limits for U 367.007 Recovery = 92.79%						
V 292.402†	49052.0	488.03 µg/L	2.920	488.03 ppb	2.920	0.60%
QC value within limits for V 292.402 Recovery = 97.61%						
Zn 213.857†	52817.6	482.52 µg/L	2.931	482.52 ppb	2.931	0.61%
QC value within limits for Zn 213.857 Recovery = 96.50%						

All analyte(s) passed QC.

Sequence No.: 18 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/15/2012 12:35:00**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21609.2	21609.2	103	%			12:35:30
1	Al 396.153Radial†	477.9	637.8	189.72	µg/L	189.72	ppb	12:35:30
1	Ca 317.933Radial†	534.7	423.3	200.75	µg/L	200.75	ppb	12:35:50
1	Fe 238.204 Radial†	225.6	186.6	101.84	µg/L	101.84	ppb	12:35:50
1	K 766.490 Radial†	965.1	247.7	117.21	µg/L	117.21	ppb	12:35:30
1	Mg 279.077 IEC†	60.9	49.2	261.01	µg/L	261.01	ppb	12:35:50
1	Na 589.592 Radial†	66.4	109.8	228.63	µg/L	228.63	ppb	12:35:30
1	Sr 421.552†	472.2	1070.5	5.2266	µg/L	5.2266	ppb	12:35:30
1	Sc 361.383	714170.7	714170.7	100.22	%			12:36:46
1	Y 371.029	620699.5	620699.5	100.25	%			12:36:46
1	Ag 328.068†	414.6	792.8	5.0832	µg/L	5.0832	ppb	12:36:51
1	As 188.979†	34.9	43.6	24.483	µg/L	24.483	ppb	12:37:11
1	B 249.677†	1803.4	1702.4	48.364	µg/L	48.364	ppb	12:36:51
1	Ba 233.527†	384.1	554.0	5.1692	µg/L	5.1692	ppb	12:37:11
1	Be 313.107†	869.7	8862.2	5.1434	µg/L	5.1434	ppb	12:36:51
1	Cd 226.502†	155.0	379.9	5.6337	µg/L	5.6337	ppb	12:37:11
1	Co 228.616†	204.6	225.0	5.4725	µg/L	5.4725	ppb	12:37:11
1	Cr 267.716†	434.8	240.2	4.6493	µg/L	4.6493	ppb	12:37:11
1	Cu 324.752†	8694.5	2192.1	9.0055	µg/L	9.0055	ppb	12:36:51
1	Mn 257.610†	7436.0	6915.0	9.8674	µg/L	9.8674	ppb	12:36:51
1	Mo 202.031†	183.9	161.4	11.011	µg/L	11.011	ppb	12:37:11
1	Ni 231.604†	36.6	165.2	4.8060	µg/L	4.8060	ppb	12:37:11
1	P 214.914†	294.3	168.8	126.27	µg/L	126.27	ppb	12:37:11
1	Pb 220.353†	223.9	72.5	10.929	µg/L	10.929	ppb	12:37:11
1	S 181.975 Axial†	116.0	54.1	94.009	µg/L	94.009	ppb	12:37:11
1	Sb 206.836†	102.7	36.8	11.945	µg/L	11.945	ppb	12:37:11
1	Se 196.026†	33.5	38.7	28.885	µg/L	28.885	ppb	12:37:11
1	SiO2†	4565.7	1605.4	200.91	µg/L	200.91	ppb	12:36:51
1	Si 251.611†	2192.1	2005.2	94.324	µg/L	94.324	ppb	12:37:11
1	Sn 189.927†	76.6	49.6	10.866	µg/L	10.866	ppb	12:37:11
1	Ti 334.940†	1848.7	1851.9	4.6201	µg/L	4.6201	ppb	12:36:51
1	Tl 190.801†	12.9	61.3	21.025	µg/L	21.025	ppb	12:37:11
1	U 367.007†	524.0	228.4	55.55	µg/L	55.55	ppb	12:36:51
1	V 292.402†	397.6	456.9	4.6613	µg/L	4.6613	ppb	12:36:51
1	Zn 213.857†	2272.9	1066.6	9.7761	µg/L	9.7761	ppb	12:37:11
2	Sc RADIAL	21384.6	21384.6	102	%			12:35:55
2	Al 396.153Radial†	463.7	628.8	186.98	µg/L	186.98	ppb	12:35:55
2	Ca 317.933Radial†	531.0	425.2	201.62	µg/L	201.62	ppb	12:36:15
2	Fe 238.204 Radial†	219.0	182.4	99.552	µg/L	99.552	ppb	12:36:15
2	K 766.490 Radial†	957.3	249.9	118.23	µg/L	118.23	ppb	12:35:55
2	Mg 279.077 IEC†	64.8	53.7	284.42	µg/L	284.42	ppb	12:36:15
2	Na 589.592 Radial†	65.2	109.4	227.62	µg/L	227.62	ppb	12:35:55
2	Sr 421.552†	392.6	997.2	4.8687	µg/L	4.8687	ppb	12:35:55
2	Sc 361.383	712783.1	712783.1	100.03	%			12:37:16
2	Y 371.029	619635.6	619635.6	100.08	%			12:37:16
2	Ag 328.068†	474.5	853.5	5.4727	µg/L	5.4727	ppb	12:37:21
2	As 188.979†	35.6	44.4	24.896	µg/L	24.896	ppb	12:37:42
2	B 249.677†	1796.9	1699.5	48.282	µg/L	48.282	ppb	12:37:21
2	Ba 233.527†	380.3	551.0	5.1420	µg/L	5.1420	ppb	12:37:42
2	Be 313.107†	969.9	8964.0	5.2030	µg/L	5.2030	ppb	12:37:21
2	Cd 226.502†	129.9	355.2	5.2662	µg/L	5.2662	ppb	12:37:42
2	Co 228.616†	199.9	220.7	5.3696	µg/L	5.3696	ppb	12:37:42
2	Cr 267.716†	459.3	265.6	5.1435	µg/L	5.1435	ppb	12:37:42
2	Cu 324.752†	8855.5	2370.0	9.7351	µg/L	9.7351	ppb	12:37:21
2	Mn 257.610†	7417.8	6911.3	9.8612	µg/L	9.8612	ppb	12:37:21
2	Mo 202.031†	196.3	174.2	11.882	µg/L	11.882	ppb	12:37:42
2	Ni 231.604†	12.9	141.6	4.1184	µg/L	4.1184	ppb	12:37:42
2	P 214.914†	313.3	188.4	140.94	µg/L	140.94	ppb	12:37:42
2	Pb 220.353†	217.3	66.4	10.006	µg/L	10.006	ppb	12:37:42

2	S 181.975 Axial†	111.4	49.7	86.319 µg/L	86.319 ppb	12:37:42
2	Sb 206.836†	104.3	38.5	12.494 µg/L	12.494 ppb	12:37:42
2	Se 196.026†	33.6	38.9	28.988 µg/L	28.988 ppb	12:37:42
2	SiO2†	4498.3	1546.8	193.70 µg/L	193.70 ppb	12:37:21
2	Si 251.611†	2186.7	2004.1	94.265 µg/L	94.265 ppb	12:37:42
2	Sn 189.927†	71.0	44.3	9.6890 µg/L	9.6890 ppb	12:37:42
2	Ti 334.940†	1836.3	1843.1	4.5964 µg/L	4.5964 ppb	12:37:21
2	Tl 190.801†	18.4	66.8	22.906 µg/L	22.906 ppb	12:37:42
2	U 367.007†	534.3	239.7	58.33 µg/L	58.33 ppb	12:37:21
2	V 292.402†	480.8	540.8	5.4985 µg/L	5.4985 ppb	12:37:21
2	Zn 213.857†	2272.9	1071.0	9.8208 µg/L	9.8208 ppb	12:37:42
3	Sc RADIAL	21428.3	21428.3	102 %		12:36:20
3	Al 396.153Radial†	463.8	627.9	186.73 µg/L	186.73 ppb	12:36:20
3	Ca 317.933Radial†	516.4	409.7	194.30 µg/L	194.30 ppb	12:36:40
3	Fe 238.204 Radial†	222.5	185.4	101.17 µg/L	101.17 ppb	12:36:40
3	K 766.490 Radial†	1005.8	295.5	139.82 µg/L	139.82 ppb	12:36:20
3	Mg 279.077 IEC†	71.7	60.3	319.51 µg/L	319.51 ppb	12:36:40
3	Na 589.592 Radial†	61.2	105.3	219.20 µg/L	219.20 ppb	12:36:20
3	Sr 421.552†	386.3	990.3	4.8350 µg/L	4.8350 ppb	12:36:20
3	Sc 361.383	712263.1	712263.1	99.953 %		12:37:47
3	Y 371.029	618562.1	618562.1	99.909 %		12:37:47
3	Ag 328.068†	329.6	708.9	4.5522 µg/L	4.5522 ppb	12:37:52
3	As 188.979†	39.0	47.8	26.822 µg/L	26.822 ppb	12:38:12
3	B 249.677†	1754.2	1658.0	47.104 µg/L	47.104 ppb	12:37:52
3	Ba 233.527†	383.6	554.5	5.1743 µg/L	5.1743 ppb	12:38:12
3	Be 313.107†	845.9	8840.7	5.1315 µg/L	5.1315 ppb	12:37:52
3	Cd 226.502†	136.8	362.1	5.3693 µg/L	5.3693 ppb	12:38:12
3	Co 228.616†	189.2	210.1	5.1123 µg/L	5.1123 ppb	12:38:12
3	Cr 267.716†	448.7	255.3	4.9427 µg/L	4.9427 ppb	12:38:12
3	Cu 324.752†	8698.4	2219.2	9.1141 µg/L	9.1141 ppb	12:37:52
3	Mn 257.610†	7281.8	6780.6	9.6739 µg/L	9.6739 ppb	12:37:52
3	Mo 202.031†	201.4	179.4	12.235 µg/L	12.235 ppb	12:38:12
3	Ni 231.604†	18.9	147.6	4.2918 µg/L	4.2918 ppb	12:38:12
3	P 214.914†	296.3	171.6	128.34 µg/L	128.34 ppb	12:38:12
3	Pb 220.353†	200.0	49.2	7.4047 µg/L	7.4047 ppb	12:38:12
3	S 181.975 Axial†	114.2	52.6	91.314 µg/L	91.314 ppb	12:38:12
3	Sb 206.836†	97.2	31.6	10.269 µg/L	10.269 ppb	12:38:12
3	Se 196.026†	35.0	40.3	30.040 µg/L	30.040 ppb	12:38:12
3	SiO2†	4538.0	1589.8	199.05 µg/L	199.05 ppb	12:37:52
3	Si 251.611†	2183.2	2002.1	94.169 µg/L	94.169 ppb	12:38:12
3	Sn 189.927†	72.2	45.4	9.9479 µg/L	9.9479 ppb	12:38:12
3	Ti 334.940†	1780.8	1788.9	4.4602 µg/L	4.4602 ppb	12:37:52
3	Tl 190.801†	18.6	67.0	22.959 µg/L	22.959 ppb	12:38:12
3	U 367.007†	534.1	239.9	58.37 µg/L	58.37 ppb	12:37:52
3	V 292.402†	423.1	483.4	4.9389 µg/L	4.9389 ppb	12:37:52
3	Zn 213.857†	2273.7	1073.4	9.8423 µg/L	9.8423 ppb	12:38:12

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	713072.3	100.07	%	0.138				0.14%
Sc RADIAL	21474.0	102	%	0.6				0.55%
Y 371.029	619632.4	100.08	%	0.173				0.17%
Ag 328.068†	785.1	5.0360	µg/L	0.46203	5.0360	ppb	0.46203	9.17%
QC value within limits for Ag 328.068 Recovery = 100.72%								
Al 396.153Radial†	631.5	187.81	µg/L	1.660	187.81	ppb	1.660	0.88%
QC value within limits for Al 396.153Radial Recovery = 93.91%								
As 188.979†	45.3	25.400	µg/L	1.2487	25.400	ppb	1.2487	4.92%
QC value within limits for As 188.979 Recovery = 84.67%								
B 249.677†	1686.6	47.917	µg/L	0.7046	47.917	ppb	0.7046	1.47%
QC value within limits for B 249.677 Recovery = 95.83%								
Ba 233.527†	553.2	5.1618	µg/L	0.01740	5.1618	ppb	0.01740	0.34%
QC value within limits for Ba 233.527 Recovery = 103.24%								
Be 313.107†	8889.0	5.1593	µg/L	0.03830	5.1593	ppb	0.03830	0.74%
QC value within limits for Be 313.107 Recovery = 103.19%								
Ca 317.933Radial†	419.4	198.89	µg/L	3.995	198.89	ppb	3.995	2.01%
QC value within limits for Ca 317.933Radial Recovery = 99.44%								
Cd 226.502†	365.7	5.4231	µg/L	0.18960	5.4231	ppb	0.18960	3.50%
QC value within limits for Cd 226.502 Recovery = 108.46%								
Co 228.616†	218.6	5.3182	µg/L	0.18553	5.3182	ppb	0.18553	3.49%

QC value within limits for Co 228.616 Recovery = 106.36%

Cr 267.716†	253.7	4.9118 µg/L	0.24855	4.9118 ppb	0.24855	5.06%
QC value within limits for Cr 267.716 Recovery = 98.24%						
Cu 324.752†	2260.4	9.2849 µg/L	0.39365	9.2849 ppb	0.39365	4.24%
QC value within limits for Cu 324.752 Recovery = 92.85%						
Fe 238.204 Radial†	184.8	100.85 µg/L	1.176	100.85 ppb	1.176	1.17%
QC value within limits for Fe 238.204 Radial Recovery = 100.85%						
K 766.490 Radial†	264.4	125.09 µg/L	12.769	125.09 ppb	12.769	10.21%
QC value within limits for K 766.490 Radial Recovery = 83.39%						
Mg 279.077 IEC†	54.4	288.32 µg/L	29.446	288.32 ppb	29.446	10.21%
QC value within limits for Mg 279.077 IEC Recovery = 96.11%						
Mn 257.610†	6869.0	9.8008 µg/L	0.10996	9.8008 ppb	0.10996	1.12%
QC value within limits for Mn 257.610 Recovery = 98.01%						
Mo 202.031†	171.7	11.709 µg/L	0.6301	11.709 ppb	0.6301	5.38%
QC value within limits for Mo 202.031 Recovery = 117.09%						
Na 589.592 Radial†	108.2	225.15 µg/L	5.180	225.15 ppb	5.180	2.30%
QC value within limits for Na 589.592 Radial Recovery = 75.05%						
Ni 231.604†	151.5	4.4054 µg/L	0.35758	4.4054 ppb	0.35758	8.12%
QC value within limits for Ni 231.604 Recovery = 88.11%						
P 214.914†	176.3	131.85 µg/L	7.939	131.85 ppb	7.939	6.02%
QC value within limits for P 214.914 Recovery = 87.90%						
Pb 220.353†	62.7	9.4465 µg/L	1.82755	9.4465 ppb	1.82755	19.35%
QC value within limits for Pb 220.353 Recovery = 94.46%						
S 181.975 Axial†	52.1	90.547 µg/L	3.9020	90.547 ppb	3.9020	4.31%
QC value within limits for S 181.975 Axial Recovery = 90.55%						
Sb 206.836†	35.6	11.569 µg/L	1.1589	11.569 ppb	1.1589	10.02%
QC value within limits for Sb 206.836 Recovery = 115.69%						
Se 196.026†	39.3	29.304 µg/L	0.6391	29.304 ppb	0.6391	2.18%
QC value within limits for Se 196.026 Recovery = 97.68%						
SiO2†	1580.7	197.89 µg/L	3.747	197.89 ppb	3.747	1.89%
QC value within limits for SiO2 Recovery = 92.90%						
Si 251.611†	2003.8	94.253 µg/L	0.0787	94.253 ppb	0.0787	0.08%
QC value within limits for Si 251.611 Recovery = 94.25%						
Sn 189.927†	46.4	10.168 µg/L	0.6185	10.168 ppb	0.6185	6.08%
QC value within limits for Sn 189.927 Recovery = 101.68%						
Sr 421.552†	1019.3	4.9768 µg/L	0.21705	4.9768 ppb	0.21705	4.36%
QC value within limits for Sr 421.552 Recovery = 99.54%						
Ti 334.940†	1827.9	4.5589 µg/L	0.08631	4.5589 ppb	0.08631	1.89%
QC value within limits for Ti 334.940 Recovery = 91.18%						
Tl 190.801†	65.1	22.297 µg/L	1.1018	22.297 ppb	1.1018	4.94%
QC value within limits for Tl 190.801 Recovery = 111.48%						
U 367.007†	236.0	57.42 µg/L	1.614	57.42 ppb	1.614	2.81%
QC value within limits for U 367.007 Recovery = 114.83%						
V 292.402†	493.7	5.0329 µg/L	0.42646	5.0329 ppb	0.42646	8.47%
QC value within limits for V 292.402 Recovery = 100.66%						
Zn 213.857†	1070.4	9.8131 µg/L	0.03375	9.8131 ppb	0.03375	0.34%
QC value within limits for Zn 213.857 Recovery = 98.13%						

All analyte(s) passed QC.

Sequence No.: 19 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 12:38:20**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21363.3	21363.3	102	%			12:38:49
1	Al 396.153Radial†	-196.1	-18.8	-5.6245	µg/L	-5.6245	ppb	12:38:49
1	Ca 317.933Radial†	100.5	2.9	1.3789	µg/L	1.3789	ppb	12:39:09
1	Fe 238.204 Radial†	32.0	-1.0	-0.5430	µg/L	-0.5430	ppb	12:39:09
1	K 766.490 Radial†	597.3	-102.7	-48.599	µg/L	-48.599	ppb	12:38:49
1	Mg 279.077 IEC†	7.8	-2.2	-11.559	µg/L	-11.559	ppb	12:39:09
1	Na 589.592 Radial†	-90.6	-43.6	-90.801	µg/L	-90.801	ppb	12:38:49
1	Sr 421.552†	-601.0	21.8	0.1065	µg/L	0.1065	ppb	12:38:49
1	Sc 361.383	712894.2	712894.2	100.04	%			12:40:05
1	Y 371.029	620184.6	620184.6	100.17	%			12:40:05
1	Ag 328.068†	-385.8	-6.5	-0.0446	µg/L	-0.0446	ppb	12:40:11
1	As 188.979†	-8.0	0.8	0.4453	µg/L	0.4453	ppb	12:40:31
1	B 249.677†	107.4	10.3	0.2922	µg/L	0.2922	ppb	12:40:31
1	Ba 233.527†	-164.7	6.1	0.0566	µg/L	0.0566	ppb	12:40:31
1	Be 313.107†	-7620.2	377.4	0.2203	µg/L	0.2203	ppb	12:40:11
1	Cd 226.502†	-202.9	22.4	0.3334	µg/L	0.3334	ppb	12:40:31
1	Co 228.616†	-15.8	5.0	0.1245	µg/L	0.1245	ppb	12:40:31
1	Cr 267.716†	175.8	-17.9	-0.3591	µg/L	-0.3591	ppb	12:40:31
1	Cu 324.752†	6339.6	-146.3	-0.6102	µg/L	-0.6102	ppb	12:40:11
1	Mn 257.610†	459.0	-45.9	-0.0651	µg/L	-0.0651	ppb	12:40:31
1	Mo 202.031†	33.5	11.4	0.7805	µg/L	0.7805	ppb	12:40:31
1	Ni 231.604†	-155.2	-26.5	-0.7701	µg/L	-0.7701	ppb	12:40:31
1	P 214.914†	108.4	-16.5	-12.348	µg/L	-12.348	ppb	12:40:31
1	Pb 220.353†	148.8	-2.2	-0.3273	µg/L	-0.3273	ppb	12:40:31
1	S 181.975 Axial†	57.7	-4.0	-6.9063	µg/L	-6.9063	ppb	12:40:31
1	Sb 206.836†	68.4	2.7	0.8892	µg/L	0.8892	ppb	12:40:31
1	Se 196.026†	-0.8	4.6	3.3973	µg/L	3.3973	ppb	12:40:31
1	SiO2†	2898.8	-52.7	-6.4624	µg/L	-6.4624	ppb	12:40:11
1	Si 251.611†	187.3	5.2	0.2333	µg/L	0.2333	ppb	12:40:31
1	Sn 189.927†	28.6	1.8	0.3921	µg/L	0.3921	ppb	12:40:31
1	Ti 334.940†	-186.0	-178.7	-0.4520	µg/L	-0.4520	ppb	12:40:11
1	Tl 190.801†	-42.8	5.6	1.9195	µg/L	1.9195	ppb	12:40:31
1	U 367.007†	331.4	36.8	9.028	µg/L	9.028	ppb	12:40:11
1	V 292.402†	-109.8	-49.5	-0.4705	µg/L	-0.4705	ppb	12:40:11
1	Zn 213.857†	1202.8	1.0	0.0143	µg/L	0.0143	ppb	12:40:31
2	Sc RADIAL	21375.9	21375.9	102	%			12:39:14
2	Al 396.153Radial†	-165.6	11.2	3.3277	µg/L	3.3277	ppb	12:39:14
2	Ca 317.933Radial†	98.4	0.8	0.3720	µg/L	0.3720	ppb	12:39:34
2	Fe 238.204 Radial†	37.8	4.6	2.5350	µg/L	2.5350	ppb	12:39:34
2	K 766.490 Radial†	695.5	-6.7	-3.1537	µg/L	-3.1537	ppb	12:39:14
2	Mg 279.077 IEC†	5.8	-4.2	-22.040	µg/L	-22.040	ppb	12:39:34
2	Na 589.592 Radial†	-76.6	-29.8	-62.073	µg/L	-62.073	ppb	12:39:14
2	Sr 421.552†	-626.4	-2.8	-0.0136	µg/L	-0.0136	ppb	12:39:14
2	Sc 361.383	706995.7	706995.7	99.214	%			12:40:36
2	Y 371.029	614675.2	614675.2	99.281	%			12:40:36
2	Ag 328.068†	-364.3	12.0	0.0753	µg/L	0.0753	ppb	12:40:41
2	As 188.979†	-15.7	-7.1	-3.9803	µg/L	-3.9803	ppb	12:41:01
2	B 249.677†	107.8	11.7	0.3301	µg/L	0.3301	ppb	12:41:01
2	Ba 233.527†	-167.3	2.2	0.0203	µg/L	0.0203	ppb	12:41:01
2	Be 313.107†	-7604.0	330.1	0.1919	µg/L	0.1919	ppb	12:40:41
2	Cd 226.502†	-191.2	32.5	0.4830	µg/L	0.4830	ppb	12:41:01
2	Co 228.616†	-6.4	14.4	0.3507	µg/L	0.3507	ppb	12:41:01
2	Cr 267.716†	193.6	1.5	0.0254	µg/L	0.0254	ppb	12:41:01
2	Cu 324.752†	6281.9	-151.6	-0.6263	µg/L	-0.6263	ppb	12:40:41
2	Mn 257.610†	441.8	-59.3	-0.0838	µg/L	-0.0838	ppb	12:41:01
2	Mo 202.031†	31.0	9.2	0.6281	µg/L	0.6281	ppb	12:41:01
2	Ni 231.604†	-127.8	-0.1	-0.0032	µg/L	-0.0032	ppb	12:41:01
2	P 214.914†	107.2	-16.8	-12.598	µg/L	-12.598	ppb	12:41:01
2	Pb 220.353†	129.2	-20.7	-3.1302	µg/L	-3.1302	ppb	12:41:01

2	S 181.975 Axial†	58.5	-2.7	-4.7372 µg/L	-4.7372 ppb	12:41:01
2	Sb 206.836†	63.8	-1.4	-0.4280 µg/L	-0.4280 ppb	12:41:01
2	Se 196.026†	-9.6	-4.3	-3.1974 µg/L	-3.1974 ppb	12:41:01
2	SiO2†	2860.8	-66.9	-8.2937 µg/L	-8.2937 ppb	12:40:41
2	Si 251.611†	194.3	13.8	0.6328 µg/L	0.6328 ppb	12:41:01
2	Sn 189.927†	37.4	10.9	2.3834 µg/L	2.3834 ppb	12:41:01
2	Ti 334.940†	-116.9	-110.6	-0.2786 µg/L	-0.2786 ppb	12:40:41
2	Tl 190.801†	-46.4	1.6	0.5518 µg/L	0.5518 ppb	12:41:01
2	U 367.007†	304.9	12.9	3.154 µg/L	3.154 ppb	12:40:41
2	V 292.402†	-81.4	-21.9	-0.2047 µg/L	-0.2047 ppb	12:40:41
2	Zn 213.857†	1205.9	14.2	0.1308 µg/L	0.1308 ppb	12:41:01
3	Sc RADIAL	21074.0	21074.0	100 %		12:39:39
3	Al 396.153Radial†	-174.2	0.4	0.1215 µg/L	0.1215 ppb	12:39:39
3	Ca 317.933Radial†	100.6	4.3	2.0551 µg/L	2.0551 ppb	12:39:59
3	Fe 238.204 Radial†	29.1	-3.5	-1.8837 µg/L	-1.8837 ppb	12:39:59
3	K 766.490 Radial†	716.6	24.1	11.422 µg/L	11.422 ppb	12:39:39
3	Mg 279.077 IEC†	6.1	-3.8	-19.985 µg/L	-19.985 ppb	12:39:59
3	Na 589.592 Radial†	-71.3	-25.6	-53.299 µg/L	-53.299 ppb	12:39:39
3	Sr 421.552†	-605.1	9.6	0.0471 µg/L	0.0471 ppb	12:39:39
3	Sc 361.383	708490.7	708490.7	99.424 %		12:41:06
3	Y 371.029	615558.2	615558.2	99.424 %		12:41:06
3	Ag 328.068†	-386.0	-9.1	-0.0574 µg/L	-0.0574 ppb	12:41:11
3	As 188.979†	-4.8	4.0	2.2502 µg/L	2.2502 ppb	12:41:31
3	B 249.677†	105.2	8.8	0.2493 µg/L	0.2493 ppb	12:41:31
3	Ba 233.527†	-153.3	16.6	0.1550 µg/L	0.1550 ppb	12:41:31
3	Be 313.107†	-7750.7	198.7	0.1173 µg/L	0.1173 ppb	12:41:11
3	Cd 226.502†	-212.1	11.9	0.1770 µg/L	0.1770 ppb	12:41:31
3	Co 228.616†	4.3	25.2	0.6124 µg/L	0.6124 ppb	12:41:31
3	Cr 267.716†	191.4	-1.1	-0.0322 µg/L	-0.0322 ppb	12:41:31
3	Cu 324.752†	6400.5	-45.6	-0.1964 µg/L	-0.1964 ppb	12:41:11
3	Mn 257.610†	451.4	-50.6	-0.0717 µg/L	-0.0717 ppb	12:41:31
3	Mo 202.031†	26.3	4.3	0.2953 µg/L	0.2953 ppb	12:41:31
3	Ni 231.604†	-161.3	-33.5	-0.9761 µg/L	-0.9761 ppb	12:41:31
3	P 214.914†	112.5	-11.6	-8.7218 µg/L	-8.7218 ppb	12:41:31
3	Pb 220.353†	147.4	-2.6	-0.4042 µg/L	-0.4042 ppb	12:41:31
3	S 181.975 Axial†	56.2	-5.1	-8.8686 µg/L	-8.8686 ppb	12:41:31
3	Sb 206.836†	72.3	7.0	2.2683 µg/L	2.2683 ppb	12:41:31
3	Se 196.026†	5.5	10.8	8.0357 µg/L	8.0357 ppb	12:41:31
3	SiO2†	2923.3	-10.0	-1.1175 µg/L	-1.1175 ppb	12:41:11
3	Si 251.611†	202.6	21.7	1.0175 µg/L	1.0175 ppb	12:41:31
3	Sn 189.927†	28.6	2.0	0.4239 µg/L	0.4239 ppb	12:41:31
3	Ti 334.940†	-127.5	-121.0	-0.3080 µg/L	-0.3080 ppb	12:41:11
3	Tl 190.801†	-47.5	0.7	0.2391 µg/L	0.2391 ppb	12:41:31
3	U 367.007†	336.2	43.8	10.74 µg/L	10.74 ppb	12:41:11
3	V 292.402†	-41.4	18.5	0.1942 µg/L	0.1942 ppb	12:41:11
3	Zn 213.857†	1189.6	-4.9	-0.0380 µg/L	-0.0380 ppb	12:41:31

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	709460.2	99.560	%	0.4303				0.43%
Sc RADIAL	21271.1	101	%	0.8				0.80%
Y 371.029	616806.0	99.625	%	0.4779				0.48%
Ag 328.068†	-1.2	-0.0089	µg/L	0.07320	-0.0089	ppb	0.07320	824.60%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-2.4	-0.7251	µg/L	4.53576	-0.7251	ppb	4.53576	625.52%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-0.8	-0.4283	µg/L	3.20583	-0.4283	ppb	3.20583	748.59%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	10.3	0.2905	µg/L	0.04046	0.2905	ppb	0.04046	13.93%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	8.3	0.0773	µg/L	0.06969	0.0773	ppb	0.06969	90.18%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	302.1	0.1765	µg/L	0.05321	0.1765	ppb	0.05321	30.15%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	2.7	1.2686	µg/L	0.84695	1.2686	ppb	0.84695	66.76%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	22.3	0.3311	µg/L	0.15299	0.3311	ppb	0.15299	46.20%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	14.9	0.3625	µg/L	0.24414	0.3625	ppb	0.24414	67.34%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -5.8     -0.1219 µg/L       0.20737     -0.1219 ppb        0.20737 170.05%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†            -114.5     -0.4776 µg/L       0.24367     -0.4776 ppb        0.24367  51.01%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        0.1      0.0361 µg/L       2.26553      0.0361 ppb        2.26553 >999.9%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        -28.4     -13.443 µg/L       31.3055     -13.443 ppb        31.3055 232.87%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           -3.4     -17.861 µg/L        5.5539     -17.861 ppb         5.5539  31.09%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -51.9     -0.0735 µg/L       0.00945     -0.0735 ppb        0.00945  12.85%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               8.3      0.5680 µg/L       0.24815      0.5680 ppb        0.24815  43.69%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -33.0     -68.724 µg/L       19.6160     -68.724 ppb        19.6160  28.54%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -20.0     -0.5831 µg/L       0.51266     -0.5831 ppb        0.51266  87.91%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -15.0     -11.223 µg/L        2.1695     -11.223 ppb         2.1695  19.33%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               -8.5     -1.2872 µg/L       1.59655     -1.2872 ppb        1.59655 124.03%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -3.9     -6.8374 µg/L       2.06658     -6.8374 ppb        2.06658  30.22%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               2.8      0.9098 µg/L       1.34828      0.9098 ppb        1.34828 148.19%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               3.7      2.7452 µg/L       5.64488      2.7452 ppb        5.64488 205.63%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    -43.2     -5.2912 µg/L       3.72866     -5.2912 ppb        3.72866  70.47%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               13.6      0.6279 µg/L       0.39217      0.6279 ppb        0.39217  62.46%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               4.9      1.0665 µg/L       1.14060      1.0665 ppb        1.14060 106.95%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               9.6      0.0467 µg/L       0.06002      0.0467 ppb        0.06002 128.63%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†            -136.8     -0.3462 µg/L       0.09281     -0.3462 ppb        0.09281  26.81%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               2.6      0.9035 µg/L       0.89370      0.9035 ppb        0.89370  98.92%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                31.2       7.642 µg/L        3.9798       7.642 ppb         3.9798  52.08%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -17.6     -0.1603 µg/L       0.33456     -0.1603 ppb        0.33456 208.70%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†               3.4      0.0357 µg/L       0.08641      0.0357 ppb        0.08641 242.26%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 2 **Autosampler Location:** 7
Sample ID: CCV **Date Collected:** 6/15/2012 13:21:04
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21283.0	21283.0	101	%			13:21:34
1	Al 396.153Radial†	16479.2	16418.3	4875.8	µg/L	4875.8	ppb	13:21:34
1	Ca 317.933Radial†	10479.4	10234.3	4853.2	µg/L	4853.2	ppb	13:21:54
1	Fe 238.204 Radial†	9178.3	9015.2	4921.7	µg/L	4921.7	ppb	13:21:54
1	K 766.490 Radial†	13254.4	12376.4	5853.2	µg/L	5853.2	ppb	13:21:34
1	Mg 279.077 IEC†	991.1	967.1	5123.1	µg/L	5123.1	ppb	13:21:54
1	Na 589.592 Radial†	4714.1	4692.4	9767.4	µg/L	9767.4	ppb	13:21:54
1	Sr 421.552†	100642.0	99820.7	487.45	µg/L	487.45	ppb	13:21:34
1	Sc 361.383	729385.4	729385.4	102.36	%			13:22:51
1	Y 371.029	629854.5	629854.5	101.73	%			13:22:51
1	Ag 328.068†	78979.2	77540.5	496.16	µg/L	496.16	ppb	13:22:57
1	As 188.979†	884.8	873.2	490.47	µg/L	490.47	ppb	13:23:17
1	B 249.677†	17460.9	16962.0	480.62	µg/L	480.62	ppb	13:22:57
1	Ba 233.527†	53512.6	52451.7	489.60	µg/L	489.60	ppb	13:22:57
1	Be 313.107†	866129.0	854187.4	494.64	µg/L	494.64	ppb	13:22:51
1	Cd 226.502†	33826.2	33272.9	494.07	µg/L	494.07	ppb	13:22:57
1	Co 228.616†	20791.9	20334.2	493.73	µg/L	493.73	ppb	13:22:57
1	Cr 267.716†	25868.1	25079.1	490.39	µg/L	490.39	ppb	13:22:57
1	Cu 324.752†	126189.1	116801.3	482.32	µg/L	482.32	ppb	13:22:57
1	Mn 257.610†	346732.4	338246.9	482.89	µg/L	482.89	ppb	13:22:57
1	Mo 202.031†	7392.5	7200.3	491.12	µg/L	491.12	ppb	13:23:17
1	Ni 231.604†	17393.8	17122.2	497.98	µg/L	497.98	ppb	13:22:57
1	P 214.914†	3543.4	3337.0	2484.8	µg/L	2484.8	ppb	13:23:17
1	Pb 220.353†	3496.5	3265.1	494.71	µg/L	494.71	ppb	13:23:17
1	S 181.975 Axial†	646.6	570.0	991.01	µg/L	991.01	ppb	13:23:17
1	Sb 206.836†	1609.1	1506.4	481.99	µg/L	481.99	ppb	13:23:17
1	Se 196.026†	687.4	676.9	505.87	µg/L	505.87	ppb	13:23:17
1	SiO2†	46320.1	42303.7	5302.3	µg/L	5302.3	ppb	13:22:57
1	Si 251.611†	53879.8	52457.5	2464.3	µg/L	2464.3	ppb	13:22:57
1	Sn 189.927†	2346.3	2265.5	497.02	µg/L	497.02	ppb	13:23:17
1	Ti 334.940†	198513.1	193951.1	486.07	µg/L	486.07	ppb	13:22:57
1	Tl 190.801†	1394.3	1410.6	484.83	µg/L	484.83	ppb	13:23:17
1	U 367.007†	2352.2	2003.6	468.5	µg/L	468.5	ppb	13:22:57
1	V 292.402†	50727.8	49620.4	493.73	µg/L	493.73	ppb	13:22:57
1	Zn 213.857†	55900.7	53412.7	487.95	µg/L	487.95	ppb	13:22:57
2	Sc RADIAL	21403.5	21403.5	102	%			13:22:00
2	Al 396.153Radial†	16506.3	16353.4	4856.6	µg/L	4856.6	ppb	13:22:00
2	Ca 317.933Radial†	10459.0	10156.2	4816.2	µg/L	4816.2	ppb	13:22:20
2	Fe 238.204 Radial†	9118.1	8905.2	4861.7	µg/L	4861.7	ppb	13:22:20
2	K 766.490 Radial†	12809.1	11866.2	5611.7	µg/L	5611.7	ppb	13:22:00
2	Mg 279.077 IEC†	985.0	955.6	5062.5	µg/L	5062.5	ppb	13:22:20
2	Na 589.592 Radial†	4671.8	4624.7	9626.6	µg/L	9626.6	ppb	13:22:20
2	Sr 421.552†	100682.8	99301.9	484.91	µg/L	484.91	ppb	13:22:00
2	Sc 361.383	732430.6	732430.6	102.78	%			13:23:22
2	Y 371.029	631916.4	631916.4	102.07	%			13:23:22
2	Ag 328.068†	79264.2	77496.9	495.85	µg/L	495.85	ppb	13:23:28
2	As 188.979†	876.3	861.4	483.81	µg/L	483.81	ppb	13:23:48
2	B 249.677†	17501.8	16930.9	479.74	µg/L	479.74	ppb	13:23:28
2	Ba 233.527†	53514.0	52235.7	487.59	µg/L	487.59	ppb	13:23:28
2	Be 313.107†	858765.6	843505.2	488.45	µg/L	488.45	ppb	13:23:22
2	Cd 226.502†	33727.5	33039.4	490.61	µg/L	490.61	ppb	13:23:28
2	Co 228.616†	20777.9	20236.1	491.35	µg/L	491.35	ppb	13:23:28
2	Cr 267.716†	25780.2	24888.4	486.66	µg/L	486.66	ppb	13:23:28
2	Cu 324.752†	126723.0	116808.2	482.33	µg/L	482.33	ppb	13:23:28
2	Mn 257.610†	346272.5	336391.0	480.24	µg/L	480.24	ppb	13:23:28
2	Mo 202.031†	7341.3	7120.4	485.67	µg/L	485.67	ppb	13:23:48
2	Ni 231.604†	17396.5	17054.1	496.00	µg/L	496.00	ppb	13:23:28
2	P 214.914†	3503.6	3283.9	2445.1	µg/L	2445.1	ppb	13:23:48
2	Pb 220.353†	3452.4	3208.1	486.05	µg/L	486.05	ppb	13:23:48

2	S 181.975 Axial†	642.6	563.5	979.67 µg/L	979.67 ppb	13:23:48
2	Sb 206.836†	1605.5	1496.3	478.73 µg/L	478.73 ppb	13:23:48
2	Se 196.026†	683.2	670.1	500.77 µg/L	500.77 ppb	13:23:48
2	SiO2†	46334.6	42129.6	5280.3 µg/L	5280.3 ppb	13:23:28
2	Si 251.611†	53984.7	52340.8	2458.9 µg/L	2458.9 ppb	13:23:28
2	Sn 189.927†	2328.4	2238.6	491.14 µg/L	491.14 ppb	13:23:48
2	Ti 334.940†	198380.5	193015.7	483.72 µg/L	483.72 ppb	13:23:28
2	Tl 190.801†	1379.1	1390.2	477.82 µg/L	477.82 ppb	13:23:48
2	U 367.007†	2361.2	2002.9	468.6 µg/L	468.6 ppb	13:23:28
2	V 292.402†	50629.3	49318.5	490.70 µg/L	490.70 ppb	13:23:28
2	Zn 213.857†	55997.1	53279.4	486.74 µg/L	486.74 ppb	13:23:28
3	Sc RADIAL	21500.2	21500.2	102 %		13:22:25
3	Al 396.153Radial†	16571.2	16343.9	4853.8 µg/L	4853.8 ppb	13:22:25
3	Ca 317.933Radial†	10547.4	10196.3	4835.2 µg/L	4835.2 ppb	13:22:45
3	Fe 238.204 Radial†	9191.8	8936.9	4879.0 µg/L	4879.0 ppb	13:22:45
3	K 766.490 Radial†	12753.6	11755.6	5559.3 µg/L	5559.3 ppb	13:22:25
3	Mg 279.077 IEC†	984.8	951.1	5038.7 µg/L	5038.7 ppb	13:22:45
3	Na 589.592 Radial†	4644.3	4577.3	9527.9 µg/L	9527.9 ppb	13:22:45
3	Sr 421.552†	100788.4	98961.0	483.25 µg/L	483.25 ppb	13:22:25
3	Sc 361.383	730642.2	730642.2	102.53 %		13:23:53
3	Y 371.029	630913.6	630913.6	101.90 %		13:23:53
3	Ag 328.068†	79357.0	77776.2	497.64 µg/L	497.64 ppb	13:23:58
3	As 188.979†	884.2	871.1	489.31 µg/L	489.31 ppb	13:24:18
3	B 249.677†	17529.2	16999.2	481.69 µg/L	481.69 ppb	13:23:58
3	Ba 233.527†	53661.0	52506.5	490.12 µg/L	490.12 ppb	13:23:58
3	Be 313.107†	855494.3	842359.8	487.79 µg/L	487.79 ppb	13:23:53
3	Cd 226.502†	33827.2	33217.0	493.25 µg/L	493.25 ppb	13:23:58
3	Co 228.616†	20801.3	20308.3	493.09 µg/L	493.09 ppb	13:23:58
3	Cr 267.716†	25957.7	25123.0	491.24 µg/L	491.24 ppb	13:23:58
3	Cu 324.752†	126628.3	117017.6	483.20 µg/L	483.20 ppb	13:23:58
3	Mn 257.610†	346748.1	337679.5	482.08 µg/L	482.08 ppb	13:23:58
3	Mo 202.031†	7326.6	7123.6	485.89 µg/L	485.89 ppb	13:24:18
3	Ni 231.604†	17424.5	17122.8	498.00 µg/L	498.00 ppb	13:23:58
3	P 214.914†	3500.5	3289.2	2449.0 µg/L	2449.0 ppb	13:24:18
3	Pb 220.353†	3454.2	3218.0	487.56 µg/L	487.56 ppb	13:24:18
3	S 181.975 Axial†	640.5	563.0	978.73 µg/L	978.73 ppb	13:24:18
3	Sb 206.836†	1603.1	1497.8	479.14 µg/L	479.14 ppb	13:24:18
3	Se 196.026†	678.8	667.4	498.79 µg/L	498.79 ppb	13:24:18
3	SiO2†	46382.5	42286.6	5300.2 µg/L	5300.2 ppb	13:23:58
3	Si 251.611†	53895.8	52382.7	2460.8 µg/L	2460.8 ppb	13:23:58
3	Sn 189.927†	2327.5	2243.2	492.15 µg/L	492.15 ppb	13:24:18
3	Ti 334.940†	198908.1	194002.7	486.20 µg/L	486.20 ppb	13:23:58
3	Tl 190.801†	1384.4	1398.7	480.73 µg/L	480.73 ppb	13:24:18
3	U 367.007†	2369.6	2016.6	471.9 µg/L	471.9 ppb	13:23:58
3	V 292.402†	50828.0	49632.8	493.80 µg/L	493.80 ppb	13:23:58
3	Zn 213.857†	55870.5	53289.4	486.82 µg/L	486.82 ppb	13:23:58

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	730819.4	102.56	%	0.215				0.21%
Sc RADIAL	21395.6	102	%	0.5				0.51%
Y 371.029	630894.8	101.90	%	0.167				0.16%
Ag 328.068†	77604.5	496.55	µg/L	0.960	496.55	ppb	0.960	0.19%
QC value within limits for Ag 328.068 Recovery = 99.31%								
Al 396.153Radial†	16371.9	4862.1	µg/L	11.96	4862.1	ppb	11.96	0.25%
QC value within limits for Al 396.153Radial Recovery = 97.24%								
As 188.979†	868.6	487.86	µg/L	3.556	487.86	ppb	3.556	0.73%
QC value within limits for As 188.979 Recovery = 97.57%								
B 249.677†	16964.0	480.68	µg/L	0.973	480.68	ppb	0.973	0.20%
QC value within limits for B 249.677 Recovery = 96.14%								
Ba 233.527†	52397.9	489.10	µg/L	1.337	489.10	ppb	1.337	0.27%
QC value within limits for Ba 233.527 Recovery = 97.82%								
Be 313.107†	846684.1	490.29	µg/L	3.776	490.29	ppb	3.776	0.77%
QC value within limits for Be 313.107 Recovery = 98.06%								
Ca 317.933Radial†	10195.6	4834.9	µg/L	18.54	4834.9	ppb	18.54	0.38%
QC value within limits for Ca 317.933Radial Recovery = 96.70%								
Cd 226.502†	33176.4	492.65	µg/L	1.808	492.65	ppb	1.808	0.37%
QC value within limits for Cd 226.502 Recovery = 98.53%								
Co 228.616†	20292.9	492.72	µg/L	1.235	492.72	ppb	1.235	0.25%

QC value within limits for Co 228.616 Recovery = 98.54%

Cr 267.716†	25030.2	489.43 µg/L	2.439	489.43 ppb	2.439	0.50%

QC value within limits for Cr 267.716 Recovery = 97.89%

Cu 324.752†	116875.7	482.62 µg/L	0.505	482.62 ppb	0.505	0.10%

QC value within limits for Cu 324.752 Recovery = 96.52%

Fe 238.204 Radial†	8952.4	4887.4 µg/L	30.87	4887.4 ppb	30.87	0.63%

QC value within limits for Fe 238.204 Radial Recovery = 97.75%

K 766.490 Radial†	11999.4	5674.7 µg/L	156.73	5674.7 ppb	156.73	2.76%

QC value greater than the upper limit for K 766.490 Radial Recovery = 113.49%

Mg 279.077 IEC†	957.9	5074.8 µg/L	43.54	5074.8 ppb	43.54	0.86%

QC value within limits for Mg 279.077 IEC Recovery = 101.50%

Mn 257.610†	337439.2	481.74 µg/L	1.359	481.74 ppb	1.359	0.28%

QC value within limits for Mn 257.610 Recovery = 96.35%

Mo 202.031†	7148.1	487.56 µg/L	3.084	487.56 ppb	3.084	0.63%

QC value within limits for Mo 202.031 Recovery = 97.51%

Na 589.592 Radial†	4631.4	9640.6 µg/L	120.40	9640.6 ppb	120.40	1.25%

QC value within limits for Na 589.592 Radial Recovery = 96.41%

Ni 231.604†	17099.7	497.33 µg/L	1.149	497.33 ppb	1.149	0.23%

QC value within limits for Ni 231.604 Recovery = 99.47%

P 214.914†	3303.4	2459.6 µg/L	21.88	2459.6 ppb	21.88	0.89%

QC value within limits for P 214.914 Recovery = 98.39%

Pb 220.353†	3230.4	489.44 µg/L	4.626	489.44 ppb	4.626	0.95%

QC value within limits for Pb 220.353 Recovery = 97.89%

S 181.975 Axial†	565.5	983.14 µg/L	6.833	983.14 ppb	6.833	0.70%

QC value within limits for S 181.975 Axial Recovery = 98.31%

Sb 206.836†	1500.1	479.95 µg/L	1.773	479.95 ppb	1.773	0.37%

QC value within limits for Sb 206.836 Recovery = 95.99%

Se 196.026†	671.4	501.81 µg/L	3.653	501.81 ppb	3.653	0.73%

QC value within limits for Se 196.026 Recovery = 100.36%

SiO2†	42240.0	5294.2 µg/L	12.09	5294.2 ppb	12.09	0.23%

QC value within limits for SiO2 Recovery = 99.00%

Si 251.611†	52393.7	2461.3 µg/L	2.74	2461.3 ppb	2.74	0.11%

QC value within limits for Si 251.611 Recovery = 98.45%

Sn 189.927†	2249.1	493.44 µg/L	3.145	493.44 ppb	3.145	0.64%

QC value within limits for Sn 189.927 Recovery = 98.69%

Sr 421.552†	99361.2	485.20 µg/L	2.114	485.20 ppb	2.114	0.44%

QC value within limits for Sr 421.552 Recovery = 97.04%

Ti 334.940†	193656.5	485.33 µg/L	1.392	485.33 ppb	1.392	0.29%

QC value within limits for Ti 334.940 Recovery = 97.07%

Tl 190.801†	1399.8	481.13 µg/L	3.517	481.13 ppb	3.517	0.73%

QC value within limits for Tl 190.801 Recovery = 96.23%

U 367.007†	2007.7	469.7 µg/L	1.94	469.7 ppb	1.94	0.41%

QC value within limits for U 367.007 Recovery = 93.94%

V 292.402†	49523.9	492.74 µg/L	1.770	492.74 ppb	1.770	0.36%

QC value within limits for V 292.402 Recovery = 98.55%

Zn 213.857†	53327.2	487.17 µg/L	0.676	487.17 ppb	0.676	0.14%

QC value within limits for Zn 213.857 Recovery = 97.43%

QC Failed. Continue with analysis.

Sequence No.: 3 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/15/2012 13:24:26**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21280.2	21280.2	101	%			13:24:55
1	Al 396.153Radial†	495.7	662.6	197.06	µg/L	197.06	ppb	13:24:55
1	Ca 317.933Radial†	531.0	427.7	202.83	µg/L	202.83	ppb	13:25:16
1	Fe 238.204 Radial†	221.4	185.8	101.40	µg/L	101.40	ppb	13:25:16
1	K 766.490 Radial†	2439.5	1715.8	812.03	µg/L	812.03	ppb	13:24:55
1	Mg 279.077 IEC†	70.6	59.7	316.39	µg/L	316.39	ppb	13:25:16
1	Na 589.592 Radial†	99.3	143.3	298.27	µg/L	298.27	ppb	13:24:55
1	Sr 421.552†	425.2	1031.2	5.0348	µg/L	5.0348	ppb	13:24:55
1	Sc 361.383	713536.3	713536.3	100.13	%			13:26:12
1	Y 371.029	619693.8	619693.8	100.09	%			13:26:12
1	Ag 328.068†	428.0	806.6	5.1734	µg/L	5.1734	ppb	13:26:17
1	As 188.979†	47.8	56.5	31.712	µg/L	31.712	ppb	13:26:37
1	B 249.677†	1867.0	1767.5	50.214	µg/L	50.214	ppb	13:26:17
1	Ba 233.527†	410.7	581.0	5.4214	µg/L	5.4214	ppb	13:26:37
1	Be 313.107†	1112.5	9105.5	5.2852	µg/L	5.2852	ppb	13:26:17
1	Cd 226.502†	139.3	364.4	5.4028	µg/L	5.4028	ppb	13:26:37
1	Co 228.616†	216.8	237.3	5.7730	µg/L	5.7730	ppb	13:26:37
1	Cr 267.716†	443.2	249.0	4.8177	µg/L	4.8177	ppb	13:26:37
1	Cu 324.752†	9092.4	2597.2	10.670	µg/L	10.670	ppb	13:26:17
1	Mn 257.610†	7634.3	7119.6	10.158	µg/L	10.158	ppb	13:26:17
1	Mo 202.031†	200.2	177.8	12.127	µg/L	12.127	ppb	13:26:37
1	Ni 231.604†	32.1	160.7	4.6745	µg/L	4.6745	ppb	13:26:37
1	P 214.914†	358.9	233.6	174.79	µg/L	174.79	ppb	13:26:37
1	Pb 220.353†	254.2	103.0	15.541	µg/L	15.541	ppb	13:26:37
1	S 181.975 Axial†	117.5	55.6	96.686	µg/L	96.686	ppb	13:26:37
1	Sb 206.836†	117.6	51.7	16.777	µg/L	16.777	ppb	13:26:37
1	Se 196.026†	29.8	35.1	26.180	µg/L	26.180	ppb	13:26:37
1	SiO2†	4637.5	1681.1	210.43	µg/L	210.43	ppb	13:26:17
1	Si 251.611†	2285.4	2100.3	98.795	µg/L	98.795	ppb	13:26:37
1	Sn 189.927†	73.7	46.8	10.253	µg/L	10.253	ppb	13:26:37
1	Ti 334.940†	1907.9	1912.6	4.7696	µg/L	4.7696	ppb	13:26:17
1	Tl 190.801†	26.5	74.9	25.672	µg/L	25.672	ppb	13:26:37
1	U 367.007†	544.2	249.1	60.62	µg/L	60.62	ppb	13:26:17
1	V 292.402†	452.8	512.3	5.2225	µg/L	5.2225	ppb	13:26:17
1	Zn 213.857†	2360.3	1155.9	10.598	µg/L	10.598	ppb	13:26:37
2	Sc RADIAL	21423.7	21423.7	102	%			13:25:21
2	Al 396.153Radial†	506.0	669.4	199.06	µg/L	199.06	ppb	13:25:21
2	Ca 317.933Radial†	535.2	428.3	203.09	µg/L	203.09	ppb	13:25:41
2	Fe 238.204 Radial†	233.7	196.4	107.17	µg/L	107.17	ppb	13:25:41
2	K 766.490 Radial†	2357.6	1619.5	766.46	µg/L	766.46	ppb	13:25:21
2	Mg 279.077 IEC†	66.0	54.8	290.40	µg/L	290.40	ppb	13:25:41
2	Na 589.592 Radial†	85.4	129.1	268.63	µg/L	268.63	ppb	13:25:21
2	Sr 421.552†	372.5	976.8	4.7694	µg/L	4.7694	ppb	13:25:21
2	Sc 361.383	720303.6	720303.6	101.08	%			13:26:42
2	Y 371.029	626203.8	626203.8	101.14	%			13:26:42
2	Ag 328.068†	482.6	856.5	5.4923	µg/L	5.4923	ppb	13:26:47
2	As 188.979†	42.2	50.6	28.364	µg/L	28.364	ppb	13:27:08
2	B 249.677†	1833.6	1717.0	48.778	µg/L	48.778	ppb	13:26:47
2	Ba 233.527†	411.1	577.5	5.3885	µg/L	5.3885	ppb	13:27:08
2	Be 313.107†	1109.9	9092.4	5.2773	µg/L	5.2773	ppb	13:26:47
2	Cd 226.502†	143.7	367.5	5.4477	µg/L	5.4477	ppb	13:27:08
2	Co 228.616†	202.9	221.5	5.3909	µg/L	5.3909	ppb	13:27:08
2	Cr 267.716†	456.2	257.7	4.9887	µg/L	4.9887	ppb	13:27:08
2	Cu 324.752†	9072.6	2492.3	10.240	µg/L	10.240	ppb	13:26:47
2	Mn 257.610†	7537.8	6952.6	9.9207	µg/L	9.9207	ppb	13:26:47
2	Mo 202.031†	210.8	186.5	12.719	µg/L	12.719	ppb	13:27:08
2	Ni 231.604†	23.4	151.8	4.4162	µg/L	4.4162	ppb	13:27:08
2	P 214.914†	341.9	213.4	159.68	µg/L	159.68	ppb	13:27:08
2	Pb 220.353†	227.5	74.2	11.188	µg/L	11.188	ppb	13:27:08

2	S 181.975 Axial†	124.2	61.3	106.43 µg/L	106.43 ppb	13:27:08
2	Sb 206.836†	110.7	43.8	14.215 µg/L	14.215 ppb	13:27:08
2	Se 196.026†	46.8	51.6	38.417 µg/L	38.417 ppb	13:27:08
2	SiO2†	4616.0	1616.3	202.37 µg/L	202.37 ppb	13:26:47
2	Si 251.611†	2282.3	2075.8	97.638 µg/L	97.638 ppb	13:27:08
2	Sn 189.927†	69.2	41.7	9.1273 µg/L	9.1273 ppb	13:27:08
2	Ti 334.940†	1869.0	1856.3	4.6294 µg/L	4.6294 ppb	13:26:47
2	Tl 190.801†	25.5	73.7	25.243 µg/L	25.243 ppb	13:27:08
2	U 367.007†	541.3	241.1	58.62 µg/L	58.62 ppb	13:26:47
2	V 292.402†	460.6	515.9	5.2628 µg/L	5.2628 ppb	13:26:47
2	Zn 213.857†	2327.3	1101.1	10.095 µg/L	10.095 ppb	13:27:08
3	Sc RADIAL	21197.9	21197.9	101 %		13:25:46
3	Al 396.153Radial†	526.9	695.3	206.81 µg/L	206.81 ppb	13:25:46
3	Ca 317.933Radial†	532.0	430.7	204.25 µg/L	204.25 ppb	13:26:06
3	Fe 238.204 Radial†	227.5	192.8	105.18 µg/L	105.18 ppb	13:26:06
3	K 766.490 Radial†	2332.2	1618.9	766.20 µg/L	766.20 ppb	13:25:46
3	Mg 279.077 IEC†	69.6	59.0	312.62 µg/L	312.62 ppb	13:26:06
3	Na 589.592 Radial†	111.4	155.7	324.03 µg/L	324.03 ppb	13:25:46
3	Sr 421.552†	400.3	1008.1	4.9223 µg/L	4.9223 ppb	13:25:46
3	Sc 361.383	720482.6	720482.6	101.11 %		13:27:13
3	Y 371.029	626747.0	626747.0	101.23 %		13:27:13
3	Ag 328.068†	501.8	875.5	5.6126 µg/L	5.6126 ppb	13:27:18
3	As 188.979†	40.1	48.5	27.189 µg/L	27.189 ppb	13:27:38
3	B 249.677†	1841.0	1723.8	48.972 µg/L	48.972 ppb	13:27:18
3	Ba 233.527†	416.1	582.3	5.4338 µg/L	5.4338 ppb	13:27:38
3	Be 313.107†	1062.2	9044.9	5.2489 µg/L	5.2489 ppb	13:27:18
3	Cd 226.502†	150.0	373.6	5.5393 µg/L	5.5393 ppb	13:27:38
3	Co 228.616†	213.6	232.1	5.6465 µg/L	5.6465 ppb	13:27:38
3	Cr 267.716†	444.7	246.2	4.7696 µg/L	4.7696 ppb	13:27:38
3	Cu 324.752†	9079.6	2497.0	10.263 µg/L	10.263 ppb	13:27:18
3	Mn 257.610†	7691.5	7102.7	10.134 µg/L	10.134 ppb	13:27:18
3	Mo 202.031†	205.8	181.5	12.378 µg/L	12.378 ppb	13:27:38
3	Ni 231.604†	12.9	141.4	4.1125 µg/L	4.1125 ppb	13:27:38
3	P 214.914†	364.0	235.2	176.02 µg/L	176.02 ppb	13:27:38
3	Pb 220.353†	223.9	70.6	10.641 µg/L	10.641 ppb	13:27:38
3	S 181.975 Axial†	119.2	56.3	97.788 µg/L	97.788 ppb	13:27:38
3	Sb 206.836†	111.1	44.2	14.342 µg/L	14.342 ppb	13:27:38
3	Se 196.026†	42.4	47.2	35.176 µg/L	35.176 ppb	13:27:38
3	SiO2†	4640.4	1639.4	205.16 µg/L	205.16 ppb	13:27:18
3	Si 251.611†	2285.1	2078.1	97.745 µg/L	97.745 ppb	13:27:38
3	Sn 189.927†	73.1	45.5	9.9614 µg/L	9.9614 ppb	13:27:38
3	Ti 334.940†	1901.4	1887.8	4.7104 µg/L	4.7104 ppb	13:27:18
3	Tl 190.801†	29.2	77.3	26.487 µg/L	26.487 ppb	13:27:38
3	U 367.007†	523.6	223.4	54.31 µg/L	54.31 ppb	13:27:18
3	V 292.402†	475.2	530.2	5.3950 µg/L	5.3950 ppb	13:27:18
3	Zn 213.857†	2347.5	1120.5	10.276 µg/L	10.276 ppb	13:27:38

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	718107.5	100.77	%	0.556				0.55%
Sc RADIAL	21300.6	102	%	0.5				0.54%
Y 371.029	624214.9	100.82	%	0.634				0.63%
Ag 328.068†	846.2	5.4261	µg/L	0.22693	5.4261	ppb	0.22693	4.18%
QC value within limits for Ag 328.068 Recovery = 108.52%								
Al 396.153Radial†	675.8	200.98	µg/L	5.151	200.98	ppb	5.151	2.56%
QC value within limits for Al 396.153Radial Recovery = 100.49%								
As 188.979†	51.8	29.088	µg/L	2.3466	29.088	ppb	2.3466	8.07%
QC value within limits for As 188.979 Recovery = 96.96%								
B 249.677†	1736.1	49.321	µg/L	0.7791	49.321	ppb	0.7791	1.58%
QC value within limits for B 249.677 Recovery = 98.64%								
Ba 233.527†	580.3	5.4145	µg/L	0.02343	5.4145	ppb	0.02343	0.43%
QC value within limits for Ba 233.527 Recovery = 108.29%								
Be 313.107†	9080.9	5.2705	µg/L	0.01909	5.2705	ppb	0.01909	0.36%
QC value within limits for Be 313.107 Recovery = 105.41%								
Ca 317.933Radial†	428.9	203.39	µg/L	0.755	203.39	ppb	0.755	0.37%
QC value within limits for Ca 317.933Radial Recovery = 101.69%								
Cd 226.502†	368.5	5.4633	µg/L	0.06954	5.4633	ppb	0.06954	1.27%
QC value within limits for Cd 226.502 Recovery = 109.27%								
Co 228.616†	230.3	5.6035	µg/L	0.19468	5.6035	ppb	0.19468	3.47%

QC value within limits for Co 228.616 Recovery = 112.07%

Cr 267.716†	251.0	4.8587 µg/L	0.11513	4.8587 ppb	0.11513	2.37%

QC value within limits for Cr 267.716 Recovery = 97.17%

Cu 324.752†	2528.8	10.391 µg/L	0.2419	10.391 ppb	0.2419	2.33%

QC value within limits for Cu 324.752 Recovery = 103.91%

Fe 238.204 Radial†	191.7	104.59 µg/L	2.931	104.59 ppb	2.931	2.80%

QC value within limits for Fe 238.204 Radial Recovery = 104.59%

K 766.490 Radial†	1651.4	781.56 µg/L	26.385	781.56 ppb	26.385	3.38%

QC value greater than the upper limit for K 766.490 Radial Recovery = 521.04%

Mg 279.077 IEC†	57.8	306.47 µg/L	14.048	306.47 ppb	14.048	4.58%

QC value within limits for Mg 279.077 IEC Recovery = 102.16%

Mn 257.610†	7058.3	10.071 µg/L	0.1305	10.071 ppb	0.1305	1.30%

QC value within limits for Mn 257.610 Recovery = 100.71%

Mo 202.031†	181.9	12.408 µg/L	0.2968	12.408 ppb	0.2968	2.39%

QC value within limits for Mo 202.031 Recovery = 124.08%

Na 589.592 Radial†	142.7	296.97 µg/L	27.723	296.97 ppb	27.723	9.34%

QC value within limits for Na 589.592 Radial Recovery = 98.99%

Ni 231.604†	151.3	4.4011 µg/L	0.28129	4.4011 ppb	0.28129	6.39%

QC value within limits for Ni 231.604 Recovery = 88.02%

P 214.914†	227.4	170.16 µg/L	9.100	170.16 ppb	9.100	5.35%

QC value within limits for P 214.914 Recovery = 113.44%

Pb 220.353†	82.6	12.456 µg/L	2.6849	12.456 ppb	2.6849	21.55%

QC value within limits for Pb 220.353 Recovery = 124.56%

S 181.975 Axial†	57.7	100.30 µg/L	5.339	100.30 ppb	5.339	5.32%

QC value within limits for S 181.975 Axial Recovery = 100.30%

Sb 206.836†	46.6	15.111 µg/L	1.4442	15.111 ppb	1.4442	9.56%

QC value greater than the upper limit for Sb 206.836 Recovery = 151.11%

Se 196.026†	44.6	33.258 µg/L	6.3400	33.258 ppb	6.3400	19.06%

QC value within limits for Se 196.026 Recovery = 110.86%

SiO2†	1645.6	205.99 µg/L	4.094	205.99 ppb	4.094	1.99%

QC value within limits for SiO2 Recovery = 96.71%

Si 251.611†	2084.7	98.059 µg/L	0.6391	98.059 ppb	0.6391	0.65%

QC value within limits for Si 251.611 Recovery = 98.06%

Sn 189.927†	44.7	9.7806 µg/L	0.58428	9.7806 ppb	0.58428	5.97%

QC value within limits for Sn 189.927 Recovery = 97.81%

Sr 421.552†	1005.4	4.9088 µg/L	0.13322	4.9088 ppb	0.13322	2.71%

QC value within limits for Sr 421.552 Recovery = 98.18%

Ti 334.940†	1885.6	4.7032 µg/L	0.07037	4.7032 ppb	0.07037	1.50%

QC value within limits for Ti 334.940 Recovery = 94.06%

Tl 190.801†	75.3	25.801 µg/L	0.6316	25.801 ppb	0.6316	2.45%

QC value within limits for Tl 190.801 Recovery = 129.00%

U 367.007†	237.9	57.85 µg/L	3.224	57.85 ppb	3.224	5.57%

QC value within limits for U 367.007 Recovery = 115.70%

V 292.402†	519.5	5.2934 µg/L	0.09020	5.2934 ppb	0.09020	1.70%

QC value within limits for V 292.402 Recovery = 105.87%

Zn 213.857†	1125.8	10.323 µg/L	0.2551	10.323 ppb	0.2551	2.47%

QC value within limits for Zn 213.857 Recovery = 103.23%

QC Failed. Continue with analysis.

Sequence No.: 4 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 13:27:45**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21295.3	21295.3	102	%			13:28:14
1	Al 396.153Radial†	-220.3	-43.2	-12.898	µg/L	-12.898	ppb	13:28:14
1	Ca 317.933Radial†	92.2	-5.0	-2.3718	µg/L	-2.3718	ppb	13:28:34
1	Fe 238.204 Radial†	32.7	-0.3	-0.1437	µg/L	-0.1437	ppb	13:28:34
1	K 766.490 Radial†	1888.5	1171.2	554.34	µg/L	554.34	ppb	13:28:14
1	Mg 279.077 IEC†	9.7	-0.3	-1.7612	µg/L	-1.7612	ppb	13:28:34
1	Na 589.592 Radial†	-66.8	-20.4	-42.479	µg/L	-42.479	ppb	13:28:14
1	Sr 421.552†	-624.8	-3.6	-0.0175	µg/L	-0.0175	ppb	13:28:14
1	Sc 361.383	722965.6	722965.6	101.46	%			13:29:30
1	Y 371.029	627926.7	627926.7	101.42	%			13:29:30
1	Ag 328.068†	-362.1	22.2	0.1401	µg/L	0.1401	ppb	13:29:36
1	As 188.979†	-11.6	-2.7	-1.4976	µg/L	-1.4976	ppb	13:29:56
1	B 249.677†	125.2	26.4	0.7498	µg/L	0.7498	ppb	13:29:56
1	Ba 233.527†	-162.4	10.7	0.1000	µg/L	0.1000	ppb	13:29:56
1	Be 313.107†	-7809.5	296.9	0.1716	µg/L	0.1716	ppb	13:29:36
1	Cd 226.502†	-195.5	32.5	0.4835	µg/L	0.4835	ppb	13:29:56
1	Co 228.616†	-11.1	9.9	0.2417	µg/L	0.2417	ppb	13:29:56
1	Cr 267.716†	191.1	-5.3	-0.1014	µg/L	-0.1014	ppb	13:29:56
1	Cu 324.752†	6562.2	-15.2	-0.0608	µg/L	-0.0608	ppb	13:29:36
1	Mn 257.610†	459.5	-51.7	-0.0737	µg/L	-0.0737	ppb	13:29:56
1	Mo 202.031†	28.2	5.7	0.3912	µg/L	0.3912	ppb	13:29:56
1	Ni 231.604†	-159.9	-28.9	-0.8406	µg/L	-0.8406	ppb	13:29:56
1	P 214.914†	127.0	0.4	0.2634	µg/L	0.2634	ppb	13:29:56
1	Pb 220.353†	179.9	26.4	4.0086	µg/L	4.0086	ppb	13:29:56
1	S 181.975 Axial†	59.3	-3.2	-5.5165	µg/L	-5.5165	ppb	13:29:56
1	Sb 206.836†	67.1	0.4	0.1410	µg/L	0.1410	ppb	13:29:56
1	Se 196.026†	-4.1	1.3	0.9328	µg/L	0.9328	ppb	13:29:56
1	SiO2†	2935.0	-57.4	-7.1644	µg/L	-7.1644	ppb	13:29:36
1	Si 251.611†	186.5	1.8	0.0838	µg/L	0.0838	ppb	13:29:56
1	Sn 189.927†	22.6	-4.5	-0.9814	µg/L	-0.9814	ppb	13:29:56
1	Ti 334.940†	-202.9	-192.7	-0.4823	µg/L	-0.4823	ppb	13:29:36
1	Tl 190.801†	-43.4	5.7	1.9354	µg/L	1.9354	ppb	13:29:56
1	U 367.007†	289.4	-9.2	-2.257	µg/L	-2.257	ppb	13:29:36
1	V 292.402†	-73.7	-12.5	-0.1196	µg/L	-0.1196	ppb	13:29:36
1	Zn 213.857†	1218.5	-0.2	0.0033	µg/L	0.0033	ppb	13:29:56
2	Sc RADIAL	21240.0	21240.0	101	%			13:28:39
2	Al 396.153Radial†	-175.1	0.9	0.2731	µg/L	0.2731	ppb	13:28:39
2	Ca 317.933Radial†	101.7	4.7	2.2109	µg/L	2.2109	ppb	13:28:59
2	Fe 238.204 Radial†	36.7	3.8	2.0816	µg/L	2.0816	ppb	13:28:59
2	K 766.490 Radial†	1859.5	1147.4	543.06	µg/L	543.06	ppb	13:28:39
2	Mg 279.077 IEC†	8.1	-1.9	-10.147	µg/L	-10.147	ppb	13:28:59
2	Na 589.592 Radial†	-70.4	-24.1	-50.225	µg/L	-50.225	ppb	13:28:39
2	Sr 421.552†	-634.4	-14.7	-0.0717	µg/L	-0.0717	ppb	13:28:39
2	Sc 361.383	723690.5	723690.5	101.56	%			13:30:01
2	Y 371.029	628789.4	628789.4	101.56	%			13:30:01
2	Ag 328.068†	-408.7	-23.3	-0.1480	µg/L	-0.1480	ppb	13:30:06
2	As 188.979†	-8.0	1.0	0.5353	µg/L	0.5353	ppb	13:30:26
2	B 249.677†	131.0	32.0	0.9078	µg/L	0.9078	ppb	13:30:26
2	Ba 233.527†	-142.8	30.2	0.2813	µg/L	0.2813	ppb	13:30:26
2	Be 313.107†	-7581.0	529.7	0.3078	µg/L	0.3078	ppb	13:30:06
2	Cd 226.502†	-188.2	40.0	0.5936	µg/L	0.5936	ppb	13:30:26
2	Co 228.616†	1.2	22.0	0.5360	µg/L	0.5360	ppb	13:30:26
2	Cr 267.716†	195.7	-1.0	-0.0244	µg/L	-0.0244	ppb	13:30:26
2	Cu 324.752†	6459.2	-123.1	-0.5107	µg/L	-0.5107	ppb	13:30:06
2	Mn 257.610†	464.7	-47.0	-0.0666	µg/L	-0.0666	ppb	13:30:26
2	Mo 202.031†	21.2	-1.2	-0.0842	µg/L	-0.0842	ppb	13:30:26
2	Ni 231.604†	-151.6	-20.6	-0.6000	µg/L	-0.6000	ppb	13:30:26
2	P 214.914†	130.3	3.5	2.6383	µg/L	2.6383	ppb	13:30:26
2	Pb 220.353†	154.1	0.8	0.1243	µg/L	0.1243	ppb	13:30:26

2	S 181.975 Axial†	54.6	-7.9	-13.795 µg/L	-13.795 ppb	13:30:26
2	Sb 206.836†	69.1	2.3	0.7549 µg/L	0.7549 ppb	13:30:26
2	Se 196.026†	-3.8	1.6	1.2086 µg/L	1.2086 ppb	13:30:26
2	SiO2†	2950.8	-44.7	-5.5057 µg/L	-5.5057 ppb	13:30:06
2	Si 251.611†	199.7	14.6	0.6860 µg/L	0.6860 ppb	13:30:26
2	Sn 189.927†	30.5	3.3	0.7177 µg/L	0.7177 ppb	13:30:26
2	Ti 334.940†	-125.4	-116.3	-0.2939 µg/L	-0.2939 ppb	13:30:06
2	Tl 190.801†	-41.5	7.6	2.5838 µg/L	2.5838 ppb	13:30:26
2	U 367.007†	322.0	22.7	5.547 µg/L	5.547 ppb	13:30:06
2	V 292.402†	-76.2	-14.8	-0.1414 µg/L	-0.1414 ppb	13:30:06
2	Zn 213.857†	1241.4	21.1	0.1981 µg/L	0.1981 ppb	13:30:26
3	Sc RADIAL	21404.6	21404.6	102 %		13:29:04
3	Al 396.153Radial†	-203.1	-25.3	-7.5480 µg/L	-7.5480 ppb	13:29:04
3	Ca 317.933Radial†	88.9	-8.7	-4.1096 µg/L	-4.1096 ppb	13:29:24
3	Fe 238.204 Radial†	30.4	-2.6	-1.4268 µg/L	-1.4268 ppb	13:29:24
3	K 766.490 Radial†	1789.0	1064.2	503.69 µg/L	503.69 ppb	13:29:04
3	Mg 279.077 IEC†	9.8	-0.3	-1.3086 µg/L	-1.3086 ppb	13:29:24
3	Na 589.592 Radial†	-59.7	-13.1	-27.269 µg/L	-27.269 ppb	13:29:04
3	Sr 421.552†	-641.4	-16.7	-0.0815 µg/L	-0.0815 ppb	13:29:04
3	Sc 361.383	721288.9	721288.9	101.22 %		13:30:31
3	Y 371.029	627225.1	627225.1	101.31 %		13:30:31
3	Ag 328.068†	-339.8	43.4	0.2731 µg/L	0.2731 ppb	13:30:36
3	As 188.979†	-3.8	5.0	2.8159 µg/L	2.8159 ppb	13:30:56
3	B 249.677†	136.6	38.0	1.0788 µg/L	1.0788 ppb	13:30:56
3	Ba 233.527†	-148.1	24.5	0.2278 µg/L	0.2278 ppb	13:30:56
3	Be 313.107†	-7711.9	375.4	0.2192 µg/L	0.2192 ppb	13:30:36
3	Cd 226.502†	-208.8	19.0	0.2827 µg/L	0.2827 ppb	13:30:56
3	Co 228.616†	-6.7	14.3	0.3482 µg/L	0.3482 ppb	13:30:56
3	Cr 267.716†	211.1	14.9	0.2824 µg/L	0.2824 ppb	13:30:56
3	Cu 324.752†	6581.4	18.8	0.0700 µg/L	0.0700 ppb	13:30:36
3	Mn 257.610†	464.5	-45.7	-0.0653 µg/L	-0.0653 ppb	13:30:56
3	Mo 202.031†	30.2	7.8	0.5290 µg/L	0.5290 ppb	13:30:56
3	Ni 231.604†	-144.5	-14.1	-0.4106 µg/L	-0.4106 ppb	13:30:56
3	P 214.914†	132.1	5.7	4.2673 µg/L	4.2673 ppb	13:30:56
3	Pb 220.353†	175.4	22.4	3.3907 µg/L	3.3907 ppb	13:30:56
3	S 181.975 Axial†	59.7	-2.7	-4.6035 µg/L	-4.6035 ppb	13:30:56
3	Sb 206.836†	61.3	-5.2	-1.6629 µg/L	-1.6629 ppb	13:30:56
3	Se 196.026†	-1.9	3.4	2.5676 µg/L	2.5676 ppb	13:30:56
3	SiO2†	2990.7	4.3	0.6624 µg/L	0.6624 ppb	13:30:36
3	Si 251.611†	195.1	10.7	0.4942 µg/L	0.4942 ppb	13:30:56
3	Sn 189.927†	29.2	2.0	0.4430 µg/L	0.4430 ppb	13:30:56
3	Ti 334.940†	-208.0	-198.2	-0.5012 µg/L	-0.5012 ppb	13:30:36
3	Tl 190.801†	-35.8	13.1	4.4681 µg/L	4.4681 ppb	13:30:56
3	U 367.007†	334.0	35.5	8.716 µg/L	8.716 ppb	13:30:36
3	V 292.402†	-93.1	-31.8	-0.2980 µg/L	-0.2980 ppb	13:30:36
3	Zn 213.857†	1223.7	7.6	0.0732 µg/L	0.0732 ppb	13:30:56

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	722648.4	101.41	%	0.173				0.17%
Sc RADIAL	21313.3	102	%	0.4				0.39%
Y 371.029	627980.4	101.43	%	0.127				0.12%
Ag 328.068†	14.1	0.0884	µg/L	0.21526	0.0884	ppb	0.21526	243.48%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-22.5	-6.7244	µg/L	6.62417	-6.7244	ppb	6.62417	98.51%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	1.1	0.6179	µg/L	2.15791	0.6179	ppb	2.15791	349.25%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	32.1	0.9121	µg/L	0.16454	0.9121	ppb	0.16454	18.04%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	21.8	0.2030	µg/L	0.09318	0.2030	ppb	0.09318	45.90%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	400.7	0.2329	µg/L	0.06917	0.2329	ppb	0.06917	29.70%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-3.0	-1.4235	µg/L	3.26522	-1.4235	ppb	3.26522	229.38%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	30.5	0.4533	µg/L	0.15765	0.4533	ppb	0.15765	34.78%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	15.4	0.3753	µg/L	0.14901	0.3753	ppb	0.14901	39.71%

```
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†                2.9      0.0522 µg/L       0.20307      0.0522 ppb        0.20307 389.02%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              -39.8     -0.1671 µg/L       0.30464     -0.1671 ppb        0.30464 182.26%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         0.3      0.1704 µg/L       1.77521      0.1704 ppb        1.77521 >999.9%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†       1127.6      533.70 µg/L        26.590      533.70 ppb         26.590   4.98%
   QC value greater than the upper limit for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           -0.8     -4.4055 µg/L       4.97712     -4.4055 ppb        4.97712 112.98%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -48.1     -0.0685 µg/L       0.00455     -0.0685 ppb        0.00455   6.64%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†                4.1      0.2787 µg/L       0.32169      0.2787 ppb        0.32169 115.44%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -19.2     -39.991 µg/L       11.6785     -39.991 ppb        11.6785  29.20%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -21.2     -0.6171 µg/L       0.21555     -0.6171 ppb        0.21555  34.93%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                 3.2      2.3897 µg/L       2.01351      2.3897 ppb        2.01351  84.26%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               16.6      2.5079 µg/L       2.08718      2.5079 ppb        2.08718  83.23%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -4.6     -7.9717 µg/L       5.06384     -7.9717 ppb        5.06384  63.52%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               -0.8     -0.2557 µg/L       1.25676     -0.2557 ppb        1.25676 491.59%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                2.1      1.5696 µg/L       0.87519      1.5696 ppb        0.87519  55.76%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    -32.6     -4.0026 µg/L       4.12425     -4.0026 ppb        4.12425 103.04%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†                9.0      0.4213 µg/L       0.30765      0.4213 ppb        0.30765  73.02%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                0.3      0.0598 µg/L       0.91206      0.0598 ppb        0.91206 >999.9%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              -11.6     -0.0569 µg/L       0.03447     -0.0569 ppb        0.03447  60.61%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -169.1     -0.4258 µg/L       0.11460     -0.4258 ppb        0.11460  26.91%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                8.8      2.9958 µg/L       1.31564      2.9958 ppb        1.31564  43.92%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                16.3       4.002 µg/L        5.6475       4.002 ppb         5.6475 141.12%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -19.7     -0.1863 µg/L       0.09729     -0.1863 ppb        0.09729  52.22%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†                9.5      0.0915 µg/L       0.09868      0.0915 ppb        0.09868 107.80%
   QC value within limits for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
```

Sequence No.: 6 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/15/2012 13:34:23**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21512.3	21512.3	103	%			13:34:52
1	Al 396.153Radial†	16142.0	15916.3	4726.7	µg/L	4726.7	ppb	13:34:52
1	Ca 317.933Radial†	10319.3	9968.0	4726.9	µg/L	4726.9	ppb	13:35:12
1	Fe 238.204 Radial†	9021.2	8765.5	4785.3	µg/L	4785.3	ppb	13:35:12
1	K 766.490 Radial†	11778.1	10797.3	5105.9	µg/L	5105.9	ppb	13:34:52
1	Mg 279.077 IEC†	964.9	931.1	4932.8	µg/L	4932.8	ppb	13:35:12
1	Na 589.592 Radial†	4643.2	4573.7	9520.3	µg/L	9520.3	ppb	13:35:12
1	Sr 421.552†	98207.4	96388.9	470.69	µg/L	470.69	ppb	13:34:52
1	Sc 361.383	737663.1	737663.1	103.52	%			13:36:09
1	Y 371.029	636876.7	636876.7	102.87	%			13:36:09
1	Ag 328.068†	77707.1	75445.7	482.74	µg/L	482.74	ppb	13:36:15
1	As 188.979†	866.0	845.3	474.78	µg/L	474.78	ppb	13:36:35
1	B 249.677†	17085.1	16407.6	464.91	µg/L	464.91	ppb	13:36:15
1	Ba 233.527†	52364.3	50755.7	473.77	µg/L	473.77	ppb	13:36:15
1	Be 313.107†	835561.7	815163.3	472.04	µg/L	472.04	ppb	13:36:09
1	Cd 226.502†	32897.9	32005.2	475.24	µg/L	475.24	ppb	13:36:15
1	Co 228.616†	20289.0	19620.4	476.40	µg/L	476.40	ppb	13:36:15
1	Cr 267.716†	25214.1	24163.7	472.50	µg/L	472.50	ppb	13:36:15
1	Cu 324.752†	124478.4	113765.3	469.78	µg/L	469.78	ppb	13:36:15
1	Mn 257.610†	339079.9	327053.1	466.91	µg/L	466.91	ppb	13:36:15
1	Mo 202.031†	7233.9	6966.0	475.14	µg/L	475.14	ppb	13:36:35
1	Ni 231.604†	16989.3	16540.7	481.07	µg/L	481.07	ppb	13:36:15
1	P 214.914†	3362.3	3123.2	2324.9	µg/L	2324.9	ppb	13:36:35
1	Pb 220.353†	3411.1	3144.3	476.42	µg/L	476.42	ppb	13:36:35
1	S 181.975 Axial†	638.2	554.8	964.57	µg/L	964.57	ppb	13:36:35
1	Sb 206.836†	1594.1	1474.2	471.77	µg/L	471.77	ppb	13:36:35
1	Se 196.026†	669.7	652.2	487.44	µg/L	487.44	ppb	13:36:35
1	SiO2†	45426.5	40932.6	5130.2	µg/L	5130.2	ppb	13:36:15
1	Si 251.611†	52771.2	50796.0	2386.3	µg/L	2386.3	ppb	13:36:15
1	Sn 189.927†	2274.8	2170.7	476.26	µg/L	476.26	ppb	13:36:35
1	Ti 334.940†	194593.3	187988.1	471.13	µg/L	471.13	ppb	13:36:15
1	Tl 190.801†	1367.6	1369.5	470.69	µg/L	470.69	ppb	13:36:35
1	U 367.007†	2270.3	1898.7	443.4	µg/L	443.4	ppb	13:36:15
1	V 292.402†	49645.2	48018.4	477.78	µg/L	477.78	ppb	13:36:15
1	Zn 213.857†	54663.2	51604.4	471.42	µg/L	471.42	ppb	13:36:15
2	Sc RADIAL	21893.6	21893.6	104	%			13:35:17
2	Al 396.153Radial†	16341.1	15832.9	4702.1	µg/L	4702.1	ppb	13:35:17
2	Ca 317.933Radial†	10237.9	9714.7	4606.8	µg/L	4606.8	ppb	13:35:37
2	Fe 238.204 Radial†	8945.3	8539.5	4662.0	µg/L	4662.0	ppb	13:35:37
2	K 766.490 Radial†	12026.6	10835.4	5124.0	µg/L	5124.0	ppb	13:35:17
2	Mg 279.077 IEC†	962.0	911.9	4831.3	µg/L	4831.3	ppb	13:35:37
2	Na 589.592 Radial†	4619.4	4472.0	9308.8	µg/L	9308.8	ppb	13:35:37
2	Sr 421.552†	99472.0	95932.5	468.46	µg/L	468.46	ppb	13:35:17
2	Sc 361.383	748957.2	748957.2	105.10	%			13:36:40
2	Y 371.029	647295.0	647295.0	104.55	%			13:36:40
2	Ag 328.068†	78043.2	74633.5	477.51	µg/L	477.51	ppb	13:36:45
2	As 188.979†	858.0	825.1	463.44	µg/L	463.44	ppb	13:37:05
2	B 249.677†	17223.7	16290.5	461.61	µg/L	461.61	ppb	13:36:45
2	Ba 233.527†	52405.1	50031.7	467.02	µg/L	467.02	ppb	13:36:45
2	Be 313.107†	842413.9	809510.9	468.77	µg/L	468.77	ppb	13:36:40
2	Cd 226.502†	33014.7	31637.1	469.79	µg/L	469.79	ppb	13:36:45
2	Co 228.616†	20296.2	19331.7	469.39	µg/L	469.39	ppb	13:36:45
2	Cr 267.716†	25271.7	23851.2	466.37	µg/L	466.37	ppb	13:36:45
2	Cu 324.752†	124665.2	112129.7	463.01	µg/L	463.01	ppb	13:36:45
2	Mn 257.610†	339434.7	322451.3	460.34	µg/L	460.34	ppb	13:36:45
2	Mo 202.031†	7237.0	6863.6	468.15	µg/L	468.15	ppb	13:37:05
2	Ni 231.604†	16991.2	16295.0	473.92	µg/L	473.92	ppb	13:36:45
2	P 214.914†	3400.8	3110.9	2316.0	µg/L	2316.0	ppb	13:37:05
2	Pb 220.353†	3429.2	3111.9	471.46	µg/L	471.46	ppb	13:37:05

2	S 181.975 Axial†	631.4	539.1	937.25 µg/L	937.25 ppb	13:37:05
2	Sb 206.836†	1594.8	1451.7	464.56 µg/L	464.56 ppb	13:37:05
2	Se 196.026†	678.0	650.3	486.00 µg/L	486.00 ppb	13:37:05
2	SiO2†	45541.4	40380.1	5061.1 µg/L	5061.1 ppb	13:36:45
2	Si 251.611†	52822.8	50076.3	2352.4 µg/L	2352.4 ppb	13:36:45
2	Sn 189.927†	2306.8	2168.1	475.65 µg/L	475.65 ppb	13:37:05
2	Ti 334.940†	194785.1	185336.0	464.48 µg/L	464.48 ppb	13:36:45
2	Tl 190.801†	1376.3	1358.0	466.70 µg/L	466.70 ppb	13:37:05
2	U 367.007†	2342.4	1934.3	452.7 µg/L	452.7 ppb	13:36:45
2	V 292.402†	49732.3	47378.1	471.41 µg/L	471.41 ppb	13:36:45
2	Zn 213.857†	54809.2	50947.0	465.43 µg/L	465.43 ppb	13:36:45
3	Sc RADIAL	21608.7	21608.7	103 %		13:35:42
3	Al 396.153Radial†	16217.5	15919.3	4727.8 µg/L	4727.8 ppb	13:35:42
3	Ca 317.933Radial†	10290.7	9895.4	4692.5 µg/L	4692.5 ppb	13:36:03
3	Fe 238.204 Radial†	8996.8	8702.6	4751.0 µg/L	4751.0 ppb	13:36:03
3	K 766.490 Radial†	11884.1	10848.9	5130.4 µg/L	5130.4 ppb	13:35:42
3	Mg 279.077 IEC†	962.0	924.1	4895.8 µg/L	4895.8 ppb	13:36:03
3	Na 589.592 Radial†	4666.5	4576.1	9525.5 µg/L	9525.5 ppb	13:36:03
3	Sr 421.552†	98771.0	96508.6	471.27 µg/L	471.27 ppb	13:35:42
3	Sc 361.383	752999.5	752999.5	105.67 %		13:37:11
3	Y 371.029	650739.0	650739.0	105.11 %		13:37:11
3	Ag 328.068†	78985.7	75126.8	480.69 µg/L	480.69 ppb	13:37:16
3	As 188.979†	883.4	844.8	474.53 µg/L	474.53 ppb	13:37:36
3	B 249.677†	17473.9	16439.4	465.82 µg/L	465.82 ppb	13:37:16
3	Ba 233.527†	53271.5	50584.0	472.17 µg/L	472.17 ppb	13:37:16
3	Be 313.107†	854472.0	816619.3	472.88 µg/L	472.88 ppb	13:37:11
3	Cd 226.502†	33707.1	32123.8	477.01 µg/L	477.01 ppb	13:37:16
3	Co 228.616†	20700.2	19610.3	476.15 µg/L	476.15 ppb	13:37:16
3	Cr 267.716†	25760.1	24184.3	472.90 µg/L	472.90 ppb	13:37:16
3	Cu 324.752†	126039.0	112793.1	465.77 µg/L	465.77 ppb	13:37:16
3	Mn 257.610†	345014.2	325997.7	465.40 µg/L	465.40 ppb	13:37:16
3	Mo 202.031†	7296.5	6882.9	469.48 µg/L	469.48 ppb	13:37:36
3	Ni 231.604†	17439.4	16632.3	483.73 µg/L	483.73 ppb	13:37:16
3	P 214.914†	3420.1	3111.7	2316.5 µg/L	2316.5 ppb	13:37:36
3	Pb 220.353†	3469.1	3132.1	474.53 µg/L	474.53 ppb	13:37:36
3	S 181.975 Axial†	643.4	547.2	951.27 µg/L	951.27 ppb	13:37:36
3	Sb 206.836†	1593.0	1441.8	461.24 µg/L	461.24 ppb	13:37:36
3	Se 196.026†	669.8	639.1	477.73 µg/L	477.73 ppb	13:37:36
3	SiO2†	46080.4	40657.7	5095.9 µg/L	5095.9 ppb	13:37:16
3	Si 251.611†	53674.3	50612.3	2377.7 µg/L	2377.7 ppb	13:37:16
3	Sn 189.927†	2314.6	2163.6	474.70 µg/L	474.70 ppb	13:37:36
3	Ti 334.940†	197550.7	186958.3	468.55 µg/L	468.55 ppb	13:37:16
3	Tl 190.801†	1396.0	1369.5	470.67 µg/L	470.67 ppb	13:37:36
3	U 367.007†	2320.2	1901.3	444.2 µg/L	444.2 ppb	13:37:16
3	V 292.402†	50503.9	47854.3	476.11 µg/L	476.11 ppb	13:37:16
3	Zn 213.857†	55628.3	51442.2	469.92 µg/L	469.92 ppb	13:37:16

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	746539.9	104.76	%	1.115				1.06%
Sc RADIAL	21671.5	103	%	0.9				0.91%
Y 371.029	644970.2	104.17	%	1.166				1.12%
Ag 328.068†	75068.7	480.31	µg/L	2.632	480.31	ppb	2.632	0.55%
QC value within limits for Ag 328.068 Recovery = 96.06%								
Al 396.153Radial†	15889.5	4718.9	µg/L	14.53	4718.9	ppb	14.53	0.31%
QC value within limits for Al 396.153Radial Recovery = 94.38%								
As 188.979†	838.4	470.92	µg/L	6.476	470.92	ppb	6.476	1.38%
QC value within limits for As 188.979 Recovery = 94.18%								
B 249.677†	16379.1	464.11	µg/L	2.214	464.11	ppb	2.214	0.48%
QC value within limits for B 249.677 Recovery = 92.82%								
Ba 233.527†	50457.2	470.99	µg/L	3.530	470.99	ppb	3.530	0.75%
QC value within limits for Ba 233.527 Recovery = 94.20%								
Be 313.107†	813764.5	471.23	µg/L	2.173	471.23	ppb	2.173	0.46%
QC value within limits for Be 313.107 Recovery = 94.25%								
Ca 317.933Radial†	9859.4	4675.4	µg/L	61.85	4675.4	ppb	61.85	1.32%
QC value within limits for Ca 317.933Radial Recovery = 93.51%								
Cd 226.502†	31922.1	474.02	µg/L	3.766	474.02	ppb	3.766	0.79%
QC value within limits for Cd 226.502 Recovery = 94.80%								
Co 228.616†	19520.8	473.98	µg/L	3.977	473.98	ppb	3.977	0.84%

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   QC value within limits for Co 228.616  Recovery = 94.80%
Cr 267.716†           24066.4      470.59 µg/L         3.659      470.59 ppb          3.659   0.78%
   QC value within limits for Cr 267.716  Recovery = 94.12%
Cu 324.752†          112896.0      466.19 µg/L         3.407      466.19 ppb          3.407   0.73%
   QC value within limits for Cu 324.752  Recovery = 93.24%
Fe 238.204 Radial†     8669.2      4732.8 µg/L         63.66      4732.8 ppb          63.66   1.34%
   QC value within limits for Fe 238.204 Radial  Recovery = 94.66%
K 766.490 Radial†     10827.2      5120.1 µg/L         12.69      5120.1 ppb          12.69   0.25%
   QC value within limits for K 766.490 Radial  Recovery = 102.40%
Mg 279.077 IEC†         922.4      4886.6 µg/L         51.37      4886.6 ppb          51.37   1.05%
   QC value within limits for Mg 279.077 IEC  Recovery = 97.73%
Mn 257.610†          325167.4      464.22 µg/L         3.444      464.22 ppb          3.444   0.74%
   QC value within limits for Mn 257.610  Recovery = 92.84%
Mo 202.031†            6904.2      470.93 µg/L         3.713      470.93 ppb          3.713   0.79%
   QC value within limits for Mo 202.031  Recovery = 94.19%
Na 589.592 Radial†     4540.6      9451.6 µg/L        123.65      9451.6 ppb         123.65   1.31%
   QC value within limits for Na 589.592 Radial  Recovery = 94.52%
Ni 231.604†           16489.3      479.57 µg/L         5.074      479.57 ppb          5.074   1.06%
   QC value within limits for Ni 231.604  Recovery = 95.91%
P 214.914†             3115.3      2319.2 µg/L          5.02      2319.2 ppb           5.02   0.22%
   QC value within limits for P 214.914  Recovery = 92.77%
Pb 220.353†            3129.4      474.14 µg/L         2.503      474.14 ppb          2.503   0.53%
   QC value within limits for Pb 220.353  Recovery = 94.83%
S 181.975 Axial†        547.0      951.03 µg/L        13.661      951.03 ppb         13.661   1.44%
   QC value within limits for S 181.975 Axial  Recovery = 95.10%
Sb 206.836†            1455.9      465.86 µg/L         5.384      465.86 ppb          5.384   1.16%
   QC value within limits for Sb 206.836  Recovery = 93.17%
Se 196.026†             647.2      483.72 µg/L         5.238      483.72 ppb          5.238   1.08%
   QC value within limits for Se 196.026  Recovery = 96.74%
SiO2†                 40656.8      5095.8 µg/L         34.55      5095.8 ppb          34.55   0.68%
   QC value within limits for SiO2  Recovery = 95.29%
Si 251.611†           50494.8      2372.1 µg/L         17.58      2372.1 ppb          17.58   0.74%
   QC value within limits for Si 251.611  Recovery = 94.88%
Sn 189.927†            2167.5      475.53 µg/L         0.786      475.53 ppb          0.786   0.17%
   QC value within limits for Sn 189.927  Recovery = 95.11%
Sr 421.552†           96276.7      470.14 µg/L         1.484      470.14 ppb          1.484   0.32%
   QC value within limits for Sr 421.552  Recovery = 94.03%
Ti 334.940†          186760.8      468.05 µg/L         3.355      468.05 ppb          3.355   0.72%
   QC value within limits for Ti 334.940  Recovery = 93.61%
Tl 190.801†            1365.7      469.35 µg/L         2.297      469.35 ppb          2.297   0.49%
   QC value within limits for Tl 190.801  Recovery = 93.87%
U 367.007†             1911.4       446.8 µg/L          5.16       446.8 ppb           5.16   1.16%
   QC value less than the lower limit for U 367.007  Recovery = 89.36%
V 292.402†            47750.2      475.10 µg/L         3.301      475.10 ppb          3.301   0.69%
   QC value within limits for V 292.402  Recovery = 95.02%
Zn 213.857†           51331.2      468.92 µg/L         3.116      468.92 ppb          3.116   0.66%
   QC value within limits for Zn 213.857  Recovery = 93.78%
QC Failed.  Continue with analysis.
```

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/15/2012 13:37:44**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21717.2	21717.2	104	%			13:38:12
1	Al 396.153Radial†	-191.2	-10.9	-3.3481	µg/L	-3.3481	ppb	13:38:12
1	Ca 317.933Radial†	98.4	-0.8	-0.3776	µg/L	-0.3776	ppb	13:38:32
1	Fe 238.204 Radial†	36.2	2.5	1.3713	µg/L	1.3713	ppb	13:38:32
1	K 766.490 Radial†	1432.0	694.1	328.52	µg/L	328.52	ppb	13:38:12
1	Mg 279.077 IEC†	5.2	-4.9	-25.638	µg/L	-25.638	ppb	13:38:32
1	Na 589.592 Radial†	-77.3	-29.3	-60.992	µg/L	-60.992	ppb	13:38:12
1	Sr 421.552†	-589.4	42.7	0.2083	µg/L	0.2083	ppb	13:38:12
1	Sc 361.383	737923.7	737923.7	103.55	%			13:39:29
1	Y 371.029	640764.1	640764.1	103.50	%			13:39:29
1	Ag 328.068†	-302.7	86.8	0.5510	µg/L	0.5510	ppb	13:39:34
1	As 188.979†	-3.0	5.9	3.3233	µg/L	3.3233	ppb	13:39:54
1	B 249.677†	159.7	57.2	1.6255	µg/L	1.6255	ppb	13:39:54
1	Ba 233.527†	-147.0	28.9	0.2695	µg/L	0.2695	ppb	13:39:54
1	Be 313.107†	-7783.6	478.0	0.2781	µg/L	0.2781	ppb	13:39:34
1	Cd 226.502†	-198.6	33.5	0.4979	µg/L	0.4979	ppb	13:39:54
1	Co 228.616†	-22.3	-0.7	-0.0132	µg/L	-0.0132	ppb	13:39:54
1	Cr 267.716†	196.5	-3.9	-0.0828	µg/L	-0.0828	ppb	13:39:54
1	Cu 324.752†	6553.2	-154.9	-0.6438	µg/L	-0.6438	ppb	13:39:34
1	Mn 257.610†	489.3	-32.1	-0.0449	µg/L	-0.0449	ppb	13:39:54
1	Mo 202.031†	59.4	35.3	2.4065	µg/L	2.4065	ppb	13:39:54
1	Ni 231.604†	-162.2	-28.0	-0.8134	µg/L	-0.8134	ppb	13:39:54
1	P 214.914†	115.8	-13.0	-9.7329	µg/L	-9.7329	ppb	13:39:54
1	Pb 220.353†	139.0	-16.6	-2.5140	µg/L	-2.5140	ppb	13:39:54
1	S 181.975 Axial†	58.4	-5.2	-9.0496	µg/L	-9.0496	ppb	13:39:54
1	Sb 206.836†	75.8	7.5	2.4550	µg/L	2.4550	ppb	13:39:54
1	Se 196.026†	-4.4	1.0	0.7661	µg/L	0.7661	ppb	13:39:54
1	SiO2†	2900.0	-149.8	-18.545	µg/L	-18.545	ppb	13:39:34
1	Si 251.611†	207.1	17.9	0.8115	µg/L	0.8115	ppb	13:39:54
1	Sn 189.927†	32.6	4.7	1.0244	µg/L	1.0244	ppb	13:39:54
1	Ti 334.940†	-199.3	-185.2	-0.4672	µg/L	-0.4672	ppb	13:39:34
1	Tl 190.801†	-33.4	16.2	5.5263	µg/L	5.5263	ppb	13:39:54
1	U 367.007†	333.0	27.1	6.642	µg/L	6.642	ppb	13:39:34
1	V 292.402†	-62.1	0.2	0.0346	µg/L	0.0346	ppb	13:39:34
1	Zn 213.857†	1236.9	-6.9	-0.0579	µg/L	-0.0579	ppb	13:39:54
2	Sc RADIAL	21490.4	21490.4	102	%			13:38:37
2	Al 396.153Radial†	-185.3	-7.1	-2.1925	µg/L	-2.1925	ppb	13:38:37
2	Ca 317.933Radial†	98.3	0.1	0.0590	µg/L	0.0590	ppb	13:38:57
2	Fe 238.204 Radial†	31.2	-2.0	-1.1030	µg/L	-1.1030	ppb	13:38:57
2	K 766.490 Radial†	1562.0	835.6	395.48	µg/L	395.48	ppb	13:38:37
2	Mg 279.077 IEC†	2.9	-7.1	-37.264	µg/L	-37.264	ppb	13:38:57
2	Na 589.592 Radial†	-56.0	-9.3	-19.286	µg/L	-19.286	ppb	13:38:37
2	Sr 421.552†	-662.1	-34.3	-0.1677	µg/L	-0.1677	ppb	13:38:37
2	Sc 361.383	726864.2	726864.2	102.00	%			13:39:59
2	Y 371.029	632117.4	632117.4	102.10	%			13:39:59
2	Ag 328.068†	-237.3	146.5	0.9299	µg/L	0.9299	ppb	13:40:04
2	As 188.979†	-10.8	-1.8	-1.0278	µg/L	-1.0278	ppb	13:40:24
2	B 249.677†	143.6	43.8	1.2441	µg/L	1.2441	ppb	13:40:24
2	Ba 233.527†	-158.0	15.9	0.1490	µg/L	0.1490	ppb	13:40:24
2	Be 313.107†	-7768.6	378.3	0.2229	µg/L	0.2229	ppb	13:40:04
2	Cd 226.502†	-210.2	19.2	0.2853	µg/L	0.2853	ppb	13:40:24
2	Co 228.616†	-7.7	13.2	0.3247	µg/L	0.3247	ppb	13:40:24
2	Cr 267.716†	191.0	-6.4	-0.1444	µg/L	-0.1444	ppb	13:40:24
2	Cu 324.752†	6629.1	15.8	0.0487	µg/L	0.0487	ppb	13:40:04
2	Mn 257.610†	481.8	-32.3	-0.0451	µg/L	-0.0451	ppb	13:40:24
2	Mo 202.031†	50.7	27.6	1.8844	µg/L	1.8844	ppb	13:40:24
2	Ni 231.604†	-170.8	-38.7	-1.1277	µg/L	-1.1277	ppb	13:40:24
2	P 214.914†	124.8	-2.5	-1.8795	µg/L	-1.8795	ppb	13:40:24
2	Pb 220.353†	170.6	16.4	2.4737	µg/L	2.4737	ppb	13:40:24

2	S 181.975 Axial†	56.6	-6.2	-10.684 µg/L	-10.684 ppb	13:40:24
2	Sb 206.836†	79.1	11.8	3.8429 µg/L	3.8429 ppb	13:40:24
2	Se 196.026†	-1.3	4.0	3.0195 µg/L	3.0195 ppb	13:40:24
2	SiO2†	2907.8	-99.6	-12.138 µg/L	-12.138 ppb	13:40:04
2	Si 251.611†	191.5	5.7	0.2475 µg/L	0.2475 ppb	13:40:24
2	Sn 189.927†	25.7	-1.6	-0.3500 µg/L	-0.3500 ppb	13:40:24
2	Ti 334.940†	-47.7	-39.6	-0.1077 µg/L	-0.1077 ppb	13:40:04
2	Tl 190.801†	-30.5	18.5	6.3441 µg/L	6.3441 ppb	13:40:24
2	U 367.007†	382.1	80.2	19.68 µg/L	19.68 ppb	13:40:04
2	V 292.402†	-45.8	15.3	0.1869 µg/L	0.1869 ppb	13:40:04
2	Zn 213.857†	1212.9	-12.2	-0.1052 µg/L	-0.1052 ppb	13:40:24
3	Sc RADIAL	21723.9	21723.9	104 %		13:39:02
3	Al 396.153Radial†	-216.1	-34.9	-10.475 µg/L	-10.475 ppb	13:39:02
3	Ca 317.933Radial†	92.2	-6.8	-3.2055 µg/L	-3.2055 ppb	13:39:22
3	Fe 238.204 Radial†	35.1	1.5	0.8228 µg/L	0.8228 ppb	13:39:22
3	K 766.490 Radial†	1599.9	855.8	405.07 µg/L	405.07 ppb	13:39:02
3	Mg 279.077 IEC†	1.9	-8.0	-42.338 µg/L	-42.338 ppb	13:39:22
3	Na 589.592 Radial†	-54.3	-7.1	-14.746 µg/L	-14.746 ppb	13:39:02
3	Sr 421.552†	-628.5	5.0	0.0245 µg/L	0.0245 ppb	13:39:02
3	Sc 361.383	735279.8	735279.8	103.18 %		13:40:29
3	Y 371.029	638566.2	638566.2	103.14 %		13:40:29
3	Ag 328.068†	-307.5	81.1	0.5132 µg/L	0.5132 ppb	13:40:34
3	As 188.979†	-10.5	-1.4	-0.8093 µg/L	-0.8093 ppb	13:40:54
3	B 249.677†	120.1	19.4	0.5503 µg/L	0.5503 ppb	13:40:54
3	Ba 233.527†	-154.4	21.1	0.1967 µg/L	0.1967 ppb	13:40:54
3	Be 313.107†	-7870.2	367.0	0.2141 µg/L	0.2141 ppb	13:40:34
3	Cd 226.502†	-205.6	26.0	0.3858 µg/L	0.3858 ppb	13:40:54
3	Co 228.616†	-9.3	11.8	0.2904 µg/L	0.2904 ppb	13:40:54
3	Cr 267.716†	187.0	-12.4	-0.2508 µg/L	-0.2508 ppb	13:40:54
3	Cu 324.752†	6576.4	-109.7	-0.4583 µg/L	-0.4583 ppb	13:40:34
3	Mn 257.610†	464.4	-54.6	-0.0765 µg/L	-0.0765 ppb	13:40:54
3	Mo 202.031†	48.5	25.0	1.7025 µg/L	1.7025 ppb	13:40:54
3	Ni 231.604†	-144.7	-11.6	-0.3363 µg/L	-0.3363 ppb	13:40:54
3	P 214.914†	121.8	-6.8	-5.0964 µg/L	-5.0964 ppb	13:40:54
3	Pb 220.353†	148.5	-6.9	-1.0396 µg/L	-1.0396 ppb	13:40:54
3	S 181.975 Axial†	60.2	-3.3	-5.6876 µg/L	-5.6876 ppb	13:40:54
3	Sb 206.836†	80.2	12.0	3.8990 µg/L	3.8990 ppb	13:40:54
3	Se 196.026†	5.5	10.7	7.9175 µg/L	7.9175 ppb	13:40:54
3	SiO2†	3026.2	-17.5	-2.0824 µg/L	-2.0824 ppb	13:40:34
3	Si 251.611†	176.0	-11.4	-0.5694 µg/L	-0.5694 ppb	13:40:54
3	Sn 189.927†	39.2	11.2	2.4381 µg/L	2.4381 ppb	13:40:54
3	Ti 334.940†	-161.0	-148.8	-0.3766 µg/L	-0.3766 ppb	13:40:34
3	Tl 190.801†	-38.1	11.5	3.9261 µg/L	3.9261 ppb	13:40:54
3	U 367.007†	338.6	33.7	8.271 µg/L	8.271 ppb	13:40:34
3	V 292.402†	-85.7	-22.9	-0.1993 µg/L	-0.1993 ppb	13:40:34
3	Zn 213.857†	1227.0	-12.2	-0.1101 µg/L	-0.1101 ppb	13:40:54

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	733355.9	102.91	%	0.810				0.79%
Sc RADIAL	21643.8	103	%	0.6				0.61%
Y 371.029	637149.2	102.91	%	0.726				0.71%
Ag 328.068†	104.8	0.6647	µg/L	0.23046	0.6647	ppb	0.23046	34.67%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-17.7	-5.3384	µg/L	4.48544	-5.3384	ppb	4.48544	84.02%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	0.9	0.4954	µg/L	2.45148	0.4954	ppb	2.45148	494.86%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	40.1	1.1400	µg/L	0.54510	1.1400	ppb	0.54510	47.82%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	22.0	0.2051	µg/L	0.06070	0.2051	ppb	0.06070	29.60%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	407.7	0.2384	µg/L	0.03470	0.2384	ppb	0.03470	14.56%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-2.5	-1.1747	µg/L	1.77221	-1.1747	ppb	1.77221	150.86%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	26.2	0.3897	µg/L	0.10631	0.3897	ppb	0.10631	27.28%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	8.1	0.2006	µg/L	0.18598	0.2006	ppb	0.18598	92.70%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†               -7.5     -0.1593 µg/L       0.08498     -0.1593 ppb        0.08498  53.33%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              -83.0     -0.3512 µg/L       0.35844     -0.3512 ppb        0.35844 102.08%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         0.7      0.3637 µg/L       1.29950      0.3637 ppb        1.29950 357.29%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        795.2      376.35 µg/L        41.706      376.35 ppb         41.706  11.08%
   QC value greater than the upper limit for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           -6.6     -35.080 µg/L        8.5615     -35.080 ppb         8.5615  24.41%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -39.7     -0.0555 µg/L       0.01821     -0.0555 ppb        0.01821  32.81%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               29.3      1.9978 µg/L       0.36540      1.9978 ppb        0.36540  18.29%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -15.2     -31.674 µg/L       25.4910     -31.674 ppb        25.4910  80.48%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -26.1     -0.7591 µg/L       0.39846     -0.7591 ppb        0.39846  52.49%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -7.4     -5.5696 µg/L       3.94805     -5.5696 ppb        3.94805  70.89%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               -2.4     -0.3600 µg/L       2.56233     -0.3600 ppb        2.56233 711.80%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -4.9     -8.4737 µg/L       2.54746     -8.4737 ppb        2.54746  30.06%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               10.4      3.3990 µg/L       0.81801      3.3990 ppb        0.81801  24.07%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                5.2      3.9010 µg/L       3.65626      3.9010 ppb        3.65626  93.73%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                     -89.0     -10.922 µg/L        8.2986     -10.922 ppb         8.2986  75.98%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†                4.1      0.1632 µg/L       0.69429      0.1632 ppb        0.69429 425.45%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                4.8      1.0375 µg/L       1.39411      1.0375 ppb        1.39411 134.37%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†                4.4      0.0217 µg/L       0.18803      0.0217 ppb        0.18803 866.93%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -124.5     -0.3172 µg/L       0.18697     -0.3172 ppb        0.18697  58.95%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               15.4      5.2655 µg/L       1.22988      5.2655 ppb        1.22988  23.36%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                47.0       11.53 µg/L         7.106       11.53 ppb          7.106  61.62%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                -2.5      0.0074 µg/L       0.19455      0.0074 ppb        0.19455 >999.9%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -10.4     -0.0911 µg/L       0.02882     -0.0911 ppb        0.02882  31.65%
   QC value within limits for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
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Analysis Begun

Start Time: 6/15/2012 14:03:33 **Plasma On Time: 6/14/2012 5:56:16**
Logged In Analyst: optima3 **Technique: ICP Continuous**
Spectrometer Model: Optima 5300 DV, S/N No Serial #Autosampler Model: AS-93plus

Sample Information File: C:\pe\Optima3\Sample Information\061512.sif
Batch ID:
Results Data Set: 061512
Results Library: C:\pe\Optima3\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 1**
Sample ID: CCV **Date Collected: 6/15/2012 14:03:34**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21742.8	21742.8	104	%			14:04:04
1	Al 396.153Radial†	16214.6	15819.5	4697.8	µg/L	4697.8	ppb	14:04:04
1	Ca 317.933Radial†	10390.8	9930.4	4709.1	µg/L	4709.1	ppb	14:04:24
1	Fe 238.204 Radial†	9066.0	8715.5	4758.1	µg/L	4758.1	ppb	14:04:24
1	K 766.490 Radial†	11577.7	10482.1	4956.7	µg/L	4956.7	ppb	14:04:04
1	Mg 279.077 IEC†	971.6	927.6	4914.3	µg/L	4914.3	ppb	14:04:24
1	Na 589.592 Radial†	4579.5	4464.2	9292.5	µg/L	9292.5	ppb	14:04:24
1	Sr 421.552†	98583.6	95736.5	467.50	µg/L	467.50	ppb	14:04:04
1	Sc 361.383	742747.3	742747.3	104.23	%			14:05:21
1	Y 371.029	641456.8	641456.8	103.61	%			14:05:21
1	Ag 328.068†	78378.3	75575.8	483.59	µg/L	483.59	ppb	14:05:26
1	As 188.979†	878.1	851.2	478.13	µg/L	478.13	ppb	14:05:46
1	B 249.677†	17472.2	16666.0	472.24	µg/L	472.24	ppb	14:05:26
1	Ba 233.527†	53532.8	51530.5	481.00	µg/L	481.00	ppb	14:05:26
1	Be 313.107†	856747.7	829964.1	480.61	µg/L	480.61	ppb	14:05:21
1	Cd 226.502†	33904.0	32753.0	486.37	µg/L	486.37	ppb	14:05:26
1	Co 228.616†	20839.2	20014.1	485.96	µg/L	485.96	ppb	14:05:26
1	Cr 267.716†	25848.9	24606.0	481.14	µg/L	481.14	ppb	14:05:26
1	Cu 324.752†	125980.0	114382.9	472.33	µg/L	472.33	ppb	14:05:26
1	Mn 257.610†	346297.2	331735.3	473.59	µg/L	473.59	ppb	14:05:26
1	Mo 202.031†	7329.3	7009.7	478.12	µg/L	478.12	ppb	14:05:46
1	Ni 231.604†	17439.0	16859.8	490.35	µg/L	490.35	ppb	14:05:26
1	P 214.914†	3458.6	3193.4	2377.5	µg/L	2377.5	ppb	14:05:46
1	Pb 220.353†	3464.9	3173.4	480.82	µg/L	480.82	ppb	14:05:46
1	S 181.975 Axial†	647.2	559.3	972.28	µg/L	972.28	ppb	14:05:46
1	Sb 206.836†	1568.3	1438.9	460.24	µg/L	460.24	ppb	14:05:46
1	Se 196.026†	678.6	656.4	490.53	µg/L	490.53	ppb	14:05:46
1	SiO2†	45695.6	40890.4	5125.5	µg/L	5125.5	ppb	14:05:26
1	Si 251.611†	53223.0	50880.5	2390.2	µg/L	2390.2	ppb	14:05:26
1	Sn 189.927†	2321.0	2200.0	482.66	µg/L	482.66	ppb	14:05:46
1	Ti 334.940†	197412.4	189406.1	474.68	µg/L	474.68	ppb	14:05:26
1	Tl 190.801†	1398.1	1389.8	477.63	µg/L	477.63	ppb	14:05:46
1	U 367.007†	2328.0	1939.1	453.5	µg/L	453.5	ppb	14:05:26
1	V 292.402†	50595.0	48601.3	483.56	µg/L	483.56	ppb	14:05:26
1	Zn 213.857†	55863.5	52394.5	478.65	µg/L	478.65	ppb	14:05:26
2	Sc RADIAL	21964.4	21964.4	105	%			14:04:29
2	Al 396.153Radial†	16316.7	15759.1	4679.9	µg/L	4679.9	ppb	14:04:29
2	Ca 317.933Radial†	10417.3	9854.5	4673.1	µg/L	4673.1	ppb	14:04:49
2	Fe 238.204 Radial†	9074.9	8635.7	4714.6	µg/L	4714.6	ppb	14:04:49
2	K 766.490 Radial†	11716.7	10502.2	4966.2	µg/L	4966.2	ppb	14:04:29
2	Mg 279.077 IEC†	977.2	923.5	4892.6	µg/L	4892.6	ppb	14:04:49
2	Na 589.592 Radial†	4585.5	4425.3	9211.6	µg/L	9211.6	ppb	14:04:49
2	Sr 421.552†	99596.7	95744.4	467.54	µg/L	467.54	ppb	14:04:29
2	Sc 361.383	748396.8	748396.8	105.02	%			14:05:52
2	Y 371.029	646757.7	646757.7	104.46	%			14:05:52
2	Ag 328.068†	78496.3	75120.6	480.68	µg/L	480.68	ppb	14:05:57
2	As 188.979†	886.7	853.1	479.17	µg/L	479.17	ppb	14:06:17

2	B 249.677†	17548.5	16612.1	470.72 µg/L	470.72 ppb	14:05:57
2	Ba 233.527†	53693.4	51295.8	478.81 µg/L	478.81 ppb	14:05:57
2	Be 313.107†	860682.8	827506.0	479.18 µg/L	479.18 ppb	14:05:52
2	Cd 226.502†	33981.6	32581.3	483.82 µg/L	483.82 ppb	14:05:57
2	Co 228.616†	20864.4	19887.2	482.88 µg/L	482.88 ppb	14:05:57
2	Cr 267.716†	25903.2	24470.5	478.49 µg/L	478.49 ppb	14:05:57
2	Cu 324.752†	126258.7	113735.8	469.65 µg/L	469.65 ppb	14:05:57
2	Mn 257.610†	346983.0	329880.3	470.94 µg/L	470.94 ppb	14:05:57
2	Mo 202.031†	7337.5	6964.4	475.03 µg/L	475.03 ppb	14:06:17
2	Ni 231.604†	17492.1	16784.0	488.14 µg/L	488.14 ppb	14:05:57
2	P 214.914†	3474.6	3183.6	2370.3 µg/L	2370.3 ppb	14:06:17
2	Pb 220.353†	3455.0	3138.9	475.59 µg/L	475.59 ppb	14:06:17
2	S 181.975 Axial†	651.0	558.2	970.36 µg/L	970.36 ppb	14:06:17
2	Sb 206.836†	1591.2	1449.3	463.63 µg/L	463.63 ppb	14:06:17
2	Se 196.026†	688.5	660.9	493.85 µg/L	493.85 ppb	14:06:17
2	SiO2†	45853.2	40709.5	5102.8 µg/L	5102.8 ppb	14:05:57
2	Si 251.611†	53320.5	50587.8	2376.4 µg/L	2376.4 ppb	14:05:57
2	Sn 189.927†	2334.5	2196.1	481.79 µg/L	481.79 ppb	14:06:17
2	Ti 334.940†	197691.2	188241.8	471.76 µg/L	471.76 ppb	14:05:57
2	Tl 190.801†	1415.3	1396.0	479.74 µg/L	479.74 ppb	14:06:17
2	U 367.007†	2340.3	1933.9	452.4 µg/L	452.4 ppb	14:05:57
2	V 292.402†	50742.2	48375.1	481.30 µg/L	481.30 ppb	14:05:57
2	Zn 213.857†	55931.8	52055.0	475.54 µg/L	475.54 ppb	14:05:57
3	Sc RADIAL	21952.9	21952.9	105 %		14:04:54
3	Al 396.153Radial†	16443.2	15888.2	4718.2 µg/L	4718.2 ppb	14:04:54
3	Ca 317.933Radial†	10458.8	9899.4	4694.4 µg/L	4694.4 ppb	14:05:14
3	Fe 238.204 Radial†	9109.9	8673.7	4735.4 µg/L	4735.4 ppb	14:05:14
3	K 766.490 Radial†	11739.6	10529.9	4979.3 µg/L	4979.3 ppb	14:04:54
3	Mg 279.077 IEC†	977.2	924.0	4895.5 µg/L	4895.5 ppb	14:05:14
3	Na 589.592 Radial†	4671.7	4510.1	9388.0 µg/L	9388.0 ppb	14:05:14
3	Sr 421.552†	100051.0	96228.3	469.90 µg/L	469.90 ppb	14:04:54
3	Sc 361.383	745029.0	745029.0	104.55 %		14:06:22
3	Y 371.029	643502.4	643502.4	103.94 %		14:06:22
3	Ag 328.068†	78616.9	75573.8	483.57 µg/L	483.57 ppb	14:06:28
3	As 188.979†	895.2	865.0	485.86 µg/L	485.86 ppb	14:06:48
3	B 249.677†	17555.2	16694.0	473.04 µg/L	473.04 ppb	14:06:28
3	Ba 233.527†	53782.8	51612.3	481.77 µg/L	481.77 ppb	14:06:28
3	Be 313.107†	857730.2	828386.5	479.70 µg/L	479.70 ppb	14:06:22
3	Cd 226.502†	34128.5	32868.1	488.08 µg/L	488.08 ppb	14:06:28
3	Co 228.616†	20883.8	19995.5	485.51 µg/L	485.51 ppb	14:06:28
3	Cr 267.716†	25931.5	24609.0	481.19 µg/L	481.19 ppb	14:06:28
3	Cu 324.752†	126326.9	114344.5	472.16 µg/L	472.16 ppb	14:06:28
3	Mn 257.610†	347504.4	331872.4	473.78 µg/L	473.78 ppb	14:06:28
3	Mo 202.031†	7350.3	7008.3	478.02 µg/L	478.02 ppb	14:06:48
3	Ni 231.604†	17529.7	16895.3	491.38 µg/L	491.38 ppb	14:06:28
3	P 214.914†	3469.7	3193.9	2377.9 µg/L	2377.9 ppb	14:06:48
3	Pb 220.353†	3464.6	3162.9	479.22 µg/L	479.22 ppb	14:06:48
3	S 181.975 Axial†	647.1	557.2	968.74 µg/L	968.74 ppb	14:06:48
3	Sb 206.836†	1580.1	1445.6	462.41 µg/L	462.41 ppb	14:06:48
3	Se 196.026†	694.8	669.9	500.58 µg/L	500.58 ppb	14:06:48
3	SiO2†	46091.5	41134.7	5156.1 µg/L	5156.1 ppb	14:06:28
3	Si 251.611†	53490.5	50979.9	2394.9 µg/L	2394.9 ppb	14:06:28
3	Sn 189.927†	2335.4	2207.0	484.18 µg/L	484.18 ppb	14:06:48
3	Ti 334.940†	197825.1	189220.8	474.21 µg/L	474.21 ppb	14:06:28
3	Tl 190.801†	1404.2	1391.5	478.23 µg/L	478.23 ppb	14:06:48
3	U 367.007†	2395.1	1996.4	467.6 µg/L	467.6 ppb	14:06:28
3	V 292.402†	50751.2	48602.1	483.58 µg/L	483.58 ppb	14:06:28
3	Zn 213.857†	56181.9	52534.9	479.94 µg/L	479.94 ppb	14:06:28

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	745391.0	104.60	%	0.399				0.38%
Sc RADIAL	21886.7	104	%	0.6				0.57%
Y 371.029	643905.6	104.00	%	0.432				0.42%
Ag 328.068†	75423.4	482.61	µg/L	1.676	482.61	ppb	1.676	0.35%
QC value within limits for Ag 328.068 Recovery = 96.52%								
Al 396.153Radial†	15822.3	4698.6	µg/L	19.20	4698.6	ppb	19.20	0.41%
QC value within limits for Al 396.153Radial Recovery = 93.97%								
As 188.979†	856.4	481.05	µg/L	4.193	481.05	ppb	4.193	0.87%

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   QC value within limits for As 188.979  Recovery = 96.21%
B 249.677†            16657.3      472.00 µg/L          1.179      472.00 ppb          1.179   0.25%
   QC value within limits for B 249.677  Recovery = 94.40%
Ba 233.527†           51479.5      480.53 µg/L          1.533      480.53 ppb          1.533   0.32%
   QC value within limits for Ba 233.527  Recovery = 96.11%
Be 313.107†          828618.9      479.83 µg/L          0.721      479.83 ppb          0.721   0.15%
   QC value within limits for Be 313.107  Recovery = 95.97%
Ca 317.933Radial†      9894.8      4692.2 µg/L          18.10      4692.2 ppb          18.10   0.39%
   QC value within limits for Ca 317.933Radial  Recovery = 93.84%
Cd 226.502†           32734.1      486.09 µg/L          2.144      486.09 ppb          2.144   0.44%
   QC value within limits for Cd 226.502  Recovery = 97.22%
Co 228.616†           19965.6      484.78 µg/L          1.665      484.78 ppb          1.665   0.34%
   QC value within limits for Co 228.616  Recovery = 96.96%
Cr 267.716†           24561.8      480.27 µg/L          1.544      480.27 ppb          1.544   0.32%
   QC value within limits for Cr 267.716  Recovery = 96.05%
Cu 324.752†          114154.4      471.38 µg/L          1.497      471.38 ppb          1.497   0.32%
   QC value within limits for Cu 324.752  Recovery = 94.28%
Fe 238.204 Radial†     8675.0      4736.0 µg/L          21.77      4736.0 ppb          21.77   0.46%
   QC value within limits for Fe 238.204 Radial  Recovery = 94.72%
K 766.490 Radial†     10504.8      4967.4 µg/L          11.35      4967.4 ppb          11.35   0.23%
   QC value within limits for K 766.490 Radial  Recovery = 99.35%
Mg 279.077 IEC†         925.1      4900.8 µg/L          11.79      4900.8 ppb          11.79   0.24%
   QC value within limits for Mg 279.077 IEC  Recovery = 98.02%
Mn 257.610†          331162.7      472.77 µg/L          1.589      472.77 ppb          1.589   0.34%
   QC value within limits for Mn 257.610  Recovery = 94.55%
Mo 202.031†           6994.1      477.06 µg/L          1.757      477.06 ppb          1.757   0.37%
   QC value within limits for Mo 202.031  Recovery = 95.41%
Na 589.592 Radial†     4466.5      9297.4 µg/L          88.30      9297.4 ppb          88.30   0.95%
   QC value within limits for Na 589.592 Radial  Recovery = 92.97%
Ni 231.604†           16846.4      489.96 µg/L          1.653      489.96 ppb          1.653   0.34%
   QC value within limits for Ni 231.604  Recovery = 97.99%
P 214.914†             3190.3      2375.2 µg/L           4.29      2375.2 ppb           4.29   0.18%
   QC value within limits for P 214.914  Recovery = 95.01%
Pb 220.353†           3158.4      478.54 µg/L          2.682      478.54 ppb          2.682   0.56%
   QC value within limits for Pb 220.353  Recovery = 95.71%
S 181.975 Axial†       558.2      970.46 µg/L          1.770      970.46 ppb          1.770   0.18%
   QC value within limits for S 181.975 Axial  Recovery = 97.05%
Sb 206.836†           1444.6      462.09 µg/L          1.714      462.09 ppb          1.714   0.37%
   QC value within limits for Sb 206.836  Recovery = 92.42%
Se 196.026†            662.4      494.99 µg/L          5.122      494.99 ppb          5.122   1.03%
   QC value within limits for Se 196.026  Recovery = 99.00%
SiO2†                 40911.5      5128.1 µg/L          26.75      5128.1 ppb          26.75   0.52%
   QC value within limits for SiO2  Recovery = 95.90%
Si 251.611†           50816.1      2387.2 µg/L           9.58      2387.2 ppb           9.58   0.40%
   QC value within limits for Si 251.611  Recovery = 95.49%
Sn 189.927†           2201.0      482.88 µg/L          1.210      482.88 ppb          1.210   0.25%
   QC value within limits for Sn 189.927  Recovery = 96.58%
Sr 421.552†           95903.1      468.32 µg/L          1.376      468.32 ppb          1.376   0.29%
   QC value within limits for Sr 421.552  Recovery = 93.66%
Ti 334.940†          188956.2      473.55 µg/L          1.567      473.55 ppb          1.567   0.33%
   QC value within limits for Ti 334.940  Recovery = 94.71%
Tl 190.801†           1392.4      478.53 µg/L          1.089      478.53 ppb          1.089   0.23%
   QC value within limits for Tl 190.801  Recovery = 95.71%
U 367.007†            1956.5       457.8 µg/L           8.51       457.8 ppb           8.51   1.86%
   QC value within limits for U 367.007  Recovery = 91.57%
V 292.402†            48526.2      482.81 µg/L          1.311      482.81 ppb          1.311   0.27%
   QC value within limits for V 292.402  Recovery = 96.56%
Zn 213.857†           52328.2      478.04 µg/L          2.260      478.04 ppb          2.260   0.47%
   QC value within limits for Zn 213.857  Recovery = 95.61%
All analyte(s) passed QC.
```

Sequence No.: 2 **Autosampler Location: 6**
Sample ID: CCB **Date Collected: 6/15/2012 14:06:55**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21503.9	21503.9	102	%			14:07:24
1	Al 396.153Radial†	-191.1	-12.6	-3.8595	µg/L	-3.8595	ppb	14:07:24
1	Ca 317.933Radial†	112.7	14.1	6.7064	µg/L	6.7064	ppb	14:07:44
1	Fe 238.204 Radial†	38.2	4.8	2.6202	µg/L	2.6202	ppb	14:07:44
1	K 766.490 Radial†	1240.2	520.6	246.42	µg/L	246.42	ppb	14:07:24
1	Mg 279.077 IEC†	6.5	-3.5	-18.455	µg/L	-18.455	ppb	14:07:44
1	Na 589.592 Radial†	-59.5	-12.6	-26.299	µg/L	-26.299	ppb	14:07:24
1	Sr 421.552†	-589.1	37.3	0.1821	µg/L	0.1821	ppb	14:07:24
1	Sc 361.383	729208.6	729208.6	102.33	%			14:08:41
1	Y 371.029	633663.6	633663.6	102.35	%			14:08:41
1	Ag 328.068†	-340.7	46.2	0.2922	µg/L	0.2922	ppb	14:08:46
1	As 188.979†	-6.8	2.2	1.2170	µg/L	1.2170	ppb	14:09:06
1	B 249.677†	128.2	28.2	0.8012	µg/L	0.8012	ppb	14:09:06
1	Ba 233.527†	-147.1	27.0	0.2517	µg/L	0.2517	ppb	14:09:06
1	Be 313.107†	-7741.5	429.2	0.2502	µg/L	0.2502	ppb	14:08:46
1	Cd 226.502†	-195.5	34.3	0.5087	µg/L	0.5087	ppb	14:09:06
1	Co 228.616†	-2.8	18.1	0.4429	µg/L	0.4429	ppb	14:09:06
1	Cr 267.716†	207.8	9.5	0.1773	µg/L	0.1773	ppb	14:09:06
1	Cu 324.752†	6627.9	-6.3	-0.0317	µg/L	-0.0317	ppb	14:08:46
1	Mn 257.610†	513.7	-2.7	-0.0030	µg/L	-0.0030	ppb	14:09:06
1	Mo 202.031†	60.6	37.2	2.5341	µg/L	2.5341	ppb	14:09:06
1	Ni 231.604†	-154.4	-22.2	-0.6466	µg/L	-0.6466	ppb	14:09:06
1	P 214.914†	124.5	-3.2	-2.4082	µg/L	-2.4082	ppb	14:09:06
1	Pb 220.353†	168.1	13.4	2.0384	µg/L	2.0384	ppb	14:09:06
1	S 181.975 Axial†	61.5	-1.6	-2.7120	µg/L	-2.7120	ppb	14:09:06
1	Sb 206.836†	81.6	14.0	4.5526	µg/L	4.5526	ppb	14:09:06
1	Se 196.026†	-1.5	3.9	2.9008	µg/L	2.9008	ppb	14:09:06
1	SiO2†	3038.5	19.0	2.4876	µg/L	2.4876	ppb	14:08:46
1	Si 251.611†	187.8	1.5	0.0297	µg/L	0.0297	ppb	14:09:06
1	Sn 189.927†	38.1	10.4	2.2767	µg/L	2.2767	ppb	14:09:06
1	Ti 334.940†	-61.8	-53.1	-0.1365	µg/L	-0.1365	ppb	14:08:46
1	Tl 190.801†	-38.0	11.3	3.8606	µg/L	3.8606	ppb	14:09:06
1	U 367.007†	334.0	31.9	7.817	µg/L	7.817	ppb	14:08:46
1	V 292.402†	-89.8	-27.6	-0.2355	µg/L	-0.2355	ppb	14:08:46
1	Zn 213.857†	1233.6	4.2	0.0421	µg/L	0.0421	ppb	14:09:06
2	Sc RADIAL	21608.1	21608.1	103	%			14:07:49
2	Al 396.153Radial†	-186.0	-6.8	-2.1056	µg/L	-2.1056	ppb	14:07:49
2	Ca 317.933Radial†	103.0	4.1	1.9666	µg/L	1.9666	ppb	14:08:09
2	Fe 238.204 Radial†	38.2	4.6	2.5243	µg/L	2.5243	ppb	14:08:09
2	K 766.490 Radial†	1228.8	503.8	238.44	µg/L	238.44	ppb	14:07:49
2	Mg 279.077 IEC†	11.5	1.3	6.9513	µg/L	6.9513	ppb	14:08:09
2	Na 589.592 Radial†	-71.2	-23.8	-49.441	µg/L	-49.441	ppb	14:07:49
2	Sr 421.552†	-628.1	2.2	0.0107	µg/L	0.0107	ppb	14:07:49
2	Sc 361.383	732188.9	732188.9	102.75	%			14:09:11
2	Y 371.029	636304.3	636304.3	102.77	%			14:09:11
2	Ag 328.068†	-331.5	56.5	0.3572	µg/L	0.3572	ppb	14:09:16
2	As 188.979†	-17.2	-7.9	-4.4587	µg/L	-4.4587	ppb	14:09:36
2	B 249.677†	105.7	5.8	0.1640	µg/L	0.1640	ppb	14:09:36
2	Ba 233.527†	-152.6	22.3	0.2076	µg/L	0.2076	ppb	14:09:36
2	Be 313.107†	-7983.5	224.6	0.1316	µg/L	0.1316	ppb	14:09:16
2	Cd 226.502†	-200.0	30.7	0.4550	µg/L	0.4550	ppb	14:09:36
2	Co 228.616†	-1.6	19.3	0.4713	µg/L	0.4713	ppb	14:09:36
2	Cr 267.716†	196.7	-2.2	-0.0500	µg/L	-0.0500	ppb	14:09:36
2	Cu 324.752†	6617.9	-42.4	-0.1800	µg/L	-0.1800	ppb	14:09:16
2	Mn 257.610†	485.7	-31.9	-0.0455	µg/L	-0.0455	ppb	14:09:36
2	Mo 202.031†	56.4	32.8	2.2356	µg/L	2.2356	ppb	14:09:36
2	Ni 231.604†	-162.9	-29.9	-0.8701	µg/L	-0.8701	ppb	14:09:36
2	P 214.914†	120.9	-7.2	-5.4163	µg/L	-5.4163	ppb	14:09:36
2	Pb 220.353†	169.7	14.3	2.1675	µg/L	2.1675	ppb	14:09:36

2	S 181.975 Axial†	63.5	0.1	0.2055 µg/L	0.2055 ppb	14:09:36
2	Sb 206.836†	81.1	13.2	4.2917 µg/L	4.2917 ppb	14:09:36
2	Se 196.026†	-8.7	-3.2	-2.3340 µg/L	-2.3340 ppb	14:09:36
2	SiO2†	2998.9	-31.6	-3.8123 µg/L	-3.8123 ppb	14:09:16
2	Si 251.611†	185.0	-2.0	-0.1215 µg/L	-0.1215 ppb	14:09:36
2	Sn 189.927†	26.8	-0.7	-0.1588 µg/L	-0.1588 ppb	14:09:36
2	Ti 334.940†	-86.7	-77.1	-0.1968 µg/L	-0.1968 ppb	14:09:16
2	Tl 190.801†	-34.8	14.5	4.9767 µg/L	4.9767 ppb	14:09:36
2	U 367.007†	334.2	30.8	7.539 µg/L	7.539 ppb	14:09:16
2	V 292.402†	-91.1	-28.4	-0.2479 µg/L	-0.2479 ppb	14:09:16
2	Zn 213.857†	1221.2	-12.8	-0.1122 µg/L	-0.1122 ppb	14:09:36
3	Sc RADIAL	21515.6	21515.6	103 %		14:08:14
3	Al 396.153Radial†	-182.0	-3.7	-1.1738 µg/L	-1.1738 ppb	14:08:14
3	Ca 317.933Radial†	101.6	3.2	1.5221 µg/L	1.5221 ppb	14:08:34
3	Fe 238.204 Radial†	39.3	5.8	3.1881 µg/L	3.1881 ppb	14:08:34
3	K 766.490 Radial†	1214.5	495.0	234.28 µg/L	234.28 ppb	14:08:14
3	Mg 279.077 IEC†	9.6	-0.5	-2.6102 µg/L	-2.6102 ppb	14:08:34
3	Na 589.592 Radial†	-87.4	-39.9	-82.987 µg/L	-82.987 ppb	14:08:14
3	Sr 421.552†	-634.4	-6.6	-0.0322 µg/L	-0.0322 ppb	14:08:14
3	Sc 361.383	733213.4	733213.4	102.89 %		14:09:41
3	Y 371.029	637416.7	637416.7	102.95 %		14:09:41
3	Ag 328.068†	-354.3	34.8	0.2203 µg/L	0.2203 ppb	14:09:46
3	As 188.979†	-14.3	-5.1	-2.8566 µg/L	-2.8566 ppb	14:10:06
3	B 249.677†	140.0	39.0	1.1084 µg/L	1.1084 ppb	14:10:06
3	Ba 233.527†	-155.7	19.5	0.1810 µg/L	0.1810 ppb	14:10:06
3	Be 313.107†	-7836.7	378.1	0.2225 µg/L	0.2225 ppb	14:09:46
3	Cd 226.502†	-209.5	21.6	0.3205 µg/L	0.3205 ppb	14:10:06
3	Co 228.616†	-4.0	16.9	0.4156 µg/L	0.4156 ppb	14:10:06
3	Cr 267.716†	222.0	22.2	0.4161 µg/L	0.4161 ppb	14:10:06
3	Cu 324.752†	6550.5	-116.9	-0.4951 µg/L	-0.4951 ppb	14:09:46
3	Mn 257.610†	487.8	-30.5	-0.0432 µg/L	-0.0432 ppb	14:10:06
3	Mo 202.031†	55.2	31.6	2.1536 µg/L	2.1536 ppb	14:10:06
3	Ni 231.604†	-164.5	-31.2	-0.9069 µg/L	-0.9069 ppb	14:10:06
3	P 214.914†	107.9	-20.0	-14.980 µg/L	-14.980 ppb	14:10:06
3	Pb 220.353†	150.9	-4.2	-0.6391 µg/L	-0.6391 ppb	14:10:06
3	S 181.975 Axial†	61.7	-1.7	-2.8842 µg/L	-2.8842 ppb	14:10:06
3	Sb 206.836†	87.4	19.2	6.2132 µg/L	6.2132 ppb	14:10:06
3	Se 196.026†	-1.6	3.8	2.8400 µg/L	2.8400 ppb	14:10:06
3	SiO2†	3019.9	-15.3	-1.6433 µg/L	-1.6433 ppb	14:09:46
3	Si 251.611†	184.4	-2.9	-0.1627 µg/L	-0.1627 ppb	14:10:06
3	Sn 189.927†	28.4	0.9	0.1822 µg/L	0.1822 ppb	14:10:06
3	Ti 334.940†	-203.6	-190.6	-0.4860 µg/L	-0.4860 ppb	14:09:46
3	Tl 190.801†	-33.4	16.0	5.4660 µg/L	5.4660 ppb	14:10:06
3	U 367.007†	375.4	70.4	17.25 µg/L	17.25 ppb	14:09:46
3	V 292.402†	-85.8	-23.2	-0.1877 µg/L	-0.1877 ppb	14:09:46
3	Zn 213.857†	1215.5	-20.0	-0.1786 µg/L	-0.1786 ppb	14:10:06

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	731537.0	102.66	%	0.292				0.28%
Sc RADIAL	21542.6	103	%	0.3				0.26%
Y 371.029	635794.9	102.69	%	0.311				0.30%
Ag 328.068†	45.8	0.2899	µg/L	0.06849	0.2899	ppb	0.06849	23.62%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-7.7	-2.3797	µg/L	1.36366	-2.3797	ppb	1.36366	57.31%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-3.6	-2.0328	µg/L	2.92617	-2.0328	ppb	2.92617	143.95%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	24.4	0.6912	µg/L	0.48168	0.6912	ppb	0.48168	69.69%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	22.9	0.2134	µg/L	0.03567	0.2134	ppb	0.03567	16.71%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	344.0	0.2014	µg/L	0.06206	0.2014	ppb	0.06206	30.81%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	7.2	3.3984	µg/L	2.87347	3.3984	ppb	2.87347	84.55%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	28.8	0.4280	µg/L	0.09692	0.4280	ppb	0.09692	22.64%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	18.1	0.4433	µg/L	0.02789	0.4433	ppb	0.02789	6.29%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†                9.8      0.1811 µg/L       0.23306      0.1811 ppb        0.23306 128.66%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              -55.2     -0.2356 µg/L       0.23669     -0.2356 ppb        0.23669 100.47%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         5.1      2.7776 µg/L       0.35875      2.7776 ppb        0.35875  12.92%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        506.5      239.71 µg/L         6.170      239.71 ppb          6.170   2.57%
   QC value greater than the upper limit for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           -0.9     -4.7047 µg/L      12.83213     -4.7047 ppb       12.83213 272.75%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -21.7     -0.0306 µg/L       0.02391     -0.0306 ppb        0.02391  78.21%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               33.8      2.3078 µg/L       0.20023      2.3078 ppb        0.20023   8.68%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -25.4     -52.909 µg/L       28.5026     -52.909 ppb        28.5026  53.87%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -27.8     -0.8079 µg/L       0.14088     -0.8079 ppb        0.14088  17.44%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -10.1     -7.6017 µg/L       6.56485     -7.6017 ppb        6.56485  86.36%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                7.8      1.1890 µg/L       1.58442      1.1890 ppb        1.58442 133.26%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -1.0     -1.7969 µg/L       1.73630     -1.7969 ppb        1.73630  96.63%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               15.5      5.0192 µg/L       1.04224      5.0192 ppb        1.04224  20.77%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                1.5      1.1356 µg/L       3.00493      1.1356 ppb        3.00493 264.61%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                     -9.3     -0.9893 µg/L       3.20042     -0.9893 ppb        3.20042 323.49%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               -1.1     -0.0848 µg/L       0.10128     -0.0848 ppb        0.10128 119.37%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                3.5      0.7667 µg/L       1.31874      0.7667 ppb        1.31874 172.00%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               11.0      0.0536 µg/L       0.11340      0.0536 ppb        0.11340 211.76%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -107.0     -0.2731 µg/L       0.18680     -0.2731 ppb        0.18680  68.40%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               13.9      4.7678 µg/L       0.82283      4.7678 ppb        0.82283  17.26%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                44.4       10.87 µg/L         5.528       10.87 ppb          5.528  50.86%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -26.4     -0.2237 µg/L       0.03176     -0.2237 ppb        0.03176  14.20%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†               -9.5     -0.0829 µg/L       0.11324     -0.0829 ppb        0.11324 136.63%
   QC value within limits for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
```

Sequence No.: 10 **Autosampler Location: 1**
Sample ID: CCV **Date Collected: 6/15/2012 14:33:17**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21456.8	21456.8	102	%			14:33:48
1	Al 396.153Radial†	16785.3	16586.0	4925.4	µg/L	4925.4	ppb	14:33:48
1	Ca 317.933Radial†	10652.9	10320.3	4894.0	µg/L	4894.0	ppb	14:34:08
1	Fe 238.204 Radial†	9341.2	9101.1	4968.7	µg/L	4968.7	ppb	14:34:08
1	K 766.490 Radial†	11847.8	10895.2	5152.0	µg/L	5152.0	ppb	14:33:48
1	Mg 279.077 IEC†	1000.1	968.0	5128.3	µg/L	5128.3	ppb	14:34:08
1	Na 589.592 Radial†	4730.9	4671.1	9723.2	µg/L	9723.2	ppb	14:34:08
1	Sr 421.552†	102792.4	101119.6	493.79	µg/L	493.79	ppb	14:33:48
1	Sc 361.383	724495.0	724495.0	101.67	%			14:35:05
1	Y 371.029	625232.5	625232.5	100.99	%			14:35:05
1	Ag 328.068†	79641.9	78713.2	503.68	µg/L	503.68	ppb	14:35:10
1	As 188.979†	897.3	891.4	500.67	µg/L	500.67	ppb	14:35:30
1	B 249.677†	17794.2	17405.0	493.18	µg/L	493.18	ppb	14:35:10
1	Ba 233.527†	54425.4	53702.4	501.28	µg/L	501.28	ppb	14:35:10
1	Be 313.107†	878507.3	872074.4	504.99	µg/L	504.99	ppb	14:35:05
1	Cd 226.502†	34410.4	34070.6	505.93	µg/L	505.93	ppb	14:35:10
1	Co 228.616†	21142.4	20816.1	505.43	µg/L	505.43	ppb	14:35:10
1	Cr 267.716†	26234.5	25610.0	500.78	µg/L	500.78	ppb	14:35:10
1	Cu 324.752†	128597.8	120002.6	495.53	µg/L	495.53	ppb	14:35:10
1	Mn 257.610†	352430.4	346137.9	494.15	µg/L	494.15	ppb	14:35:10
1	Mo 202.031†	7485.8	7340.7	500.70	µg/L	500.70	ppb	14:35:30
1	Ni 231.604†	17745.5	17582.8	511.38	µg/L	511.38	ppb	14:35:10
1	P 214.914†	3706.5	3520.8	2622.2	µg/L	2622.2	ppb	14:35:30
1	Pb 220.353†	3513.4	3304.8	500.74	µg/L	500.74	ppb	14:35:30
1	S 181.975 Axial†	668.7	596.1	1036.3	µg/L	1036.3	ppb	14:35:30
1	Sb 206.836†	1604.5	1512.4	483.84	µg/L	483.84	ppb	14:35:30
1	Se 196.026†	713.2	706.8	528.07	µg/L	528.07	ppb	14:35:30
1	SiO2†	46585.7	42870.4	5373.5	µg/L	5373.5	ppb	14:35:10
1	Si 251.611†	54229.3	53156.6	2497.1	µg/L	2497.1	ppb	14:35:10
1	Sn 189.927†	2371.4	2305.7	505.85	µg/L	505.85	ppb	14:35:30
1	Ti 334.940†	201504.5	198202.5	496.73	µg/L	496.73	ppb	14:35:10
1	Tl 190.801†	1418.7	1443.8	496.23	µg/L	496.23	ppb	14:35:30
1	U 367.007†	2348.5	2015.5	471.2	µg/L	471.2	ppb	14:35:10
1	V 292.402†	51555.0	50768.6	505.13	µg/L	505.13	ppb	14:35:10
1	Zn 213.857†	56784.8	54650.9	499.26	µg/L	499.26	ppb	14:35:10
2	Sc RADIAL	21119.6	21119.6	101	%			14:34:13
2	Al 396.153Radial†	16773.4	16836.3	5000.1	µg/L	5000.1	ppb	14:34:13
2	Ca 317.933Radial†	10576.3	10410.5	4936.8	µg/L	4936.8	ppb	14:34:33
2	Fe 238.204 Radial†	9262.6	9168.9	5005.7	µg/L	5005.7	ppb	14:34:33
2	K 766.490 Radial†	11757.9	10990.9	5197.2	µg/L	5197.2	ppb	14:34:13
2	Mg 279.077 IEC†	992.8	976.4	5172.5	µg/L	5172.5	ppb	14:34:33
2	Na 589.592 Radial†	4656.5	4671.1	9723.2	µg/L	9723.2	ppb	14:34:33
2	Sr 421.552†	102907.2	102838.6	502.18	µg/L	502.18	ppb	14:34:13
2	Sc 361.383	723487.5	723487.5	101.53	%			14:35:35
2	Y 371.029	623994.3	623994.3	100.79	%			14:35:35
2	Ag 328.068†	79732.6	78911.5	504.95	µg/L	504.95	ppb	14:35:41
2	As 188.979†	889.0	884.4	496.75	µg/L	496.75	ppb	14:36:01
2	B 249.677†	17809.9	17444.8	494.30	µg/L	494.30	ppb	14:35:41
2	Ba 233.527†	54631.8	53980.2	503.87	µg/L	503.87	ppb	14:35:41
2	Be 313.107†	876845.3	871640.7	504.74	µg/L	504.74	ppb	14:35:35
2	Cd 226.502†	34522.6	34228.2	508.27	µg/L	508.27	ppb	14:35:41
2	Co 228.616†	21228.1	20929.4	508.17	µg/L	508.17	ppb	14:35:41
2	Cr 267.716†	26233.7	25645.2	501.46	µg/L	501.46	ppb	14:35:41
2	Cu 324.752†	128889.1	120465.8	497.44	µg/L	497.44	ppb	14:35:41
2	Mn 257.610†	353162.6	347341.8	495.87	µg/L	495.87	ppb	14:35:41
2	Mo 202.031†	7419.1	7285.4	496.93	µg/L	496.93	ppb	14:36:01
2	Ni 231.604†	17770.0	17631.2	512.78	µg/L	512.78	ppb	14:35:41
2	P 214.914†	3647.9	3468.1	2582.7	µg/L	2582.7	ppb	14:36:01
2	Pb 220.353†	3529.8	3325.8	503.88	µg/L	503.88	ppb	14:36:01

2	S 181.975 Axial†	662.7	591.1	1027.6 µg/L	1027.6 ppb	14:36:01
2	Sb 206.836†	1595.6	1505.9	481.67 µg/L	481.67 ppb	14:36:01
2	Se 196.026†	718.3	712.8	532.56 µg/L	532.56 ppb	14:36:01
2	SiO2†	46678.8	43025.9	5392.9 µg/L	5392.9 ppb	14:35:41
2	Si 251.611†	54427.6	53426.3	2509.9 µg/L	2509.9 ppb	14:35:41
2	Sn 189.927†	2348.8	2286.7	501.70 µg/L	501.70 ppb	14:36:01
2	Ti 334.940†	201846.9	198815.8	498.26 µg/L	498.26 ppb	14:35:41
2	Tl 190.801†	1407.7	1435.0	493.20 µg/L	493.20 ppb	14:36:01
2	U 367.007†	2362.2	2032.2	475.1 µg/L	475.1 ppb	14:35:41
2	V 292.402†	51653.6	50936.2	506.73 µg/L	506.73 ppb	14:35:41
2	Zn 213.857†	56936.8	54878.4	501.34 µg/L	501.34 ppb	14:35:41
3	Sc RADIAL	21269.2	21269.2	101 %		14:34:38
3	Al 396.153Radial†	16842.7	16787.4	4985.5 µg/L	4985.5 ppb	14:34:38
3	Ca 317.933Radial†	10611.1	10370.9	4918.0 µg/L	4918.0 ppb	14:34:58
3	Fe 238.204 Radial†	9275.1	9116.5	4977.1 µg/L	4977.1 ppb	14:34:58
3	K 766.490 Radial†	11863.4	11012.7	5207.6 µg/L	5207.6 ppb	14:34:38
3	Mg 279.077 IEC†	995.0	971.6	5147.5 µg/L	5147.5 ppb	14:34:58
3	Na 589.592 Radial†	4625.4	4607.9	9591.6 µg/L	9591.6 ppb	14:34:58
3	Sr 421.552†	102415.0	101634.0	496.30 µg/L	496.30 ppb	14:34:38
3	Sc 361.383	717057.6	717057.6	100.63 %		14:36:06
3	Y 371.029	619087.6	619087.6	99.994 %		14:36:06
3	Ag 328.068†	78651.5	78541.4	502.58 µg/L	502.58 ppb	14:36:11
3	As 188.979†	879.1	882.4	495.64 µg/L	495.64 ppb	14:36:32
3	B 249.677†	17533.5	17327.4	490.98 µg/L	490.98 ppb	14:36:11
3	Ba 233.527†	53613.0	53450.3	498.93 µg/L	498.93 ppb	14:36:11
3	Be 313.107†	864410.2	867027.3	502.07 µg/L	502.07 ppb	14:36:06
3	Cd 226.502†	33861.6	33876.2	503.04 µg/L	503.04 ppb	14:36:11
3	Co 228.616†	20826.6	20717.9	503.05 µg/L	503.05 ppb	14:36:11
3	Cr 267.716†	25869.0	25514.5	498.90 µg/L	498.90 ppb	14:36:11
3	Cu 324.752†	126923.4	119650.6	494.07 µg/L	494.07 ppb	14:36:11
3	Mn 257.610†	347394.2	344728.5	492.14 µg/L	492.14 ppb	14:36:11
3	Mo 202.031†	7371.4	7303.4	498.16 µg/L	498.16 ppb	14:36:32
3	Ni 231.604†	17426.0	17446.3	507.41 µg/L	507.41 ppb	14:36:11
3	P 214.914†	3609.0	3461.7	2578.0 µg/L	2578.0 ppb	14:36:32
3	Pb 220.353†	3464.6	3292.2	498.78 µg/L	498.78 ppb	14:36:32
3	S 181.975 Axial†	649.7	584.0	1015.3 µg/L	1015.3 ppb	14:36:32
3	Sb 206.836†	1585.1	1509.6	482.94 µg/L	482.94 ppb	14:36:32
3	Se 196.026†	701.0	702.0	524.55 µg/L	524.55 ppb	14:36:32
3	SiO2†	45961.0	42724.8	5355.3 µg/L	5355.3 ppb	14:36:11
3	Si 251.611†	53473.9	52959.2	2487.8 µg/L	2487.8 ppb	14:36:11
3	Sn 189.927†	2343.1	2301.8	504.98 µg/L	504.98 ppb	14:36:32
3	Ti 334.940†	198593.9	197365.7	494.63 µg/L	494.63 ppb	14:36:11
3	Tl 190.801†	1400.4	1440.1	494.95 µg/L	494.95 ppb	14:36:32
3	U 367.007†	2356.7	2047.7	479.1 µg/L	479.1 ppb	14:36:11
3	V 292.402†	50895.8	50639.4	503.83 µg/L	503.83 ppb	14:36:11
3	Zn 213.857†	55915.8	54366.6	496.66 µg/L	496.66 ppb	14:36:11

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	721680.0	101.27	%	0.566				0.56%
Sc RADIAL	21281.8	101	%	0.8				0.79%
Y 371.029	622771.5	100.59	%	0.525				0.52%
Ag 328.068†	78722.0	503.74	µg/L	1.188	503.74	ppb	1.188	0.24%
QC value within limits for Ag 328.068 Recovery = 100.75%								
Al 396.153Radial†	16736.6	4970.4	µg/L	39.62	4970.4	ppb	39.62	0.80%
QC value within limits for Al 396.153Radial Recovery = 99.41%								
As 188.979†	886.1	497.69	µg/L	2.646	497.69	ppb	2.646	0.53%
QC value within limits for As 188.979 Recovery = 99.54%								
B 249.677†	17392.4	492.82	µg/L	1.689	492.82	ppb	1.689	0.34%
QC value within limits for B 249.677 Recovery = 98.56%								
Ba 233.527†	53711.0	501.36	µg/L	2.473	501.36	ppb	2.473	0.49%
QC value within limits for Ba 233.527 Recovery = 100.27%								
Be 313.107†	870247.5	503.93	µg/L	1.618	503.93	ppb	1.618	0.32%
QC value within limits for Be 313.107 Recovery = 100.79%								
Ca 317.933Radial†	10367.2	4916.2	µg/L	21.45	4916.2	ppb	21.45	0.44%
QC value within limits for Ca 317.933Radial Recovery = 98.32%								
Cd 226.502†	34058.3	505.75	µg/L	2.620	505.75	ppb	2.620	0.52%
QC value within limits for Cd 226.502 Recovery = 101.15%								
Co 228.616†	20821.1	505.55	µg/L	2.567	505.55	ppb	2.567	0.51%

QC value within limits for Co 228.616 Recovery = 101.11%

Cr 267.716†	25589.9	500.38 µg/L	1.326	500.38 ppb	1.326	0.27%
QC value within limits for Cr 267.716 Recovery = 100.08%						
Cu 324.752†	120039.6	495.68 µg/L	1.692	495.68 ppb	1.692	0.34%
QC value within limits for Cu 324.752 Recovery = 99.14%						
Fe 238.204 Radial†	9128.9	4983.8 µg/L	19.40	4983.8 ppb	19.40	0.39%
QC value within limits for Fe 238.204 Radial Recovery = 99.68%						
K 766.490 Radial†	10966.3	5185.6 µg/L	29.59	5185.6 ppb	29.59	0.57%
QC value within limits for K 766.490 Radial Recovery = 103.71%						
Mg 279.077 IEC†	972.0	5149.4 µg/L	22.19	5149.4 ppb	22.19	0.43%
QC value within limits for Mg 279.077 IEC Recovery = 102.99%						
Mn 257.610†	346069.4	494.05 µg/L	1.867	494.05 ppb	1.867	0.38%
QC value within limits for Mn 257.610 Recovery = 98.81%						
Mo 202.031†	7309.8	498.59 µg/L	1.925	498.59 ppb	1.925	0.39%
QC value within limits for Mo 202.031 Recovery = 99.72%						
Na 589.592 Radial†	4650.0	9679.3 µg/L	76.01	9679.3 ppb	76.01	0.79%
QC value within limits for Na 589.592 Radial Recovery = 96.79%						
Ni 231.604†	17553.4	510.52 µg/L	2.788	510.52 ppb	2.788	0.55%
QC value within limits for Ni 231.604 Recovery = 102.10%						
P 214.914†	3483.6	2594.3 µg/L	24.30	2594.3 ppb	24.30	0.94%
QC value within limits for P 214.914 Recovery = 103.77%						
Pb 220.353†	3307.6	501.13 µg/L	2.570	501.13 ppb	2.570	0.51%
QC value within limits for Pb 220.353 Recovery = 100.23%						
S 181.975 Axial†	590.4	1026.4 µg/L	10.56	1026.4 ppb	10.56	1.03%
QC value within limits for S 181.975 Axial Recovery = 102.64%						
Sb 206.836†	1509.3	482.81 µg/L	1.091	482.81 ppb	1.091	0.23%
QC value within limits for Sb 206.836 Recovery = 96.56%						
Se 196.026†	707.2	528.39 µg/L	4.014	528.39 ppb	4.014	0.76%
QC value within limits for Se 196.026 Recovery = 105.68%						
SiO2†	42873.7	5373.9 µg/L	18.79	5373.9 ppb	18.79	0.35%
QC value within limits for SiO2 Recovery = 100.49%						
Si 251.611†	53180.7	2498.2 µg/L	11.07	2498.2 ppb	11.07	0.44%
QC value within limits for Si 251.611 Recovery = 99.93%						
Sn 189.927†	2298.0	504.18 µg/L	2.189	504.18 ppb	2.189	0.43%
QC value within limits for Sn 189.927 Recovery = 100.84%						
Sr 421.552†	101864.0	497.43 µg/L	4.309	497.43 ppb	4.309	0.87%
QC value within limits for Sr 421.552 Recovery = 99.49%						
Ti 334.940†	198128.0	496.54 µg/L	1.826	496.54 ppb	1.826	0.37%
QC value within limits for Ti 334.940 Recovery = 99.31%						
Tl 190.801†	1439.6	494.79 µg/L	1.517	494.79 ppb	1.517	0.31%
QC value within limits for Tl 190.801 Recovery = 98.96%						
U 367.007†	2031.8	475.1 µg/L	3.92	475.1 ppb	3.92	0.83%
QC value within limits for U 367.007 Recovery = 95.03%						
V 292.402†	50781.4	505.23 µg/L	1.453	505.23 ppb	1.453	0.29%
QC value within limits for V 292.402 Recovery = 101.05%						
Zn 213.857†	54632.0	499.09 µg/L	2.342	499.09 ppb	2.342	0.47%
QC value within limits for Zn 213.857 Recovery = 99.82%						

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/15/2012 14:36:39**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21212.2	21212.2	101	%			14:37:08
1	Al 396.153Radial†	557.5	725.2	215.71	µg/L	215.71	ppb	14:37:08
1	Ca 317.933Radial†	545.3	443.5	210.31	µg/L	210.31	ppb	14:37:28
1	Fe 238.204 Radial†	227.5	192.6	105.08	µg/L	105.08	ppb	14:37:28
1	K 766.490 Radial†	1604.7	897.9	424.93	µg/L	424.93	ppb	14:37:08
1	Mg 279.077 IEC†	61.5	51.0	270.19	µg/L	270.19	ppb	14:37:28
1	Na 589.592 Radial†	87.9	132.3	275.39	µg/L	275.39	ppb	14:37:08
1	Sr 421.552†	407.8	1015.3	4.9572	µg/L	4.9572	ppb	14:37:08
1	Sc 361.383	726325.9	726325.9	101.93	%			14:38:25
1	Y 371.029	631087.9	631087.9	101.93	%			14:38:25
1	Ag 328.068†	515.0	884.4	5.6660	µg/L	5.6660	ppb	14:38:30
1	As 188.979†	41.2	49.2	27.632	µg/L	27.632	ppb	14:38:50
1	B 249.677†	1883.4	1750.8	49.740	µg/L	49.740	ppb	14:38:30
1	Ba 233.527†	399.6	562.9	5.2519	µg/L	5.2519	ppb	14:38:50
1	Be 313.107†	1282.4	9252.5	5.3709	µg/L	5.3709	ppb	14:38:30
1	Cd 226.502†	149.1	371.6	5.5090	µg/L	5.5090	ppb	14:38:50
1	Co 228.616†	206.2	223.2	5.4297	µg/L	5.4297	ppb	14:38:50
1	Cr 267.716†	469.7	267.2	5.1696	µg/L	5.1696	ppb	14:38:50
1	Cu 324.752†	9263.0	2604.6	10.699	µg/L	10.699	ppb	14:38:30
1	Mn 257.610†	7832.6	7179.9	10.245	µg/L	10.245	ppb	14:38:30
1	Mo 202.031†	212.6	186.5	12.723	µg/L	12.723	ppb	14:38:50
1	Ni 231.604†	31.1	159.2	4.6301	µg/L	4.6301	ppb	14:38:50
1	P 214.914†	456.9	323.5	242.19	µg/L	242.19	ppb	14:38:50
1	Pb 220.353†	226.5	71.3	10.746	µg/L	10.746	ppb	14:38:50
1	S 181.975 Axial†	129.7	65.6	114.00	µg/L	114.00	ppb	14:38:50
1	Sb 206.836†	108.0	40.2	13.057	µg/L	13.057	ppb	14:38:50
1	Se 196.026†	42.7	47.2	35.177	µg/L	35.177	ppb	14:38:50
1	SiO2†	4741.1	1701.2	212.98	µg/L	212.98	ppb	14:38:30
1	Si 251.611†	2370.1	2143.2	100.81	µg/L	100.81	ppb	14:38:50
1	Sn 189.927†	75.2	47.0	10.294	µg/L	10.294	ppb	14:38:50
1	Ti 334.940†	1923.0	1893.9	4.7223	µg/L	4.7223	ppb	14:38:30
1	Tl 190.801†	23.6	71.6	24.534	µg/L	24.534	ppb	14:38:50
1	U 367.007†	563.1	258.0	62.79	µg/L	62.79	ppb	14:38:30
1	V 292.402†	422.2	474.4	4.8596	µg/L	4.8596	ppb	14:38:30
1	Zn 213.857†	2458.4	1210.6	11.102	µg/L	11.102	ppb	14:38:50
2	Sc RADIAL	21362.6	21362.6	102	%			14:37:33
2	Al 396.153Radial†	551.8	715.7	212.90	µg/L	212.90	ppb	14:37:33
2	Ca 317.933Radial†	542.1	436.5	207.01	µg/L	207.01	ppb	14:37:53
2	Fe 238.204 Radial†	225.4	189.0	103.11	µg/L	103.11	ppb	14:37:53
2	K 766.490 Radial†	1548.9	831.9	393.69	µg/L	393.69	ppb	14:37:33
2	Mg 279.077 IEC†	69.5	58.4	309.36	µg/L	309.36	ppb	14:37:53
2	Na 589.592 Radial†	62.2	106.5	221.73	µg/L	221.73	ppb	14:37:33
2	Sr 421.552†	471.3	1074.9	5.2483	µg/L	5.2483	ppb	14:37:33
2	Sc 361.383	723261.7	723261.7	101.50	%			14:38:55
2	Y 371.029	628731.4	628731.4	101.55	%			14:38:55
2	Ag 328.068†	496.7	868.5	5.5637	µg/L	5.5637	ppb	14:39:00
2	As 188.979†	34.6	42.9	24.084	µg/L	24.084	ppb	14:39:20
2	B 249.677†	1903.5	1778.5	50.527	µg/L	50.527	ppb	14:39:00
2	Ba 233.527†	411.5	576.2	5.3761	µg/L	5.3761	ppb	14:39:20
2	Be 313.107†	1143.2	9120.7	5.2939	µg/L	5.2939	ppb	14:39:00
2	Cd 226.502†	158.4	381.3	5.6543	µg/L	5.6543	ppb	14:39:20
2	Co 228.616†	199.4	217.3	5.2863	µg/L	5.2863	ppb	14:39:20
2	Cr 267.716†	445.1	244.9	4.7384	µg/L	4.7384	ppb	14:39:20
2	Cu 324.752†	9189.8	2571.0	10.563	µg/L	10.563	ppb	14:39:00
2	Mn 257.610†	7853.5	7233.1	10.320	µg/L	10.320	ppb	14:39:00
2	Mo 202.031†	199.9	174.9	11.927	µg/L	11.927	ppb	14:39:20
2	Ni 231.604†	33.9	162.0	4.7136	µg/L	4.7136	ppb	14:39:20
2	P 214.914†	452.3	320.8	240.18	µg/L	240.18	ppb	14:39:20
2	Pb 220.353†	223.7	69.5	10.469	µg/L	10.469	ppb	14:39:20

2	S 181.975 Axial†	122.1	58.7	101.95 µg/L	101.95 ppb	14:39:20
2	Sb 206.836†	115.5	48.1	15.589 µg/L	15.589 ppb	14:39:20
2	Se 196.026†	40.2	44.9	33.471 µg/L	33.471 ppb	14:39:20
2	SiO2†	4771.5	1750.8	219.09 µg/L	219.09 ppb	14:39:00
2	Si 251.611†	2332.6	2116.1	99.541 µg/L	99.541 ppb	14:39:20
2	Sn 189.927†	76.4	48.5	10.626 µg/L	10.626 ppb	14:39:20
2	Ti 334.940†	1878.2	1857.7	4.6328 µg/L	4.6328 ppb	14:39:00
2	Tl 190.801†	20.8	69.0	23.630 µg/L	23.630 ppb	14:39:20
2	U 367.007†	546.8	244.4	59.45 µg/L	59.45 ppb	14:39:00
2	V 292.402†	405.8	460.0	4.7053 µg/L	4.7053 ppb	14:39:00
2	Zn 213.857†	2425.4	1188.3	10.897 µg/L	10.897 ppb	14:39:20
3	Sc RADIAL	21226.8	21226.8	101 %		14:37:58
3	Al 396.153Radial†	468.9	637.3	189.54 µg/L	189.54 ppb	14:37:58
3	Ca 317.933Radial†	546.1	443.9	210.52 µg/L	210.52 ppb	14:38:18
3	Fe 238.204 Radial†	227.0	191.9	104.72 µg/L	104.72 ppb	14:38:18
3	K 766.490 Radial†	1511.4	804.5	380.74 µg/L	380.74 ppb	14:37:58
3	Mg 279.077 IEC†	68.9	58.3	308.66 µg/L	308.66 ppb	14:38:18
3	Na 589.592 Radial†	27.6	72.6	151.22 µg/L	151.22 ppb	14:37:58
3	Sr 421.552†	373.6	981.2	4.7909 µg/L	4.7909 ppb	14:37:58
3	Sc 361.383	732155.3	732155.3	102.74 %		14:39:25
3	Y 371.029	636521.7	636521.7	102.81 %		14:39:25
3	Ag 328.068†	448.9	816.1	5.2347 µg/L	5.2347 ppb	14:39:30
3	As 188.979†	45.4	52.9	29.709 µg/L	29.709 ppb	14:39:51
3	B 249.677†	1872.3	1725.3	49.015 µg/L	49.015 ppb	14:39:30
3	Ba 233.527†	402.2	562.3	5.2470 µg/L	5.2470 ppb	14:39:51
3	Be 313.107†	1169.4	9132.6	5.2994 µg/L	5.2994 ppb	14:39:30
3	Cd 226.502†	151.0	372.2	5.5188 µg/L	5.5188 ppb	14:39:51
3	Co 228.616†	216.0	231.0	5.6196 µg/L	5.6196 ppb	14:39:51
3	Cr 267.716†	465.9	259.8	5.0368 µg/L	5.0368 ppb	14:39:51
3	Cu 324.752†	9135.5	2408.2	9.8989 µg/L	9.8989 ppb	14:39:30
3	Mn 257.610†	7825.9	7112.2	10.148 µg/L	10.148 ppb	14:39:30
3	Mo 202.031†	199.4	172.0	11.728 µg/L	11.728 ppb	14:39:51
3	Ni 231.604†	36.5	164.2	4.7763 µg/L	4.7763 ppb	14:39:51
3	P 214.914†	434.9	298.4	223.44 µg/L	223.44 ppb	14:39:51
3	Pb 220.353†	233.3	76.2	11.503 µg/L	11.503 ppb	14:39:51
3	S 181.975 Axial†	126.7	61.7	107.13 µg/L	107.13 ppb	14:39:51
3	Sb 206.836†	108.2	39.6	12.839 µg/L	12.839 ppb	14:39:51
3	Se 196.026†	40.2	44.4	33.104 µg/L	33.104 ppb	14:39:51
3	SiO2†	4842.6	1762.9	220.52 µg/L	220.52 ppb	14:39:30
3	Si 251.611†	2319.3	2075.2	97.619 µg/L	97.619 ppb	14:39:51
3	Sn 189.927†	75.5	46.7	10.229 µg/L	10.229 ppb	14:39:51
3	Ti 334.940†	1898.5	1855.1	4.6294 µg/L	4.6294 ppb	14:39:30
3	Tl 190.801†	21.9	69.8	23.901 µg/L	23.901 ppb	14:39:51
3	U 367.007†	522.8	214.4	52.09 µg/L	52.09 ppb	14:39:30
3	V 292.402†	463.9	511.7	5.2053 µg/L	5.2053 ppb	14:39:30
3	Zn 213.857†	2406.1	1140.5	10.456 µg/L	10.456 ppb	14:39:51

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	727247.6	102.06	%	0.634				0.62%
Sc RADIAL	21267.2	101	%	0.4				0.39%
Y 371.029	632113.7	102.10	%	0.645				0.63%
Ag 328.068†	856.3	5.4881	µg/L	0.22536	5.4881	ppb	0.22536	4.11%
QC value within limits for Ag 328.068 Recovery = 109.76%								
Al 396.153Radial†	692.7	206.05	µg/L	14.367	206.05	ppb	14.367	6.97%
QC value within limits for Al 396.153Radial Recovery = 103.02%								
As 188.979†	48.4	27.142	µg/L	2.8446	27.142	ppb	2.8446	10.48%
QC value within limits for As 188.979 Recovery = 90.47%								
B 249.677†	1751.5	49.761	µg/L	0.7558	49.761	ppb	0.7558	1.52%
QC value within limits for B 249.677 Recovery = 99.52%								
Ba 233.527†	567.1	5.2917	µg/L	0.07319	5.2917	ppb	0.07319	1.38%
QC value within limits for Ba 233.527 Recovery = 105.83%								
Be 313.107†	9168.6	5.3214	µg/L	0.04300	5.3214	ppb	0.04300	0.81%
QC value within limits for Be 313.107 Recovery = 106.43%								
Ca 317.933Radial†	441.3	209.28	µg/L	1.969	209.28	ppb	1.969	0.94%
QC value within limits for Ca 317.933Radial Recovery = 104.64%								
Cd 226.502†	375.0	5.5607	µg/L	0.08123	5.5607	ppb	0.08123	1.46%
QC value within limits for Cd 226.502 Recovery = 111.21%								
Co 228.616†	223.8	5.4452	µg/L	0.16717	5.4452	ppb	0.16717	3.07%

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   QC value within limits for Co 228.616  Recovery = 108.90%
Cr 267.716†              257.3      4.9816 µg/L       0.22083      4.9816 ppb        0.22083   4.43%
   QC value within limits for Cr 267.716  Recovery = 99.63%
Cu 324.752†             2528.0      10.387 µg/L        0.4279      10.387 ppb         0.4279   4.12%
   QC value within limits for Cu 324.752  Recovery = 103.87%
Fe 238.204 Radial†       191.1      104.30 µg/L         1.052      104.30 ppb          1.052   1.01%
   QC value within limits for Fe 238.204 Radial  Recovery = 104.30%
K 766.490 Radial†        844.8      399.79 µg/L        22.719      399.79 ppb         22.719   5.68%
   QC value greater than the upper limit for K 766.490 Radial  Recovery = 266.52%
Mg 279.077 IEC†           55.9      296.07 µg/L        22.417      296.07 ppb         22.417   7.57%
   QC value within limits for Mg 279.077 IEC  Recovery = 98.69%
Mn 257.610†             7175.1      10.238 µg/L        0.0864      10.238 ppb         0.0864   0.84%
   QC value within limits for Mn 257.610  Recovery = 102.38%
Mo 202.031†              177.8      12.126 µg/L        0.5264      12.126 ppb         0.5264   4.34%
   QC value within limits for Mo 202.031  Recovery = 121.26%
Na 589.592 Radial†       103.8      216.11 µg/L        62.278      216.11 ppb         62.278  28.82%
   QC value within limits for Na 589.592 Radial  Recovery = 72.04%
Ni 231.604†              161.8      4.7067 µg/L       0.07331      4.7067 ppb        0.07331   1.56%
   QC value within limits for Ni 231.604  Recovery = 94.13%
P 214.914†               314.2      235.27 µg/L        10.297      235.27 ppb         10.297   4.38%
   QC value greater than the upper limit for P 214.914  Recovery = 156.85%
Pb 220.353†               72.4      10.906 µg/L        0.5352      10.906 ppb         0.5352   4.91%
   QC value within limits for Pb 220.353  Recovery = 109.06%
S 181.975 Axial†          62.0      107.70 µg/L         6.045      107.70 ppb          6.045   5.61%
   QC value within limits for S 181.975 Axial  Recovery = 107.70%
Sb 206.836†               42.6      13.828 µg/L        1.5289      13.828 ppb         1.5289  11.06%
   QC value greater than the upper limit for Sb 206.836  Recovery = 138.28%
Se 196.026†               45.5      33.917 µg/L        1.1065      33.917 ppb         1.1065   3.26%
   QC value within limits for Se 196.026  Recovery = 113.06%
SiO2†                   1738.3      217.53 µg/L         4.003      217.53 ppb          4.003   1.84%
   QC value within limits for SiO2  Recovery = 102.13%
Si 251.611†             2111.5      99.323 µg/L        1.6064      99.323 ppb         1.6064   1.62%
   QC value within limits for Si 251.611  Recovery = 99.32%
Sn 189.927†               47.4      10.383 µg/L        0.2130      10.383 ppb         0.2130   2.05%
   QC value within limits for Sn 189.927  Recovery = 103.83%
Sr 421.552†             1023.8      4.9988 µg/L       0.23151      4.9988 ppb        0.23151   4.63%
   QC value within limits for Sr 421.552  Recovery = 99.98%
Ti 334.940†             1868.9      4.6615 µg/L       0.05271      4.6615 ppb        0.05271   1.13%
   QC value within limits for Ti 334.940  Recovery = 93.23%
Tl 190.801†               70.1      24.022 µg/L        0.4641      24.022 ppb         0.4641   1.93%
   QC value within limits for Tl 190.801  Recovery = 120.11%
U 367.007†                238.9       58.11 µg/L         5.475       58.11 ppb          5.475   9.42%
   QC value within limits for U 367.007  Recovery = 116.22%
V 292.402†                482.0      4.9234 µg/L       0.25602      4.9234 ppb        0.25602   5.20%
   QC value within limits for V 292.402  Recovery = 98.47%
Zn 213.857†             1179.8      10.818 µg/L        0.3301      10.818 ppb         0.3301   3.05%
   QC value within limits for Zn 213.857  Recovery = 108.18%
QC Failed.  Continue with analysis.
```

Sequence No.: 12 **Autosampler Location: 6**
Sample ID: CCB **Date Collected: 6/15/2012 14:39:58**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21209.9	21209.9	101	%			14:40:27
1	Al 396.153Radial†	-182.6	-6.8	-2.0672	µg/L	-2.0672	ppb	14:40:27
1	Ca 317.933Radial†	103.8	6.8	3.2442	µg/L	3.2442	ppb	14:40:47
1	Fe 238.204 Radial†	35.8	2.9	1.6094	µg/L	1.6094	ppb	14:40:47
1	K 766.490 Radial†	1147.5	445.8	211.00	µg/L	211.00	ppb	14:40:27
1	Mg 279.077 IEC†	4.9	-5.1	-26.731	µg/L	-26.731	ppb	14:40:47
1	Na 589.592 Radial†	-110.3	-63.7	-132.58	µg/L	-132.58	ppb	14:40:27
1	Sr 421.552†	-672.9	-53.6	-0.2620	µg/L	-0.2620	ppb	14:40:27
1	Sc 361.383	706753.4	706753.4	99.180	%			14:41:44
1	Y 371.029	614049.0	614049.0	99.180	%			14:41:44
1	Ag 328.068†	-384.7	-8.8	-0.0552	µg/L	-0.0552	ppb	14:41:49
1	As 188.979†	-16.0	-7.4	-4.1378	µg/L	-4.1378	ppb	14:42:09
1	B 249.677†	111.8	15.7	0.4457	µg/L	0.4457	ppb	14:42:09
1	Ba 233.527†	-164.8	4.7	0.0437	µg/L	0.0437	ppb	14:42:09
1	Be 313.107†	-7717.4	213.2	0.1267	µg/L	0.1267	ppb	14:41:49
1	Cd 226.502†	-210.7	12.9	0.1904	µg/L	0.1904	ppb	14:42:09
1	Co 228.616†	-10.5	10.2	0.2496	µg/L	0.2496	ppb	14:42:09
1	Cr 267.716†	200.8	8.9	0.1578	µg/L	0.1578	ppb	14:42:09
1	Cu 324.752†	6415.3	-14.9	-0.0740	µg/L	-0.0740	ppb	14:41:49
1	Mn 257.610†	497.6	-2.9	-0.0032	µg/L	-0.0032	ppb	14:42:09
1	Mo 202.031†	32.1	10.3	0.6994	µg/L	0.6994	ppb	14:42:09
1	Ni 231.604†	-163.5	-36.2	-1.0538	µg/L	-1.0538	ppb	14:42:09
1	P 214.914†	220.1	97.1	72.834	µg/L	72.834	ppb	14:42:09
1	Pb 220.353†	161.4	11.9	1.7901	µg/L	1.7901	ppb	14:42:09
1	S 181.975 Axial†	58.9	-2.2	-3.8775	µg/L	-3.8775	ppb	14:42:09
1	Sb 206.836†	54.5	-10.8	-3.4573	µg/L	-3.4573	ppb	14:42:09
1	Se 196.026†	0.9	6.2	4.6554	µg/L	4.6554	ppb	14:42:09
1	SiO2†	2956.7	30.8	4.0481	µg/L	4.0481	ppb	14:41:49
1	Si 251.611†	218.5	38.2	1.7950	µg/L	1.7950	ppb	14:42:09
1	Sn 189.927†	24.8	-1.8	-0.3906	µg/L	-0.3906	ppb	14:42:09
1	Ti 334.940†	-212.7	-207.2	-0.5263	µg/L	-0.5263	ppb	14:41:49
1	Tl 190.801†	-43.8	4.3	1.4770	µg/L	1.4770	ppb	14:42:09
1	U 367.007†	354.6	63.1	15.47	µg/L	15.47	ppb	14:41:49
1	V 292.402†	-61.3	-1.6	0.0057	µg/L	0.0057	ppb	14:41:49
1	Zn 213.857†	1213.9	22.6	0.2149	µg/L	0.2149	ppb	14:42:09
2	Sc RADIAL	21150.8	21150.8	101	%			14:40:52
2	Al 396.153Radial†	-224.1	-48.5	-14.482	µg/L	-14.482	ppb	14:40:52
2	Ca 317.933Radial†	104.0	7.3	3.4567	µg/L	3.4567	ppb	14:41:12
2	Fe 238.204 Radial†	31.5	-1.2	-0.6464	µg/L	-0.6464	ppb	14:41:12
2	K 766.490 Radial†	1098.2	400.0	189.32	µg/L	189.32	ppb	14:40:52
2	Mg 279.077 IEC†	9.8	-0.2	-0.8910	µg/L	-0.8910	ppb	14:41:12
2	Na 589.592 Radial†	-97.2	-51.1	-106.27	µg/L	-106.27	ppb	14:40:52
2	Sr 421.552†	-618.8	-1.8	-0.0090	µg/L	-0.0090	ppb	14:40:52
2	Sc 361.383	718662.4	718662.4	100.85	%			14:42:14
2	Y 371.029	624050.7	624050.7	100.80	%			14:42:14
2	Ag 328.068†	-346.4	35.6	0.2279	µg/L	0.2279	ppb	14:42:19
2	As 188.979†	-12.5	-3.6	-2.0370	µg/L	-2.0370	ppb	14:42:39
2	B 249.677†	138.0	39.9	1.1331	µg/L	1.1331	ppb	14:42:39
2	Ba 233.527†	-155.8	16.3	0.1527	µg/L	0.1527	ppb	14:42:39
2	Be 313.107†	-7738.4	321.3	0.1868	µg/L	0.1868	ppb	14:42:19
2	Cd 226.502†	-210.4	16.7	0.2478	µg/L	0.2478	ppb	14:42:39
2	Co 228.616†	-11.5	9.4	0.2304	µg/L	0.2304	ppb	14:42:39
2	Cr 267.716†	212.2	16.8	0.3261	µg/L	0.3261	ppb	14:42:39
2	Cu 324.752†	6460.7	-77.1	-0.3200	µg/L	-0.3200	ppb	14:42:19
2	Mn 257.610†	504.2	-4.6	-0.0067	µg/L	-0.0067	ppb	14:42:39
2	Mo 202.031†	35.8	13.4	0.9160	µg/L	0.9160	ppb	14:42:39
2	Ni 231.604†	-150.1	-20.1	-0.5855	µg/L	-0.5855	ppb	14:42:39
2	P 214.914†	196.6	70.2	52.606	µg/L	52.606	ppb	14:42:39
2	Pb 220.353†	159.3	7.0	1.0742	µg/L	1.0742	ppb	14:42:39

2	S 181.975 Axial†	65.5	3.3	5.7618 µg/L	5.7618 ppb	14:42:39
2	Sb 206.836†	65.7	-0.6	-0.1917 µg/L	-0.1917 ppb	14:42:39
2	Se 196.026†	-11.6	-6.2	-4.6164 µg/L	-4.6164 ppb	14:42:39
2	SiO2†	2983.7	8.2	1.1001 µg/L	1.1001 ppb	14:42:19
2	Si 251.611†	217.4	33.6	1.5742 µg/L	1.5742 ppb	14:42:39
2	Sn 189.927†	22.4	-4.5	-0.9893 µg/L	-0.9893 ppb	14:42:39
2	Ti 334.940†	-156.8	-148.2	-0.3731 µg/L	-0.3731 ppb	14:42:19
2	Tl 190.801†	-45.0	3.8	1.3102 µg/L	1.3102 ppb	14:42:39
2	U 367.007†	309.8	12.7	3.130 µg/L	3.130 ppb	14:42:19
2	V 292.402†	-27.5	32.9	0.3373 µg/L	0.3373 ppb	14:42:19
2	Zn 213.857†	1216.2	4.6	0.0466 µg/L	0.0466 ppb	14:42:39
3	Sc RADIAL	20892.4	20892.4	99.6 %		14:41:17
3	Al 396.153Radial†	-130.3	42.9	12.784 µg/L	12.784 ppb	14:41:17
3	Ca 317.933Radial†	94.6	-0.9	-0.4177 µg/L	-0.4177 ppb	14:41:37
3	Fe 238.204 Radial†	38.3	6.0	3.2664 µg/L	3.2664 ppb	14:41:37
3	K 766.490 Radial†	1159.6	475.2	224.89 µg/L	224.89 ppb	14:41:17
3	Mg 279.077 IEC†	7.6	-2.2	-11.821 µg/L	-11.821 ppb	14:41:37
3	Na 589.592 Radial†	-116.0	-71.1	-148.06 µg/L	-148.06 ppb	14:41:17
3	Sr 421.552†	-619.2	-9.8	-0.0477 µg/L	-0.0477 ppb	14:41:17
3	Sc 361.383	715590.4	715590.4	100.42 %		14:42:44
3	Y 371.029	622522.3	622522.3	100.55 %		14:42:44
3	Ag 328.068†	-263.9	116.3	0.7392 µg/L	0.7392 ppb	14:42:49
3	As 188.979†	-12.2	-3.3	-1.8764 µg/L	-1.8764 ppb	14:43:09
3	B 249.677†	125.2	27.7	0.7868 µg/L	0.7868 ppb	14:43:09
3	Ba 233.527†	-161.5	10.0	0.0929 µg/L	0.0929 ppb	14:43:09
3	Be 313.107†	-7758.5	268.4	0.1561 µg/L	0.1561 ppb	14:42:49
3	Cd 226.502†	-205.8	20.3	0.3006 µg/L	0.3006 ppb	14:43:09
3	Co 228.616†	-11.3	9.6	0.2340 µg/L	0.2340 ppb	14:43:09
3	Cr 267.716†	211.4	16.8	0.3266 µg/L	0.3266 ppb	14:43:09
3	Cu 324.752†	6447.2	-63.0	-0.2615 µg/L	-0.2615 ppb	14:42:49
3	Mn 257.610†	497.8	-8.9	-0.0120 µg/L	-0.0120 ppb	14:43:09
3	Mo 202.031†	27.3	5.1	0.3492 µg/L	0.3492 ppb	14:43:09
3	Ni 231.604†	-168.0	-38.6	-1.1246 µg/L	-1.1246 ppb	14:43:09
3	P 214.914†	207.8	82.1	61.589 µg/L	61.589 ppb	14:43:09
3	Pb 220.353†	145.2	-6.3	-0.9574 µg/L	-0.9574 ppb	14:43:09
3	S 181.975 Axial†	58.4	-3.5	-6.1149 µg/L	-6.1149 ppb	14:43:09
3	Sb 206.836†	68.4	2.4	0.7838 µg/L	0.7838 ppb	14:43:09
3	Se 196.026†	-5.7	-0.4	-0.2914 µg/L	-0.2914 ppb	14:43:09
3	SiO2†	2998.9	36.0	4.5420 µg/L	4.5420 ppb	14:42:49
3	Si 251.611†	208.9	26.0	1.2213 µg/L	1.2213 ppb	14:43:09
3	Sn 189.927†	27.3	0.4	0.0967 µg/L	0.0967 ppb	14:43:09
3	Ti 334.940†	-174.8	-166.8	-0.4196 µg/L	-0.4196 ppb	14:42:49
3	Tl 190.801†	-40.1	8.5	2.9062 µg/L	2.9062 ppb	14:43:09
3	U 367.007†	307.4	11.7	2.852 µg/L	2.852 ppb	14:42:49
3	V 292.402†	-53.7	6.7	0.0735 µg/L	0.0735 ppb	14:42:49
3	Zn 213.857†	1240.7	34.2	0.3222 µg/L	0.3222 ppb	14:43:09

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	713668.7	100.15	%	0.868				0.87%
Sc RADIAL	21084.4	100	%	0.8				0.80%
Y 371.029	620207.3	100.17	%	0.870				0.87%
Ag 328.068†	47.7	0.3039	µg/L	0.40262	0.3039	ppb	0.40262	132.46%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-4.1	-1.2552	µg/L	13.65114	-1.2552	ppb	13.65114	>999.9%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-4.8	-2.6837	µg/L	1.26181	-2.6837	ppb	1.26181	47.02%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	27.8	0.7885	µg/L	0.34372	0.7885	ppb	0.34372	43.59%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	10.3	0.0964	µg/L	0.05459	0.0964	ppb	0.05459	56.62%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	267.6	0.1565	µg/L	0.03008	0.1565	ppb	0.03008	19.21%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	4.4	2.0944	µg/L	2.17815	2.0944	ppb	2.17815	104.00%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	16.6	0.2463	µg/L	0.05509	0.2463	ppb	0.05509	22.37%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	9.7	0.2380	µg/L	0.01020	0.2380	ppb	0.01020	4.29%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              14.2      0.2702 µg/L       0.09732      0.2702 ppb        0.09732  36.02%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -51.7     -0.2185 µg/L       0.12850     -0.2185 ppb        0.12850  58.80%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        2.6      1.4098 µg/L       1.96407      1.4098 ppb        1.96407 139.31%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†       440.3      208.40 µg/L        17.928      208.40 ppb         17.928   8.60%
   QC value greater than the upper limit for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          -2.5     -13.148 µg/L       12.9710     -13.148 ppb        12.9710  98.66%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              -5.5     -0.0073 µg/L       0.00444     -0.0073 ppb        0.00444  61.10%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               9.6      0.6549 µg/L       0.28602      0.6549 ppb        0.28602  43.68%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -62.0     -128.97 µg/L        21.124     -128.97 ppb         21.124  16.38%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†             -31.7     -0.9213 µg/L       0.29295     -0.9213 ppb        0.29295  31.80%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               83.1      62.343 µg/L       10.1349      62.343 ppb        10.1349  16.26%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               4.2      0.6356 µg/L       1.42531      0.6356 ppb        1.42531 224.24%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -0.8     -1.4102 µg/L       6.31112     -1.4102 ppb        6.31112 447.53%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              -3.0     -0.9551 µg/L       2.22120     -0.9551 ppb        2.22120 232.57%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†              -0.1     -0.0841 µg/L       4.63934     -0.0841 ppb        4.63934 >999.9%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    25.0      3.2301 µg/L       1.86107      3.2301 ppb        1.86107  57.62%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              32.6      1.5301 µg/L       0.28937      1.5301 ppb        0.28937  18.91%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†              -1.9     -0.4277 µg/L       0.54392     -0.4277 ppb        0.54392 127.16%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             -21.8     -0.1062 µg/L       0.13624     -0.1062 ppb        0.13624 128.24%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†            -174.0     -0.4396 µg/L       0.07854     -0.4396 ppb        0.07854  17.86%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               5.5      1.8978 µg/L       0.87731      1.8978 ppb        0.87731  46.23%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               29.2       7.150 µg/L        7.2040       7.150 ppb         7.2040 100.76%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               12.7      0.1388 µg/L       0.17518      0.1388 ppb        0.17518 126.18%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              20.5      0.1946 µg/L       0.13892      0.1946 ppb        0.13892  71.40%
   QC value within limits for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
```

Sequence No.: 13 **Autosampler Location: 1**
Sample ID: CCV **Date Collected: 6/15/2012 14:43:17**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21318.0	21318.0	102	%			14:43:46
1	Al 396.153Radial†	16296.9	16212.2	4814.5	µg/L	4814.5	ppb	14:43:46
1	Ca 317.933Radial†	10355.1	10095.1	4787.2	µg/L	4787.2	ppb	14:44:07
1	Fe 238.204 Radial†	9060.1	8884.0	4850.1	µg/L	4850.1	ppb	14:44:07
1	K 766.490 Radial†	11516.2	10644.2	5033.3	µg/L	5033.3	ppb	14:43:46
1	Mg 279.077 IEC†	973.0	947.7	5020.5	µg/L	5020.5	ppb	14:44:07
1	Na 589.592 Radial†	4635.9	4607.8	9591.4	µg/L	9591.4	ppb	14:44:07
1	Sr 421.552†	99282.2	98319.5	480.12	µg/L	480.12	ppb	14:43:46
1	Sc 361.383	727960.5	727960.5	102.16	%			14:45:04
1	Y 371.029	630113.8	630113.8	101.77	%			14:45:04
1	Ag 328.068†	78404.1	77128.5	493.53	µg/L	493.53	ppb	14:45:04
1	As 188.979†	875.1	865.4	486.11	µg/L	486.11	ppb	14:45:24
1	B 249.677†	17514.7	17048.0	483.08	µg/L	483.08	ppb	14:45:04
1	Ba 233.527†	53640.9	52679.6	491.73	µg/L	491.73	ppb	14:45:04
1	Be 313.107†	857258.7	847160.7	490.57	µg/L	490.57	ppb	14:45:04
1	Cd 226.502†	33934.6	33443.6	496.63	µg/L	496.63	ppb	14:45:04
1	Co 228.616†	20772.2	20354.7	494.22	µg/L	494.22	ppb	14:45:04
1	Cr 267.716†	25881.1	25141.3	491.60	µg/L	491.60	ppb	14:45:04
1	Cu 324.752†	126913.6	117751.8	486.22	µg/L	486.22	ppb	14:45:04
1	Mn 257.610†	352663.4	344715.8	492.11	µg/L	492.11	ppb	14:45:04
1	Mo 202.031†	7324.0	7147.3	487.51	µg/L	487.51	ppb	14:45:24
1	Ni 231.604†	17495.6	17255.1	501.84	µg/L	501.84	ppb	14:45:04
1	P 214.914†	3540.7	3341.1	2487.9	µg/L	2487.9	ppb	14:45:24
1	Pb 220.353†	3452.6	3228.8	489.21	µg/L	489.21	ppb	14:45:24
1	S 181.975 Axial†	645.5	570.2	991.19	µg/L	991.19	ppb	14:45:24
1	Sb 206.836†	1573.0	1474.0	471.48	µg/L	471.48	ppb	14:45:24
1	Se 196.026†	696.4	687.0	513.37	µg/L	513.37	ppb	14:45:24
1	SiO2†	46030.6	42108.8	5278.0	µg/L	5278.0	ppb	14:45:04
1	Si 251.611†	53439.5	52129.6	2448.9	µg/L	2448.9	ppb	14:45:04
1	Sn 189.927†	2316.5	2240.9	491.65	µg/L	491.65	ppb	14:45:24
1	Ti 334.940†	199428.3	195226.6	489.27	µg/L	489.27	ppb	14:45:04
1	Tl 190.801†	1400.6	1419.4	487.85	µg/L	487.85	ppb	14:45:24
1	U 367.007†	2353.7	2009.6	470.3	µg/L	470.3	ppb	14:45:04
1	V 292.402†	50766.7	49755.5	495.02	µg/L	495.02	ppb	14:45:04
1	Zn 213.857†	55917.8	53536.4	489.07	µg/L	489.07	ppb	14:45:04
2	Sc RADIAL	21523.0	21523.0	103	%			14:44:12
2	Al 396.153Radial†	16306.8	16069.1	4771.6	µg/L	4771.6	ppb	14:44:12
2	Ca 317.933Radial†	10340.9	9984.1	4734.6	µg/L	4734.6	ppb	14:44:32
2	Fe 238.204 Radial†	9055.3	8794.3	4801.2	µg/L	4801.2	ppb	14:44:32
2	K 766.490 Radial†	11414.1	10436.8	4935.1	µg/L	4935.1	ppb	14:44:12
2	Mg 279.077 IEC†	974.9	940.5	4982.4	µg/L	4982.4	ppb	14:44:32
2	Na 589.592 Radial†	4576.1	4506.0	9379.5	µg/L	9379.5	ppb	14:44:32
2	Sr 421.552†	99239.6	97347.4	475.37	µg/L	475.37	ppb	14:44:12
2	Sc 361.383	722531.3	722531.3	101.39	%			14:45:30
2	Y 371.029	625285.4	625285.4	101.00	%			14:45:30
2	Ag 328.068†	77769.2	77079.1	493.20	µg/L	493.20	ppb	14:45:30
2	As 188.979†	884.9	881.5	495.09	µg/L	495.09	ppb	14:45:50
2	B 249.677†	17401.6	17065.3	483.58	µg/L	483.58	ppb	14:45:30
2	Ba 233.527†	53167.5	52607.3	491.06	µg/L	491.06	ppb	14:45:30
2	Be 313.107†	849091.6	845411.4	489.55	µg/L	489.55	ppb	14:45:30
2	Cd 226.502†	33532.0	33296.2	494.44	µg/L	494.44	ppb	14:45:30
2	Co 228.616†	20571.5	20309.5	493.13	µg/L	493.13	ppb	14:45:30
2	Cr 267.716†	25667.3	25120.8	491.20	µg/L	491.20	ppb	14:45:30
2	Cu 324.752†	125844.3	117630.8	485.72	µg/L	485.72	ppb	14:45:30
2	Mn 257.610†	349247.2	343940.6	491.01	µg/L	491.01	ppb	14:45:30
2	Mo 202.031†	7342.5	7219.5	492.42	µg/L	492.42	ppb	14:45:50
2	Ni 231.604†	17329.9	17220.3	500.83	µg/L	500.83	ppb	14:45:30
2	P 214.914†	3557.7	3384.0	2520.0	µg/L	2520.0	ppb	14:45:50
2	Pb 220.353†	3469.6	3271.0	495.62	µg/L	495.62	ppb	14:45:50

2	S 181.975 Axial†	651.3	580.7	1009.5 µg/L	1009.5 ppb	14:45:50
2	Sb 206.836†	1579.2	1491.7	477.29 µg/L	477.29 ppb	14:45:50
2	Se 196.026†	689.4	685.3	512.03 µg/L	512.03 ppb	14:45:50
2	SiO2†	45663.8	42085.6	5275.1 µg/L	5275.1 ppb	14:45:30
2	Si 251.611†	53032.5	52121.3	2448.4 µg/L	2448.4 ppb	14:45:30
2	Sn 189.927†	2342.1	2283.1	500.86 µg/L	500.86 ppb	14:45:50
2	Ti 334.940†	197591.2	194881.7	488.40 µg/L	488.40 ppb	14:45:30
2	Tl 190.801†	1406.3	1435.4	493.29 µg/L	493.29 ppb	14:45:50
2	U 367.007†	2326.3	1999.9	468.2 µg/L	468.2 ppb	14:45:30
2	V 292.402†	50266.0	49635.0	493.89 µg/L	493.89 ppb	14:45:30
2	Zn 213.857†	55614.4	53648.4	490.12 µg/L	490.12 ppb	14:45:30
3	Sc RADIAL	21470.8	21470.8	102 %		14:44:37
3	Al 396.153Radial†	16398.6	16197.5	4809.9 µg/L	4809.9 ppb	14:44:37
3	Ca 317.933Radial†	10337.4	10005.2	4744.6 µg/L	4744.6 ppb	14:44:57
3	Fe 238.204 Radial†	9056.2	8816.7	4813.5 µg/L	4813.5 ppb	14:44:57
3	K 766.490 Radial†	11532.7	10579.7	5002.7 µg/L	5002.7 ppb	14:44:37
3	Mg 279.077 IEC†	971.8	939.7	4978.3 µg/L	4978.3 ppb	14:44:57
3	Na 589.592 Radial†	4551.7	4493.1	9352.6 µg/L	9352.6 ppb	14:44:57
3	Sr 421.552†	99837.0	98166.2	479.37 µg/L	479.37 ppb	14:44:37
3	Sc 361.383	720343.6	720343.6	101.09 %		14:45:56
3	Y 371.029	623888.3	623888.3	100.77 %		14:45:56
3	Ag 328.068†	78183.9	77722.2	497.31 µg/L	497.31 ppb	14:45:56
3	As 188.979†	880.9	880.2	494.41 µg/L	494.41 ppb	14:46:16
3	B 249.677†	17540.7	17255.1	488.96 µg/L	488.96 ppb	14:45:56
3	Ba 233.527†	53494.8	53090.3	495.57 µg/L	495.57 ppb	14:45:56
3	Be 313.107†	855054.9	853853.9	494.44 µg/L	494.44 ppb	14:45:56
3	Cd 226.502†	33768.7	33630.8	499.42 µg/L	499.42 ppb	14:45:56
3	Co 228.616†	20681.3	20479.7	497.25 µg/L	497.25 ppb	14:45:56
3	Cr 267.716†	25823.6	25352.2	495.72 µg/L	495.72 ppb	14:45:56
3	Cu 324.752†	126971.5	119122.7	491.86 µg/L	491.86 ppb	14:45:56
3	Mn 257.610†	351439.7	347155.6	495.59 µg/L	495.59 ppb	14:45:56
3	Mo 202.031†	7331.1	7230.1	493.15 µg/L	493.15 ppb	14:46:16
3	Ni 231.604†	17389.0	17330.7	504.04 µg/L	504.04 ppb	14:45:56
3	P 214.914†	3518.2	3355.6	2498.5 µg/L	2498.5 ppb	14:46:16
3	Pb 220.353†	3439.9	3252.0	492.72 µg/L	492.72 ppb	14:46:16
3	S 181.975 Axial†	646.2	577.6	1004.2 µg/L	1004.2 ppb	14:46:16
3	Sb 206.836†	1586.9	1504.1	481.19 µg/L	481.19 ppb	14:46:16
3	Se 196.026†	694.9	692.7	517.61 µg/L	517.61 ppb	14:46:16
3	SiO2†	45862.2	42418.7	5317.0 µg/L	5317.0 ppb	14:45:56
3	Si 251.611†	53340.4	52584.7	2470.2 µg/L	2470.2 ppb	14:45:56
3	Sn 189.927†	2333.8	2281.9	500.62 µg/L	500.62 ppb	14:46:16
3	Ti 334.940†	199480.1	197342.1	494.56 µg/L	494.56 ppb	14:45:56
3	Tl 190.801†	1399.6	1432.9	492.49 µg/L	492.49 ppb	14:46:16
3	U 367.007†	2391.8	2071.6	485.8 µg/L	485.8 ppb	14:45:56
3	V 292.402†	50655.8	50171.2	499.18 µg/L	499.18 ppb	14:45:56
3	Zn 213.857†	55773.2	53972.1	493.07 µg/L	493.07 ppb	14:45:56

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	723611.8	101.55	%	0.550				0.54%
Sc RADIAL	21437.2	102	%	0.5				0.50%
Y 371.029	626429.2	101.18	%	0.528				0.52%
Ag 328.068†	77309.9	494.68	µg/L	2.286	494.68	ppb	2.286	0.46%
QC value within limits for Ag 328.068 Recovery = 98.94%								
Al 396.153Radial†	16159.6	4798.7	µg/L	23.51	4798.7	ppb	23.51	0.49%
QC value within limits for Al 396.153Radial Recovery = 95.97%								
As 188.979†	875.7	491.87	µg/L	5.003	491.87	ppb	5.003	1.02%
QC value within limits for As 188.979 Recovery = 98.37%								
B 249.677†	17122.8	485.20	µg/L	3.264	485.20	ppb	3.264	0.67%
QC value within limits for B 249.677 Recovery = 97.04%								
Ba 233.527†	52792.4	492.79	µg/L	2.433	492.79	ppb	2.433	0.49%
QC value within limits for Ba 233.527 Recovery = 98.56%								
Be 313.107†	848808.7	491.52	µg/L	2.581	491.52	ppb	2.581	0.53%
QC value within limits for Be 313.107 Recovery = 98.30%								
Ca 317.933Radial†	10028.1	4755.4	µg/L	27.95	4755.4	ppb	27.95	0.59%
QC value within limits for Ca 317.933Radial Recovery = 95.11%								
Cd 226.502†	33456.9	496.83	µg/L	2.493	496.83	ppb	2.493	0.50%
QC value within limits for Cd 226.502 Recovery = 99.37%								
Co 228.616†	20381.3	494.87	µg/L	2.137	494.87	ppb	2.137	0.43%

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   QC value within limits for Co 228.616  Recovery = 98.97%
Cr 267.716†           25204.8      492.84 µg/L         2.497      492.84 ppb          2.497   0.51%
   QC value within limits for Cr 267.716  Recovery = 98.57%
Cu 324.752†          118168.4      487.93 µg/L         3.409      487.93 ppb          3.409   0.70%
   QC value within limits for Cu 324.752  Recovery = 97.59%
Fe 238.204 Radial†     8831.7      4821.6 µg/L         25.45      4821.6 ppb          25.45   0.53%
   QC value within limits for Fe 238.204 Radial  Recovery = 96.43%
K 766.490 Radial†     10553.6      4990.3 µg/L         50.24      4990.3 ppb          50.24   1.01%
   QC value within limits for K 766.490 Radial  Recovery = 99.81%
Mg 279.077 IEC†         942.6      4993.8 µg/L         23.26      4993.8 ppb          23.26   0.47%
   QC value within limits for Mg 279.077 IEC  Recovery = 99.88%
Mn 257.610†          345270.7      492.90 µg/L         2.394      492.90 ppb          2.394   0.49%
   QC value within limits for Mn 257.610  Recovery = 98.58%
Mo 202.031†           7199.0      491.03 µg/L         3.070      491.03 ppb          3.070   0.63%
   QC value within limits for Mo 202.031  Recovery = 98.21%
Na 589.592 Radial†     4535.6      9441.2 µg/L        130.80      9441.2 ppb         130.80   1.39%
   QC value within limits for Na 589.592 Radial  Recovery = 94.41%
Ni 231.604†           17268.7      502.24 µg/L         1.642      502.24 ppb          1.642   0.33%
   QC value within limits for Ni 231.604  Recovery = 100.45%
P 214.914†             3360.2      2502.1 µg/L         16.36      2502.1 ppb          16.36   0.65%
   QC value within limits for P 214.914  Recovery = 100.08%
Pb 220.353†            3250.6      492.52 µg/L         3.209      492.52 ppb          3.209   0.65%
   QC value within limits for Pb 220.353  Recovery = 98.50%
S 181.975 Axial†        576.2      1001.6 µg/L          9.43      1001.6 ppb           9.43   0.94%
   QC value within limits for S 181.975 Axial  Recovery = 100.16%
Sb 206.836†            1490.0      476.65 µg/L         4.885      476.65 ppb          4.885   1.02%
   QC value within limits for Sb 206.836  Recovery = 95.33%
Se 196.026†             688.4      514.34 µg/L         2.912      514.34 ppb          2.912   0.57%
   QC value within limits for Se 196.026  Recovery = 102.87%
SiO2†                 42204.4      5290.1 µg/L         23.40      5290.1 ppb          23.40   0.44%
   QC value within limits for SiO2  Recovery = 98.93%
Si 251.611†           52278.5      2455.8 µg/L         12.47      2455.8 ppb          12.47   0.51%
   QC value within limits for Si 251.611  Recovery = 98.23%
Sn 189.927†            2268.6      497.71 µg/L         5.252      497.71 ppb          5.252   1.06%
   QC value within limits for Sn 189.927  Recovery = 99.54%
Sr 421.552†           97944.4      478.28 µg/L         2.552      478.28 ppb          2.552   0.53%
   QC value within limits for Sr 421.552  Recovery = 95.66%
Ti 334.940†          195816.8      490.74 µg/L         3.335      490.74 ppb          3.335   0.68%
   QC value within limits for Ti 334.940  Recovery = 98.15%
Tl 190.801†            1429.3      491.21 µg/L         2.940      491.21 ppb          2.940   0.60%
   QC value within limits for Tl 190.801  Recovery = 98.24%
U 367.007†             2027.0       474.8 µg/L          9.58       474.8 ppb           9.58   2.02%
   QC value within limits for U 367.007  Recovery = 94.95%
V 292.402†            49853.9      496.03 µg/L         2.787      496.03 ppb          2.787   0.56%
   QC value within limits for V 292.402  Recovery = 99.21%
Zn 213.857†           53718.9      490.75 µg/L         2.076      490.75 ppb          2.076   0.42%
   QC value within limits for Zn 213.857  Recovery = 98.15%
All analyte(s) passed QC.
```

Sequence No.: 14 **Autosampler Location: 6**
Sample ID: CCB **Date Collected: 6/15/2012 14:46:24**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21087.6	21087.6	101	%			14:46:53
1	Al 396.153Radial†	-128.1	46.4	13.778	µg/L	13.778	ppb	14:46:53
1	Ca 317.933Radial†	100.7	4.4	2.0786	µg/L	2.0786	ppb	14:47:13
1	Fe 238.204 Radial†	39.0	6.3	3.4517	µg/L	3.4517	ppb	14:47:13
1	K 766.490 Radial†	1142.4	447.3	211.69	µg/L	211.69	ppb	14:46:53
1	Mg 279.077 IEC†	5.6	-4.3	-22.511	µg/L	-22.511	ppb	14:47:13
1	Na 589.592 Radial†	-87.8	-42.0	-87.421	µg/L	-87.421	ppb	14:46:53
1	Sr 421.552†	-580.9	34.0	0.1662	µg/L	0.1662	ppb	14:46:53
1	Sc 361.383	706587.1	706587.1	99.157	%			14:48:10
1	Y 371.029	613922.5	613922.5	99.160	%			14:48:10
1	Ag 328.068†	-256.9	120.1	0.7632	µg/L	0.7632	ppb	14:48:15
1	As 188.979†	-3.8	5.0	2.7822	µg/L	2.7822	ppb	14:48:35
1	B 249.677†	132.0	36.1	1.0253	µg/L	1.0253	ppb	14:48:35
1	Ba 233.527†	-162.0	7.4	0.0692	µg/L	0.0692	ppb	14:48:35
1	Be 313.107†	-7907.8	19.4	0.0143	µg/L	0.0143	ppb	14:48:15
1	Cd 226.502†	-201.1	22.4	0.3326	µg/L	0.3326	ppb	14:48:35
1	Co 228.616†	-10.2	10.5	0.2578	µg/L	0.2578	ppb	14:48:35
1	Cr 267.716†	191.1	-0.9	-0.0321	µg/L	-0.0321	ppb	14:48:35
1	Cu 324.752†	6525.6	97.8	0.3907	µg/L	0.3907	ppb	14:48:15
1	Mn 257.610†	503.7	3.3	0.0058	µg/L	0.0058	ppb	14:48:35
1	Mo 202.031†	42.2	20.5	1.3973	µg/L	1.3973	ppb	14:48:35
1	Ni 231.604†	-172.6	-45.4	-1.3197	µg/L	-1.3197	ppb	14:48:35
1	P 214.914†	182.2	58.9	44.150	µg/L	44.150	ppb	14:48:35
1	Pb 220.353†	159.8	10.3	1.5431	µg/L	1.5431	ppb	14:48:35
1	S 181.975 Axial†	59.8	-1.4	-2.3475	µg/L	-2.3475	ppb	14:48:35
1	Sb 206.836†	89.2	24.2	7.8355	µg/L	7.8355	ppb	14:48:35
1	Se 196.026†	-2.1	3.2	2.3806	µg/L	2.3806	ppb	14:48:35
1	SiO2†	3052.3	128.0	16.121	µg/L	16.121	ppb	14:48:15
1	Si 251.611†	234.2	54.2	2.5245	µg/L	2.5245	ppb	14:48:35
1	Sn 189.927†	40.6	14.1	3.0834	µg/L	3.0834	ppb	14:48:35
1	Ti 334.940†	1.4	8.7	0.0150	µg/L	0.0150	ppb	14:48:15
1	Tl 190.801†	-39.1	8.9	3.0655	µg/L	3.0655	ppb	14:48:35
1	U 367.007†	354.7	63.3	15.51	µg/L	15.51	ppb	14:48:15
1	V 292.402†	-47.4	12.4	0.1502	µg/L	0.1502	ppb	14:48:15
1	Zn 213.857†	1237.1	46.3	0.4341	µg/L	0.4341	ppb	14:48:35
2	Sc RADIAL	20614.7	20614.7	98.3	%			14:47:18
2	Al 396.153Radial†	-204.1	-33.9	-10.198	µg/L	-10.198	ppb	14:47:18
2	Ca 317.933Radial†	92.5	-1.7	-0.8205	µg/L	-0.8205	ppb	14:47:38
2	Fe 238.204 Radial†	35.2	3.4	1.8326	µg/L	1.8326	ppb	14:47:38
2	K 766.490 Radial†	1107.6	437.9	207.26	µg/L	207.26	ppb	14:47:18
2	Mg 279.077 IEC†	8.5	-1.3	-6.6331	µg/L	-6.6331	ppb	14:47:38
2	Na 589.592 Radial†	-95.6	-51.9	-108.07	µg/L	-108.07	ppb	14:47:18
2	Sr 421.552†	-625.8	-24.9	-0.1216	µg/L	-0.1216	ppb	14:47:18
2	Sc 361.383	706841.0	706841.0	99.192	%			14:48:40
2	Y 371.029	614206.5	614206.5	99.206	%			14:48:40
2	Ag 328.068†	-346.2	30.1	0.1892	µg/L	0.1892	ppb	14:48:45
2	As 188.979†	-3.6	5.2	2.8863	µg/L	2.8863	ppb	14:49:05
2	B 249.677†	143.5	47.6	1.3526	µg/L	1.3526	ppb	14:49:05
2	Ba 233.527†	-158.3	11.2	0.1039	µg/L	0.1039	ppb	14:49:05
2	Be 313.107†	-7888.5	41.7	0.0274	µg/L	0.0274	ppb	14:48:45
2	Cd 226.502†	-202.3	21.3	0.3161	µg/L	0.3161	ppb	14:49:05
2	Co 228.616†	-8.1	12.7	0.3121	µg/L	0.3121	ppb	14:49:05
2	Cr 267.716†	204.4	12.4	0.2273	µg/L	0.2273	ppb	14:49:05
2	Cu 324.752†	6510.8	80.6	0.3190	µg/L	0.3190	ppb	14:48:45
2	Mn 257.610†	499.9	-0.6	-0.0005	µg/L	-0.0005	ppb	14:49:05
2	Mo 202.031†	55.1	33.5	2.2843	µg/L	2.2843	ppb	14:49:05
2	Ni 231.604†	-159.9	-32.5	-0.9467	µg/L	-0.9467	ppb	14:49:05
2	P 214.914†	184.2	60.8	45.584	µg/L	45.584	ppb	14:49:05
2	Pb 220.353†	164.3	14.7	2.2357	µg/L	2.2357	ppb	14:49:05

2	S 181.975 Axial†	66.8	5.7	9.9206 µg/L	9.9206 ppb	14:49:05
2	Sb 206.836†	80.1	15.0	4.8827 µg/L	4.8827 ppb	14:49:05
2	Se 196.026†	-3.9	1.4	1.0594 µg/L	1.0594 ppb	14:49:05
2	SiO2†	3029.2	103.5	13.122 µg/L	13.122 ppb	14:48:45
2	Si 251.611†	218.7	38.4	1.7772 µg/L	1.7772 ppb	14:49:05
2	Sn 189.927†	31.4	4.9	1.0568 µg/L	1.0568 ppb	14:49:05
2	Ti 334.940†	-170.8	-164.9	-0.4207 µg/L	-0.4207 ppb	14:48:45
2	Tl 190.801†	-34.0	14.2	4.8494 µg/L	4.8494 ppb	14:49:05
2	U 367.007†	355.8	64.2	15.75 µg/L	15.75 ppb	14:48:45
2	V 292.402†	-97.6	-38.2	-0.3353 µg/L	-0.3353 ppb	14:48:45
2	Zn 213.857†	1224.0	32.7	0.3068 µg/L	0.3068 ppb	14:49:05
3	Sc RADIAL	20929.9	20929.9	99.8 %		14:47:43
3	Al 396.153Radial†	-192.4	-19.1	-5.7626 µg/L	-5.7626 ppb	14:47:43
3	Ca 317.933Radial†	97.9	2.3	1.0895 µg/L	1.0895 ppb	14:48:03
3	Fe 238.204 Radial†	36.5	4.1	2.2640 µg/L	2.2640 ppb	14:48:03
3	K 766.490 Radial†	1061.8	375.1	177.53 µg/L	177.53 ppb	14:47:43
3	Mg 279.077 IEC†	6.6	-3.3	-17.100 µg/L	-17.100 ppb	14:48:03
3	Na 589.592 Radial†	-94.8	-49.7	-103.40 µg/L	-103.40 ppb	14:47:43
3	Sr 421.552†	-605.7	4.9	0.0238 µg/L	0.0238 ppb	14:47:43
3	Sc 361.383	706548.3	706548.3	99.151 %		14:49:10
3	Y 371.029	614462.6	614462.6	99.247 %		14:49:10
3	Ag 328.068†	-338.8	37.4	0.2381 µg/L	0.2381 ppb	14:49:15
3	As 188.979†	-13.6	-4.9	-2.7857 µg/L	-2.7857 ppb	14:49:35
3	B 249.677†	122.3	26.4	0.7481 µg/L	0.7481 ppb	14:49:35
3	Ba 233.527†	-150.7	18.8	0.1751 µg/L	0.1751 ppb	14:49:35
3	Be 313.107†	-7731.4	196.8	0.1171 µg/L	0.1171 ppb	14:49:15
3	Cd 226.502†	-211.2	12.3	0.1820 µg/L	0.1820 ppb	14:49:35
3	Co 228.616†	-2.1	18.7	0.4583 µg/L	0.4583 ppb	14:49:35
3	Cr 267.716†	194.2	2.2	0.0273 µg/L	0.0273 ppb	14:49:35
3	Cu 324.752†	6512.7	85.2	0.3386 µg/L	0.3386 ppb	14:49:15
3	Mn 257.610†	498.3	-2.1	-0.0022 µg/L	-0.0022 ppb	14:49:35
3	Mo 202.031†	52.3	30.6	2.0885 µg/L	2.0885 ppb	14:49:35
3	Ni 231.604†	-157.5	-30.1	-0.8770 µg/L	-0.8770 ppb	14:49:35
3	P 214.914†	159.6	36.1	27.059 µg/L	27.059 ppb	14:49:35
3	Pb 220.353†	148.8	-0.8	-0.1257 µg/L	-0.1257 ppb	14:49:35
3	S 181.975 Axial†	57.9	-3.2	-5.5965 µg/L	-5.5965 ppb	14:49:35
3	Sb 206.836†	90.0	25.0	8.1059 µg/L	8.1059 ppb	14:49:35
3	Se 196.026†	-1.0	4.3	3.2129 µg/L	3.2129 ppb	14:49:35
3	SiO2†	2993.3	68.6	8.7522 µg/L	8.7522 ppb	14:49:15
3	Si 251.611†	210.4	30.2	1.3917 µg/L	1.3917 ppb	14:49:35
3	Sn 189.927†	33.5	7.0	1.5241 µg/L	1.5241 ppb	14:49:35
3	Ti 334.940†	-91.5	-85.0	-0.2201 µg/L	-0.2201 ppb	14:49:15
3	Tl 190.801†	-41.4	6.7	2.3047 µg/L	2.3047 ppb	14:49:35
3	U 367.007†	354.8	63.4	15.54 µg/L	15.54 ppb	14:49:15
3	V 292.402†	-59.6	0.1	0.0372 µg/L	0.0372 ppb	14:49:15
3	Zn 213.857†	1226.6	35.8	0.3350 µg/L	0.3350 ppb	14:49:35

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	706658.8	99.167	%	0.0223				0.02%
Sc RADIAL	20877.4	99.5	%	1.15				1.15%
Y 371.029	614197.2	99.204	%	0.0436				0.04%
Ag 328.068†	62.5	0.3968	µg/L	0.31826	0.3968	ppb	0.31826	80.20%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-2.2	-0.7275	µg/L	12.75609	-0.7275	ppb	12.75609	>999.9%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	1.7	0.9609	µg/L	3.24513	0.9609	ppb	3.24513	337.71%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	36.7	1.0420	µg/L	0.30259	1.0420	ppb	0.30259	29.04%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	12.5	0.1161	µg/L	0.05400	0.1161	ppb	0.05400	46.52%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	86.0	0.0529	µg/L	0.05594	0.0529	ppb	0.05594	105.66%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	1.7	0.7825	µg/L	1.47373	0.7825	ppb	1.47373	188.33%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	18.7	0.2769	µg/L	0.08262	0.2769	ppb	0.08262	29.84%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	14.0	0.3427	µg/L	0.10369	0.3427	ppb	0.10369	30.25%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†                4.6      0.0742 µg/L       0.13592      0.0742 ppb        0.13592 183.23%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†               87.9      0.3494 µg/L       0.03701      0.3494 ppb        0.03701  10.59%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         4.6      2.5161 µg/L       0.83848      2.5161 ppb        0.83848  33.32%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        420.1      198.83 µg/L        18.575      198.83 ppb         18.575   9.34%
   QC value greater than the upper limit for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           -2.9     -15.415 µg/L        8.0721     -15.415 ppb         8.0721  52.37%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†                0.2      0.0010 µg/L       0.00421      0.0010 ppb        0.00421 420.25%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               28.2      1.9234 µg/L       0.46597      1.9234 ppb        0.46597  24.23%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -47.9     -99.630 µg/L       10.8279     -99.630 ppb        10.8279  10.87%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -36.0     -1.0478 µg/L       0.23805     -1.0478 ppb        0.23805  22.72%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                52.0      38.931 µg/L       10.3065      38.931 ppb        10.3065  26.47%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                8.1      1.2177 µg/L       1.21387      1.2177 ppb        1.21387  99.68%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†           0.4      0.6588 µg/L       8.18374      0.6588 ppb        8.18374 >999.9%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               21.4      6.9414 µg/L       1.78796      6.9414 ppb        1.78796  25.76%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                3.0      2.2176 µg/L       1.08596      2.2176 ppb        1.08596  48.97%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                     100.0      12.665 µg/L        3.7055      12.665 ppb         3.7055  29.26%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               40.9      1.8978 µg/L       0.57593      1.8978 ppb        0.57593  30.35%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                8.7      1.8881 µg/L       1.06120      1.8881 ppb        1.06120  56.20%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†                4.7      0.0228 µg/L       0.14391      0.0228 ppb        0.14391 631.39%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              -80.4     -0.2086 µg/L       0.21808     -0.2086 ppb        0.21808 104.53%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                9.9      3.4065 µg/L       1.30620      3.4065 ppb        1.30620  38.34%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                63.6       15.60 µg/L         0.130       15.60 ppb          0.130   0.83%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                -8.6     -0.0493 µg/L       0.25408     -0.0493 ppb        0.25408 515.32%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†               38.3      0.3586 µg/L       0.06687      0.3586 ppb        0.06687  18.65%
   QC value within limits for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
```

Sequence No.: 15 **Autosampler Location: 308**
Sample ID: 1202679758|1221778|1 **Date Collected: 6/15/2012 14:49:43**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202679758|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20113.4	20113.4	95.9	%			14:50:14
1	Al 396.153Radial†	-179.4	-13.3	-3.9924	µg/L	-3.9924	ppb	14:50:14
1	Ca 317.933Radial†	113.3	22.4	10.613	µg/L	10.613	ppb	14:50:34
1	Fe 238.204 Radial†	171.4	146.4	79.844	µg/L	79.844	ppb	14:50:34
1	K 766.490 Radial†	1164.0	524.8	248.43	µg/L	248.43	ppb	14:50:14
1	Mg 279.077 IEC†	7.5	-2.1	-11.081	µg/L	-11.081	ppb	14:50:34
1	Na 589.592 Radial†	-122.7	-82.6	-171.95	µg/L	-171.95	ppb	14:50:14
1	Sr 421.552†	-624.1	-39.0	-0.1904	µg/L	-0.1904	ppb	14:50:14
1	Sc 361.383	703543.0	703543.0	98.729	%			14:51:30
1	Y 371.029	611762.4	611762.4	98.811	%			14:51:30
1	Ag 328.068†	-227.4	148.9	0.9645	µg/L	0.9645	ppb	14:51:35
1	As 188.979†	-3.4	5.4	3.0244	µg/L	3.0244	ppb	14:51:55
1	B 249.677†	192.4	97.9	2.7714	µg/L	2.7714	ppb	14:51:55
1	Ba 233.527†	-140.2	28.9	0.2667	µg/L	0.2667	ppb	14:51:55
1	Be 313.107†	-7770.7	123.7	0.0734	µg/L	0.0734	ppb	14:51:35
1	Cd 226.502†	-201.1	21.6	0.3083	µg/L	0.3083	ppb	14:51:55
1	Co 228.616†	-10.6	10.1	0.2462	µg/L	0.2462	ppb	14:51:55
1	Cr 267.716†	223.1	32.3	0.6248	µg/L	0.6248	ppb	14:51:55
1	Cu 324.752†	8808.3	2438.4	10.046	µg/L	10.046	ppb	14:51:35
1	Mn 257.610†	1521.9	1036.9	1.4872	µg/L	1.4872	ppb	14:51:55
1	Mo 202.031†	31.1	9.4	0.6437	µg/L	0.6437	ppb	14:51:55
1	Ni 231.604†	-102.0	25.4	0.7394	µg/L	0.7394	ppb	14:51:55
1	P 214.914†	157.1	34.3	25.440	µg/L	25.440	ppb	14:51:55
1	Pb 220.353†	204.2	55.9	8.4759	µg/L	8.4759	ppb	14:51:55
1	S 181.975 Axial†	77.1	16.5	28.640	µg/L	28.640	ppb	14:51:55
1	Sb 206.836†	72.1	7.3	2.3694	µg/L	2.3694	ppb	14:51:55
1	Se 196.026†	1.7	7.0	5.2454	µg/L	5.2454	ppb	14:51:55
1	SiO2†	3208.4	299.4	37.409	µg/L	37.409	ppb	14:51:35
1	Si 251.611†	413.0	236.3	11.117	µg/L	11.117	ppb	14:51:55
1	Sn 189.927†	36.0	9.7	2.1327	µg/L	2.1327	ppb	14:51:55
1	Ti 334.940†	-84.8	-78.6	-0.2006	µg/L	-0.2006	ppb	14:51:35
1	Tl 190.801†	-48.0	-0.2	-0.0658	µg/L	-0.0658	ppb	14:51:55
1	U 367.007†	322.6	32.3	7.542	µg/L	7.542	ppb	14:51:35
1	V 292.402†	-62.9	-3.5	-0.0186	µg/L	-0.0186	ppb	14:51:35
1	Zn 213.857†	1401.0	217.7	1.9836	µg/L	1.9836	ppb	14:51:55
2	Sc RADIAL	20551.9	20551.9	98.0	%			14:50:39
2	Al 396.153Radial†	-184.5	-14.5	-4.3576	µg/L	-4.3576	ppb	14:50:39
2	Ca 317.933Radial†	117.2	23.8	11.271	µg/L	11.271	ppb	14:50:59
2	Fe 238.204 Radial†	176.4	147.6	80.528	µg/L	80.528	ppb	14:50:59
2	K 766.490 Radial†	1057.8	390.5	184.86	µg/L	184.86	ppb	14:50:39
2	Mg 279.077 IEC†	8.7	-1.0	-5.1246	µg/L	-5.1246	ppb	14:50:59
2	Na 589.592 Radial†	-84.2	-40.5	-84.389	µg/L	-84.389	ppb	14:50:39
2	Sr 421.552†	-614.7	-15.5	-0.0756	µg/L	-0.0756	ppb	14:50:39
2	Sc 361.383	697058.6	697058.6	97.819	%			14:52:00
2	Y 371.029	605536.0	605536.0	97.805	%			14:52:00
2	Ag 328.068†	-218.4	155.9	1.0089	µg/L	1.0089	ppb	14:52:06
2	As 188.979†	-12.9	-4.4	-2.4493	µg/L	-2.4493	ppb	14:52:26
2	B 249.677†	185.2	92.3	2.6118	µg/L	2.6118	ppb	14:52:26
2	Ba 233.527†	-142.2	25.5	0.2350	µg/L	0.2350	ppb	14:52:26
2	Be 313.107†	-7671.3	152.1	0.0914	µg/L	0.0914	ppb	14:52:06
2	Cd 226.502†	-197.9	22.9	0.3277	µg/L	0.3277	ppb	14:52:26
2	Co 228.616†	-10.7	9.9	0.2421	µg/L	0.2421	ppb	14:52:26
2	Cr 267.716†	223.5	34.8	0.6676	µg/L	0.6676	ppb	14:52:26
2	Cu 324.752†	8778.6	2491.1	10.257	µg/L	10.257	ppb	14:52:06
2	Mn 257.610†	1497.3	1026.0	1.4716	µg/L	1.4716	ppb	14:52:26
2	Mo 202.031†	38.3	17.1	1.1707	µg/L	1.1707	ppb	14:52:26
2	Ni 231.604†	-128.0	-2.1	-0.0607	µg/L	-0.0607	ppb	14:52:26
2	P 214.914†	139.3	17.6	12.894	µg/L	12.894	ppb	14:52:26
2	Pb 220.353†	188.2	41.5	6.2950	µg/L	6.2950	ppb	14:52:26

2	S 181.975 Axial†	79.1	19.3	33.460 µg/L	33.460 ppb	14:52:26
2	Sb 206.836†	71.8	7.6	2.4705 µg/L	2.4705 ppb	14:52:26
2	Se 196.026†	-4.7	0.6	0.4774 µg/L	0.4774 ppb	14:52:26
2	SiO2†	3145.6	265.4	33.283 µg/L	33.283 ppb	14:52:06
2	Si 251.611†	437.1	264.8	12.461 µg/L	12.461 ppb	14:52:26
2	Sn 189.927†	29.4	3.3	0.7235 µg/L	0.7235 ppb	14:52:26
2	Ti 334.940†	-132.1	-127.8	-0.3273 µg/L	-0.3273 ppb	14:52:06
2	Tl 190.801†	-46.9	0.5	0.1723 µg/L	0.1723 ppb	14:52:26
2	U 367.007†	348.2	61.5	14.70 µg/L	14.70 ppb	14:52:06
2	V 292.402†	-66.3	-7.6	-0.0464 µg/L	-0.0464 ppb	14:52:06
2	Zn 213.857†	1385.5	215.1	1.9637 µg/L	1.9637 ppb	14:52:26
3	Sc RADIAL	20725.2	20725.2	98.8 %		14:51:04
3	Al 396.153Radial†	-143.2	28.9	8.5304 µg/L	8.5304 ppb	14:51:04
3	Ca 317.933Radial†	120.7	26.3	12.492 µg/L	12.492 ppb	14:51:24
3	Fe 238.204 Radial†	178.8	148.5	81.015 µg/L	81.015 ppb	14:51:24
3	K 766.490 Radial†	1182.0	507.2	240.10 µg/L	240.10 ppb	14:51:04
3	Mg 279.077 IEC†	6.5	-3.3	-17.579 µg/L	-17.579 ppb	14:51:24
3	Na 589.592 Radial†	-99.2	-55.0	-114.59 µg/L	-114.59 ppb	14:51:04
3	Sr 421.552†	-648.9	-44.9	-0.2193 µg/L	-0.2193 ppb	14:51:04
3	Sc 361.383	699954.0	699954.0	98.226 %		14:52:31
3	Y 371.029	608097.4	608097.4	98.219 %		14:52:31
3	Ag 328.068†	-281.6	92.4	0.6031 µg/L	0.6031 ppb	14:52:36
3	As 188.979†	-3.4	5.3	2.9929 µg/L	2.9929 ppb	14:52:56
3	B 249.677†	193.9	100.4	2.8414 µg/L	2.8414 ppb	14:52:56
3	Ba 233.527†	-149.2	18.9	0.1727 µg/L	0.1727 ppb	14:52:56
3	Be 313.107†	-7709.0	146.2	0.0879 µg/L	0.0879 ppb	14:52:36
3	Cd 226.502†	-203.9	17.6	0.2495 µg/L	0.2495 ppb	14:52:56
3	Co 228.616†	-9.9	10.7	0.2645 µg/L	0.2645 ppb	14:52:56
3	Cr 267.716†	204.0	14.0	0.2600 µg/L	0.2600 ppb	14:52:56
3	Cu 324.752†	8753.2	2428.1	9.9976 µg/L	9.9976 ppb	14:52:36
3	Mn 257.610†	1521.0	1043.8	1.4974 µg/L	1.4974 ppb	14:52:56
3	Mo 202.031†	49.6	28.4	1.9377 µg/L	1.9377 ppb	14:52:56
3	Ni 231.604†	-103.8	23.0	0.6694 µg/L	0.6694 ppb	14:52:56
3	P 214.914†	142.4	20.1	14.770 µg/L	14.770 ppb	14:52:56
3	Pb 220.353†	195.1	47.8	7.2349 µg/L	7.2349 ppb	14:52:56
3	S 181.975 Axial†	76.1	15.8	27.526 µg/L	27.526 ppb	14:52:56
3	Sb 206.836†	78.0	13.7	4.4582 µg/L	4.4582 ppb	14:52:56
3	Se 196.026†	-9.6	-4.4	-3.2244 µg/L	-3.2244 ppb	14:52:56
3	SiO2†	3174.8	281.8	35.307 µg/L	35.307 ppb	14:52:36
3	Si 251.611†	428.0	253.7	11.920 µg/L	11.920 ppb	14:52:56
3	Sn 189.927†	37.2	11.1	2.4363 µg/L	2.4363 ppb	14:52:56
3	Ti 334.940†	-208.2	-204.7	-0.5195 µg/L	-0.5195 ppb	14:52:36
3	Tl 190.801†	-42.7	5.0	1.7039 µg/L	1.7039 ppb	14:52:56
3	U 367.007†	348.3	60.2	14.37 µg/L	14.37 ppb	14:52:36
3	V 292.402†	-124.9	-67.0	-0.6220 µg/L	-0.6220 ppb	14:52:36
3	Zn 213.857†	1378.6	202.2	1.8406 µg/L	1.8406 ppb	14:52:56

Mean Data: 1202679758|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	700185.2	98.258	%	0.4559				0.46%
Sc RADIAL	20463.5	97.5	%	1.50				1.54%
Y 371.029	608465.3	98.278	%	0.5055				0.51%
Ag 328.068†	132.4	0.8588	µg/L	0.22259	0.8588	ppb	0.22259	25.92%
Al 396.153Radial†	0.4	0.0601	µg/L	7.33773	0.0601	ppb	7.33773	>999.9%
As 188.979†	2.1	1.1893	µg/L	3.15115	1.1893	ppb	3.15115	264.96%
B 249.677†	96.9	2.7415	µg/L	0.11768	2.7415	ppb	0.11768	4.29%
Ba 233.527†	24.4	0.2248	µg/L	0.04783	0.2248	ppb	0.04783	21.28%
Be 313.107†	140.6	0.0842	µg/L	0.00951	0.0842	ppb	0.00951	11.29%
Ca 317.933Radial†	24.2	11.459	µg/L	0.9532	11.459	ppb	0.9532	8.32%
Cd 226.502†	20.7	0.2952	µg/L	0.04071	0.2952	ppb	0.04071	13.79%
Co 228.616†	10.2	0.2509	µg/L	0.01191	0.2509	ppb	0.01191	4.75%
Cr 267.716†	27.1	0.5175	µg/L	0.22400	0.5175	ppb	0.22400	43.29%
Cu 324.752†	2452.5	10.100	µg/L	0.1378	10.100	ppb	0.1378	1.36%
Fe 238.204 Radial†	147.5	80.462	µg/L	0.5884	80.462	ppb	0.5884	0.73%
K 766.490 Radial†	474.2	224.47	µg/L	34.551	224.47	ppb	34.551	15.39%
Mg 279.077 IEC†	-2.1	-11.261	µg/L	6.2290	-11.261	ppb	6.2290	55.31%
Mn 257.610†	1035.6	1.4854	µg/L	0.01303	1.4854	ppb	0.01303	0.88%
Mo 202.031†	18.3	1.2507	µg/L	0.65067	1.2507	ppb	0.65067	52.02%
Na 589.592 Radial†	-59.4	-123.64	µg/L	44.478	-123.64	ppb	44.478	35.97%

Ni 231.604†	15.4	0.4493 µg/L	0.44312	0.4493 ppb	0.44312	98.61%
P 214.914†	24.0	17.701 µg/L	6.7669	17.701 ppb	6.7669	38.23%
Pb 220.353†	48.4	7.3353 µg/L	1.09389	7.3353 ppb	1.09389	14.91%
S 181.975 Axial†	17.2	29.875 µg/L	3.1540	29.875 ppb	3.1540	10.56%
Sb 206.836†	9.6	3.0994 µg/L	1.17789	3.0994 ppb	1.17789	38.00%
Se 196.026†	1.0	0.8328 µg/L	4.24607	0.8328 ppb	4.24607	509.85%
SiO2†	282.2	35.333 µg/L	2.0636	35.333 ppb	2.0636	5.84%
Si 251.611†	251.6	11.833 µg/L	0.6762	11.833 ppb	0.6762	5.71%
Sn 189.927†	8.1	1.7642 µg/L	0.91396	1.7642 ppb	0.91396	51.81%
Sr 421.552†	-33.1	-0.1618 µg/L	0.07601	-0.1618 ppb	0.07601	46.98%
Ti 334.940†	-137.1	-0.3492 µg/L	0.16058	-0.3492 ppb	0.16058	45.99%
Tl 190.801†	1.7	0.6035 µg/L	0.96043	0.6035 ppb	0.96043	159.15%
U 367.007†	51.3	12.20 µg/L	4.038	12.20 ppb	4.038	33.10%
V 292.402†	-26.0	-0.2290 µg/L	0.34062	-0.2290 ppb	0.34062	148.73%
Zn 213.857†	211.7	1.9293 µg/L	0.07747	1.9293 ppb	0.07747	4.02%

Sequence No.: 16 **Autosampler Location: 309**
Sample ID: 1202679759|1221778|1 **Date Collected: 6/15/2012 14:53:04**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202679759|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20740.6	20740.6	98.9	%			14:53:33
1	Al 396.153Radial†	16383.4	16746.2	4973.3	µg/L	4973.3	ppb	14:53:33
1	Ca 317.933Radial†	10790.9	10819.6	5130.8	µg/L	5130.8	ppb	14:53:53
1	Fe 238.204 Radial†	9237.8	9311.9	5083.8	µg/L	5083.8	ppb	14:53:53
1	K 766.490 Radial†	11620.5	11065.2	5232.3	µg/L	5232.3	ppb	14:53:33
1	Mg 279.077 IEC†	967.3	968.5	5131.1	µg/L	5131.1	ppb	14:53:53
1	Na 589.592 Radial†	2306.1	2378.1	4950.1	µg/L	4950.1	ppb	14:53:53
1	Sr 421.552†	101326.3	103107.3	503.50	µg/L	503.50	ppb	14:53:33
1	Sc 361.383	708046.3	708046.3	99.361	%			14:54:50
1	Y 371.029	611492.6	611492.6	98.767	%			14:54:50
1	Ag 328.068†	79682.4	80573.7	515.58	µg/L	515.58	ppb	14:54:55
1	As 188.979†	920.6	935.3	525.44	µg/L	525.44	ppb	14:55:15
1	B 249.677†	18092.7	18112.0	513.24	µg/L	513.24	ppb	14:54:55
1	Ba 233.527†	54954.3	55478.3	517.85	µg/L	517.85	ppb	14:54:55
1	Be 313.107†	919421.0	933324.5	540.46	µg/L	540.46	ppb	14:54:50
1	Cd 226.502†	35283.2	35735.2	530.66	µg/L	530.66	ppb	14:54:55
1	Co 228.616†	21231.0	21388.3	519.31	µg/L	519.31	ppb	14:54:55
1	Cr 267.716†	26334.7	26310.3	514.47	µg/L	514.47	ppb	14:54:55
1	Cu 324.752†	129083.8	123430.2	509.67	µg/L	509.67	ppb	14:54:55
1	Mn 257.610†	350165.0	351910.9	502.40	µg/L	502.40	ppb	14:54:55
1	Mo 202.031†	7262.1	7286.7	497.02	µg/L	497.02	ppb	14:55:15
1	Ni 231.604†	17550.0	17791.4	517.44	µg/L	517.44	ppb	14:54:55
1	P 214.914†	854.1	734.8	532.76	µg/L	532.76	ppb	14:55:15
1	Pb 220.353†	3567.6	3439.6	521.14	µg/L	521.14	ppb	14:55:15
1	S 181.975 Axial†	3041.9	2999.8	5212.3	µg/L	5212.3	ppb	14:55:15
1	Sb 206.836†	1443.7	1387.3	443.17	µg/L	443.17	ppb	14:55:15
1	Se 196.026†	726.8	736.7	550.40	µg/L	550.40	ppb	14:55:15
1	SiO2†	84581.5	82174.8	10268	µg/L	10268	ppb	14:54:55
1	Si 251.611†	100869.0	101335.2	4767.6	µg/L	4767.6	ppb	14:54:55
1	Sn 189.927†	2378.5	2367.0	519.28	µg/L	519.28	ppb	14:55:15
1	Ti 334.940†	199695.0	200985.7	503.70	µg/L	503.70	ppb	14:54:55
1	Tl 190.801†	1429.6	1487.2	511.09	µg/L	511.09	ppb	14:55:15
1	U 367.007†	2350.9	2071.5	484.4	µg/L	484.4	ppb	14:54:55
1	V 292.402†	51569.9	51961.5	516.83	µg/L	516.83	ppb	14:54:55
1	Zn 213.857†	56897.5	56061.9	512.19	µg/L	512.19	ppb	14:54:55
2	Sc RADIAL	20619.1	20619.1	98.3	%			14:53:58
2	Al 396.153Radial†	16561.8	17025.4	5056.4	µg/L	5056.4	ppb	14:53:58
2	Ca 317.933Radial†	10820.8	10914.3	5175.7	µg/L	5175.7	ppb	14:54:18
2	Fe 238.204 Radial†	9233.4	9362.5	5111.4	µg/L	5111.4	ppb	14:54:18
2	K 766.490 Radial†	11614.3	11128.3	5262.1	µg/L	5262.1	ppb	14:53:58
2	Mg 279.077 IEC†	977.3	984.5	5215.7	µg/L	5215.7	ppb	14:54:18
2	Na 589.592 Radial†	2281.6	2367.0	4927.0	µg/L	4927.0	ppb	14:54:18
2	Sr 421.552†	102595.8	105002.9	512.75	µg/L	512.75	ppb	14:53:58
2	Sc 361.383	704388.3	704388.3	98.848	%			14:55:21
2	Y 371.029	608699.7	608699.7	98.316	%			14:55:21
2	Ag 328.068†	79650.9	80958.3	518.03	µg/L	518.03	ppb	14:55:26
2	As 188.979†	904.3	923.6	518.83	µg/L	518.83	ppb	14:55:46
2	B 249.677†	18021.6	18134.6	513.88	µg/L	513.88	ppb	14:55:26
2	Ba 233.527†	54642.6	55450.2	517.59	µg/L	517.59	ppb	14:55:26
2	Be 313.107†	912146.2	930770.3	538.98	µg/L	538.98	ppb	14:55:21
2	Cd 226.502†	35132.4	35767.1	531.13	µg/L	531.13	ppb	14:55:26
2	Co 228.616†	21158.5	21425.9	520.23	µg/L	520.23	ppb	14:55:26
2	Cr 267.716†	26248.8	26361.0	515.46	µg/L	515.46	ppb	14:55:26
2	Cu 324.752†	128867.0	123885.5	511.55	µg/L	511.55	ppb	14:55:26
2	Mn 257.610†	348532.0	352089.0	502.65	µg/L	502.65	ppb	14:55:26
2	Mo 202.031†	7267.9	7330.5	500.00	µg/L	500.00	ppb	14:55:46
2	Ni 231.604†	17411.9	17743.5	516.05	µg/L	516.05	ppb	14:55:26
2	P 214.914†	848.0	733.0	531.36	µg/L	531.36	ppb	14:55:46
2	Pb 220.353†	3573.6	3464.4	524.87	µg/L	524.87	ppb	14:55:46

2	S 181.975 Axial†	3058.2	3032.2	5268.6 µg/L	5268.6 ppb	14:55:46
2	Sb 206.836†	1450.3	1401.4	447.76 µg/L	447.76 ppb	14:55:46
2	Se 196.026†	739.5	753.5	562.81 µg/L	562.81 ppb	14:55:46
2	SiO2†	84270.2	82302.0	10284 µg/L	10284 ppb	14:55:26
2	Si 251.611†	100337.3	101324.5	4767.1 µg/L	4767.1 ppb	14:55:26
2	Sn 189.927†	2371.9	2372.7	520.54 µg/L	520.54 ppb	14:55:46
2	Ti 334.940†	198883.5	201208.4	504.26 µg/L	504.26 ppb	14:55:26
2	Tl 190.801†	1431.3	1496.4	514.26 µg/L	514.26 ppb	14:55:46
2	U 367.007†	2337.0	2069.8	483.9 µg/L	483.9 ppb	14:55:26
2	V 292.402†	51357.6	52016.3	517.41 µg/L	517.41 ppb	14:55:26
2	Zn 213.857†	56653.1	56112.0	512.66 µg/L	512.66 ppb	14:55:26
3	Sc RADIAL	20795.6	20795.6	99.1 %		14:54:23
3	Al 396.153Radial†	16617.1	16938.2	5030.8 µg/L	5030.8 ppb	14:54:23
3	Ca 317.933Radial†	10813.9	10813.9	5128.1 µg/L	5128.1 ppb	14:54:43
3	Fe 238.204 Radial†	9251.4	9301.0	5077.7 µg/L	5077.7 ppb	14:54:43
3	K 766.490 Radial†	11722.6	11137.2	5266.5 µg/L	5266.5 ppb	14:54:23
3	Mg 279.077 IEC†	967.4	966.1	5118.4 µg/L	5118.4 ppb	14:54:43
3	Na 589.592 Radial†	2289.4	2355.1	4902.3 µg/L	4902.3 ppb	14:54:43
3	Sr 421.552†	102724.3	104246.6	509.06 µg/L	509.06 ppb	14:54:23
3	Sc 361.383	715676.9	715676.9	100.43 %		14:55:51
3	Y 371.029	618650.6	618650.6	99.923 %		14:55:51
3	Ag 328.068†	79262.3	79300.3	507.44 µg/L	507.44 ppb	14:55:57
3	As 188.979†	897.7	902.7	507.07 µg/L	507.07 ppb	14:56:17
3	B 249.677†	18015.0	17840.5	505.54 µg/L	505.54 ppb	14:55:57
3	Ba 233.527†	54417.9	54354.5	507.36 µg/L	507.36 ppb	14:55:57
3	Be 313.107†	920038.0	924072.8	535.10 µg/L	535.10 ppb	14:55:51
3	Cd 226.502†	35095.6	35169.8	522.25 µg/L	522.25 ppb	14:55:57
3	Co 228.616†	21087.0	21017.1	510.31 µg/L	510.31 ppb	14:55:57
3	Cr 267.716†	26142.0	25835.8	505.18 µg/L	505.18 ppb	14:55:57
3	Cu 324.752†	128151.9	121117.2	500.13 µg/L	500.13 ppb	14:55:57
3	Mn 257.610†	347035.1	345037.0	492.59 µg/L	492.59 ppb	14:55:57
3	Mo 202.031†	7247.3	7194.0	490.70 µg/L	490.70 ppb	14:56:17
3	Ni 231.604†	17347.4	17401.4	506.10 µg/L	506.10 ppb	14:55:57
3	P 214.914†	840.7	712.2	516.14 µg/L	516.14 ppb	14:56:17
3	Pb 220.353†	3552.5	3386.4	513.03 µg/L	513.03 ppb	14:56:17
3	S 181.975 Axial†	3057.3	2982.5	5182.3 µg/L	5182.3 ppb	14:56:17
3	Sb 206.836†	1418.3	1346.4	430.11 µg/L	430.11 ppb	14:56:17
3	Se 196.026†	730.9	733.0	547.65 µg/L	547.65 ppb	14:56:17
3	SiO2†	83825.1	80514.1	10061 µg/L	10061 ppb	14:55:57
3	Si 251.611†	100075.3	99462.6	4679.5 µg/L	4679.5 ppb	14:55:57
3	Sn 189.927†	2351.8	2314.9	507.86 µg/L	507.86 ppb	14:56:17
3	Ti 334.940†	198040.3	197195.3	494.20 µg/L	494.20 ppb	14:55:57
3	Tl 190.801†	1412.9	1455.2	500.13 µg/L	500.13 ppb	14:56:17
3	U 367.007†	2383.0	2078.3	486.1 µg/L	486.1 ppb	14:55:57
3	V 292.402†	51152.1	50992.1	507.24 µg/L	507.24 ppb	14:55:57
3	Zn 213.857†	56399.1	54955.1	502.07 µg/L	502.07 ppb	14:55:57

Mean Data: 1202679759|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	709370.5	99.547	%	0.8083				0.81%
Sc RADIAL	20718.4	98.8	%	0.43				0.44%
Y 371.029	612947.6	99.002	%	0.8290				0.84%
Ag 328.068†	80277.4	513.68	µg/L	5.543	513.68	ppb	5.543	1.08%
Al 396.153Radial†	16903.3	5020.2	µg/L	42.55	5020.2	ppb	42.55	0.85%
As 188.979†	920.5	517.11	µg/L	9.300	517.11	ppb	9.300	1.80%
B 249.677†	18029.0	510.88	µg/L	4.642	510.88	ppb	4.642	0.91%
Ba 233.527†	55094.3	514.27	µg/L	5.983	514.27	ppb	5.983	1.16%
Be 313.107†	929389.2	538.18	µg/L	2.766	538.18	ppb	2.766	0.51%
Ca 317.933Radial†	10849.3	5144.8	µg/L	26.75	5144.8	ppb	26.75	0.52%
Cd 226.502†	35557.4	528.02	µg/L	4.996	528.02	ppb	4.996	0.95%
Co 228.616†	21277.1	516.62	µg/L	5.485	516.62	ppb	5.485	1.06%
Cr 267.716†	26169.1	511.70	µg/L	5.670	511.70	ppb	5.670	1.11%
Cu 324.752†	122810.9	507.12	µg/L	6.127	507.12	ppb	6.127	1.21%
Fe 238.204 Radial†	9325.1	5091.0	µg/L	17.93	5091.0	ppb	17.93	0.35%
K 766.490 Radial†	11110.2	5253.6	µg/L	18.61	5253.6	ppb	18.61	0.35%
Mg 279.077 IEC†	973.1	5155.1	µg/L	52.87	5155.1	ppb	52.87	1.03%
Mn 257.610†	349679.0	499.21	µg/L	5.737	499.21	ppb	5.737	1.15%
Mo 202.031†	7270.4	495.91	µg/L	4.750	495.91	ppb	4.750	0.96%
Na 589.592 Radial†	2366.7	4926.4	µg/L	23.91	4926.4	ppb	23.91	0.49%

Ni 231.604†	17645.5	513.19 µg/L	6.185	513.19 ppb	6.185	1.21%
P 214.914†	726.7	526.75 µg/L	9.215	526.75 ppb	9.215	1.75%
Pb 220.353†	3430.1	519.68 µg/L	6.056	519.68 ppb	6.056	1.17%
S 181.975 Axial†	3004.8	5221.1 µg/L	43.85	5221.1 ppb	43.85	0.84%
Sb 206.836†	1378.4	440.35 µg/L	9.160	440.35 ppb	9.160	2.08%
Se 196.026†	741.1	553.62 µg/L	8.076	553.62 ppb	8.076	1.46%
SiO2†	81663.6	10205 µg/L	124.5	10205 ppb	124.5	1.22%
Si 251.611†	100707.4	4738.0 µg/L	50.72	4738.0 ppb	50.72	1.07%
Sn 189.927†	2351.5	515.89 µg/L	6.982	515.89 ppb	6.982	1.35%
Sr 421.552†	104118.9	508.44 µg/L	4.660	508.44 ppb	4.660	0.92%
Ti 334.940†	199796.5	500.72 µg/L	5.655	500.72 ppb	5.655	1.13%
Tl 190.801†	1479.6	508.49 µg/L	7.414	508.49 ppb	7.414	1.46%
U 367.007†	2073.2	484.8 µg/L	1.16	484.8 ppb	1.16	0.24%
V 292.402†	51656.6	513.83 µg/L	5.714	513.83 ppb	5.714	1.11%
Zn 213.857†	55709.7	508.97 µg/L	5.981	508.97 ppb	5.981	1.18%

Sequence No.: 17 **Autosampler Location: 310**
Sample ID: 306122001|1221778|1 **Date Collected: 6/15/2012 14:56:24**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122001|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21624.8	21624.8	103	%			14:56:58
1	Al 396.153Radial†	423954.8	411484.2	122670	µg/L	122670	ppb	14:56:53
1	Ca 317.933Radial†	233636.3	226572.3	107440	µg/L	107440	ppb	14:56:53
1	Fe 238.204 Radial†	387455.4	375867.1	204990	µg/L	204990	ppb	14:56:53
1	K 766.490 Radial†	91678.3	88254.7	41838	µg/L	41838	ppb	14:56:53
1	Mg 279.077 IEC†	13760.6	13340.3	70583	µg/L	70583	ppb	14:56:58
1	Na 589.592 Radial†	346.2	381.3	793.65	µg/L	793.65	ppb	14:56:58
1	Sr 421.552†	136639.9	133176.6	649.87	µg/L	649.87	ppb	14:56:53
1	Sc 361.383	714023.7	714023.7	100.20	%			14:57:27
1	Y 371.029	739599.0	739599.0	119.46	%			14:57:27
1	Ag 328.068†	-7237.5	-6843.9	11.245	µg/L	11.245	ppb	14:57:32
1	As 188.979†	240.9	249.2	146.60	µg/L	146.60	ppb	14:57:52
1	B 249.677†	3852.3	3747.6	76.742	µg/L	76.742	ppb	14:57:32
1	Ba 233.527†	146102.8	145981.7	1355.6	µg/L	1355.6	ppb	14:57:32
1	Be 313.107†	17822.4	25781.2	14.799	µg/L	14.799	ppb	14:57:32
1	Cd 226.502†	4722.1	4937.9	41.001	µg/L	41.001	ppb	14:57:32
1	Co 228.616†	4836.3	4847.5	108.46	µg/L	108.46	ppb	14:57:52
1	Cr 267.716†	7390.9	7182.5	143.75	µg/L	143.75	ppb	14:57:32
1	Cu 324.752†	439261.5	431900.5	1812.1	µg/L	1812.1	ppb	14:57:27
1	Mn 257.610†	6520676.6	6507142.4	9301.0	µg/L	9301.0	ppb	14:57:27
1	Mo 202.031†	314.5	291.8	28.274	µg/L	28.274	ppb	14:57:52
1	Ni 231.604†	5844.9	5961.9	176.82	µg/L	176.82	ppb	14:57:52
1	P 214.914†	10283.8	10138.5	7451.6	µg/L	7451.6	ppb	14:57:52
1	Pb 220.353†	58042.3	57775.5	8729.8	µg/L	8729.8	ppb	14:57:32
1	S 181.975 Axial†	5867.1	5793.7	9987.2	µg/L	9987.2	ppb	14:57:52
1	Sb 206.836†	137.5	71.5	15.518	µg/L	15.518	ppb	14:57:52
1	Se 196.026†	-96.3	-90.8	36.477	µg/L	36.477	ppb	14:57:52
1	SiO2†	157437.2	154172.3	19242	µg/L	19242	ppb	14:57:32
1	Si 251.611†	190012.9	189451.2	8925.8	µg/L	8925.8	ppb	14:57:32
1	Sn 189.927†	-183.4	-209.8	-3.7913	µg/L	-3.7913	ppb	14:57:52
1	Ti 334.940†	1917191.7	1913368.0	4800.0	µg/L	4800.0	ppb	14:57:27
1	Tl 190.801†	-128.0	-79.3	6.3890	µg/L	6.3890	ppb	14:57:52
1	U 367.007†	4144.6	3841.9	-54.13	µg/L	-54.13	ppb	14:57:32
1	V 292.402†	38204.1	38187.9	372.40	µg/L	372.40	ppb	14:57:32
1	Zn 213.857†	1222258.2	1218614.6	11199	µg/L	11199	ppb	14:57:27
2	Sc RADIAL	21695.7	21695.7	103	%			14:57:08
2	Al 396.153Radial†	431200.8	417147.8	124350	µg/L	124350	ppb	14:57:03
2	Ca 317.933Radial†	236731.0	228824.5	108510	µg/L	108510	ppb	14:57:03
2	Fe 238.204 Radial†	391961.8	378997.2	206700	µg/L	206700	ppb	14:57:03
2	K 766.490 Radial†	93122.6	89360.9	42362	µg/L	42362	ppb	14:57:03
2	Mg 279.077 IEC†	13781.7	13317.1	70460	µg/L	70460	ppb	14:57:08
2	Na 589.592 Radial†	342.3	376.4	783.47	µg/L	783.47	ppb	14:57:08
2	Sr 421.552†	138588.8	134628.3	656.96	µg/L	656.96	ppb	14:57:03
2	Sc 361.383	722707.6	722707.6	101.42	%			14:57:59
2	Y 371.029	746554.8	746554.8	120.58	%			14:57:59
2	Ag 328.068†	-7330.0	-6848.3	11.627	µg/L	11.627	ppb	14:58:04
2	As 188.979†	218.9	224.6	132.80	µg/L	132.80	ppb	14:58:24
2	B 249.677†	3826.4	3675.8	74.459	µg/L	74.459	ppb	14:58:04
2	Ba 233.527†	146325.2	144448.9	1341.3	µg/L	1341.3	ppb	14:58:04
2	Be 313.107†	17835.3	25580.1	14.698	µg/L	14.698	ppb	14:58:04
2	Cd 226.502†	4643.6	4803.8	38.736	µg/L	38.736	ppb	14:58:04
2	Co 228.616†	4816.8	4770.2	106.65	µg/L	106.65	ppb	14:58:24
2	Cr 267.716†	7360.9	7064.3	141.48	µg/L	141.48	ppb	14:58:04
2	Cu 324.752†	440024.9	427385.8	1793.7	µg/L	1793.7	ppb	14:57:59
2	Mn 257.610†	6553478.3	6461290.6	9235.8	µg/L	9235.8	ppb	14:57:59
2	Mo 202.031†	330.4	303.7	29.154	µg/L	29.154	ppb	14:58:24
2	Ni 231.604†	5829.8	5876.9	174.37	µg/L	174.37	ppb	14:58:24
2	P 214.914†	10247.8	9979.6	7332.2	µg/L	7332.2	ppb	14:58:24
2	Pb 220.353†	58199.8	57234.7	8647.6	µg/L	8647.6	ppb	14:58:04

2	S 181.975 Axial†	5847.4	5703.9	9831.1 µg/L	9831.1 ppb	14:58:24
2	Sb 206.836†	163.7	95.7	23.301 µg/L	23.301 ppb	14:58:24
2	Se 196.026†	-101.9	-95.2	34.020 µg/L	34.020 ppb	14:58:24
2	SiO2†	154725.4	149610.5	18674 µg/L	18674 ppb	14:58:04
2	Si 251.611†	186627.0	183834.0	8661.1 µg/L	8661.1 ppb	14:58:04
2	Sn 189.927†	-194.6	-218.7	-5.5644 µg/L	-5.5644 ppb	14:58:24
2	Ti 334.940†	1924354.5	1897440.1	4760.1 µg/L	4760.1 ppb	14:57:59
2	Tl 190.801†	-122.6	-72.5	8.6607 µg/L	8.6607 ppb	14:58:24
2	U 367.007†	4114.9	3762.9	-81.94 µg/L	-81.94 ppb	14:58:04
2	V 292.402†	38243.3	37768.4	368.30 µg/L	368.30 ppb	14:58:04
2	Zn 213.857†	1228951.2	1210556.8	11124 µg/L	11124 ppb	14:57:59
3	Sc RADIAL	21498.9	21498.9	102 %		14:57:19
3	Al 396.153Radial†	431583.2	421337.7	125600 µg/L	125600 ppb	14:57:13
3	Ca 317.933Radial†	236633.6	230825.0	109460 µg/L	109460 ppb	14:57:13
3	Fe 238.204 Radial†	391673.4	382185.2	208440 µg/L	208440 ppb	14:57:13
3	K 766.490 Radial†	93173.5	90234.8	42777 µg/L	42777 ppb	14:57:13
3	Mg 279.077 IEC†	13729.3	13388.0	70835 µg/L	70835 ppb	14:57:19
3	Na 589.592 Radial†	388.3	424.4	883.33 µg/L	883.33 ppb	14:57:19
3	Sr 421.552†	138794.1	136055.3	663.92 µg/L	663.92 ppb	14:57:13
3	Sc 361.383	719105.7	719105.7	100.91 %		14:58:31
3	Y 371.029	743006.0	743006.0	120.01 %		14:58:31
3	Ag 328.068†	-7217.9	-6773.5	12.554 µg/L	12.554 ppb	14:58:37
3	As 188.979†	225.2	232.0	137.01 µg/L	137.01 ppb	14:58:57
3	B 249.677†	3872.5	3740.5	76.046 µg/L	76.046 ppb	14:58:37
3	Ba 233.527†	145962.8	144812.5	1344.6 µg/L	1344.6 ppb	14:58:37
3	Be 313.107†	17907.2	25739.5	14.803 µg/L	14.803 ppb	14:58:37
3	Cd 226.502†	4703.5	4886.2	39.686 µg/L	39.686 ppb	14:58:37
3	Co 228.616†	4797.0	4774.4	106.77 µg/L	106.77 ppb	14:58:57
3	Cr 267.716†	7374.6	7114.2	142.48 µg/L	142.48 ppb	14:58:37
3	Cu 324.752†	439030.2	428573.2	1798.9 µg/L	1798.9 ppb	14:58:31
3	Mn 257.610†	6520174.7	6460654.7	9235.0 µg/L	9235.0 ppb	14:58:31
3	Mo 202.031†	311.5	286.6	28.061 µg/L	28.061 ppb	14:58:57
3	Ni 231.604†	5850.3	5926.0	175.83 µg/L	175.83 ppb	14:58:57
3	P 214.914†	10221.5	10004.1	7349.6 µg/L	7349.6 ppb	14:58:57
3	Pb 220.353†	57877.9	57203.2	8642.6 µg/L	8642.6 ppb	14:58:37
3	S 181.975 Axial†	5849.8	5735.1	9885.0 µg/L	9885.0 ppb	14:58:57
3	Sb 206.836†	143.5	76.5	17.035 µg/L	17.035 ppb	14:58:57
3	Se 196.026†	-97.0	-90.8	38.121 µg/L	38.121 ppb	14:58:57
3	SiO2†	147991.5	143701.7	17939 µg/L	17939 ppb	14:58:37
3	Si 251.611†	178322.4	176526.3	8316.7 µg/L	8316.7 ppb	14:58:37
3	Sn 189.927†	-176.6	-201.8	-1.6430 µg/L	-1.6430 ppb	14:58:57
3	Ti 334.940†	1911591.5	1894296.6	4752.2 µg/L	4752.2 ppb	14:58:31
3	Tl 190.801†	-133.0	-83.4	5.0039 µg/L	5.0039 ppb	14:58:57
3	U 367.007†	4134.2	3802.3	-80.77 µg/L	-80.77 ppb	14:58:37
3	V 292.402†	38174.8	37889.5	369.50 µg/L	369.50 ppb	14:58:37
3	Zn 213.857†	1222609.5	1210342.1	11122 µg/L	11122 ppb	14:58:31

Mean Data: 306122001|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	718612.3	100.84	%	0.612				0.61%
Sc RADIAL	21606.5	103	%	0.5				0.46%
Y 371.029	743053.3	120.02	%	0.562				0.47%
Ag 328.068†	-6821.9	11.809	µg/L	0.6730	11.809	ppb	0.6730	5.70%
Al 396.153Radial†	416656.6	124210	µg/L	1474.2	124210	ppb	1474.2	1.19%
As 188.979†	235.3	138.81	µg/L	7.074	138.81	ppb	7.074	5.10%
B 249.677†	3721.3	75.749	µg/L	1.1702	75.749	ppb	1.1702	1.54%
Ba 233.527†	145081.0	1347.2	µg/L	7.51	1347.2	ppb	7.51	0.56%
Be 313.107†	25700.3	14.766	µg/L	0.0593	14.766	ppb	0.0593	0.40%
Ca 317.933Radial†	228740.6	108470	µg/L	1008.9	108470	ppb	1008.9	0.93%
Cd 226.502†	4876.0	39.808	µg/L	1.1373	39.808	ppb	1.1373	2.86%
Co 228.616†	4797.4	107.29	µg/L	1.011	107.29	ppb	1.011	0.94%
Cr 267.716†	7120.3	142.57	µg/L	1.138	142.57	ppb	1.138	0.80%
Cu 324.752†	429286.5	1801.6	µg/L	9.47	1801.6	ppb	9.47	0.53%
Fe 238.204 Radial†	379016.5	206710	µg/L	1722.9	206710	ppb	1722.9	0.83%
K 766.490 Radial†	89283.5	42326	µg/L	470.4	42326	ppb	470.4	1.11%
Mg 279.077 IEC†	13348.5	70626	µg/L	191.2	70626	ppb	191.2	0.27%
Mn 257.610†	6476362.6	9257.3	µg/L	37.89	9257.3	ppb	37.89	0.41%
Mo 202.031†	294.0	28.496	µg/L	0.5794	28.496	ppb	0.5794	2.03%
Na 589.592 Radial†	394.0	820.15	µg/L	54.955	820.15	ppb	54.955	6.70%

Ni 231.604†	5921.6	175.67 µg/L	1.230	175.67 ppb	1.230	0.70%
P 214.914†	10040.8	7377.8 µg/L	64.47	7377.8 ppb	64.47	0.87%
Pb 220.353†	57404.5	8673.3 µg/L	48.99	8673.3 ppb	48.99	0.56%
S 181.975 Axial†	5744.3	9901.1 µg/L	79.27	9901.1 ppb	79.27	0.80%
Sb 206.836†	81.2	18.618 µg/L	4.1257	18.618 ppb	4.1257	22.16%
Se 196.026†	-92.3	36.206 µg/L	2.0643	36.206 ppb	2.0643	5.70%
SiO2†	149161.5	18618 µg/L	653.6	18618 ppb	653.6	3.51%
Si 251.611†	183270.5	8634.5 µg/L	305.45	8634.5 ppb	305.45	3.54%
Sn 189.927†	-210.1	-3.6662 µg/L	1.96372	-3.6662 ppb	1.96372	53.56%
Sr 421.552†	134620.1	656.92 µg/L	7.025	656.92 ppb	7.025	1.07%
Ti 334.940†	1901701.6	4770.8 µg/L	25.61	4770.8 ppb	25.61	0.54%
Tl 190.801†	-78.4	6.6846 µg/L	1.84624	6.6846 ppb	1.84624	27.62%
U 367.007†	3802.4	-72.28 µg/L	15.730	-72.28 ppb	15.730	21.76%
V 292.402†	37948.6	370.07 µg/L	2.104	370.07 ppb	2.104	0.57%
Zn 213.857†	1213171.2	11149 µg/L	43.7	11149 ppb	43.7	0.39%

Sequence No.: 18 **Autosampler Location: 311**
Sample ID: 306122002|1221778|1 **Date Collected: 6/15/2012 14:59:04**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122002|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21595.0	21595.0	103	%			14:59:38
1	Al 396.153Radial†	558651.3	542911.5	161850	µg/L	161850	ppb	14:59:33
1	Ca 317.933Radial†	323307.0	314001.5	148900	µg/L	148900	ppb	14:59:33
1	Fe 238.204 Radial†	444365.3	431674.7	235430	µg/L	235430	ppb	14:59:33
1	K 766.490 Radial†	95052.8	91655.9	43455	µg/L	43455	ppb	14:59:33
1	Mg 279.077 IEC†	16949.8	16457.1	87073	µg/L	87073	ppb	14:59:38
1	Na 589.592 Radial†	672.6	698.8	1454.7	µg/L	1454.7	ppb	14:59:38
1	Sr 421.552†	173730.0	169393.1	826.55	µg/L	826.55	ppb	14:59:33
1	Sc 361.383	735380.4	735380.4	103.20	%			15:00:07
1	Y 371.029	774763.6	774763.6	125.14	%			15:00:07
1	Ag 328.068†	-8082.1	-7452.6	15.302	µg/L	15.302	ppb	15:00:12
1	As 188.979†	230.7	232.4	138.03	µg/L	138.03	ppb	15:00:32
1	B 249.677†	4550.4	4312.4	88.364	µg/L	88.364	ppb	15:00:12
1	Ba 233.527†	178783.4	173415.1	1610.6	µg/L	1610.6	ppb	15:00:12
1	Be 313.107†	22356.0	29657.8	17.335	µg/L	17.335	ppb	15:00:12
1	Cd 226.502†	4650.7	4731.9	33.126	µg/L	33.126	ppb	15:00:32
1	Co 228.616†	5574.9	5423.0	121.86	µg/L	121.86	ppb	15:00:32
1	Cr 267.716†	8017.5	7575.5	152.02	µg/L	152.02	ppb	15:00:32
1	Cu 324.752†	427076.2	407361.3	1715.8	µg/L	1715.8	ppb	15:00:12
1	Mn 257.610†	7093001.4	6872741.9	9825.0	µg/L	9825.0	ppb	15:00:07
1	Mo 202.031†	364.0	330.6	32.163	µg/L	32.163	ppb	15:00:32
1	Ni 231.604†	6895.8	6810.8	202.01	µg/L	202.01	ppb	15:00:32
1	P 214.914†	10856.0	10394.8	7636.5	µg/L	7636.5	ppb	15:00:32
1	Pb 220.353†	55014.5	53159.1	8022.0	µg/L	8022.0	ppb	15:00:12
1	S 181.975 Axial†	4996.9	4780.5	8212.1	µg/L	8212.1	ppb	15:00:32
1	Sb 206.836†	129.9	60.2	10.210	µg/L	10.210	ppb	15:00:32
1	Se 196.026†	-105.0	-96.5	47.565	µg/L	47.565	ppb	15:00:32
1	SiO2†	206584.1	197233.4	24610	µg/L	24610	ppb	15:00:12
1	Si 251.611†	250550.5	242605.9	11430	µg/L	11430	ppb	15:00:12
1	Sn 189.927†	-207.5	-227.8	-0.8802	µg/L	-0.8802	ppb	15:00:32
1	Ti 334.940†	2116758.2	2051184.2	5146.5	µg/L	5146.5	ppb	15:00:07
1	Tl 190.801†	-149.2	-96.1	4.0842	µg/L	4.0842	ppb	15:00:32
1	U 367.007†	4632.2	4194.3	-117.7	µg/L	-117.7	ppb	15:00:12
1	V 292.402†	41818.4	40583.0	395.79	µg/L	395.79	ppb	15:00:12
1	Zn 213.857†	1049929.7	1016199.5	9328.9	µg/L	9328.9	ppb	15:00:07
2	Sc RADIAL	21672.2	21672.2	103	%			14:59:48
2	Al 396.153Radial†	560326.6	542600.5	161750	µg/L	161750	ppb	14:59:43
2	Ca 317.933Radial†	322711.6	312306.6	148100	µg/L	148100	ppb	14:59:43
2	Fe 238.204 Radial†	443537.5	429336.0	234150	µg/L	234150	ppb	14:59:43
2	K 766.490 Radial†	95486.7	91747.1	43497	µg/L	43497	ppb	14:59:43
2	Mg 279.077 IEC†	16981.5	16429.1	86925	µg/L	86925	ppb	14:59:48
2	Na 589.592 Radial†	702.1	725.0	1509.2	µg/L	1509.2	ppb	14:59:48
2	Sr 421.552†	174606.0	169640.1	827.76	µg/L	827.76	ppb	14:59:43
2	Sc 361.383	720943.5	720943.5	101.17	%			15:00:39
2	Y 371.029	762919.1	762919.1	123.23	%			15:00:39
2	Ag 328.068†	-8162.5	-7688.8	13.554	µg/L	13.554	ppb	15:00:44
2	As 188.979†	242.3	248.3	146.95	µg/L	146.95	ppb	15:01:04
2	B 249.677†	4491.0	4342.0	89.387	µg/L	89.387	ppb	15:00:44
2	Ba 233.527†	179915.2	178003.0	1653.4	µg/L	1653.4	ppb	15:00:44
2	Be 313.107†	22363.5	30099.0	17.573	µg/L	17.573	ppb	15:00:44
2	Cd 226.502†	4684.1	4855.1	35.162	µg/L	35.162	ppb	15:01:04
2	Co 228.616†	5598.5	5554.5	124.94	µg/L	124.94	ppb	15:01:04
2	Cr 267.716†	8090.1	7802.8	156.41	µg/L	156.41	ppb	15:01:04
2	Cu 324.752†	430357.6	418891.9	1763.1	µg/L	1763.1	ppb	15:00:44
2	Mn 257.610†	7051980.6	6969833.0	9963.4	µg/L	9963.4	ppb	15:00:39
2	Mo 202.031†	353.4	327.3	31.883	µg/L	31.883	ppb	15:01:04
2	Ni 231.604†	6946.6	6994.9	207.35	µg/L	207.35	ppb	15:01:04
2	P 214.914†	10906.6	10655.6	7831.8	µg/L	7831.8	ppb	15:01:04
2	Pb 220.353†	55312.1	54520.8	8227.9	µg/L	8227.9	ppb	15:00:44

2	S 181.975 Axial†	5014.7	4895.0	8410.4 µg/L	8410.4 ppb		15:01:04
2	Sb 206.836†	136.8	69.4	13.102 µg/L	13.102 ppb		15:01:04
2	Se 196.026†	-122.9	-116.2	32.389 µg/L	32.389 ppb		15:01:04
2	SiO2†	209410.2	204035.5	25457 µg/L	25457 ppb		15:00:44
2	Si 251.611†	254386.7	251259.5	11838 µg/L	11838 ppb		15:00:44
2	Sn 189.927†	-218.7	-242.9	-4.1408 µg/L	-4.1408 ppb		15:01:04
2	Ti 334.940†	2104876.5	2080515.0	5220.0 µg/L	5220.0 ppb		15:00:39
2	Tl 190.801†	-138.3	-88.3	6.9990 µg/L	6.9990 ppb		15:01:04
2	U 367.007†	4710.3	4361.4	-70.30 µg/L	-70.30 ppb		15:00:44
2	V 292.402†	42274.7	41845.4	408.15 µg/L	408.15 ppb		15:00:44
2	Zn 213.857†	1043828.7	1030542.7	9461.2 µg/L	9461.2 ppb		15:00:39
3	Sc RADIAL	22213.8	22213.8	106 %			14:59:59
3	Al 396.153Radial†	557677.3	526873.9	157060 µg/L	157060 ppb		14:59:54
3	Ca 317.933Radial†	319713.2	301858.4	143140 µg/L	143140 ppb		14:59:54
3	Fe 238.204 Radial†	439998.7	415525.7	226620 µg/L	226620 ppb		14:59:54
3	K 766.490 Radial†	94739.9	88788.1	42094 µg/L	42094 ppb		14:59:54
3	Mg 279.077 IEC†	16953.8	16002.1	84666 µg/L	84666 ppb		14:59:59
3	Na 589.592 Radial†	700.4	706.9	1471.5 µg/L	1471.5 ppb		14:59:59
3	Sr 421.552†	173454.1	164431.2	802.34 µg/L	802.34 ppb		14:59:54
3	Sc 361.383	733955.8	733955.8	103.00 %			15:01:11
3	Y 371.029	773184.0	773184.0	124.88 %			15:01:11
3	Ag 328.068†	-8179.4	-7562.2	12.354 µg/L	12.354 ppb		15:01:16
3	As 188.979†	236.0	238.0	140.92 µg/L	140.92 ppb		15:01:37
3	B 249.677†	4564.6	4334.8	90.270 µg/L	90.270 ppb		15:01:16
3	Ba 233.527†	177854.1	172849.1	1605.5 µg/L	1605.5 ppb		15:01:16
3	Be 313.107†	22072.1	29424.2	17.158 µg/L	17.158 ppb		15:01:16
3	Cd 226.502†	4625.5	4716.2	34.287 µg/L	34.287 ppb		15:01:37
3	Co 228.616†	5574.5	5433.1	122.19 µg/L	122.19 ppb		15:01:37
3	Cr 267.716†	7966.2	7540.8	151.18 µg/L	151.18 ppb		15:01:37
3	Cu 324.752†	425217.6	406360.1	1710.4 µg/L	1710.4 ppb		15:01:16
3	Mn 257.610†	7050444.1	6844763.8	9784.3 µg/L	9784.3 ppb		15:01:11
3	Mo 202.031†	337.7	305.8	30.111 µg/L	30.111 ppb		15:01:37
3	Ni 231.604†	6869.6	6798.4	201.51 µg/L	201.51 ppb		15:01:37
3	P 214.914†	10860.1	10419.2	7659.8 µg/L	7659.8 ppb		15:01:37
3	Pb 220.353†	54807.2	53061.4	8007.6 µg/L	8007.6 ppb		15:01:16
3	S 181.975 Axial†	4988.8	4782.0	8216.2 µg/L	8216.2 ppb		15:01:37
3	Sb 206.836†	150.8	80.7	17.009 µg/L	17.009 ppb		15:01:37
3	Se 196.026†	-113.8	-105.2	36.688 µg/L	36.688 ppb		15:01:37
3	SiO2†	199868.8	191102.1	23845 µg/L	23845 ppb		15:01:16
3	Si 251.611†	242335.9	235101.6	11077 µg/L	11077 ppb		15:01:16
3	Sn 189.927†	-210.9	-231.6	-3.0531 µg/L	-3.0531 ppb		15:01:37
3	Ti 334.940†	2098396.9	2037338.5	5111.7 µg/L	5111.7 ppb		15:01:11
3	Tl 190.801†	-140.6	-88.0	6.1227 µg/L	6.1227 ppb		15:01:37
3	U 367.007†	4611.4	4182.8	-77.32 µg/L	-77.32 ppb		15:01:16
3	V 292.402†	41684.9	40532.0	395.27 µg/L	395.27 ppb		15:01:16
3	Zn 213.857†	1044117.6	1012531.4	9296.4 µg/L	9296.4 ppb		15:01:11

Mean Data: 306122002|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	730093.2	102.46	%	1.116				1.09%
Sc RADIAL	21827.0	104	%	1.6				1.54%
Y 371.029	770288.9	124.42	%	1.039				0.83%
Ag 328.068†	-7567.9	13.737	µg/L	1.4826	13.737	ppb	1.4826	10.79%
Al 396.153Radial†	537462.0	160220	µg/L	2733.9	160220	ppb	2733.9	1.71%
As 188.979†	239.5	141.97	µg/L	4.552	141.97	ppb	4.552	3.21%
B 249.677†	4329.7	89.340	µg/L	0.9538	89.340	ppb	0.9538	1.07%
Ba 233.527†	174755.8	1623.2	µg/L	26.30	1623.2	ppb	26.30	1.62%
Be 313.107†	29727.0	17.355	µg/L	0.2083	17.355	ppb	0.2083	1.20%
Ca 317.933Radial†	309388.8	146720	µg/L	3118.6	146720	ppb	3118.6	2.13%
Cd 226.502†	4767.7	34.192	µg/L	1.0214	34.192	ppb	1.0214	2.99%
Co 228.616†	5470.2	123.00	µg/L	1.688	123.00	ppb	1.688	1.37%
Cr 267.716†	7639.7	153.20	µg/L	2.810	153.20	ppb	2.810	1.83%
Cu 324.752†	410871.1	1729.8	µg/L	29.02	1729.8	ppb	29.02	1.68%
Fe 238.204 Radial†	425512.2	232070	µg/L	4759.7	232070	ppb	4759.7	2.05%
K 766.490 Radial†	90730.4	43016	µg/L	798.1	43016	ppb	798.1	1.86%
Mg 279.077 IEC†	16296.1	86221	µg/L	1349.0	86221	ppb	1349.0	1.56%
Mn 257.610†	6895779.6	9857.6	µg/L	93.88	9857.6	ppb	93.88	0.95%
Mo 202.031†	321.2	31.386	µg/L	1.1126	31.386	ppb	1.1126	3.54%
Na 589.592 Radial†	710.3	1478.4	µg/L	27.93	1478.4	ppb	27.93	1.89%

Ni 231.604†	6868.0	203.62 µg/L	3.235	203.62 ppb	3.235	1.59%
P 214.914†	10489.9	7709.4 µg/L	106.68	7709.4 ppb	106.68	1.38%
Pb 220.353†	53580.4	8085.8 µg/L	123.26	8085.8 ppb	123.26	1.52%
S 181.975 Axial†	4819.2	8279.6 µg/L	113.32	8279.6 ppb	113.32	1.37%
Sb 206.836†	70.1	13.440 µg/L	3.4123	13.440 ppb	3.4123	25.39%
Se 196.026†	-105.9	38.881 µg/L	7.8219	38.881 ppb	7.8219	20.12%
SiO2†	197457.0	24637 µg/L	806.5	24637 ppb	806.5	3.27%
Si 251.611†	242989.0	11449 µg/L	381.0	11449 ppb	381.0	3.33%
Sn 189.927†	-234.1	-2.6913 µg/L	1.66011	-2.6913 ppb	1.66011	61.68%
Sr 421.552†	167821.5	818.88 µg/L	14.337	818.88 ppb	14.337	1.75%
Ti 334.940†	2056345.9	5159.4 µg/L	55.32	5159.4 ppb	55.32	1.07%
Tl 190.801†	-90.8	5.7353 µg/L	1.49553	5.7353 ppb	1.49553	26.08%
U 367.007†	4246.2	-88.43 µg/L	25.562	-88.43 ppb	25.562	28.91%
V 292.402†	40986.8	399.74 µg/L	7.291	399.74 ppb	7.291	1.82%
Zn 213.857†	1019757.9	9362.2 µg/L	87.30	9362.2 ppb	87.30	0.93%

Sequence No.: 19 **Autosampler Location: 312**
Sample ID: 306122003|1221778|1 **Date Collected: 6/15/2012 15:01:44**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122003|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21398.9	21398.9	102	%			15:02:18
1	Al 396.153Radial†	294924.0	289323.1	86248	µg/L	86248	ppb	15:02:13
1	Ca 317.933Radial†	81249.8	79563.1	37730	µg/L	37730	ppb	15:02:13
1	Fe 238.204 Radial†	481728.3	472263.5	257570	µg/L	257570	ppb	15:02:13
1	K 766.490 Radial†	46818.5	45212.5	21502	µg/L	21502	ppb	15:02:13
1	Mg 279.077 IEC†	5610.8	5491.1	29059	µg/L	29059	ppb	15:02:18
1	Na 589.592 Radial†	44.3	88.8	184.94	µg/L	184.94	ppb	15:02:18
1	Sr 421.552†	59283.2	58734.4	286.65	µg/L	286.65	ppb	15:02:13
1	Sc 361.383	726384.6	726384.6	101.93	%			15:02:46
1	Y 371.029	726260.4	726260.4	117.30	%			15:02:46
1	Ag 328.068†	-9985.1	-9416.5	8.8957	µg/L	8.8957	ppb	15:02:52
1	As 188.979†	273.6	277.2	163.82	µg/L	163.82	ppb	15:03:12
1	B 249.677†	2339.9	2198.5	25.257	µg/L	25.257	ppb	15:02:52
1	Ba 233.527†	84790.7	83352.1	770.18	µg/L	770.18	ppb	15:02:52
1	Be 313.107†	16528.2	24208.9	13.323	µg/L	13.323	ppb	15:02:52
1	Cd 226.502†	4503.8	4643.6	28.265	µg/L	28.265	ppb	15:02:52
1	Co 228.616†	3427.4	3383.1	72.310	µg/L	72.310	ppb	15:03:12
1	Cr 267.716†	8181.1	7832.2	156.60	µg/L	156.60	ppb	15:02:52
1	Cu 324.752†	296946.2	284826.6	1214.1	µg/L	1214.1	ppb	15:02:52
1	Mn 257.610†	5369114.0	5266697.0	7537.5	µg/L	7537.5	ppb	15:02:46
1	Mo 202.031†	624.0	590.1	50.758	µg/L	50.758	ppb	15:03:12
1	Ni 231.604†	3323.2	3388.8	102.84	µg/L	102.84	ppb	15:03:12
1	P 214.914†	6852.3	6597.4	4761.8	µg/L	4761.8	ppb	15:03:12
1	Pb 220.353†	55837.7	54627.0	8269.0	µg/L	8269.0	ppb	15:02:52
1	S 181.975 Axial†	5180.6	5020.6	8672.3	µg/L	8672.3	ppb	15:03:12
1	Sb 206.836†	123.5	55.4	11.915	µg/L	11.915	ppb	15:03:12
1	Se 196.026†	-131.8	-124.0	38.491	µg/L	38.491	ppb	15:03:12
1	SiO2†	152161.6	146323.1	18276	µg/L	18276	ppb	15:02:52
1	Si 251.611†	183164.2	179505.4	8456.1	µg/L	8456.1	ppb	15:02:52
1	Sn 189.927†	-99.3	-124.2	16.515	µg/L	16.515	ppb	15:03:12
1	Ti 334.940†	1966339.2	1929022.9	4837.6	µg/L	4837.6	ppb	15:02:46
1	Tl 190.801†	-126.1	-75.3	11.504	µg/L	11.504	ppb	15:03:12
1	U 367.007†	5479.4	5081.0	-3.397	µg/L	-3.397	ppb	15:02:52
1	V 292.402†	48039.2	47187.6	461.30	µg/L	461.30	ppb	15:02:52
1	Zn 213.857†	2141860.1	2100003.6	19316	µg/L	19316	ppb	15:02:46
2	Sc RADIAL	21099.5	21099.5	101	%			15:02:28
2	Al 396.153Radial†	297677.9	296164.0	88287	µg/L	88287	ppb	15:02:23
2	Ca 317.933Radial†	81586.2	81027.8	38424	µg/L	38424	ppb	15:02:23
2	Fe 238.204 Radial†	483589.6	480815.3	262230	µg/L	262230	ppb	15:02:23
2	K 766.490 Radial†	47151.4	46194.8	21969	µg/L	21969	ppb	15:02:23
2	Mg 279.077 IEC†	5588.3	5546.7	29354	µg/L	29354	ppb	15:02:28
2	Na 589.592 Radial†	71.3	116.3	242.06	µg/L	242.06	ppb	15:02:28
2	Sr 421.552†	59866.8	60139.4	293.51	µg/L	293.51	ppb	15:02:23
2	Sc 361.383	722693.9	722693.9	101.42	%			15:03:18
2	Y 371.029	724171.6	724171.6	116.97	%			15:03:18
2	Ag 328.068†	-10126.2	-9605.6	8.9002	µg/L	8.9002	ppb	15:03:24
2	As 188.979†	277.3	282.2	166.79	µg/L	166.79	ppb	15:03:44
2	B 249.677†	2325.6	2196.1	24.517	µg/L	24.517	ppb	15:03:24
2	Ba 233.527†	84855.5	83840.7	774.60	µg/L	774.60	ppb	15:03:24
2	Be 313.107†	16533.7	24297.1	13.373	µg/L	13.373	ppb	15:03:24
2	Cd 226.502†	4527.0	4689.0	28.202	µg/L	28.202	ppb	15:03:24
2	Co 228.616†	3432.8	3405.7	72.790	µg/L	72.790	ppb	15:03:44
2	Cr 267.716†	8236.1	7927.4	158.54	µg/L	158.54	ppb	15:03:24
2	Cu 324.752†	298082.4	287434.5	1225.5	µg/L	1225.5	ppb	15:03:24
2	Mn 257.610†	5368250.6	5292744.2	7575.1	µg/L	7575.1	ppb	15:03:18
2	Mo 202.031†	625.0	594.2	51.233	µg/L	51.233	ppb	15:03:44
2	Ni 231.604†	3344.9	3426.8	104.03	µg/L	104.03	ppb	15:03:44
2	P 214.914†	6824.7	6604.6	4764.2	µg/L	4764.2	ppb	15:03:44
2	Pb 220.353†	55614.8	54686.9	8277.8	µg/L	8277.8	ppb	15:03:24

2	S 181.975 Axial†	5190.4	5056.2	8733.7 µg/L	8733.7 ppb	15:03:44
2	Sb 206.836†	134.9	67.3	15.636 µg/L	15.636 ppb	15:03:44
2	Se 196.026†	-140.8	-133.5	33.713 µg/L	33.713 ppb	15:03:44
2	SiO2†	152536.0	147454.6	18417 µg/L	18417 ppb	15:03:24
2	Si 251.611†	183680.9	180932.5	8523.3 µg/L	8523.3 ppb	15:03:24
2	Sn 189.927†	-100.2	-125.6	16.850 µg/L	16.850 ppb	15:03:44
2	Ti 334.940†	1968609.4	1941112.5	4868.0 µg/L	4868.0 ppb	15:03:18
2	Tl 190.801†	-116.3	-66.2	15.028 µg/L	15.028 ppb	15:03:44
2	U 367.007†	5456.6	5086.0	-24.89 µg/L	-24.89 ppb	15:03:24
2	V 292.402†	48010.8	47400.2	463.38 µg/L	463.38 ppb	15:03:24
2	Zn 213.857†	2137836.6	2106766.8	19378 µg/L	19378 ppb	15:03:18
3	Sc RADIAL	21424.9	21424.9	102 %		15:02:38
3	Al 396.153Radial†	300814.1	294739.7	87863 µg/L	87863 ppb	15:02:33
3	Ca 317.933Radial†	82896.6	81078.9	38448 µg/L	38448 ppb	15:02:33
3	Fe 238.204 Radial†	489917.9	479709.5	261630 µg/L	261630 ppb	15:02:33
3	K 766.490 Radial†	47903.3	46219.0	21980 µg/L	21980 ppb	15:02:33
3	Mg 279.077 IEC†	5626.6	5499.9	29106 µg/L	29106 ppb	15:02:38
3	Na 589.592 Radial†	35.4	80.1	166.65 µg/L	166.65 ppb	15:02:38
3	Sr 421.552†	60542.7	59897.2	292.33 µg/L	292.33 ppb	15:02:33
3	Sc 361.383	720390.9	720390.9	101.09 %		15:03:50
3	Y 371.029	723088.0	723088.0	116.79 %		15:03:50
3	Ag 328.068†	-10001.6	-9514.3	9.3326 µg/L	9.3326 ppb	15:03:56
3	As 188.979†	270.5	276.4	163.48 µg/L	163.48 ppb	15:04:16
3	B 249.677†	2299.7	2177.8	24.080 µg/L	24.080 ppb	15:03:56
3	Ba 233.527†	84500.4	83757.0	773.84 µg/L	773.84 ppb	15:03:56
3	Be 313.107†	16497.4	24313.3	13.378 µg/L	13.378 ppb	15:03:56
3	Cd 226.502†	4515.2	4691.6	28.336 µg/L	28.336 ppb	15:03:56
3	Co 228.616†	3424.7	3408.4	72.818 µg/L	72.818 ppb	15:04:16
3	Cr 267.716†	8132.0	7850.4	157.02 µg/L	157.02 ppb	15:03:56
3	Cu 324.752†	296972.1	287275.9	1224.8 µg/L	1224.8 ppb	15:03:56
3	Mn 257.610†	5372269.4	5313641.5	7604.9 µg/L	7604.9 ppb	15:03:50
3	Mo 202.031†	614.4	585.7	50.627 µg/L	50.627 ppb	15:04:16
3	Ni 231.604†	3354.8	3447.1	104.61 µg/L	104.61 ppb	15:04:16
3	P 214.914†	6837.5	6638.7	4790.1 µg/L	4790.1 ppb	15:04:16
3	Pb 220.353†	55525.7	54774.0	8291.1 µg/L	8291.1 ppb	15:03:56
3	S 181.975 Axial†	5191.0	5073.2	8763.1 µg/L	8763.1 ppb	15:04:16
3	Sb 206.836†	150.5	83.2	20.801 µg/L	20.801 ppb	15:04:16
3	Se 196.026†	-141.1	-134.3	32.860 µg/L	32.860 ppb	15:04:16
3	SiO2†	144287.7	139776.3	17461 µg/L	17461 ppb	15:03:56
3	Si 251.611†	173462.0	171403.3	8074.3 µg/L	8074.3 ppb	15:03:56
3	Sn 189.927†	-94.1	-119.9	18.076 µg/L	18.076 ppb	15:04:16
3	Ti 334.940†	1969932.1	1948626.4	4886.8 µg/L	4886.8 ppb	15:03:50
3	Tl 190.801†	-128.7	-78.8	10.763 µg/L	10.763 ppb	15:04:16
3	U 367.007†	5466.6	5113.0	-15.30 µg/L	-15.30 ppb	15:03:56
3	V 292.402†	47979.7	47520.8	464.54 µg/L	464.54 ppb	15:03:56
3	Zn 213.857†	2139942.7	2115589.1	19459 µg/L	19459 ppb	15:03:50

Mean Data: 306122003|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	723156.5	101.48	%	0.424				0.42%
Sc RADIAL	21307.7	102	%	0.9				0.85%
Y 371.029	724506.7	117.02	%	0.260				0.22%
Ag 328.068†	-9512.1	9.0429	µg/L	0.25093	9.0429	ppb	0.25093	2.77%
Al 396.153Radial†	293408.9	87466	µg/L	1076.0	87466	ppb	1076.0	1.23%
As 188.979†	278.6	164.69	µg/L	1.821	164.69	ppb	1.821	1.11%
B 249.677†	2190.8	24.618	µg/L	0.5947	24.618	ppb	0.5947	2.42%
Ba 233.527†	83649.9	772.88	µg/L	2.363	772.88	ppb	2.363	0.31%
Be 313.107†	24273.1	13.358	µg/L	0.0304	13.358	ppb	0.0304	0.23%
Ca 317.933Radial†	80556.6	38201	µg/L	408.2	38201	ppb	408.2	1.07%
Cd 226.502†	4674.7	28.268	µg/L	0.0671	28.268	ppb	0.0671	0.24%
Co 228.616†	3399.1	72.639	µg/L	0.2860	72.639	ppb	0.2860	0.39%
Cr 267.716†	7870.0	157.39	µg/L	1.020	157.39	ppb	1.020	0.65%
Cu 324.752†	286512.3	1221.5	µg/L	6.41	1221.5	ppb	6.41	0.53%
Fe 238.204 Radial†	477596.1	260470	µg/L	2536.7	260470	ppb	2536.7	0.97%
K 766.490 Radial†	45875.4	21817	µg/L	272.9	21817	ppb	272.9	1.25%
Mg 279.077 IEC†	5512.6	29173	µg/L	158.3	29173	ppb	158.3	0.54%
Mn 257.610†	5291027.6	7572.5	µg/L	33.76	7572.5	ppb	33.76	0.45%
Mo 202.031†	590.0	50.873	µg/L	0.3192	50.873	ppb	0.3192	0.63%
Na 589.592 Radial†	95.1	197.88	µg/L	39.333	197.88	ppb	39.333	19.88%

Ni 231.604†	3420.9	103.83 µg/L	0.899	103.83 ppb	0.899	0.87%
P 214.914†	6613.5	4772.0 µg/L	15.70	4772.0 ppb	15.70	0.33%
Pb 220.353†	54696.0	8279.3 µg/L	11.15	8279.3 ppb	11.15	0.13%
S 181.975 Axial†	5050.0	8723.1 µg/L	46.34	8723.1 ppb	46.34	0.53%
Sb 206.836†	68.6	16.118 µg/L	4.4626	16.118 ppb	4.4626	27.69%
Se 196.026†	-130.6	35.021 µg/L	3.0348	35.021 ppb	3.0348	8.67%
SiO2†	144518.0	18051 µg/L	516.1	18051 ppb	516.1	2.86%
Si 251.611†	177280.4	8351.3 µg/L	242.22	8351.3 ppb	242.22	2.90%
Sn 189.927†	-123.2	17.147 µg/L	0.8218	17.147 ppb	0.8218	4.79%
Sr 421.552†	59590.3	290.83 µg/L	3.666	290.83 ppb	3.666	1.26%
Ti 334.940†	1939587.3	4864.1 µg/L	24.81	4864.1 ppb	24.81	0.51%
Tl 190.801†	-73.5	12.431 µg/L	2.2791	12.431 ppb	2.2791	18.33%
U 367.007†	5093.3	-14.53 µg/L	10.767	-14.53 ppb	10.767	74.11%
V 292.402†	47369.5	463.07 µg/L	1.641	463.07 ppb	1.641	0.35%
Zn 213.857†	2107453.2	19384 µg/L	71.8	19384 ppb	71.8	0.37%

Sequence No.: 20 **Autosampler Location: 313**
Sample ID: 306122004|1221778|1 **Date Collected: 6/15/2012 15:04:23**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122004|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21476.8	21476.8	102	%			15:04:57
1	Al 396.153Radial†	442419.0	432356.9	128890	µg/L	128890	ppb	15:04:52
1	Ca 317.933Radial†	246039.6	240251.4	113930	µg/L	113930	ppb	15:04:52
1	Fe 238.204 Radial†	392911.3	383788.4	209310	µg/L	209310	ppb	15:04:52
1	K 766.490 Radial†	87604.6	84888.5	40245	µg/L	40245	ppb	15:04:52
1	Mg 279.077 IEC†	13757.9	13429.7	71056	µg/L	71056	ppb	15:04:57
1	Na 589.592 Radial†	403.1	439.2	914.22	µg/L	914.22	ppb	15:04:57
1	Sr 421.552†	140387.5	137751.5	672.18	µg/L	672.18	ppb	15:04:52
1	Sc 361.383	734151.0	734151.0	103.02	%			15:05:26
1	Y 371.029	757174.9	757174.9	122.30	%			15:05:26
1	Ag 328.068†	-7393.2	-6797.0	12.577	µg/L	12.577	ppb	15:05:31
1	As 188.979†	219.0	221.3	131.06	µg/L	131.06	ppb	15:05:51
1	B 249.677†	3573.3	3371.4	65.435	µg/L	65.435	ppb	15:05:31
1	Ba 233.527†	155578.5	151181.6	1404.0	µg/L	1404.0	ppb	15:05:31
1	Be 313.107†	17858.5	25328.6	14.552	µg/L	14.552	ppb	15:05:31
1	Cd 226.502†	4892.3	4973.9	40.848	µg/L	40.848	ppb	15:05:31
1	Co 228.616†	4815.0	4694.4	104.47	µg/L	104.47	ppb	15:05:51
1	Cr 267.716†	7513.3	7099.1	142.20	µg/L	142.20	ppb	15:05:31
1	Cu 324.752†	417328.2	398592.5	1675.7	µg/L	1675.7	ppb	15:05:26
1	Mn 257.610†	6401827.0	6213369.6	8882.3	µg/L	8882.3	ppb	15:05:26
1	Mo 202.031†	278.8	248.6	25.503	µg/L	25.503	ppb	15:05:51
1	Ni 231.604†	5702.6	5663.8	168.22	µg/L	168.22	ppb	15:05:51
1	P 214.914†	9826.8	9413.5	6910.1	µg/L	6910.1	ppb	15:05:51
1	Pb 220.353†	64696.7	62646.4	9465.7	µg/L	9465.7	ppb	15:05:31
1	S 181.975 Axial†	6531.1	6277.7	10828	µg/L	10828	ppb	15:05:51
1	Sb 206.836†	109.9	41.0	5.4105	µg/L	5.4105	ppb	15:05:51
1	Se 196.026†	-92.9	-84.9	42.946	µg/L	42.946	ppb	15:05:51
1	SiO2†	176775.6	168635.3	21043	µg/L	21043	ppb	15:05:31
1	Si 251.611†	213853.2	207392.6	9771.3	µg/L	9771.3	ppb	15:05:31
1	Sn 189.927†	-189.8	-211.0	-2.7533	µg/L	-2.7533	ppb	15:05:51
1	Ti 334.940†	2029565.6	1969986.3	4942.2	µg/L	4942.2	ppb	15:05:26
1	Tl 190.801†	-125.6	-73.5	9.2169	µg/L	9.2169	ppb	15:05:51
1	U 367.007†	4192.5	3775.0	-92.23	µg/L	-92.23	ppb	15:05:31
1	V 292.402†	38105.1	37046.5	361.03	µg/L	361.03	ppb	15:05:31
1	Zn 213.857†	1203939.6	1167391.5	10726	µg/L	10726	ppb	15:05:26
2	Sc RADIAL	21707.4	21707.4	103	%			15:05:07
2	Al 396.153Radial†	443903.1	429200.1	127950	µg/L	127950	ppb	15:05:02
2	Ca 317.933Radial†	246005.1	237664.8	112700	µg/L	112700	ppb	15:05:02
2	Fe 238.204 Radial†	392222.5	379045.2	206730	µg/L	206730	ppb	15:05:02
2	K 766.490 Radial†	87696.3	84068.0	39856	µg/L	39856	ppb	15:05:02
2	Mg 279.077 IEC†	13812.8	13339.9	70581	µg/L	70581	ppb	15:05:07
2	Na 589.592 Radial†	393.5	425.7	886.08	µg/L	886.08	ppb	15:05:07
2	Sr 421.552†	140477.5	136381.6	665.50	µg/L	665.50	ppb	15:05:02
2	Sc 361.383	740697.7	740697.7	103.94	%			15:05:58
2	Y 371.029	761670.0	761670.0	123.02	%			15:05:58
2	Ag 328.068†	-7441.5	-6780.0	11.994	µg/L	11.994	ppb	15:06:03
2	As 188.979†	209.5	210.4	124.80	µg/L	124.80	ppb	15:06:23
2	B 249.677†	3674.2	3437.8	67.696	µg/L	67.696	ppb	15:06:03
2	Ba 233.527†	154700.1	149001.8	1383.7	µg/L	1383.7	ppb	15:06:03
2	Be 313.107†	17722.6	25044.6	14.388	µg/L	14.388	ppb	15:06:03
2	Cd 226.502†	4813.4	4856.0	39.504	µg/L	39.504	ppb	15:06:03
2	Co 228.616†	4781.8	4621.2	102.82	µg/L	102.82	ppb	15:06:23
2	Cr 267.716†	7394.5	6920.3	138.68	µg/L	138.68	ppb	15:06:03
2	Cu 324.752†	415627.8	393376.4	1653.8	µg/L	1653.8	ppb	15:05:58
2	Mn 257.610†	6385227.5	6142478.6	8780.9	µg/L	8780.9	ppb	15:05:58
2	Mo 202.031†	290.4	257.3	25.995	µg/L	25.995	ppb	15:06:23
2	Ni 231.604†	5672.5	5586.0	165.91	µg/L	165.91	ppb	15:06:23
2	P 214.914†	9800.7	9304.1	6830.1	µg/L	6830.1	ppb	15:06:23
2	Pb 220.353†	64555.1	61955.2	9361.0	µg/L	9361.0	ppb	15:06:03

2	S 181.975 Axial†	6512.9	6204.1	10701 µg/L	10701 ppb		15:06:23
2	Sb 206.836†	119.2	48.9	8.1007 µg/L	8.1007 ppb		15:06:23
2	Se 196.026†	-94.7	-85.8	40.981 µg/L	40.981 ppb		15:06:23
2	SiO2†	175164.1	165568.4	20661 µg/L	20661 ppb		15:06:03
2	Si 251.611†	211870.4	203650.3	9595.0 µg/L	9595.0 ppb		15:06:03
2	Sn 189.927†	-183.2	-203.1	-1.5356 µg/L	-1.5356 ppb		15:06:23
2	Ti 334.940†	2021252.9	1944577.4	4878.4 µg/L	4878.4 ppb		15:05:58
2	Tl 190.801†	-135.5	-81.9	5.8975 µg/L	5.8975 ppb		15:06:23
2	U 367.007†	4122.2	3671.4	-105.1 µg/L	-105.1 ppb		15:06:03
2	V 292.402†	37935.6	36556.6	356.25 µg/L	356.25 ppb		15:06:03
2	Zn 213.857†	1202203.2	1155392.4	10616 µg/L	10616 ppb		15:05:58
3	Sc RADIAL	21675.5	21675.5	103 %			15:05:18
3	Al 396.153Radial†	449027.1	434790.0	129610 µg/L	129610 ppb		15:05:13
3	Ca 317.933Radial†	248986.6	240899.9	114240 µg/L	114240 ppb		15:05:13
3	Fe 238.204 Radial†	396085.1	383340.9	209070 µg/L	209070 ppb		15:05:13
3	K 766.490 Radial†	88984.1	85439.0	40506 µg/L	40506 ppb		15:05:13
3	Mg 279.077 IEC†	13877.4	13422.1	71015 µg/L	71015 ppb		15:05:18
3	Na 589.592 Radial†	416.6	448.6	933.89 µg/L	933.89 ppb		15:05:18
3	Sr 421.552†	142299.8	138344.9	675.08 µg/L	675.08 ppb		15:05:13
3	Sc 361.383	738319.6	738319.6	103.61 %			15:06:30
3	Y 371.029	759167.1	759167.1	122.62 %			15:06:30
3	Ag 328.068†	-7339.4	-6704.6	13.068 µg/L	13.068 ppb		15:06:36
3	As 188.979†	207.7	209.2	124.23 µg/L	124.23 ppb		15:06:56
3	B 249.677†	3619.5	3396.4	66.180 µg/L	66.180 ppb		15:06:36
3	Ba 233.527†	154424.0	149214.7	1385.6 µg/L	1385.6 ppb		15:06:36
3	Be 313.107†	17708.2	25085.7	14.428 µg/L	14.428 ppb		15:06:36
3	Cd 226.502†	4813.7	4871.3	39.360 µg/L	39.360 ppb		15:06:36
3	Co 228.616†	4790.9	4644.9	103.40 µg/L	103.40 ppb		15:06:56
3	Cr 267.716†	7413.7	6961.8	139.53 µg/L	139.53 ppb		15:06:36
3	Cu 324.752†	414371.2	393451.5	1654.5 µg/L	1654.5 ppb		15:06:30
3	Mn 257.610†	6354535.1	6132641.3	8767.1 µg/L	8767.1 ppb		15:06:30
3	Mo 202.031†	278.8	247.0	25.387 µg/L	25.387 ppb		15:06:56
3	Ni 231.604†	5655.7	5587.3	165.99 µg/L	165.99 ppb		15:06:56
3	P 214.914†	9789.4	9323.5	6843.5 µg/L	6843.5 ppb		15:06:56
3	Pb 220.353†	64325.8	61933.9	9357.5 µg/L	9357.5 ppb		15:06:36
3	S 181.975 Axial†	6526.0	6237.0	10758 µg/L	10758 ppb		15:06:56
3	Sb 206.836†	121.2	51.2	8.7423 µg/L	8.7423 ppb		15:06:56
3	Se 196.026†	-103.8	-94.9	35.411 µg/L	35.411 ppb		15:06:56
3	SiO2†	167868.1	159069.3	19852 µg/L	19852 ppb		15:06:36
3	Si 251.611†	202632.0	195390.3	9205.7 µg/L	9205.7 ppb		15:06:36
3	Sn 189.927†	-196.4	-216.3	-4.0995 µg/L	-4.0995 ppb		15:06:56
3	Ti 334.940†	2012353.7	1942251.4	4872.6 µg/L	4872.6 ppb		15:06:30
3	Tl 190.801†	-132.5	-79.5	6.8811 µg/L	6.8811 ppb		15:06:56
3	U 367.007†	4134.5	3696.1	-110.5 µg/L	-110.5 ppb		15:06:36
3	V 292.402†	37760.7	36505.4	355.76 µg/L	355.76 ppb		15:06:36
3	Zn 213.857†	1195505.2	1152653.1	10591 µg/L	10591 ppb		15:06:30

Mean Data: 306122004|1221778|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	737722.8	103.53	%	0.465				0.45%
Sc RADIAL	21619.9	103	%	0.6				0.58%
Y 371.029	759337.3	122.65	%	0.364				0.30%
Ag 328.068†	-6760.5	12.547	µg/L	0.5377	12.547	ppb	0.5377	4.29%
Al 396.153Radial†	432115.7	128820	µg/L	835.5	128820	ppb	835.5	0.65%
As 188.979†	213.6	126.70	µg/L	3.788	126.70	ppb	3.788	2.99%
B 249.677†	3401.9	66.437	µg/L	1.1523	66.437	ppb	1.1523	1.73%
Ba 233.527†	149799.4	1391.1	µg/L	11.18	1391.1	ppb	11.18	0.80%
Be 313.107†	25153.0	14.456	µg/L	0.0854	14.456	ppb	0.0854	0.59%
Ca 317.933Radial†	239605.3	113620	µg/L	811.7	113620	ppb	811.7	0.71%
Cd 226.502†	4900.4	39.904	µg/L	0.8204	39.904	ppb	0.8204	2.06%
Co 228.616†	4653.5	103.56	µg/L	0.840	103.56	ppb	0.840	0.81%
Cr 267.716†	6993.7	140.14	µg/L	1.838	140.14	ppb	1.838	1.31%
Cu 324.752†	395140.1	1661.3	µg/L	12.46	1661.3	ppb	12.46	0.75%
Fe 238.204 Radial†	382058.2	208370	µg/L	1428.3	208370	ppb	1428.3	0.69%
K 766.490 Radial†	84798.5	40203	µg/L	327.0	40203	ppb	327.0	0.81%
Mg 279.077 IEC†	13397.2	70884	µg/L	263.3	70884	ppb	263.3	0.37%
Mn 257.610†	6162829.8	8810.1	µg/L	62.90	8810.1	ppb	62.90	0.71%
Mo 202.031†	251.0	25.628	µg/L	0.3225	25.628	ppb	0.3225	1.26%
Na 589.592 Radial†	437.8	911.40	µg/L	24.027	911.40	ppb	24.027	2.64%

Ni 231.604†	5612.4	166.70 µg/L	1.310	166.70 ppb	1.310	0.79%
P 214.914†	9347.0	6861.2 µg/L	42.83	6861.2 ppb	42.83	0.62%
Pb 220.353†	62178.5	9394.8 µg/L	61.47	9394.8 ppb	61.47	0.65%
S 181.975 Axial†	6239.6	10762 µg/L	63.6	10762 ppb	63.6	0.59%
Sb 206.836†	47.0	7.4178 µg/L	1.76777	7.4178 ppb	1.76777	23.83%
Se 196.026†	-88.5	39.779 µg/L	3.9086	39.779 ppb	3.9086	9.83%
SiO2†	164424.3	20519 µg/L	608.4	20519 ppb	608.4	2.96%
Si 251.611†	202144.4	9524.0 µg/L	289.42	9524.0 ppb	289.42	3.04%
Sn 189.927†	-210.1	-2.7962 µg/L	1.28246	-2.7962 ppb	1.28246	45.87%
Sr 421.552†	137492.7	670.92 µg/L	4.914	670.92 ppb	4.914	0.73%
Ti 334.940†	1952271.7	4897.7 µg/L	38.58	4897.7 ppb	38.58	0.79%
Tl 190.801†	-78.3	7.3318 µg/L	1.70498	7.3318 ppb	1.70498	23.25%
U 367.007†	3714.1	-102.6 µg/L	9.38	-102.6 ppb	9.38	9.14%
V 292.402†	36702.8	357.68 µg/L	2.914	357.68 ppb	2.914	0.81%
Zn 213.857†	1158479.0	10644 µg/L	72.1	10644 ppb	72.1	0.68%

Sequence No.: 21 **Autosampler Location: 314**
Sample ID: 306122005|1221778|1 **Date Collected: 6/15/2012 15:07:03**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122005|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22236.7	22236.7	106	%			15:07:37
1	Al 396.153Radial†	567840.6	535920.0	159760	µg/L	159760	ppb	15:07:32
1	Ca 317.933Radial†	344888.1	325299.2	154260	µg/L	154260	ppb	15:07:32
1	Fe 238.204 Radial†	443235.4	418151.2	228050	µg/L	228050	ppb	15:07:32
1	K 766.490 Radial†	91554.5	85690.5	40629	µg/L	40629	ppb	15:07:32
1	Mg 279.077 IEC†	17133.8	16155.5	85477	µg/L	85477	ppb	15:07:37
1	Na 589.592 Radial†	620.9	631.2	1313.8	µg/L	1313.8	ppb	15:07:37
1	Sr 421.552†	172384.0	163252.8	796.54	µg/L	796.54	ppb	15:07:32
1	Sc 361.383	745287.2	745287.2	104.59	%			15:08:05
1	Y 371.029	785436.0	785436.0	126.86	%			15:08:05
1	Ag 328.068†	-7731.4	-7013.2	16.159	µg/L	16.159	ppb	15:08:11
1	As 188.979†	287.3	283.5	166.49	µg/L	166.49	ppb	15:08:31
1	B 249.677†	4471.3	4178.2	85.631	µg/L	85.631	ppb	15:08:11
1	Ba 233.527†	172705.9	165301.4	1535.1	µg/L	1535.1	ppb	15:08:11
1	Be 313.107†	23888.0	30834.6	17.998	µg/L	17.998	ppb	15:08:11
1	Cd 226.502†	4355.6	4389.8	29.207	µg/L	29.207	ppb	15:08:31
1	Co 228.616†	5457.4	5238.9	116.84	µg/L	116.84	ppb	15:08:31
1	Cr 267.716†	8127.7	7577.6	151.92	µg/L	151.92	ppb	15:08:31
1	Cu 324.752†	458186.6	431606.1	1814.7	µg/L	1814.7	ppb	15:08:11
1	Mn 257.610†	7078936.7	6767930.9	9674.8	µg/L	9674.8	ppb	15:08:05
1	Mo 202.031†	525.1	479.9	42.044	µg/L	42.044	ppb	15:08:31
1	Ni 231.604†	6880.0	6706.9	198.87	µg/L	198.87	ppb	15:08:31
1	P 214.914†	11193.3	10577.6	7775.7	µg/L	7775.7	ppb	15:08:31
1	Pb 220.353†	56725.3	54086.3	8162.9	µg/L	8162.9	ppb	15:08:11
1	S 181.975 Axial†	3840.1	3610.0	6178.7	µg/L	6178.7	ppb	15:08:31
1	Sb 206.836†	140.5	68.6	13.121	µg/L	13.121	ppb	15:08:31
1	Se 196.026†	-112.2	-102.0	39.813	µg/L	39.813	ppb	15:08:31
1	SiO2†	162739.0	152650.6	19057	µg/L	19057	ppb	15:08:11
1	Si 251.611†	196999.0	188176.0	8865.3	µg/L	8865.3	ppb	15:08:11
1	Sn 189.927†	-226.5	-243.4	-4.1947	µg/L	-4.1947	ppb	15:08:31
1	Ti 334.940†	2249206.8	2150557.8	5395.9	µg/L	5395.9	ppb	15:08:05
1	Tl 190.801†	-142.7	-88.0	7.4020	µg/L	7.4020	ppb	15:08:31
1	U 367.007†	4717.1	4215.8	-76.88	µg/L	-76.88	ppb	15:08:11
1	V 292.402†	41572.8	39809.5	388.08	µg/L	388.08	ppb	15:08:11
1	Zn 213.857†	912531.6	871304.2	7994.5	µg/L	7994.5	ppb	15:08:11
2	Sc RADIAL	22481.4	22481.4	107	%			15:07:47
2	Al 396.153Radial†	572644.3	534571.3	159360	µg/L	159360	ppb	15:07:42
2	Ca 317.933Radial†	347092.2	323814.1	153560	µg/L	153560	ppb	15:07:42
2	Fe 238.204 Radial†	445376.2	415597.1	226660	µg/L	226660	ppb	15:07:42
2	K 766.490 Radial†	92622.0	85746.5	40655	µg/L	40655	ppb	15:07:42
2	Mg 279.077 IEC†	17105.0	15952.7	84404	µg/L	84404	ppb	15:07:47
2	Na 589.592 Radial†	647.6	649.7	1352.4	µg/L	1352.4	ppb	15:07:47
2	Sr 421.552†	174104.8	163088.4	795.74	µg/L	795.74	ppb	15:07:42
2	Sc 361.383	748241.2	748241.2	105.00	%			15:08:37
2	Y 371.029	788387.8	788387.8	127.34	%			15:08:37
2	Ag 328.068†	-7514.5	-6777.4	17.245	µg/L	17.245	ppb	15:08:43
2	As 188.979†	304.5	298.8	175.06	µg/L	175.06	ppb	15:09:03
2	B 249.677†	4399.9	4093.3	83.418	µg/L	83.418	ppb	15:08:43
2	Ba 233.527†	169417.3	161517.5	1499.9	µg/L	1499.9	ppb	15:08:43
2	Be 313.107†	23382.6	30263.1	17.666	µg/L	17.666	ppb	15:08:43
2	Cd 226.502†	4364.9	4382.3	29.315	µg/L	29.315	ppb	15:09:03
2	Co 228.616†	5452.6	5213.7	116.27	µg/L	116.27	ppb	15:09:03
2	Cr 267.716†	8113.1	7533.0	151.02	µg/L	151.02	ppb	15:09:03
2	Cu 324.752†	452017.7	424001.5	1783.2	µg/L	1783.2	ppb	15:08:43
2	Mn 257.610†	7050234.1	6713874.0	9597.6	µg/L	9597.6	ppb	15:08:37
2	Mo 202.031†	512.8	466.3	41.057	µg/L	41.057	ppb	15:09:03
2	Ni 231.604†	6850.8	6653.1	197.28	µg/L	197.28	ppb	15:09:03
2	P 214.914†	11145.9	10490.1	7711.8	µg/L	7711.8	ppb	15:09:03
2	Pb 220.353†	55570.9	52772.8	7964.0	µg/L	7964.0	ppb	15:08:43

2	S 181.975 Axial†	3841.2	3596.5	6155.9 µg/L	6155.9 ppb	15:09:03
2	Sb 206.836†	138.0	65.7	12.228 µg/L	12.228 ppb	15:09:03
2	Se 196.026†	-122.9	-111.8	31.822 µg/L	31.822 ppb	15:09:03
2	SiO2†	160093.0	149516.3	18667 µg/L	18667 ppb	15:08:43
2	Si 251.611†	193689.8	184280.8	8681.8 µg/L	8681.8 ppb	15:08:43
2	Sn 189.927†	-216.5	-233.0	-2.1863 µg/L	-2.1863 ppb	15:09:03
2	Ti 334.940†	2244764.9	2137837.2	5364.0 µg/L	5364.0 ppb	15:08:37
2	Tl 190.801†	-141.4	-86.3	7.7577 µg/L	7.7577 ppb	15:09:03
2	U 367.007†	4672.8	4155.7	-84.86 µg/L	-84.86 ppb	15:08:43
2	V 292.402†	40800.2	38916.7	379.32 µg/L	379.32 ppb	15:08:43
2	Zn 213.857†	898134.7	854148.5	7836.6 µg/L	7836.6 ppb	15:08:43
3	Sc RADIAL	22124.5	22124.5	105 %		15:07:58
3	Al 396.153Radial†	574556.0	545004.6	162470 µg/L	162470 ppb	15:07:53
3	Ca 317.933Radial†	346752.1	328716.7	155880 µg/L	155880 ppb	15:07:53
3	Fe 238.204 Radial†	445014.7	421959.0	230130 µg/L	230130 ppb	15:07:53
3	K 766.490 Radial†	92658.5	87175.4	41333 µg/L	41333 ppb	15:07:53
3	Mg 279.077 IEC†	17064.8	16172.1	85565 µg/L	85565 ppb	15:07:58
3	Na 589.592 Radial†	643.1	655.3	1364.0 µg/L	1364.0 ppb	15:07:58
3	Sr 421.552†	174912.0	166474.8	812.26 µg/L	812.26 ppb	15:07:53
3	Sc 361.383	738828.4	738828.4	103.68 %		15:09:09
3	Y 371.029	780397.1	780397.1	126.05 %		15:09:09
3	Ag 328.068†	-7652.7	-7001.9	16.762 µg/L	16.762 ppb	15:09:15
3	As 188.979†	311.5	309.3	181.03 µg/L	181.03 ppb	15:09:35
3	B 249.677†	4421.1	4167.1	85.012 µg/L	85.012 ppb	15:09:15
3	Ba 233.527†	170398.3	164519.3	1527.8 µg/L	1527.8 ppb	15:09:15
3	Be 313.107†	23547.9	30706.3	17.927 µg/L	17.927 ppb	15:09:15
3	Cd 226.502†	4324.0	4395.7	28.967 µg/L	28.967 ppb	15:09:35
3	Co 228.616†	5480.4	5306.6	118.41 µg/L	118.41 ppb	15:09:35
3	Cr 267.716†	8087.8	7607.0	152.54 µg/L	152.54 ppb	15:09:35
3	Cu 324.752†	453252.8	430677.2	1811.2 µg/L	1811.2 ppb	15:09:15
3	Mn 257.610†	7062759.5	6811497.8	9737.2 µg/L	9737.2 ppb	15:09:09
3	Mo 202.031†	529.1	488.3	42.697 µg/L	42.697 ppb	15:09:35
3	Ni 231.604†	6882.6	6766.9	200.65 µg/L	200.65 ppb	15:09:35
3	P 214.914†	11162.6	10641.4	7823.1 µg/L	7823.1 ppb	15:09:35
3	Pb 220.353†	56020.7	53880.8	8131.1 µg/L	8131.1 ppb	15:09:15
3	S 181.975 Axial†	3831.2	3633.5	6218.6 µg/L	6218.6 ppb	15:09:35
3	Sb 206.836†	130.1	59.8	10.170 µg/L	10.170 ppb	15:09:35
3	Se 196.026†	-108.5	-99.3	42.819 µg/L	42.819 ppb	15:09:35
3	SiO2†	161483.2	152799.6	19076 µg/L	19076 ppb	15:09:15
3	Si 251.611†	195317.8	188201.2	8866.5 µg/L	8866.5 ppb	15:09:15
3	Sn 189.927†	-227.9	-246.6	-4.4440 µg/L	-4.4440 ppb	15:09:35
3	Ti 334.940†	2244270.8	2164597.1	5431.1 µg/L	5431.1 ppb	15:09:09
3	Tl 190.801†	-143.2	-89.7	7.0953 µg/L	7.0953 ppb	15:09:35
3	U 367.007†	4634.3	4175.3	-96.96 µg/L	-96.96 ppb	15:09:15
3	V 292.402†	41224.1	39820.6	388.17 µg/L	388.17 ppb	15:09:15
3	Zn 213.857†	901793.9	868575.2	7969.0 µg/L	7969.0 ppb	15:09:15

Mean Data: 306122005|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	744118.9	104.42	%	0.676				0.65%
Sc RADIAL	22280.9	106	%	0.9				0.82%
Y 371.029	784740.3	126.75	%	0.653				0.51%
Ag 328.068†	-6930.8	16.722	µg/L	0.5441	16.722	ppb	0.5441	3.25%
Al 396.153Radial†	538498.6	160530	µg/L	1691.6	160530	ppb	1691.6	1.05%
As 188.979†	297.2	174.19	µg/L	7.310	174.19	ppb	7.310	4.20%
B 249.677†	4146.2	84.687	µg/L	1.1417	84.687	ppb	1.1417	1.35%
Ba 233.527†	163779.4	1520.9	µg/L	18.60	1520.9	ppb	18.60	1.22%
Be 313.107†	30601.3	17.864	µg/L	0.1745	17.864	ppb	0.1745	0.98%
Ca 317.933Radial†	325943.3	154570	µg/L	1192.1	154570	ppb	1192.1	0.77%
Cd 226.502†	4389.3	29.163	µg/L	0.1782	29.163	ppb	0.1782	0.61%
Co 228.616†	5253.1	117.18	µg/L	1.105	117.18	ppb	1.105	0.94%
Cr 267.716†	7572.5	151.82	µg/L	0.762	151.82	ppb	0.762	0.50%
Cu 324.752†	428761.6	1803.1	µg/L	17.29	1803.1	ppb	17.29	0.96%
Fe 238.204 Radial†	418569.1	228280	µg/L	1746.0	228280	ppb	1746.0	0.76%
K 766.490 Radial†	86204.2	40872	µg/L	398.9	40872	ppb	398.9	0.98%
Mg 279.077 IEC†	16093.4	85149	µg/L	646.4	85149	ppb	646.4	0.76%
Mn 257.610†	6764434.2	9669.9	µg/L	69.92	9669.9	ppb	69.92	0.72%
Mo 202.031†	478.2	41.933	µg/L	0.8259	41.933	ppb	0.8259	1.97%
Na 589.592 Radial†	645.4	1343.4	µg/L	26.25	1343.4	ppb	26.25	1.95%

Ni 231.604†	6709.0	198.93 µg/L	1.685	198.93 ppb	1.685	0.85%
P 214.914†	10569.7	7770.2 µg/L	55.83	7770.2 ppb	55.83	0.72%
Pb 220.353†	53580.0	8086.0 µg/L	106.84	8086.0 ppb	106.84	1.32%
S 181.975 Axial†	3613.3	6184.4 µg/L	31.73	6184.4 ppb	31.73	0.51%
Sb 206.836†	64.7	11.840 µg/L	1.5136	11.840 ppb	1.5136	12.78%
Se 196.026†	-104.3	38.151 µg/L	5.6836	38.151 ppb	5.6836	14.90%
SiO2†	151655.5	18933 µg/L	231.2	18933 ppb	231.2	1.22%
Si 251.611†	186886.0	8804.5 µg/L	106.31	8804.5 ppb	106.31	1.21%
Sn 189.927†	-241.0	-3.6083 µg/L	1.23784	-3.6083 ppb	1.23784	34.30%
Sr 421.552†	164272.0	801.51 µg/L	9.319	801.51 ppb	9.319	1.16%
Ti 334.940†	2150997.4	5397.0 µg/L	33.59	5397.0 ppb	33.59	0.62%
Tl 190.801†	-88.0	7.4183 µg/L	0.33152	7.4183 ppb	0.33152	4.47%
U 367.007†	4182.3	-86.23 µg/L	10.111	-86.23 ppb	10.111	11.73%
V 292.402†	39515.6	385.19 µg/L	5.082	385.19 ppb	5.082	1.32%
Zn 213.857†	864676.0	7933.4 µg/L	84.76	7933.4 ppb	84.76	1.07%

Sequence No.: 22 **Autosampler Location: 315**
Sample ID: 1202679760|1221778|1 **Date Collected: 6/15/2012 15:09:42**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202679760|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22281.4	22281.4	106	%			15:10:16
1	Al 396.153Radial†	525704.2	495168.9	147610	µg/L	147610	ppb	15:10:11
1	Ca 317.933Radial†	333389.8	313819.0	148820	µg/L	148820	ppb	15:10:11
1	Fe 238.204 Radial†	425624.6	400729.2	218550	µg/L	218550	ppb	15:10:11
1	K 766.490 Radial†	86673.7	80921.3	38369	µg/L	38369	ppb	15:10:11
1	Mg 279.077 IEC†	16379.3	15412.6	81547	µg/L	81547	ppb	15:10:16
1	Na 589.592 Radial†	572.5	584.4	1216.5	µg/L	1216.5	ppb	15:10:16
1	Sr 421.552†	167482.9	158311.3	772.43	µg/L	772.43	ppb	15:10:11
1	Sc 361.383	744103.9	744103.9	104.42	%			15:10:44
1	Y 371.029	781949.7	781949.7	126.30	%			15:10:44
1	Ag 328.068†	-7467.7	-6772.3	15.202	µg/L	15.202	ppb	15:10:50
1	As 188.979†	301.7	297.7	174.18	µg/L	174.18	ppb	15:11:10
1	B 249.677†	4082.1	3812.3	76.600	µg/L	76.600	ppb	15:10:50
1	Ba 233.527†	165719.8	158873.7	1475.4	µg/L	1475.4	ppb	15:10:50
1	Be 313.107†	22413.5	29458.9	17.282	µg/L	17.282	ppb	15:10:50
1	Cd 226.502†	4235.4	4281.3	29.098	µg/L	29.098	ppb	15:11:10
1	Co 228.616†	5342.7	5137.3	115.42	µg/L	115.42	ppb	15:11:10
1	Cr 267.716†	7774.8	7252.0	145.40	µg/L	145.40	ppb	15:11:10
1	Cu 324.752†	451290.0	425698.2	1788.6	µg/L	1788.6	ppb	15:10:50
1	Mn 257.610†	6954834.3	6659846.4	9519.8	µg/L	9519.8	ppb	15:10:44
1	Mo 202.031†	554.4	508.8	43.625	µg/L	43.625	ppb	15:11:10
1	Ni 231.604†	6656.0	6502.9	192.78	µg/L	192.78	ppb	15:11:10
1	P 214.914†	10852.7	10268.3	7547.5	µg/L	7547.5	ppb	15:11:10
1	Pb 220.353†	56150.4	53622.0	8096.2	µg/L	8096.2	ppb	15:10:50
1	S 181.975 Axial†	3706.9	3488.3	5971.2	µg/L	5971.2	ppb	15:11:10
1	Sb 206.836†	137.2	65.7	12.822	µg/L	12.822	ppb	15:11:10
1	Se 196.026†	-109.7	-99.7	36.683	µg/L	36.683	ppb	15:11:10
1	SiO2†	133388.9	124790.7	15586	µg/L	15586	ppb	15:10:50
1	Si 251.611†	160843.0	153850.5	7247.7	µg/L	7247.7	ppb	15:10:50
1	Sn 189.927†	-220.5	-237.9	-6.0277	µg/L	-6.0277	ppb	15:11:10
1	Ti 334.940†	2031443.2	1945434.6	4881.4	µg/L	4881.4	ppb	15:10:44
1	Tl 190.801†	-143.3	-88.8	4.3710	µg/L	4.3710	ppb	15:11:10
1	U 367.007†	4523.7	4037.7	-74.13	µg/L	-74.13	ppb	15:10:50
1	V 292.402†	40502.3	38847.5	379.04	µg/L	379.04	ppb	15:10:50
1	Zn 213.857†	901573.0	862197.1	7912.0	µg/L	7912.0	ppb	15:10:50
2	Sc RADIAL	22090.7	22090.7	105	%			15:10:26
2	Al 396.153Radial†	537510.3	510655.2	152230	µg/L	152230	ppb	15:10:21
2	Ca 317.933Radial†	340781.7	323549.5	153430	µg/L	153430	ppb	15:10:21
2	Fe 238.204 Radial†	434123.0	412260.5	224840	µg/L	224840	ppb	15:10:21
2	K 766.490 Radial†	88569.5	83426.4	39557	µg/L	39557	ppb	15:10:21
2	Mg 279.077 IEC†	16415.0	15579.7	82431	µg/L	82431	ppb	15:10:26
2	Na 589.592 Radial†	593.0	608.6	1266.8	µg/L	1266.8	ppb	15:10:26
2	Sr 421.552†	171181.2	163185.3	796.21	µg/L	796.21	ppb	15:10:21
2	Sc 361.383	742109.3	742109.3	104.14	%			15:11:16
2	Y 371.029	779150.1	779150.1	125.85	%			15:11:16
2	Ag 328.068†	-7412.8	-6738.9	17.002	µg/L	17.002	ppb	15:11:22
2	As 188.979†	299.1	296.0	173.39	µg/L	173.39	ppb	15:11:42
2	B 249.677†	4085.1	3825.6	76.069	µg/L	76.069	ppb	15:11:22
2	Ba 233.527†	163935.3	157586.7	1463.2	µg/L	1463.2	ppb	15:11:22
2	Be 313.107†	22093.4	29209.2	17.178	µg/L	17.178	ppb	15:11:22
2	Cd 226.502†	4248.8	4305.1	28.455	µg/L	28.455	ppb	15:11:42
2	Co 228.616†	5333.3	5142.0	115.52	µg/L	115.52	ppb	15:11:42
2	Cr 267.716†	7757.0	7254.9	145.57	µg/L	145.57	ppb	15:11:42
2	Cu 324.752†	447256.1	422986.3	1778.4	µg/L	1778.4	ppb	15:11:22
2	Mn 257.610†	6935672.5	6659347.9	9519.7	µg/L	9519.7	ppb	15:11:16
2	Mo 202.031†	561.0	516.6	44.414	µg/L	44.414	ppb	15:11:42
2	Ni 231.604†	6677.4	6540.5	193.98	µg/L	193.98	ppb	15:11:42
2	P 214.914†	10780.0	10226.4	7513.3	µg/L	7513.3	ppb	15:11:42
2	Pb 220.353†	55479.2	53122.0	8019.8	µg/L	8019.8	ppb	15:11:22

2	S 181.975 Axial†	3691.1	3482.6	5960.2 µg/L	5960.2 ppb	15:11:42
2	Sb 206.836†	142.9	71.5	14.505 µg/L	14.505 ppb	15:11:42
2	Se 196.026†	-96.6	-87.4	48.917 µg/L	48.917 ppb	15:11:42
2	SiO2†	130947.8	122789.9	15338 µg/L	15338 ppb	15:11:22
2	Si 251.611†	157930.0	151467.3	7135.3 µg/L	7135.3 ppb	15:11:22
2	Sn 189.927†	-220.7	-238.7	-5.2450 µg/L	-5.2450 ppb	15:11:42
2	Ti 334.940†	2023911.2	1943430.9	4876.5 µg/L	4876.5 ppb	15:11:16
2	Tl 190.801†	-136.2	-82.3	6.9695 µg/L	6.9695 ppb	15:11:42
2	U 367.007†	4462.6	3990.7	-116.5 µg/L	-116.5 ppb	15:11:22
2	V 292.402†	40078.3	38544.6	376.08 µg/L	376.08 ppb	15:11:22
2	Zn 213.857†	890455.4	853842.2	7834.1 µg/L	7834.1 ppb	15:11:22
3	Sc RADIAL	22161.9	22161.9	106 %		15:10:37
3	Al 396.153Radial†	534862.0	506508.6	150990 µg/L	150990 ppb	15:10:32
3	Ca 317.933Radial†	338916.8	320744.6	152100 µg/L	152100 ppb	15:10:32
3	Fe 238.204 Radial†	431295.6	408259.8	222660 µg/L	222660 ppb	15:10:32
3	K 766.490 Radial†	88260.0	82863.4	39289 µg/L	39289 ppb	15:10:32
3	Mg 279.077 IEC†	16273.5	15395.6	81457 µg/L	81457 ppb	15:10:37
3	Na 589.592 Radial†	537.7	554.4	1154.0 µg/L	1154.0 ppb	15:10:37
3	Sr 421.552†	170291.9	161821.3	789.56 µg/L	789.56 ppb	15:10:32
3	Sc 361.383	744130.8	744130.8	104.43 %		15:11:48
3	Y 371.029	781628.8	781628.8	126.25 %		15:11:48
3	Ag 328.068†	-7311.8	-6622.8	17.199 µg/L	17.199 ppb	15:11:54
3	As 188.979†	291.8	288.3	168.98 µg/L	168.98 ppb	15:12:14
3	B 249.677†	4088.3	3818.0	76.172 µg/L	76.172 ppb	15:11:54
3	Ba 233.527†	166247.7	159373.4	1480.0 µg/L	1480.0 ppb	15:11:54
3	Be 313.107†	22505.6	29546.3	17.374 µg/L	17.374 ppb	15:11:54
3	Cd 226.502†	4280.3	4324.2	29.084 µg/L	29.084 ppb	15:12:14
3	Co 228.616†	5324.1	5119.3	115.05 µg/L	115.05 ppb	15:12:14
3	Cr 267.716†	7784.3	7260.8	145.61 µg/L	145.61 ppb	15:12:14
3	Cu 324.752†	453956.3	428235.8	1799.6 µg/L	1799.6 ppb	15:11:54
3	Mn 257.610†	6914444.4	6620927.9	9464.7 µg/L	9464.7 ppb	15:11:48
3	Mo 202.031†	560.7	514.9	44.205 µg/L	44.205 ppb	15:12:14
3	Ni 231.604†	6653.7	6500.4	192.77 µg/L	192.77 ppb	15:12:14
3	P 214.914†	10830.8	10247.0	7529.3 µg/L	7529.3 ppb	15:12:14
3	Pb 220.353†	56272.9	53737.4	8113.1 µg/L	8113.1 ppb	15:11:54
3	S 181.975 Axial†	3705.2	3486.6	5967.6 µg/L	5967.6 ppb	15:12:14
3	Sb 206.836†	126.8	55.7	9.4777 µg/L	9.4777 ppb	15:12:14
3	Se 196.026†	-110.1	-100.1	38.457 µg/L	38.457 ppb	15:12:14
3	SiO2†	129014.8	120597.3	15065 µg/L	15065 ppb	15:11:54
3	Si 251.611†	155446.2	148676.9	7003.9 µg/L	7003.9 ppb	15:11:54
3	Sn 189.927†	-210.6	-228.4	-3.4081 µg/L	-3.4081 ppb	15:12:14
3	Ti 334.940†	2017452.1	1931966.2	4847.7 µg/L	4847.7 ppb	15:11:48
3	Tl 190.801†	-136.1	-81.9	6.8590 µg/L	6.8590 ppb	15:12:14
3	U 367.007†	4597.1	4107.9	-77.13 µg/L	-77.13 ppb	15:11:54
3	V 292.402†	40489.8	38834.1	378.96 µg/L	378.96 ppb	15:11:54
3	Zn 213.857†	902395.1	862953.2	7918.3 µg/L	7918.3 ppb	15:11:54

Mean Data: 1202679760|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	743448.0	104.33	%	0.163				0.16%
Sc RADIAL	22178.0	106	%	0.5				0.43%
Y 371.029	780909.6	126.13	%	0.247				0.20%
Ag 328.068†	-6711.3	16.468	µg/L	1.1004	16.468	ppb	1.1004	6.68%
Al 396.153Radial†	504110.9	150280	µg/L	2389.8	150280	ppb	2389.8	1.59%
As 188.979†	294.0	172.18	µg/L	2.803	172.18	ppb	2.803	1.63%
B 249.677†	3818.6	76.280	µg/L	0.2818	76.280	ppb	0.2818	0.37%
Ba 233.527†	158611.3	1472.9	µg/L	8.65	1472.9	ppb	8.65	0.59%
Be 313.107†	29404.8	17.278	µg/L	0.0985	17.278	ppb	0.0985	0.57%
Ca 317.933Radial†	319371.0	151450	µg/L	2375.1	151450	ppb	2375.1	1.57%
Cd 226.502†	4303.5	28.879	µg/L	0.3674	28.879	ppb	0.3674	1.27%
Co 228.616†	5132.9	115.33	µg/L	0.250	115.33	ppb	0.250	0.22%
Cr 267.716†	7255.9	145.53	µg/L	0.116	145.53	ppb	0.116	0.08%
Cu 324.752†	425640.1	1788.9	µg/L	10.62	1788.9	ppb	10.62	0.59%
Fe 238.204 Radial†	407083.2	222020	µg/L	3193.2	222020	ppb	3193.2	1.44%
K 766.490 Radial†	82403.7	39072	µg/L	623.4	39072	ppb	623.4	1.60%
Mg 279.077 IEC†	15462.6	81812	µg/L	538.0	81812	ppb	538.0	0.66%
Mn 257.610†	6646707.4	9501.4	µg/L	31.79	9501.4	ppb	31.79	0.33%
Mo 202.031†	513.4	44.081	µg/L	0.4089	44.081	ppb	0.4089	0.93%
Na 589.592 Radial†	582.5	1212.4	µg/L	56.46	1212.4	ppb	56.46	4.66%

Ni 231.604†	6514.6	193.18 µg/L	0.693	193.18 ppb	0.693	0.36%
P 214.914†	10247.3	7530.0 µg/L	17.12	7530.0 ppb	17.12	0.23%
Pb 220.353†	53493.8	8076.4 µg/L	49.69	8076.4 ppb	49.69	0.62%
S 181.975 Axial†	3485.8	5966.3 µg/L	5.60	5966.3 ppb	5.60	0.09%
Sb 206.836†	64.3	12.268 µg/L	2.5592	12.268 ppb	2.5592	20.86%
Se 196.026†	-95.7	41.352 µg/L	6.6107	41.352 ppb	6.6107	15.99%
SiO2†	122725.9	15330 µg/L	260.8	15330 ppb	260.8	1.70%
Si 251.611†	151331.6	7129.0 µg/L	122.07	7129.0 ppb	122.07	1.71%
Sn 189.927†	-235.0	-4.8936 µg/L	1.34469	-4.8936 ppb	1.34469	27.48%
Sr 421.552†	161106.0	786.06 µg/L	12.268	786.06 ppb	12.268	1.56%
Ti 334.940†	1940277.2	4868.5 µg/L	18.20	4868.5 ppb	18.20	0.37%
Tl 190.801†	-84.4	6.0665 µg/L	1.46937	6.0665 ppb	1.46937	24.22%
U 367.007†	4045.5	-89.27 µg/L	23.663	-89.27 ppb	23.663	26.51%
V 292.402†	38742.1	378.03 µg/L	1.687	378.03 ppb	1.687	0.45%
Zn 213.857†	859664.2	7888.1 µg/L	46.92	7888.1 ppb	46.92	0.59%

Sequence No.: 23 **Autosampler Location: 1**
Sample ID: CCV **Date Collected: 6/15/2012 15:12:21**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21529.7	21529.7	103	%			15:12:51
1	Al 396.153Radial†	16882.3	16625.0	4938.0	µg/L	4938.0	ppb	15:12:51
1	Ca 317.933Radial†	10299.3	9940.4	4713.8	µg/L	4713.8	ppb	15:13:11
1	Fe 238.204 Radial†	9125.6	8860.1	4837.0	µg/L	4837.0	ppb	15:13:11
1	K 766.490 Radial†	11590.5	10605.2	5015.0	µg/L	5015.0	ppb	15:12:51
1	Mg 279.077 IEC†	969.7	935.1	4953.7	µg/L	4953.7	ppb	15:13:11
1	Na 589.592 Radial†	4643.5	4570.3	9513.5	µg/L	9513.5	ppb	15:13:11
1	Sr 421.552†	100542.9	98587.3	481.42	µg/L	481.42	ppb	15:12:51
1	Sc 361.383	739772.0	739772.0	103.81	%			15:14:08
1	Y 371.029	637919.3	637919.3	103.04	%			15:14:08
1	Ag 328.068†	78014.2	75527.6	483.30	µg/L	483.30	ppb	15:14:13
1	As 188.979†	879.7	856.1	480.87	µg/L	480.87	ppb	15:14:33
1	B 249.677†	17286.3	16554.3	469.06	µg/L	469.06	ppb	15:14:13
1	Ba 233.527†	53145.0	51363.6	479.45	µg/L	479.45	ppb	15:14:13
1	Be 313.107†	858828.1	835274.0	483.68	µg/L	483.68	ppb	15:14:08
1	Cd 226.502†	33356.4	32356.3	480.46	µg/L	480.46	ppb	15:14:13
1	Co 228.616†	20607.7	19871.6	482.49	µg/L	482.49	ppb	15:14:13
1	Cr 267.716†	25485.0	24355.2	476.25	µg/L	476.25	ppb	15:14:13
1	Cu 324.752†	126185.3	115066.7	475.16	µg/L	475.16	ppb	15:14:13
1	Mn 257.610†	344705.8	331538.6	473.32	µg/L	473.32	ppb	15:14:13
1	Mo 202.031†	7257.7	6969.0	475.35	µg/L	475.35	ppb	15:14:33
1	Ni 231.604†	17230.3	16726.1	486.46	µg/L	486.46	ppb	15:14:13
1	P 214.914†	3436.3	3185.2	2371.4	µg/L	2371.4	ppb	15:14:33
1	Pb 220.353†	3437.8	3160.6	478.79	µg/L	478.79	ppb	15:14:33
1	S 181.975 Axial†	641.4	556.1	966.79	µg/L	966.79	ppb	15:14:33
1	Sb 206.836†	1573.1	1449.6	463.75	µg/L	463.75	ppb	15:14:33
1	Se 196.026†	672.8	653.4	488.37	µg/L	488.37	ppb	15:14:33
1	SiO2†	45950.4	41312.1	5177.7	µg/L	5177.7	ppb	15:14:13
1	Si 251.611†	53467.0	51320.9	2411.0	µg/L	2411.0	ppb	15:14:13
1	Sn 189.927†	2299.7	2188.4	480.16	µg/L	480.16	ppb	15:14:33
1	Ti 334.940†	197236.7	189998.6	476.17	µg/L	476.17	ppb	15:14:13
1	Tl 190.801†	1405.6	1402.4	481.96	µg/L	481.96	ppb	15:14:33
1	U 367.007†	2296.4	1917.6	447.8	µg/L	447.8	ppb	15:14:13
1	V 292.402†	50323.4	48535.0	482.86	µg/L	482.86	ppb	15:14:13
1	Zn 213.857†	55995.8	52737.5	481.82	µg/L	481.82	ppb	15:14:13
2	Sc RADIAL	21178.7	21178.7	101	%			15:13:16
2	Al 396.153Radial†	16543.2	16561.7	4918.6	µg/L	4918.6	ppb	15:13:16
2	Ca 317.933Radial†	10299.9	10107.3	4793.0	µg/L	4793.0	ppb	15:13:36
2	Fe 238.204 Radial†	9091.9	8974.1	4899.2	µg/L	4899.2	ppb	15:13:36
2	K 766.490 Radial†	11353.1	10557.2	4992.2	µg/L	4992.2	ppb	15:13:16
2	Mg 279.077 IEC†	968.0	949.0	5027.8	µg/L	5027.8	ppb	15:13:36
2	Na 589.592 Radial†	4582.9	4585.2	9544.4	µg/L	9544.4	ppb	15:13:36
2	Sr 421.552†	99764.3	99439.5	485.59	µg/L	485.59	ppb	15:13:16
2	Sc 361.383	723095.2	723095.2	101.47	%			15:14:39
2	Y 371.029	623598.2	623598.2	100.72	%			15:14:39
2	Ag 328.068†	77620.3	76872.5	491.90	µg/L	491.90	ppb	15:14:44
2	As 188.979†	888.2	884.0	496.53	µg/L	496.53	ppb	15:15:04
2	B 249.677†	17192.1	16845.5	477.32	µg/L	477.32	ppb	15:14:44
2	Ba 233.527†	52671.4	52077.5	486.11	µg/L	486.11	ppb	15:14:44
2	Be 313.107†	849722.3	845380.1	489.53	µg/L	489.53	ppb	15:14:39
2	Cd 226.502†	33035.3	32780.9	486.76	µg/L	486.76	ppb	15:14:44
2	Co 228.616†	20376.4	20101.4	488.08	µg/L	488.08	ppb	15:14:44
2	Cr 267.716†	25286.7	24726.0	483.49	µg/L	483.49	ppb	15:14:44
2	Cu 324.752†	125406.0	117102.0	483.55	µg/L	483.55	ppb	15:14:44
2	Mn 257.610†	341183.6	335725.6	479.29	µg/L	479.29	ppb	15:14:44
2	Mo 202.031†	7277.5	7149.7	487.67	µg/L	487.67	ppb	15:15:04
2	Ni 231.604†	17126.2	17006.3	494.61	µg/L	494.61	ppb	15:14:44
2	P 214.914†	3424.1	3249.6	2419.3	µg/L	2419.3	ppb	15:15:04
2	Pb 220.353†	3442.5	3241.6	491.12	µg/L	491.12	ppb	15:15:04

2	S 181.975 Axial†	640.7	569.7	990.41 µg/L	990.41 ppb	15:15:04
2	Sb 206.836†	1573.3	1484.7	475.09 µg/L	475.09 ppb	15:15:04
2	Se 196.026†	686.0	681.3	509.13 µg/L	509.13 ppb	15:15:04
2	SiO2†	45602.6	41990.2	5262.7 µg/L	5262.7 ppb	15:14:44
2	Si 251.611†	53052.5	52100.2	2447.5 µg/L	2447.5 ppb	15:14:44
2	Sn 189.927†	2288.5	2228.6	488.95 µg/L	488.95 ppb	15:15:04
2	Ti 334.940†	195397.5	192567.9	482.61 µg/L	482.61 ppb	15:14:44
2	Tl 190.801†	1399.6	1427.7	490.63 µg/L	490.63 ppb	15:15:04
2	U 367.007†	2281.3	1953.7	456.4 µg/L	456.4 ppb	15:14:44
2	V 292.402†	49992.3	49326.7	490.78 µg/L	490.78 ppb	15:14:44
2	Zn 213.857†	55357.1	53352.1	487.41 µg/L	487.41 ppb	15:14:44
3	Sc RADIAL	21258.3	21258.3	101 %		15:13:41
3	Al 396.153Radial†	16534.5	16491.7	4897.6 µg/L	4897.6 ppb	15:13:41
3	Ca 317.933Radial†	10255.3	10025.1	4754.0 µg/L	4754.0 ppb	15:14:01
3	Fe 238.204 Radial†	9033.9	8883.1	4849.7 µg/L	4849.7 ppb	15:14:01
3	K 766.490 Radial†	11400.7	10562.0	4994.3 µg/L	4994.3 ppb	15:13:41
3	Mg 279.077 IEC†	964.3	941.8	4989.6 µg/L	4989.6 ppb	15:14:01
3	Na 589.592 Radial†	4537.9	4523.8	9416.6 µg/L	9416.6 ppb	15:14:01
3	Sr 421.552†	100054.8	99356.3	485.18 µg/L	485.18 ppb	15:13:41
3	Sc 361.383	714594.1	714594.1	100.28 %		15:15:10
3	Y 371.029	616166.8	616166.8	99.522 %		15:15:10
3	Ag 328.068†	78146.5	78307.2	501.04 µg/L	501.04 ppb	15:15:15
3	As 188.979†	871.2	877.6	492.91 µg/L	492.91 ppb	15:15:35
3	B 249.677†	17366.2	17220.7	487.97 µg/L	487.97 ppb	15:15:15
3	Ba 233.527†	52939.9	52962.7	494.38 µg/L	494.38 ppb	15:15:15
3	Be 313.107†	852591.1	858202.7	496.96 µg/L	496.96 ppb	15:15:10
3	Cd 226.502†	33214.0	33346.4	495.18 µg/L	495.18 ppb	15:15:15
3	Co 228.616†	20607.3	20570.6	499.46 µg/L	499.46 ppb	15:15:15
3	Cr 267.716†	25625.1	25359.8	495.88 µg/L	495.88 ppb	15:15:15
3	Cu 324.752†	126085.2	119249.6	492.40 µg/L	492.40 ppb	15:15:15
3	Mn 257.610†	343543.2	342078.4	488.35 µg/L	488.35 ppb	15:15:15
3	Mo 202.031†	7278.7	7236.3	493.57 µg/L	493.57 ppb	15:15:35
3	Ni 231.604†	17268.0	17348.4	504.56 µg/L	504.56 ppb	15:15:15
3	P 214.914†	3441.4	3307.0	2462.1 µg/L	2462.1 ppb	15:15:35
3	Pb 220.353†	3473.0	3312.4	501.84 µg/L	501.84 ppb	15:15:35
3	S 181.975 Axial†	639.3	575.9	1001.1 µg/L	1001.1 ppb	15:15:35
3	Sb 206.836†	1555.8	1485.7	475.24 µg/L	475.24 ppb	15:15:35
3	Se 196.026†	682.2	685.6	512.29 µg/L	512.29 ppb	15:15:35
3	SiO2†	45866.2	42787.8	5362.9 µg/L	5362.9 ppb	15:15:15
3	Si 251.611†	53450.8	53119.3	2495.4 µg/L	2495.4 ppb	15:15:15
3	Sn 189.927†	2314.3	2281.1	500.43 µg/L	500.43 ppb	15:15:35
3	Ti 334.940†	196873.7	196330.7	492.03 µg/L	492.03 ppb	15:15:15
3	Tl 190.801†	1392.5	1437.0	493.87 µg/L	493.87 ppb	15:15:35
3	U 367.007†	2329.2	2028.2	474.9 µg/L	474.9 ppb	15:15:15
3	V 292.402†	50400.3	50319.6	500.63 µg/L	500.63 ppb	15:15:15
3	Zn 213.857†	55683.7	54326.7	496.33 µg/L	496.33 ppb	15:15:15

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	725820.4	101.86	%	1.797				1.76%
Sc RADIAL	21322.2	102	%	0.9				0.86%
Y 371.029	625894.8	101.09	%	1.786				1.77%
Ag 328.068†	76902.4	492.08	µg/L	8.874	492.08	ppb	8.874	1.80%
QC value within limits for Ag 328.068 Recovery = 98.42%								
Al 396.153Radial†	16559.5	4918.1	µg/L	20.22	4918.1	ppb	20.22	0.41%
QC value within limits for Al 396.153Radial Recovery = 98.36%								
As 188.979†	872.6	490.10	µg/L	8.196	490.10	ppb	8.196	1.67%
QC value within limits for As 188.979 Recovery = 98.02%								
B 249.677†	16873.5	478.12	µg/L	9.483	478.12	ppb	9.483	1.98%
QC value within limits for B 249.677 Recovery = 95.62%								
Ba 233.527†	52134.6	486.65	µg/L	7.482	486.65	ppb	7.482	1.54%
QC value within limits for Ba 233.527 Recovery = 97.33%								
Be 313.107†	846285.6	490.06	µg/L	6.655	490.06	ppb	6.655	1.36%
QC value within limits for Be 313.107 Recovery = 98.01%								
Ca 317.933Radial†	10024.3	4753.6	µg/L	39.58	4753.6	ppb	39.58	0.83%
QC value within limits for Ca 317.933Radial Recovery = 95.07%								
Cd 226.502†	32827.9	487.47	µg/L	7.388	487.47	ppb	7.388	1.52%
QC value within limits for Cd 226.502 Recovery = 97.49%								
Co 228.616†	20181.2	490.01	µg/L	8.650	490.01	ppb	8.650	1.77%

QC value within limits for Co 228.616 Recovery = 98.00%

Cr 267.716†	24813.7	485.21 µg/L	9.926	485.21 ppb	9.926	2.05%
QC value within limits for Cr 267.716 Recovery = 97.04%						
Cu 324.752†	117139.4	483.70 µg/L	8.620	483.70 ppb	8.620	1.78%
QC value within limits for Cu 324.752 Recovery = 96.74%						
Fe 238.204 Radial†	8905.8	4862.0 µg/L	32.87	4862.0 ppb	32.87	0.68%
QC value within limits for Fe 238.204 Radial Recovery = 97.24%						
K 766.490 Radial†	10574.8	5000.5 µg/L	12.59	5000.5 ppb	12.59	0.25%
QC value within limits for K 766.490 Radial Recovery = 100.01%						
Mg 279.077 IEC†	942.0	4990.3 µg/L	37.05	4990.3 ppb	37.05	0.74%
QC value within limits for Mg 279.077 IEC Recovery = 99.81%						
Mn 257.610†	336447.5	480.32 µg/L	7.571	480.32 ppb	7.571	1.58%
QC value within limits for Mn 257.610 Recovery = 96.06%						
Mo 202.031†	7118.3	485.53 µg/L	9.299	485.53 ppb	9.299	1.92%
QC value within limits for Mo 202.031 Recovery = 97.11%						
Na 589.592 Radial†	4559.8	9491.5 µg/L	66.69	9491.5 ppb	66.69	0.70%
QC value within limits for Na 589.592 Radial Recovery = 94.92%						
Ni 231.604†	17026.9	495.21 µg/L	9.064	495.21 ppb	9.064	1.83%
QC value within limits for Ni 231.604 Recovery = 99.04%						
P 214.914†	3247.3	2417.6 µg/L	45.37	2417.6 ppb	45.37	1.88%
QC value within limits for P 214.914 Recovery = 96.70%						
Pb 220.353†	3238.2	490.58 µg/L	11.534	490.58 ppb	11.534	2.35%
QC value within limits for Pb 220.353 Recovery = 98.12%						
S 181.975 Axial†	567.2	986.11 µg/L	17.572	986.11 ppb	17.572	1.78%
QC value within limits for S 181.975 Axial Recovery = 98.61%						
Sb 206.836†	1473.3	471.36 µg/L	6.592	471.36 ppb	6.592	1.40%
QC value within limits for Sb 206.836 Recovery = 94.27%						
Se 196.026†	673.4	503.26 µg/L	12.994	503.26 ppb	12.994	2.58%
QC value within limits for Se 196.026 Recovery = 100.65%						
SiO2†	42030.0	5267.8 µg/L	92.69	5267.8 ppb	92.69	1.76%
QC value within limits for SiO2 Recovery = 98.51%						
Si 251.611†	52180.2	2451.3 µg/L	42.36	2451.3 ppb	42.36	1.73%
QC value within limits for Si 251.611 Recovery = 98.05%						
Sn 189.927†	2232.7	489.84 µg/L	10.168	489.84 ppb	10.168	2.08%
QC value within limits for Sn 189.927 Recovery = 97.97%						
Sr 421.552†	99127.7	484.06 µg/L	2.294	484.06 ppb	2.294	0.47%
QC value within limits for Sr 421.552 Recovery = 96.81%						
Ti 334.940†	192965.7	483.60 µg/L	7.977	483.60 ppb	7.977	1.65%
QC value within limits for Ti 334.940 Recovery = 96.72%						
Tl 190.801†	1422.4	488.82 µg/L	6.160	488.82 ppb	6.160	1.26%
QC value within limits for Tl 190.801 Recovery = 97.76%						
U 367.007†	1966.5	459.7 µg/L	13.86	459.7 ppb	13.86	3.01%
QC value within limits for U 367.007 Recovery = 91.94%						
V 292.402†	49393.8	491.43 µg/L	8.906	491.43 ppb	8.906	1.81%
QC value within limits for V 292.402 Recovery = 98.29%						
Zn 213.857†	53472.1	488.52 µg/L	7.320	488.52 ppb	7.320	1.50%
QC value within limits for Zn 213.857 Recovery = 97.70%						

All analyte(s) passed QC.

Sequence No.: 24 **Autosampler Location: 6**
Sample ID: CCB **Date Collected: 6/15/2012 15:15:43**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	20926.2	20926.2	99.7	%			15:16:12
1	Al 396.153Radial†	-179.7	-6.4	-1.9844	µg/L	-1.9844	ppb	15:16:12
1	Ca 317.933Radial†	110.4	14.9	7.0653	µg/L	7.0653	ppb	15:16:32
1	Fe 238.204 Radial†	46.3	14.0	7.6423	µg/L	7.6423	ppb	15:16:32
1	K 766.490 Radial†	1047.8	361.2	170.95	µg/L	170.95	ppb	15:16:12
1	Mg 279.077 IEC†	9.7	-0.1	-0.5868	µg/L	-0.5868	ppb	15:16:32
1	Na 589.592 Radial†	-113.8	-68.7	-143.09	µg/L	-143.09	ppb	15:16:12
1	Sr 421.552†	-557.6	52.9	0.2585	µg/L	0.2585	ppb	15:16:12
1	Sc 361.383	712851.1	712851.1	100.04	%			15:17:29
1	Y 371.029	617847.6	617847.6	99.794	%			15:17:29
1	Ag 328.068†	-385.1	-5.8	-0.0350	µg/L	-0.0350	ppb	15:17:34
1	As 188.979†	-6.8	1.9	1.0851	µg/L	1.0851	ppb	15:17:54
1	B 249.677†	139.2	42.1	1.1936	µg/L	1.1936	ppb	15:17:54
1	Ba 233.527†	-151.2	19.7	0.1832	µg/L	0.1832	ppb	15:17:54
1	Be 313.107†	-7664.9	332.3	0.1963	µg/L	0.1963	ppb	15:17:34
1	Cd 226.502†	-208.3	17.0	0.2518	µg/L	0.2518	ppb	15:17:54
1	Co 228.616†	7.1	27.9	0.6819	µg/L	0.6819	ppb	15:17:54
1	Cr 267.716†	197.6	3.9	0.0587	µg/L	0.0587	ppb	15:17:54
1	Cu 324.752†	6475.1	-10.5	-0.0572	µg/L	-0.0572	ppb	15:17:34
1	Mn 257.610†	562.6	57.7	0.0831	µg/L	0.0831	ppb	15:17:54
1	Mo 202.031†	54.0	31.9	2.1720	µg/L	2.1720	ppb	15:17:54
1	Ni 231.604†	-144.6	-15.8	-0.4607	µg/L	-0.4607	ppb	15:17:54
1	P 214.914†	122.8	-2.0	-1.5532	µg/L	-1.5532	ppb	15:17:54
1	Pb 220.353†	192.7	41.8	6.3247	µg/L	6.3247	ppb	15:17:54
1	S 181.975 Axial†	55.2	-6.5	-11.250	µg/L	-11.250	ppb	15:17:54
1	Sb 206.836†	92.9	27.1	8.7778	µg/L	8.7778	ppb	15:17:54
1	Se 196.026†	-0.6	4.7	3.5355	µg/L	3.5355	ppb	15:17:54
1	SiO2†	2981.0	29.7	3.9549	µg/L	3.9549	ppb	15:17:34
1	Si 251.611†	297.9	115.7	5.4248	µg/L	5.4248	ppb	15:17:54
1	Sn 189.927†	30.9	4.1	0.8999	µg/L	0.8999	ppb	15:17:54
1	Ti 334.940†	-171.1	-163.8	-0.4191	µg/L	-0.4191	ppb	15:17:34
1	Tl 190.801†	-33.2	15.3	5.2298	µg/L	5.2298	ppb	15:17:54
1	U 367.007†	371.4	76.9	18.83	µg/L	18.83	ppb	15:17:34
1	V 292.402†	-62.0	-1.8	0.0228	µg/L	0.0228	ppb	15:17:34
1	Zn 213.857†	1482.8	281.0	2.5915	µg/L	2.5915	ppb	15:17:54
2	Sc RADIAL	20991.8	20991.8	100	%			15:16:37
2	Al 396.153Radial†	-166.2	7.7	2.1992	µg/L	2.1992	ppb	15:16:37
2	Ca 317.933Radial†	114.3	18.4	8.7481	µg/L	8.7481	ppb	15:16:57
2	Fe 238.204 Radial†	39.8	7.3	4.0088	µg/L	4.0088	ppb	15:16:57
2	K 766.490 Radial†	965.2	275.4	130.33	µg/L	130.33	ppb	15:16:37
2	Mg 279.077 IEC†	8.7	-1.2	-6.2136	µg/L	-6.2136	ppb	15:16:57
2	Na 589.592 Radial†	-109.3	-63.9	-132.97	µg/L	-132.97	ppb	15:16:37
2	Sr 421.552†	-583.5	28.8	0.1408	µg/L	0.1408	ppb	15:16:37
2	Sc 361.383	709651.4	709651.4	99.587	%			15:17:59
2	Y 371.029	615740.5	615740.5	99.453	%			15:17:59
2	Ag 328.068†	-331.2	46.6	0.2946	µg/L	0.2946	ppb	15:18:04
2	As 188.979†	-13.6	-4.9	-2.7652	µg/L	-2.7652	ppb	15:18:24
2	B 249.677†	150.7	54.3	1.5430	µg/L	1.5430	ppb	15:18:24
2	Ba 233.527†	-152.6	17.6	0.1637	µg/L	0.1637	ppb	15:18:24
2	Be 313.107†	-7624.5	338.3	0.1979	µg/L	0.1979	ppb	15:18:04
2	Cd 226.502†	-203.3	21.1	0.3130	µg/L	0.3130	ppb	15:18:24
2	Co 228.616†	-13.8	6.9	0.1724	µg/L	0.1724	ppb	15:18:24
2	Cr 267.716†	190.7	-2.1	-0.0514	µg/L	-0.0514	ppb	15:18:24
2	Cu 324.752†	6478.0	21.6	0.0814	µg/L	0.0814	ppb	15:18:04
2	Mn 257.610†	530.0	27.6	0.0399	µg/L	0.0399	ppb	15:18:24
2	Mo 202.031†	58.4	36.5	2.4915	µg/L	2.4915	ppb	15:18:24
2	Ni 231.604†	-155.2	-27.2	-0.7906	µg/L	-0.7906	ppb	15:18:24
2	P 214.914†	115.3	-9.0	-6.7873	µg/L	-6.7873	ppb	15:18:24
2	Pb 220.353†	172.3	22.2	3.3630	µg/L	3.3630	ppb	15:18:24

2	S 181.975 Axial†	54.2	-7.2	-12.519 µg/L	-12.519 ppb	15:18:24
2	Sb 206.836†	95.6	30.2	9.7872 µg/L	9.7872 ppb	15:18:24
2	Se 196.026†	4.3	9.6	7.1579 µg/L	7.1579 ppb	15:18:24
2	SiO2†	2977.7	39.8	5.1106 µg/L	5.1106 ppb	15:18:04
2	Si 251.611†	321.3	140.6	6.5969 µg/L	6.5969 ppb	15:18:24
2	Sn 189.927†	26.8	0.1	0.0303 µg/L	0.0303 ppb	15:18:24
2	Ti 334.940†	-65.0	-58.0	-0.1496 µg/L	-0.1496 ppb	15:18:04
2	Tl 190.801†	-38.5	9.8	3.3467 µg/L	3.3467 ppb	15:18:24
2	U 367.007†	333.2	40.2	9.836 µg/L	9.836 ppb	15:18:04
2	V 292.402†	-94.5	-34.7	-0.3044 µg/L	-0.3044 ppb	15:18:04
2	Zn 213.857†	1456.2	260.9	2.4092 µg/L	2.4092 ppb	15:18:24
3	Sc RADIAL	20841.8	20841.8	99.3 %		15:17:02
3	Al 396.153Radial†	-190.2	-17.6	-5.3694 µg/L	-5.3694 ppb	15:17:02
3	Ca 317.933Radial†	98.9	3.8	1.7796 µg/L	1.7796 ppb	15:17:22
3	Fe 238.204 Radial†	39.4	7.2	3.9529 µg/L	3.9529 ppb	15:17:22
3	K 766.490 Radial†	1069.9	387.7	183.51 µg/L	183.51 ppb	15:17:02
3	Mg 279.077 IEC†	8.6	-1.2	-6.4711 µg/L	-6.4711 ppb	15:17:22
3	Na 589.592 Radial†	-83.9	-39.1	-81.310 µg/L	-81.310 ppb	15:17:02
3	Sr 421.552†	-654.0	-46.3	-0.2261 µg/L	-0.2261 ppb	15:17:02
3	Sc 361.383	711592.4	711592.4	99.859 %		15:18:29
3	Y 371.029	617425.2	617425.2	99.725 %		15:18:29
3	Ag 328.068†	-282.6	96.1	0.6094 µg/L	0.6094 ppb	15:18:34
3	As 188.979†	-13.3	-4.5	-2.5533 µg/L	-2.5533 ppb	15:18:54
3	B 249.677†	142.5	45.7	1.3001 µg/L	1.3001 ppb	15:18:54
3	Ba 233.527†	-152.2	18.4	0.1710 µg/L	0.1710 ppb	15:18:54
3	Be 313.107†	-7810.4	173.0	0.1030 µg/L	0.1030 ppb	15:18:34
3	Cd 226.502†	-200.3	24.7	0.3668 µg/L	0.3668 ppb	15:18:54
3	Co 228.616†	-21.3	-0.5	-0.0080 µg/L	-0.0080 ppb	15:18:54
3	Cr 267.716†	208.0	14.7	0.2741 µg/L	0.2741 ppb	15:18:54
3	Cu 324.752†	6469.0	-5.1	-0.0319 µg/L	-0.0319 ppb	15:18:34
3	Mn 257.610†	555.5	51.7	0.0743 µg/L	0.0743 ppb	15:18:54
3	Mo 202.031†	67.5	45.6	3.1067 µg/L	3.1067 ppb	15:18:54
3	Ni 231.604†	-129.6	-1.1	-0.0328 µg/L	-0.0328 ppb	15:18:54
3	P 214.914†	128.9	4.3	3.2041 µg/L	3.2041 ppb	15:18:54
3	Pb 220.353†	197.4	46.8	7.0925 µg/L	7.0925 ppb	15:18:54
3	S 181.975 Axial†	65.4	3.8	6.6316 µg/L	6.6316 ppb	15:18:54
3	Sb 206.836†	94.7	29.1	9.4246 µg/L	9.4246 ppb	15:18:54
3	Se 196.026†	-6.0	-0.7	-0.4749 µg/L	-0.4749 ppb	15:18:54
3	SiO2†	3062.2	116.3	14.696 µg/L	14.696 ppb	15:18:34
3	Si 251.611†	351.5	170.0	7.9696 µg/L	7.9696 ppb	15:18:54
3	Sn 189.927†	31.2	4.5	0.9724 µg/L	0.9724 ppb	15:18:54
3	Ti 334.940†	-156.6	-149.5	-0.3811 µg/L	-0.3811 ppb	15:18:34
3	Tl 190.801†	-43.5	4.9	1.6757 µg/L	1.6757 ppb	15:18:54
3	U 367.007†	348.8	54.8	13.43 µg/L	13.43 ppb	15:18:34
3	V 292.402†	-85.0	-24.9	-0.1976 µg/L	-0.1976 ppb	15:18:34
3	Zn 213.857†	1469.7	270.5	2.4923 µg/L	2.4923 ppb	15:18:54

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	711365.0	99.827	%	0.2262				0.23%
Sc RADIAL	20919.9	99.7	%	0.36				0.36%
Y 371.029	617004.4	99.658	%	0.1801				0.18%
Ag 328.068†	45.6	0.2897	µg/L	0.32225	0.2897	ppb	0.32225	111.24%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-5.4	-1.7182	µg/L	3.79133	-1.7182	ppb	3.79133	220.66%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-2.5	-1.4111	µg/L	2.16442	-1.4111	ppb	2.16442	153.38%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	47.4	1.3456	µg/L	0.17909	1.3456	ppb	0.17909	13.31%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	18.6	0.1726	µg/L	0.00985	0.1726	ppb	0.00985	5.71%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	281.2	0.1657	µg/L	0.05435	0.1657	ppb	0.05435	32.79%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	12.4	5.8643	µg/L	3.63619	5.8643	ppb	3.63619	62.01%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	21.0	0.3105	µg/L	0.05755	0.3105	ppb	0.05755	18.53%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	11.4	0.2821	µg/L	0.35776	0.2821	ppb	0.35776	126.81%

```
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†                5.5      0.0938 µg/L       0.16557      0.0938 ppb        0.16557 176.58%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†                2.0     -0.0025 µg/L       0.07381     -0.0025 ppb        0.07381 >999.9%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         9.5      5.2013 µg/L       2.11411      5.2013 ppb        2.11411  40.65%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        341.4      161.60 µg/L        27.794      161.60 ppb         27.794  17.20%
   QC value greater than the upper limit for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           -0.9     -4.4239 µg/L       3.32545     -4.4239 ppb        3.32545  75.17%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               45.7      0.0658 µg/L       0.02285      0.0658 ppb        0.02285  34.74%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               38.0      2.5901 µg/L       0.47506      2.5901 ppb        0.47506  18.34%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -57.2     -119.12 µg/L        33.136     -119.12 ppb         33.136  27.82%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -14.7     -0.4280 µg/L       0.37997     -0.4280 ppb        0.37997  88.77%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -2.2     -1.7121 µg/L       4.99757     -1.7121 ppb        4.99757 291.89%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               36.9      5.5934 µg/L       1.96940      5.5934 ppb        1.96940  35.21%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -3.3     -5.7125 µg/L      10.70910     -5.7125 ppb       10.70910 187.47%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               28.8      9.3299 µg/L       0.51132      9.3299 ppb        0.51132   5.48%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                4.6      3.4062 µg/L       3.81802      3.4062 ppb        3.81802 112.09%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                     61.9      7.9205 µg/L       5.89615      7.9205 ppb        5.89615  74.44%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              142.1      6.6638 µg/L       1.27376      6.6638 ppb        1.27376  19.11%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                2.9      0.6342 µg/L       0.52424      0.6342 ppb        0.52424  82.66%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               11.8      0.0577 µg/L       0.25275      0.0577 ppb        0.25275 437.98%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -123.8     -0.3166 µg/L       0.14586     -0.3166 ppb        0.14586  46.07%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               10.0      3.4174 µg/L       1.77811      3.4174 ppb        1.77811  52.03%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                57.3       14.03 µg/L         4.524       14.03 ppb          4.524  32.24%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -20.5     -0.1597 µg/L       0.16684     -0.1597 ppb        0.16684 104.45%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              270.8      2.4976 µg/L       0.09126      2.4976 ppb        0.09126   3.65%
   QC value within limits for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
```

Sequence No.: 25 **Autosampler Location: 316**
Sample ID: 1202679761|1221778|1 **Date Collected: 6/15/2012 15:19:02**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202679761|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22255.4	22255.4	106	%			15:19:37
1	Al 396.153Radial†	657917.9	620384.8	184920	µg/L	184920	ppb	15:19:32
1	Ca 317.933Radial†	319699.1	301280.5	142870	µg/L	142870	ppb	15:19:32
1	Fe 238.204 Radial†	436086.1	411060.5	224190	µg/L	224190	ppb	15:19:32
1	K 766.490 Radial†	100489.4	94040.8	44576	µg/L	44576	ppb	15:19:32
1	Mg 279.077 IEC†	18022.0	16979.3	89841	µg/L	89841	ppb	15:19:37
1	Na 589.592 Radial†	2682.4	2574.0	5358.0	µg/L	5358.0	ppb	15:19:37
1	Sr 421.552†	247629.1	234048.8	1142.3	µg/L	1142.3	ppb	15:19:32
1	Sc 361.383	748341.4	748341.4	105.02	%			15:20:06
1	Y 371.029	769988.6	769988.6	124.37	%			15:20:06
1	Ag 328.068†	64468.3	61768.1	453.93	µg/L	453.93	ppb	15:20:12
1	As 188.979†	1074.6	1032.1	586.67	µg/L	586.67	ppb	15:20:32
1	B 249.677†	18978.4	17974.9	477.73	µg/L	477.73	ppb	15:20:12
1	Ba 233.527†	206642.1	196942.7	1830.8	µg/L	1830.8	ppb	15:20:12
1	Be 313.107†	817028.3	785997.3	455.01	µg/L	455.01	ppb	15:20:06
1	Cd 226.502†	33823.1	32432.8	446.88	µg/L	446.88	ppb	15:20:12
1	Co 228.616†	22496.4	21442.7	509.22	µg/L	509.22	ppb	15:20:32
1	Cr 267.716†	29794.4	28177.7	554.62	µg/L	554.62	ppb	15:20:32
1	Cu 324.752†	550897.7	518100.8	2171.2	µg/L	2171.2	ppb	15:20:12
1	Mn 257.610†	6947438.1	6615089.0	9456.3	µg/L	9456.3	ppb	15:20:06
1	Mo 202.031†	6878.7	6528.1	454.25	µg/L	454.25	ppb	15:20:32
1	Ni 231.604†	20894.9	20025.6	586.10	µg/L	586.10	ppb	15:20:32
1	P 214.914†	10802.4	10161.6	7462.5	µg/L	7462.5	ppb	15:20:32
1	Pb 220.353†	54390.2	51641.4	7781.2	µg/L	7781.2	ppb	15:20:12
1	S 181.975 Axial†	6619.6	6241.8	10751	µg/L	10751	ppb	15:20:32
1	Sb 206.836†	1386.1	1254.1	391.64	µg/L	391.64	ppb	15:20:32
1	Se 196.026†	496.2	477.9	469.02	µg/L	469.02	ppb	15:20:32
1	SiO2†	128160.5	119088.6	14905	µg/L	14905	ppb	15:20:12
1	Si 251.611†	155044.5	147456.7	6939.8	µg/L	6939.8	ppb	15:20:12
1	Sn 189.927†	1771.8	1660.4	414.22	µg/L	414.22	ppb	15:20:32
1	Ti 334.940†	2629823.0	2504216.7	6282.1	µg/L	6282.1	ppb	15:20:06
1	Tl 190.801†	1095.1	1091.2	414.11	µg/L	414.11	ppb	15:20:32
1	U 367.007†	6386.3	5786.8	328.5	µg/L	328.5	ppb	15:20:12
1	V 292.402†	83885.9	79939.3	787.11	µg/L	787.11	ppb	15:20:12
1	Zn 213.857†	885859.7	842345.3	7725.5	µg/L	7725.5	ppb	15:20:12
2	Sc RADIAL	22242.2	22242.2	106	%			15:19:48
2	Al 396.153Radial†	676349.2	638137.0	190220	µg/L	190220	ppb	15:19:43
2	Ca 317.933Radial†	328767.2	310012.2	147010	µg/L	147010	ppb	15:19:43
2	Fe 238.204 Radial†	446571.4	421193.9	229720	µg/L	229720	ppb	15:19:43
2	K 766.490 Radial†	103415.1	96856.5	45911	µg/L	45911	ppb	15:19:43
2	Mg 279.077 IEC†	18093.3	17056.6	90250	µg/L	90250	ppb	15:19:48
2	Na 589.592 Radial†	2625.3	2521.7	5249.2	µg/L	5249.2	ppb	15:19:48
2	Sr 421.552†	254580.7	240744.0	1175.0	µg/L	1175.0	ppb	15:19:43
2	Sc 361.383	743196.9	743196.9	104.29	%			15:20:39
2	Y 371.029	764543.7	764543.7	123.49	%			15:20:39
2	Ag 328.068†	64590.5	62310.2	458.83	µg/L	458.83	ppb	15:20:44
2	As 188.979†	1102.4	1065.8	605.78	µg/L	605.78	ppb	15:21:04
2	B 249.677†	19167.9	18281.7	485.65	µg/L	485.65	ppb	15:20:44
2	Ba 233.527†	207154.3	198795.8	1847.9	µg/L	1847.9	ppb	15:20:44
2	Be 313.107†	814017.4	788495.9	456.49	µg/L	456.49	ppb	15:20:39
2	Cd 226.502†	33888.9	32718.9	450.26	µg/L	450.26	ppb	15:20:44
2	Co 228.616†	22517.9	21611.6	513.29	µg/L	513.29	ppb	15:21:04
2	Cr 267.716†	29769.2	28349.9	558.07	µg/L	558.07	ppb	15:21:04
2	Cu 324.752†	553243.9	523981.7	2196.3	µg/L	2196.3	ppb	15:20:44
2	Mn 257.610†	6926314.4	6640629.5	9493.2	µg/L	9493.2	ppb	15:20:39
2	Mo 202.031†	6914.1	6607.4	459.88	µg/L	459.88	ppb	15:21:04
2	Ni 231.604†	20852.8	20122.9	589.02	µg/L	589.02	ppb	15:21:04
2	P 214.914†	10798.0	10228.6	7509.8	µg/L	7509.8	ppb	15:21:04
2	Pb 220.353†	54552.8	52155.8	7857.9	µg/L	7857.9	ppb	15:20:44

2	S 181.975 Axial†	6628.3	6293.7	10840 µg/L	10840 ppb		15:21:04
2	Sb 206.836†	1374.2	1251.9	390.72 µg/L	390.72 ppb		15:21:04
2	Se 196.026†	495.6	480.5	473.79 µg/L	473.79 ppb		15:21:04
2	SiO2†	127266.2	119075.9	14905 µg/L	14905 ppb		15:20:44
2	Si 251.611†	153824.3	147308.8	6932.7 µg/L	6932.7 ppb		15:20:44
2	Sn 189.927†	1764.2	1664.8	416.11 µg/L	416.11 ppb		15:21:04
2	Ti 334.940†	2619360.4	2511519.6	6300.5 µg/L	6300.5 ppb		15:20:39
2	Tl 190.801†	1116.2	1118.7	423.94 µg/L	423.94 ppb		15:21:04
2	U 367.007†	6400.7	5842.8	315.1 µg/L	315.1 ppb		15:20:44
2	V 292.402†	84092.1	80689.9	794.56 µg/L	794.56 ppb		15:20:44
2	Zn 213.857†	889024.2	851218.7	7806.5 µg/L	7806.5 ppb		15:20:44
3	Sc RADIAL	22204.4	22204.4	106 %			15:19:58
3	Al 396.153Radial†	681275.3	643879.2	191930 µg/L	191930 ppb		15:19:53
3	Ca 317.933Radial†	330370.7	312056.1	147980 µg/L	147980 ppb		15:19:53
3	Fe 238.204 Radial†	449000.9	424207.7	231360 µg/L	231360 ppb		15:19:53
3	K 766.490 Radial†	104004.0	97579.3	46254 µg/L	46254 ppb		15:19:53
3	Mg 279.077 IEC†	18101.0	17092.9	90443 µg/L	90443 ppb		15:19:58
3	Na 589.592 Radial†	2631.3	2531.6	5269.7 µg/L	5269.7 ppb		15:19:58
3	Sr 421.552†	256082.0	242572.0	1183.9 µg/L	1183.9 ppb		15:19:53
3	Sc 361.383	748455.3	748455.3	105.03 %			15:21:11
3	Y 371.029	769508.7	769508.7	124.29 %			15:21:11
3	Ag 328.068†	64527.2	61814.8	456.06 µg/L	456.06 ppb		15:21:16
3	As 188.979†	1096.5	1052.7	598.50 µg/L	598.50 ppb		15:21:36
3	B 249.677†	19100.5	18088.4	479.93 µg/L	479.93 ppb		15:21:16
3	Ba 233.527†	206842.6	197103.6	1832.1 µg/L	1832.1 ppb		15:21:16
3	Be 313.107†	814171.1	783158.7	453.42 µg/L	453.42 ppb		15:21:11
3	Cd 226.502†	33770.8	32378.1	444.93 µg/L	444.93 ppb		15:21:16
3	Co 228.616†	22438.5	21384.3	507.81 µg/L	507.81 ppb		15:21:36
3	Cr 267.716†	29826.6	28204.0	555.24 µg/L	555.24 ppb		15:21:36
3	Cu 324.752†	552700.1	519737.0	2179.0 µg/L	2179.0 ppb		15:21:16
3	Mn 257.610†	6930388.4	6597849.9	9432.3 µg/L	9432.3 ppb		15:21:11
3	Mo 202.031†	6896.6	6544.1	455.64 µg/L	455.64 ppb		15:21:36
3	Ni 231.604†	20824.7	19955.7	584.18 µg/L	584.18 ppb		15:21:36
3	P 214.914†	10771.3	10130.4	7436.0 µg/L	7436.0 ppb		15:21:36
3	Pb 220.353†	54206.3	51458.4	7751.8 µg/L	7751.8 ppb		15:21:16
3	S 181.975 Axial†	6625.8	6246.7	10758 µg/L	10758 ppb		15:21:36
3	Sb 206.836†	1365.9	1234.7	385.11 µg/L	385.11 ppb		15:21:36
3	Se 196.026†	488.9	470.8	467.34 µg/L	467.34 ppb		15:21:36
3	SiO2†	122518.9	113698.8	14235 µg/L	14235 ppb		15:21:16
3	Si 251.611†	148053.6	140778.3	6625.0 µg/L	6625.0 ppb		15:21:16
3	Sn 189.927†	1752.3	1641.6	411.22 µg/L	411.22 ppb		15:21:36
3	Ti 334.940†	2626863.5	2501018.1	6274.2 µg/L	6274.2 ppb		15:21:11
3	Tl 190.801†	1098.8	1094.6	415.71 µg/L	415.71 ppb		15:21:36
3	U 367.007†	6416.4	5814.5	300.1 µg/L	300.1 ppb		15:21:16
3	V 292.402†	83875.7	79917.4	786.94 µg/L	786.94 ppb		15:21:16
3	Zn 213.857†	884639.7	841055.4	7712.6 µg/L	7712.6 ppb		15:21:16

Mean Data: 1202679761|1221778|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	746664.5	104.78	%	0.422				0.40%
Sc RADIAL	22234.0	106	%	0.1				0.12%
Y 371.029	768013.7	124.05	%	0.487				0.39%
Ag 328.068†	61964.4	456.27	µg/L	2.455	456.27	ppb	2.455	0.54%
Al 396.153Radial†	634133.7	189020	µg/L	3651.2	189020	ppb	3651.2	1.93%
As 188.979†	1050.2	596.98	µg/L	9.640	596.98	ppb	9.640	1.61%
B 249.677†	18115.0	481.10	µg/L	4.086	481.10	ppb	4.086	0.85%
Ba 233.527†	197614.0	1836.9	µg/L	9.54	1836.9	ppb	9.54	0.52%
Be 313.107†	785884.0	454.98	µg/L	1.538	454.98	ppb	1.538	0.34%
Ca 317.933Radial†	307782.9	145950	µg/L	2714.0	145950	ppb	2714.0	1.86%
Cd 226.502†	32509.9	447.36	µg/L	2.696	447.36	ppb	2.696	0.60%
Co 228.616†	21479.5	510.11	µg/L	2.848	510.11	ppb	2.848	0.56%
Cr 267.716†	28243.8	555.98	µg/L	1.838	555.98	ppb	1.838	0.33%
Cu 324.752†	520606.5	2182.2	µg/L	12.82	2182.2	ppb	12.82	0.59%
Fe 238.204 Radial†	418820.7	228420	µg/L	3756.3	228420	ppb	3756.3	1.64%
K 766.490 Radial†	96158.9	45580	µg/L	886.3	45580	ppb	886.3	1.94%
Mg 279.077 IEC†	17042.9	90178	µg/L	307.2	90178	ppb	307.2	0.34%
Mn 257.610†	6617856.1	9460.6	µg/L	30.67	9460.6	ppb	30.67	0.32%
Mo 202.031†	6559.9	456.59	µg/L	2.934	456.59	ppb	2.934	0.64%
Na 589.592 Radial†	2542.5	5292.3	µg/L	57.82	5292.3	ppb	57.82	1.09%

Ni 231.604†	20034.7	586.43 µg/L	2.434	586.43 ppb	2.434	0.42%
P 214.914†	10173.5	7469.4 µg/L	37.40	7469.4 ppb	37.40	0.50%
Pb 220.353†	51751.9	7797.0 µg/L	54.75	7797.0 ppb	54.75	0.70%
S 181.975 Axial†	6260.7	10783 µg/L	49.4	10783 ppb	49.4	0.46%
Sb 206.836†	1246.9	389.16 µg/L	3.536	389.16 ppb	3.536	0.91%
Se 196.026†	476.4	470.05 µg/L	3.346	470.05 ppb	3.346	0.71%
SiO2†	117287.8	14682 µg/L	386.7	14682 ppb	386.7	2.63%
Si 251.611†	145181.3	6832.5 µg/L	179.74	6832.5 ppb	179.74	2.63%
Sn 189.927†	1655.6	413.85 µg/L	2.464	413.85 ppb	2.464	0.60%
Sr 421.552†	239121.6	1167.1 µg/L	21.90	1167.1 ppb	21.90	1.88%
Ti 334.940†	2505584.8	6285.6 µg/L	13.50	6285.6 ppb	13.50	0.21%
Tl 190.801†	1101.5	417.92 µg/L	5.276	417.92 ppb	5.276	1.26%
U 367.007†	5814.7	314.6 µg/L	14.21	314.6 ppb	14.21	4.52%
V 292.402†	80182.2	789.54 µg/L	4.348	789.54 ppb	4.348	0.55%
Zn 213.857†	844873.2	7748.2 µg/L	50.87	7748.2 ppb	50.87	0.66%

Sequence No.: 26 **Autosampler Location: 317**
Sample ID: 1202679764|1221778|1 **Date Collected: 6/15/2012 15:21:44**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202679764|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22547.6	22547.6	107	%			15:22:18
1	Al 396.153Radial†	729482.8	678936.7	202380	µg/L	202380	ppb	15:22:13
1	Ca 317.933Radial†	343000.4	319056.2	151300	µg/L	151300	ppb	15:22:13
1	Fe 238.204 Radial†	468975.5	436335.9	237980	µg/L	237980	ppb	15:22:13
1	K 766.490 Radial†	108826.8	100571.0	47671	µg/L	47671	ppb	15:22:13
1	Mg 279.077 IEC†	19236.4	17889.1	94655	µg/L	94655	ppb	15:22:18
1	Na 589.592 Radial†	2905.2	2748.6	5721.4	µg/L	5721.4	ppb	15:22:18
1	Sr 421.552†	267288.6	249316.4	1216.8	µg/L	1216.8	ppb	15:22:13
1	Sc 361.383	738956.8	738956.8	103.70	%			15:22:47
1	Y 371.029	765390.6	765390.6	123.62	%			15:22:47
1	Ag 328.068†	67613.0	65580.3	481.93	µg/L	481.93	ppb	15:22:52
1	As 188.979†	1120.9	1089.8	619.52	µg/L	619.52	ppb	15:23:12
1	B 249.677†	20118.2	19303.6	513.47	µg/L	513.47	ppb	15:22:52
1	Ba 233.527†	216114.6	208576.3	1938.9	µg/L	1938.9	ppb	15:22:52
1	Be 313.107†	853523.8	831071.5	481.08	µg/L	481.08	ppb	15:22:47
1	Cd 226.502†	35093.2	34066.6	469.00	µg/L	469.00	ppb	15:22:52
1	Co 228.616†	23436.4	22621.2	536.98	µg/L	536.98	ppb	15:23:12
1	Cr 267.716†	31267.5	29958.5	589.66	µg/L	589.66	ppb	15:23:12
1	Cu 324.752†	564073.7	537468.9	2253.3	µg/L	2253.3	ppb	15:22:52
1	Mn 257.610†	7212372.3	6954589.8	9941.8	µg/L	9941.8	ppb	15:22:47
1	Mo 202.031†	7150.4	6873.3	478.35	µg/L	478.35	ppb	15:23:12
1	Ni 231.604†	21715.4	21069.4	616.68	µg/L	616.68	ppb	15:23:12
1	P 214.914†	11198.3	10674.0	7840.2	µg/L	7840.2	ppb	15:23:12
1	Pb 220.353†	56508.1	54341.5	8184.9	µg/L	8184.9	ppb	15:22:52
1	S 181.975 Axial†	6950.1	6640.5	11438	µg/L	11438	ppb	15:23:12
1	Sb 206.836†	1432.8	1316.0	410.48	µg/L	410.48	ppb	15:23:12
1	Se 196.026†	507.9	495.1	488.84	µg/L	488.84	ppb	15:23:12
1	SiO2†	205351.7	195076.2	24372	µg/L	24372	ppb	15:22:52
1	Si 251.611†	249590.0	240504.6	11324	µg/L	11324	ppb	15:22:52
1	Sn 189.927†	1838.8	1746.4	436.57	µg/L	436.57	ppb	15:23:12
1	Ti 334.940†	2784387.8	2685071.1	6735.8	µg/L	6735.8	ppb	15:22:47
1	Tl 190.801†	1138.7	1146.5	435.81	µg/L	435.81	ppb	15:23:12
1	U 367.007†	6653.0	6121.2	343.4	µg/L	343.4	ppb	15:22:52
1	V 292.402†	87842.1	84768.8	834.57	µg/L	834.57	ppb	15:22:52
1	Zn 213.857†	910304.2	876630.8	8039.3	µg/L	8039.3	ppb	15:22:52
2	Sc RADIAL	22544.6	22544.6	107	%			15:22:28
2	Al 396.153Radial†	733558.0	682818.3	203540	µg/L	203540	ppb	15:22:23
2	Ca 317.933Radial†	342504.0	318636.3	151100	µg/L	151100	ppb	15:22:23
2	Fe 238.204 Radial†	468545.0	435992.6	237790	µg/L	237790	ppb	15:22:23
2	K 766.490 Radial†	109384.5	101103.2	47923	µg/L	47923	ppb	15:22:23
2	Mg 279.077 IEC†	19585.0	18215.8	96383	µg/L	96383	ppb	15:22:28
2	Na 589.592 Radial†	2876.7	2722.4	5666.9	µg/L	5666.9	ppb	15:22:28
2	Sr 421.552†	267942.7	249957.8	1220.0	µg/L	1220.0	ppb	15:22:23
2	Sc 361.383	750447.5	750447.5	105.31	%			15:23:19
2	Y 371.029	777046.8	777046.8	125.51	%			15:23:19
2	Ag 328.068†	67606.4	64575.7	475.44	µg/L	475.44	ppb	15:23:25
2	As 188.979†	1142.9	1094.0	621.92	µg/L	621.92	ppb	15:23:45
2	B 249.677†	20163.7	19049.7	506.29	µg/L	506.29	ppb	15:23:25
2	Ba 233.527†	216475.0	205727.4	1912.4	µg/L	1912.4	ppb	15:23:25
2	Be 313.107†	863827.4	828252.7	479.45	µg/L	479.45	ppb	15:23:19
2	Cd 226.502†	35227.7	33676.1	463.22	µg/L	463.22	ppb	15:23:25
2	Co 228.616†	23567.0	22399.2	531.61	µg/L	531.61	ppb	15:23:45
2	Cr 267.716†	31391.8	29614.9	582.96	µg/L	582.96	ppb	15:23:45
2	Cu 324.752†	564984.2	530004.7	2222.6	µg/L	2222.6	ppb	15:23:25
2	Mn 257.610†	7291196.9	6922943.8	9896.6	µg/L	9896.6	ppb	15:23:19
2	Mo 202.031†	7139.2	6757.1	470.42	µg/L	470.42	ppb	15:23:45
2	Ni 231.604†	21857.4	20883.6	611.27	µg/L	611.27	ppb	15:23:45
2	P 214.914†	11215.0	10524.5	7729.4	µg/L	7729.4	ppb	15:23:45
2	Pb 220.353†	56556.2	53552.8	8065.0	µg/L	8065.0	ppb	15:23:25

2	S 181.975 Axial†	6957.3	6544.7	11271 µg/L	11271 ppb	15:23:45
2	Sb 206.836†	1434.9	1296.8	404.30 µg/L	404.30 ppb	15:23:45
2	Se 196.026†	526.1	504.9	496.00 µg/L	496.00 ppb	15:23:45
2	SiO2†	211112.4	197514.2	24675 µg/L	24675 ppb	15:23:25
2	Si 251.611†	256715.4	243585.3	11470 µg/L	11470 ppb	15:23:25
2	Sn 189.927†	1857.0	1736.6	434.36 µg/L	434.36 ppb	15:23:45
2	Ti 334.940†	2817545.0	2675442.8	6711.6 µg/L	6711.6 ppb	15:23:19
2	Tl 190.801†	1152.2	1142.5	434.33 µg/L	434.33 ppb	15:23:45
2	U 367.007†	6700.6	6068.3	331.3 µg/L	331.3 ppb	15:23:25
2	V 292.402†	88120.7	83736.3	824.34 µg/L	824.34 ppb	15:23:25
2	Zn 213.857†	912073.1	864869.3	7931.0 µg/L	7931.0 ppb	15:23:25
3	Sc RADIAL	22502.3	22502.3	107 %		15:22:39
3	Al 396.153Radial†	742180.4	692140.1	206310 µg/L	206310 ppb	15:22:34
3	Ca 317.933Radial†	346055.5	322546.4	152950 µg/L	152950 ppb	15:22:34
3	Fe 238.204 Radial†	473137.2	441093.5	240570 µg/L	240570 ppb	15:22:34
3	K 766.490 Radial†	110536.7	102368.7	48523 µg/L	48523 ppb	15:22:34
3	Mg 279.077 IEC†	19174.6	17867.4	94540 µg/L	94540 ppb	15:22:39
3	Na 589.592 Radial†	2893.6	2743.2	5710.2 µg/L	5710.2 ppb	15:22:39
3	Sr 421.552†	270912.4	253195.1	1235.8 µg/L	1235.8 ppb	15:22:34
3	Sc 361.383	747034.0	747034.0	104.83 %		15:23:52
3	Y 371.029	773148.9	773148.9	124.88 %		15:23:52
3	Ag 328.068†	68026.2	65269.4	480.62 µg/L	480.62 ppb	15:23:57
3	As 188.979†	1149.0	1104.9	628.09 µg/L	628.09 ppb	15:24:17
3	B 249.677†	20345.9	19311.0	513.31 µg/L	513.31 ppb	15:23:57
3	Ba 233.527†	217612.1	207751.3	1931.2 µg/L	1931.2 ppb	15:23:57
3	Be 313.107†	857819.3	826269.6	478.33 µg/L	478.33 ppb	15:23:52
3	Cd 226.502†	35325.7	33922.5	466.44 µg/L	466.44 ppb	15:23:57
3	Co 228.616†	23582.7	22516.5	534.50 µg/L	534.50 ppb	15:24:17
3	Cr 267.716†	31331.8	29693.8	584.53 µg/L	584.53 ppb	15:24:17
3	Cu 324.752†	567483.2	534839.9	2242.9 µg/L	2242.9 ppb	15:23:57
3	Mn 257.610†	7239854.8	6905604.5	9872.2 µg/L	9872.2 ppb	15:23:52
3	Mo 202.031†	7152.0	6800.2	473.47 µg/L	473.47 ppb	15:24:17
3	Ni 231.604†	21874.6	20994.9	614.56 µg/L	614.56 ppb	15:24:17
3	P 214.914†	11227.5	10585.2	7773.2 µg/L	7773.2 ppb	15:24:17
3	Pb 220.353†	56861.6	54089.5	8145.5 µg/L	8145.5 ppb	15:23:57
3	S 181.975 Axial†	6966.2	6583.4	11338 µg/L	11338 ppb	15:24:17
3	Sb 206.836†	1426.4	1294.9	403.57 µg/L	403.57 ppb	15:24:17
3	Se 196.026†	514.7	496.3	491.01 µg/L	491.01 ppb	15:24:17
3	SiO2†	214646.8	201801.6	25210 µg/L	25210 ppb	15:23:57
3	Si 251.611†	261198.0	248975.1	11724 µg/L	11724 ppb	15:23:57
3	Sn 189.927†	1849.3	1737.3	434.92 µg/L	434.92 ppb	15:24:17
3	Ti 334.940†	2798751.2	2669740.5	6697.4 µg/L	6697.4 ppb	15:23:52
3	Tl 190.801†	1136.8	1132.8	431.15 µg/L	431.15 ppb	15:24:17
3	U 367.007†	6718.0	6113.8	328.8 µg/L	328.8 ppb	15:23:57
3	V 292.402†	88753.4	84722.2	834.08 µg/L	834.08 ppb	15:23:57
3	Zn 213.857†	916309.2	872867.5	8004.2 µg/L	8004.2 ppb	15:23:57

Mean Data: 1202679764|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	745479.4	104.61	%	0.828				0.79%
Sc RADIAL	22531.5	107	%	0.1				0.11%
Y 371.029	771862.1	124.67	%	0.958				0.77%
Ag 328.068†	65141.8	479.33	µg/L	3.428	479.33	ppb	3.428	0.72%
Al 396.153Radial†	684631.7	204080	µg/L	2023.0	204080	ppb	2023.0	0.99%
As 188.979†	1096.2	623.18	µg/L	4.418	623.18	ppb	4.418	0.71%
B 249.677†	19221.4	511.02	µg/L	4.100	511.02	ppb	4.100	0.80%
Ba 233.527†	207351.7	1927.5	µg/L	13.66	1927.5	ppb	13.66	0.71%
Be 313.107†	828531.3	479.62	µg/L	1.386	479.62	ppb	1.386	0.29%
Ca 317.933Radial†	320079.6	151780	µg/L	1017.9	151780	ppb	1017.9	0.67%
Cd 226.502†	33888.4	466.22	µg/L	2.895	466.22	ppb	2.895	0.62%
Co 228.616†	22512.3	534.37	µg/L	2.688	534.37	ppb	2.688	0.50%
Cr 267.716†	29755.7	585.72	µg/L	3.504	585.72	ppb	3.504	0.60%
Cu 324.752†	534104.5	2239.6	µg/L	15.65	2239.6	ppb	15.65	0.70%
Fe 238.204 Radial†	437807.3	238780	µg/L	1554.9	238780	ppb	1554.9	0.65%
K 766.490 Radial†	101347.7	48039	µg/L	437.7	48039	ppb	437.7	0.91%
Mg 279.077 IEC†	17990.7	95193	µg/L	1032.5	95193	ppb	1032.5	1.08%
Mn 257.610†	6927712.7	9903.5	µg/L	35.33	9903.5	ppb	35.33	0.36%
Mo 202.031†	6810.2	474.08	µg/L	3.999	474.08	ppb	3.999	0.84%
Na 589.592 Radial†	2738.1	5699.5	µg/L	28.83	5699.5	ppb	28.83	0.51%

Ni 231.604†	20982.7	614.17 µg/L	2.724	614.17 ppb	2.724	0.44%
P 214.914†	10594.6	7780.9 µg/L	55.83	7780.9 ppb	55.83	0.72%
Pb 220.353†	53994.6	8131.8 µg/L	61.15	8131.8 ppb	61.15	0.75%
S 181.975 Axial†	6589.6	11349 µg/L	83.8	11349 ppb	83.8	0.74%
Sb 206.836†	1302.6	406.12 µg/L	3.799	406.12 ppb	3.799	0.94%
Se 196.026†	498.8	491.95 µg/L	3.671	491.95 ppb	3.671	0.75%
SiO2†	198130.7	24752 µg/L	424.0	24752 ppb	424.0	1.71%
Si 251.611†	244355.0	11506 µg/L	202.1	11506 ppb	202.1	1.76%
Sn 189.927†	1740.1	435.28 µg/L	1.147	435.28 ppb	1.147	0.26%
Sr 421.552†	250823.1	1224.2 µg/L	10.15	1224.2 ppb	10.15	0.83%
Ti 334.940†	2676751.5	6714.9 µg/L	19.41	6714.9 ppb	19.41	0.29%
Tl 190.801†	1140.6	433.76 µg/L	2.380	433.76 ppb	2.380	0.55%
U 367.007†	6101.1	334.5 µg/L	7.80	334.5 ppb	7.80	2.33%
V 292.402†	84409.1	831.00 µg/L	5.769	831.00 ppb	5.769	0.69%
Zn 213.857†	871455.8	7991.5 µg/L	55.27	7991.5 ppb	55.27	0.69%

Sequence No.: 27 **Autosampler Location: 318**
Sample ID: 1202679762|1221778|5 **Date Collected: 6/15/2012 15:24:25**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202679762|1221778|5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21493.2	21493.2	102	%			15:24:59
1	Al 396.153Radial†	113884.9	111338.5	33191	µg/L	33191	ppb	15:24:54
1	Ca 317.933Radial†	69323.8	67572.2	32043	µg/L	32043	ppb	15:24:59
1	Fe 238.204 Radial†	93319.8	91058.3	49662	µg/L	49662	ppb	15:24:54
1	K 766.490 Radial†	19602.7	18445.2	8746.0	µg/L	8746.0	ppb	15:24:59
1	Mg 279.077 IEC†	3443.8	3351.7	17733	µg/L	17733	ppb	15:24:59
1	Na 589.592 Radial†	36.8	81.3	169.24	µg/L	169.24	ppb	15:24:59
1	Sr 421.552†	34376.8	34167.6	166.71	µg/L	166.71	ppb	15:24:54
1	Sc 361.383	732647.2	732647.2	102.81	%			15:25:26
1	Y 371.029	661065.9	661065.9	106.77	%			15:25:26
1	Ag 328.068†	-1879.1	-1448.5	3.9901	µg/L	3.9901	ppb	15:25:26
1	As 188.979†	51.8	59.2	34.823	µg/L	34.823	ppb	15:25:46
1	B 249.677†	1119.5	991.9	20.975	µg/L	20.975	ppb	15:25:26
1	Ba 233.527†	35542.3	34740.4	322.57	µg/L	322.57	ppb	15:25:26
1	Be 313.107†	-1174.3	6852.2	3.9981	µg/L	3.9981	ppb	15:25:26
1	Cd 226.502†	740.5	945.5	6.2045	µg/L	6.2045	ppb	15:25:46
1	Co 228.616†	1174.5	1163.2	26.078	µg/L	26.078	ppb	15:25:46
1	Cr 267.716†	1851.8	1607.5	32.234	µg/L	32.234	ppb	15:25:46
1	Cu 324.752†	94021.1	84964.7	357.99	µg/L	357.99	ppb	15:25:26
1	Mn 257.610†	1533695.7	1491218.5	2131.7	µg/L	2131.7	ppb	15:25:26
1	Mo 202.031†	143.2	117.2	10.018	µg/L	10.018	ppb	15:25:46
1	Ni 231.604†	1372.7	1463.8	43.401	µg/L	43.401	ppb	15:25:46
1	P 214.914†	2362.2	2172.8	1595.7	µg/L	1595.7	ppb	15:25:46
1	Pb 220.353†	11737.0	11264.9	1700.5	µg/L	1700.5	ppb	15:25:46
1	S 181.975 Axial†	815.3	731.3	1250.7	µg/L	1250.7	ppb	15:25:46
1	Sb 206.836†	119.6	50.6	14.424	µg/L	14.424	ppb	15:25:46
1	Se 196.026†	-22.4	-16.5	12.899	µg/L	12.899	ppb	15:25:46
1	SiO2†	36839.1	32880.7	4105.1	µg/L	4105.1	ppb	15:25:26
1	Si 251.611†	41691.5	40368.4	1901.9	µg/L	1901.9	ppb	15:25:26
1	Sn 189.927†	-90.6	-114.9	-14.684	µg/L	-14.684	ppb	15:25:46
1	Ti 334.940†	462166.0	449525.2	1127.9	µg/L	1127.9	ppb	15:25:26
1	Tl 190.801†	-56.6	-6.6	5.6980	µg/L	5.6980	ppb	15:25:46
1	U 367.007†	1252.5	923.8	-15.23	µg/L	-15.23	ppb	15:25:26
1	V 292.402†	8374.1	8205.1	80.007	µg/L	80.007	ppb	15:25:26
1	Zn 213.857†	198111.7	191488.7	1757.1	µg/L	1757.1	ppb	15:25:26
2	Sc RADIAL	21618.8	21618.8	103	%			15:25:09
2	Al 396.153Radial†	114038.8	110842.1	33043	µg/L	33043	ppb	15:25:04
2	Ca 317.933Radial†	69723.6	67567.0	32041	µg/L	32041	ppb	15:25:09
2	Fe 238.204 Radial†	93557.1	90759.5	49499	µg/L	49499	ppb	15:25:04
2	K 766.490 Radial†	19775.0	18501.2	8772.4	µg/L	8772.4	ppb	15:25:09
2	Mg 279.077 IEC†	3487.8	3374.8	17856	µg/L	17856	ppb	15:25:09
2	Na 589.592 Radial†	37.6	81.9	170.53	µg/L	170.53	ppb	15:25:09
2	Sr 421.552†	34379.6	33975.5	165.77	µg/L	165.77	ppb	15:25:04
2	Sc 361.383	725973.2	725973.2	101.88	%			15:25:52
2	Y 371.029	655044.8	655044.8	105.80	%			15:25:52
2	Ag 328.068†	-1894.0	-1480.0	3.7502	µg/L	3.7502	ppb	15:25:52
2	As 188.979†	45.4	53.4	31.555	µg/L	31.555	ppb	15:26:12
2	B 249.677†	1091.1	974.0	20.490	µg/L	20.490	ppb	15:25:52
2	Ba 233.527†	35474.0	34991.2	324.91	µg/L	324.91	ppb	15:25:52
2	Be 313.107†	-1226.4	6790.7	3.9607	µg/L	3.9607	ppb	15:25:52
2	Cd 226.502†	743.8	955.3	6.3769	µg/L	6.3769	ppb	15:26:12
2	Co 228.616†	1163.5	1162.9	26.058	µg/L	26.058	ppb	15:26:12
2	Cr 267.716†	1862.1	1634.1	32.753	µg/L	32.753	ppb	15:26:12
2	Cu 324.752†	93724.8	85514.6	360.23	µg/L	360.23	ppb	15:25:52
2	Mn 257.610†	1530580.1	1501874.1	2146.9	µg/L	2146.9	ppb	15:25:52
2	Mo 202.031†	145.2	120.4	10.234	µg/L	10.234	ppb	15:26:12
2	Ni 231.604†	1357.0	1460.6	43.307	µg/L	43.307	ppb	15:26:12
2	P 214.914†	2361.9	2193.6	1611.3	µg/L	1611.3	ppb	15:26:12
2	Pb 220.353†	11706.9	11340.4	1711.9	µg/L	1711.9	ppb	15:26:12

2	S 181.975 Axial†	808.1	731.5	1251.1 µg/L	1251.1 ppb	15:26:12
2	Sb 206.836†	110.4	42.7	11.854 µg/L	11.854 ppb	15:26:12
2	Se 196.026†	-20.9	-15.2	13.817 µg/L	13.817 ppb	15:26:12
2	SiO2†	37025.3	33392.8	4168.9 µg/L	4168.9 ppb	15:25:52
2	Si 251.611†	41987.3	41031.7	1933.1 µg/L	1933.1 ppb	15:25:52
2	Sn 189.927†	-83.5	-108.7	-13.336 µg/L	-13.336 ppb	15:26:12
2	Ti 334.940†	460861.3	452377.1	1135.0 µg/L	1135.0 ppb	15:25:52
2	Tl 190.801†	-52.7	-3.3	6.8591 µg/L	6.8591 ppb	15:26:12
2	U 367.007†	1244.5	927.2	-13.61 µg/L	-13.61 ppb	15:25:52
2	V 292.402†	8318.1	8225.0	80.201 µg/L	80.201 ppb	15:25:52
2	Zn 213.857†	197659.2	192816.0	1769.3 µg/L	1769.3 ppb	15:25:52
3	Sc RADIAL	21441.9	21441.9	102 %		15:25:19
3	Al 396.153Radial†	114448.9	112156.5	33434 µg/L	33434 ppb	15:25:14
3	Ca 317.933Radial†	69503.1	67909.6	32203 µg/L	32203 ppb	15:25:19
3	Fe 238.204 Radial†	94158.4	92097.0	50228 µg/L	50228 ppb	15:25:14
3	K 766.490 Radial†	19691.1	18577.5	8808.8 µg/L	8808.8 ppb	15:25:19
3	Mg 279.077 IEC†	3451.2	3366.9	17814 µg/L	17814 ppb	15:25:19
3	Na 589.592 Radial†	32.2	76.9	160.13 µg/L	160.13 ppb	15:25:19
3	Sr 421.552†	34588.4	34455.1	168.11 µg/L	168.11 ppb	15:25:14
3	Sc 361.383	728182.2	728182.2	102.19 %		15:26:18
3	Y 371.029	657655.0	657655.0	106.22 %		15:26:18
3	Ag 328.068†	-1805.7	-1387.9	4.5211 µg/L	4.5211 ppb	15:26:18
3	As 188.979†	55.5	63.1	37.050 µg/L	37.050 ppb	15:26:38
3	B 249.677†	1090.6	970.3	20.277 µg/L	20.277 ppb	15:26:18
3	Ba 233.527†	35452.9	34864.9	323.71 µg/L	323.71 ppb	15:26:18
3	Be 313.107†	-1394.9	6629.3	3.8709 µg/L	3.8709 ppb	15:26:18
3	Cd 226.502†	718.8	928.7	5.8650 µg/L	5.8650 ppb	15:26:38
3	Co 228.616†	1187.6	1183.0	26.557 µg/L	26.557 ppb	15:26:38
3	Cr 267.716†	1824.9	1592.2	31.942 µg/L	31.942 ppb	15:26:38
3	Cu 324.752†	93456.8	84973.3	358.11 µg/L	358.11 ppb	15:26:18
3	Mn 257.610†	1527486.2	1494288.8	2136.1 µg/L	2136.1 ppb	15:26:18
3	Mo 202.031†	143.1	118.0	10.098 µg/L	10.098 ppb	15:26:38
3	Ni 231.604†	1359.0	1458.6	43.261 µg/L	43.261 ppb	15:26:38
3	P 214.914†	2366.5	2191.1	1609.1 µg/L	1609.1 ppb	15:26:38
3	Pb 220.353†	11718.8	11317.1	1708.3 µg/L	1708.3 ppb	15:26:38
3	S 181.975 Axial†	801.6	722.8	1235.8 µg/L	1235.8 ppb	15:26:38
3	Sb 206.836†	131.3	62.8	18.347 µg/L	18.347 ppb	15:26:38
3	Se 196.026†	-25.8	-19.9	10.642 µg/L	10.642 ppb	15:26:38
3	SiO2†	36277.3	32550.6	4064.1 µg/L	4064.1 ppb	15:26:18
3	Si 251.611†	41152.7	40089.9	1888.7 µg/L	1888.7 ppb	15:26:18
3	Sn 189.927†	-81.4	-106.4	-12.761 µg/L	-12.761 ppb	15:26:38
3	Ti 334.940†	459675.9	449844.7	1128.7 µg/L	1128.7 ppb	15:26:18
3	Tl 190.801†	-45.4	4.0	9.3739 µg/L	9.3739 ppb	15:26:38
3	U 367.007†	1259.5	938.1	-14.48 µg/L	-14.48 ppb	15:26:18
3	V 292.402†	8354.6	8236.0	80.313 µg/L	80.313 ppb	15:26:18
3	Zn 213.857†	196838.3	191424.1	1756.4 µg/L	1756.4 ppb	15:26:18

Mean Data: 1202679762|1221778|5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	728934.2	102.29	%	0.477				0.47%
Sc RADIAL	21518.0	103	%	0.4				0.42%
Y 371.029	657921.9	106.27	%	0.488				0.46%
Ag 328.068†	-1438.8	4.0871	µg/L	0.39453	4.0871	ppb	0.39453	9.65%
Al 396.153Radial†	111445.7	33222	µg/L	197.9	33222	ppb	197.9	0.60%
As 188.979†	58.6	34.476	µg/L	2.7639	34.476	ppb	2.7639	8.02%
B 249.677†	978.7	20.581	µg/L	0.3577	20.581	ppb	0.3577	1.74%
Ba 233.527†	34865.5	323.73	µg/L	1.172	323.73	ppb	1.172	0.36%
Be 313.107†	6757.4	3.9432	µg/L	0.06537	3.9432	ppb	0.06537	1.66%
Ca 317.933Radial†	67682.9	32096	µg/L	93.1	32096	ppb	93.1	0.29%
Cd 226.502†	943.1	6.1488	µg/L	0.26044	6.1488	ppb	0.26044	4.24%
Co 228.616†	1169.7	26.231	µg/L	0.2827	26.231	ppb	0.2827	1.08%
Cr 267.716†	1611.3	32.310	µg/L	0.4107	32.310	ppb	0.4107	1.27%
Cu 324.752†	85150.9	358.78	µg/L	1.263	358.78	ppb	1.263	0.35%
Fe 238.204 Radial†	91304.9	49796	µg/L	382.9	49796	ppb	382.9	0.77%
K 766.490 Radial†	18508.0	8775.7	µg/L	31.56	8775.7	ppb	31.56	0.36%
Mg 279.077 IEC†	3364.5	17801	µg/L	62.3	17801	ppb	62.3	0.35%
Mn 257.610†	1495793.8	2138.2	µg/L	7.81	2138.2	ppb	7.81	0.37%
Mo 202.031†	118.5	10.117	µg/L	0.1096	10.117	ppb	0.1096	1.08%
Na 589.592 Radial†	80.1	166.63	µg/L	5.666	166.63	ppb	5.666	3.40%

Ni 231.604†	1461.0	43.323 µg/L	0.0716	43.323 ppb	0.0716	0.17%
P 214.914†	2185.8	1605.4 µg/L	8.45	1605.4 ppb	8.45	0.53%
Pb 220.353†	11307.5	1706.9 µg/L	5.86	1706.9 ppb	5.86	0.34%
S 181.975 Axial†	728.5	1245.9 µg/L	8.70	1245.9 ppb	8.70	0.70%
Sb 206.836†	52.0	14.875 µg/L	3.2698	14.875 ppb	3.2698	21.98%
Se 196.026†	-17.2	12.453 µg/L	1.6340	12.453 ppb	1.6340	13.12%
SiO2†	32941.4	4112.7 µg/L	52.81	4112.7 ppb	52.81	1.28%
Si 251.611†	40496.7	1907.9 µg/L	22.80	1907.9 ppb	22.80	1.20%
Sn 189.927†	-110.0	-13.594 µg/L	0.9867	-13.594 ppb	0.9867	7.26%
Sr 421.552†	34199.4	166.87 µg/L	1.178	166.87 ppb	1.178	0.71%
Ti 334.940†	450582.3	1130.5 µg/L	3.92	1130.5 ppb	3.92	0.35%
Tl 190.801†	-2.0	7.3104 µg/L	1.87902	7.3104 ppb	1.87902	25.70%
U 367.007†	929.7	-14.44 µg/L	0.815	-14.44 ppb	0.815	5.64%
V 292.402†	8222.0	80.174 µg/L	0.1548	80.174 ppb	0.1548	0.19%
Zn 213.857†	191909.6	1760.9 µg/L	7.28	1760.9 ppb	7.28	0.41%

Sequence No.: 28 **Autosampler Location: 319**
Sample ID: 306122006|1221778|1 **Date Collected: 6/15/2012 15:26:46**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122006|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21934.9	21934.9	105	%			15:27:20
1	Al 396.153Radial†	337988.9	323446.4	96419	µg/L	96419	ppb	15:27:15
1	Ca 317.933Radial†	83871.6	80123.9	37996	µg/L	37996	ppb	15:27:15
1	Fe 238.204 Radial†	665354.0	636351.5	347060	µg/L	347060	ppb	15:27:15
1	K 766.490 Radial†	46421.8	43711.3	20833	µg/L	20833	ppb	15:27:15
1	Mg 279.077 IEC†	6418.7	6129.4	32439	µg/L	32439	ppb	15:27:20
1	Na 589.592 Radial†	51.1	94.3	196.31	µg/L	196.31	ppb	15:27:20
1	Sr 421.552†	52673.5	50992.0	248.84	µg/L	248.84	ppb	15:27:15
1	Sc 361.383	739595.6	739595.6	103.79	%			15:27:49
1	Y 371.029	754466.6	754466.6	121.86	%			15:27:49
1	Ag 328.068†	-14170.4	-13274.0	8.0818	µg/L	8.0818	ppb	15:27:54
1	As 188.979†	446.9	439.4	257.53	µg/L	257.53	ppb	15:28:14
1	B 249.677†	2866.8	2665.1	25.579	µg/L	25.579	ppb	15:27:54
1	Ba 233.527†	80210.4	77453.2	712.69	µg/L	712.69	ppb	15:27:54
1	Be 313.107†	18616.4	25931.3	14.057	µg/L	14.057	ppb	15:27:54
1	Cd 226.502†	5289.9	5322.0	24.178	µg/L	24.178	ppb	15:28:14
1	Co 228.616†	4101.0	3972.2	83.787	µg/L	83.787	ppb	15:28:14
1	Cr 267.716†	9574.7	9031.5	181.21	µg/L	181.21	ppb	15:28:14
1	Cu 324.752†	285908.3	268988.0	1162.9	µg/L	1162.9	ppb	15:27:54
1	Mn 257.610†	5723630.7	5514186.8	7899.0	µg/L	7899.0	ppb	15:27:49
1	Mo 202.031†	1136.8	1073.3	87.360	µg/L	87.360	ppb	15:28:14
1	Ni 231.604†	3800.5	3790.4	116.01	µg/L	116.01	ppb	15:28:14
1	P 214.914†	6347.2	5990.7	4247.4	µg/L	4247.4	ppb	15:28:14
1	Pb 220.353†	53261.1	51165.9	7752.4	µg/L	7752.4	ppb	15:27:54
1	S 181.975 Axial†	7724.5	7380.9	12774	µg/L	12774	ppb	15:28:14
1	Sb 206.836†	154.4	83.0	20.484	µg/L	20.484	ppb	15:28:14
1	Se 196.026†	-183.0	-171.0	48.813	µg/L	48.813	ppb	15:28:14
1	SiO2†	149501.9	141094.1	17642	µg/L	17642	ppb	15:27:54
1	Si 251.611†	180173.7	173414.4	8167.6	µg/L	8167.6	ppb	15:27:54
1	Sn 189.927†	-95.3	-118.6	30.665	µg/L	30.665	ppb	15:28:14
1	Ti 334.940†	2536481.1	2443894.9	6128.6	µg/L	6128.6	ppb	15:27:49
1	Tl 190.801†	-151.0	-97.1	15.380	µg/L	15.380	ppb	15:28:14
1	U 367.007†	7233.0	6674.6	-47.62	µg/L	-47.62	ppb	15:27:54
1	V 292.402†	62680.9	60452.9	591.29	µg/L	591.29	ppb	15:27:54
1	Zn 213.857†	2228637.4	2146080.4	19728	µg/L	19728	ppb	15:27:49
2	Sc RADIAL	22066.6	22066.6	105	%			15:27:30
2	Al 396.153Radial†	344713.9	327911.1	97750	µg/L	97750	ppb	15:27:25
2	Ca 317.933Radial†	85167.8	80877.6	38353	µg/L	38353	ppb	15:27:25
2	Fe 238.204 Radial†	673277.9	640087.4	349090	µg/L	349090	ppb	15:27:25
2	K 766.490 Radial†	47129.3	44119.0	21027	µg/L	21027	ppb	15:27:25
2	Mg 279.077 IEC†	6411.2	6085.6	32208	µg/L	32208	ppb	15:27:30
2	Na 589.592 Radial†	80.9	122.3	254.53	µg/L	254.53	ppb	15:27:30
2	Sr 421.552†	53668.1	51637.0	251.99	µg/L	251.99	ppb	15:27:25
2	Sc 361.383	743002.5	743002.5	104.27	%			15:28:21
2	Y 371.029	757260.9	757260.9	122.31	%			15:28:21
2	Ag 328.068†	-14332.4	-13366.8	8.0119	µg/L	8.0119	ppb	15:28:26
2	As 188.979†	445.5	436.1	255.73	µg/L	255.73	ppb	15:28:46
2	B 249.677†	2990.6	2771.2	28.302	µg/L	28.302	ppb	15:28:26
2	Ba 233.527†	80084.5	76978.1	708.20	µg/L	708.20	ppb	15:28:26
2	Be 313.107†	18701.7	25930.8	14.066	µg/L	14.066	ppb	15:28:26
2	Cd 226.502†	5254.2	5264.4	22.998	µg/L	22.998	ppb	15:28:46
2	Co 228.616†	4052.4	3907.4	82.282	µg/L	82.282	ppb	15:28:46
2	Cr 267.716†	9491.6	8909.5	178.86	µg/L	178.86	ppb	15:28:46
2	Cu 324.752†	286011.7	267824.1	1158.4	µg/L	1158.4	ppb	15:28:26
2	Mn 257.610†	5716230.3	5481802.5	7853.0	µg/L	7853.0	ppb	15:28:21
2	Mo 202.031†	1114.7	1047.0	85.652	µg/L	85.652	ppb	15:28:46
2	Ni 231.604†	3778.4	3752.5	114.94	µg/L	114.94	ppb	15:28:46
2	P 214.914†	6307.0	5924.1	4196.6	µg/L	4196.6	ppb	15:28:46
2	Pb 220.353†	53354.4	51020.2	7730.0	µg/L	7730.0	ppb	15:28:26

2	S 181.975 Axial†	7674.9	7299.1	12632 µg/L	12632 ppb		15:28:46
2	Sb 206.836†	146.4	74.7	17.760 µg/L	17.760 ppb		15:28:46
2	Se 196.026†	-174.9	-162.4	56.165 µg/L	56.165 ppb		15:28:46
2	SiO2†	142451.1	133671.3	16718 µg/L	16718 ppb		15:28:26
2	Si 251.611†	171619.3	164414.2	7743.5 µg/L	7743.5 ppb		15:28:26
2	Sn 189.927†	-102.3	-124.9	29.442 µg/L	29.442 ppb		15:28:46
2	Ti 334.940†	2532718.2	2429079.9	6091.5 µg/L	6091.5 ppb		15:28:21
2	Tl 190.801†	-155.8	-101.0	14.024 µg/L	14.024 ppb		15:28:46
2	U 367.007†	7199.5	6610.4	-73.33 µg/L	-73.33 ppb		15:28:26
2	V 292.402†	62941.5	60425.9	591.03 µg/L	591.03 ppb		15:28:26
2	Zn 213.857†	2229220.7	2136793.8	19643 µg/L	19643 ppb		15:28:21
3	Sc RADIAL	22124.7	22124.7	105 %			15:27:41
3	Al 396.153Radial†	346617.3	328855.1	98031 µg/L	98031 ppb		15:27:35
3	Ca 317.933Radial†	85420.6	80904.6	38366 µg/L	38366 ppb		15:27:35
3	Fe 238.204 Radial†	674597.0	639656.9	348860 µg/L	348860 ppb		15:27:35
3	K 766.490 Radial†	47453.3	44308.5	21116 µg/L	21116 ppb		15:27:35
3	Mg 279.077 IEC†	6470.9	6126.2	32422 µg/L	32422 ppb		15:27:41
3	Na 589.592 Radial†	47.0	90.0	187.26 µg/L	187.26 ppb		15:27:41
3	Sr 421.552†	53911.2	51733.5	252.46 µg/L	252.46 ppb		15:27:35
3	Sc 361.383	753098.1	753098.1	105.68 %			15:28:53
3	Y 371.029	765534.5	765534.5	123.65 %			15:28:53
3	Ag 328.068†	-14324.4	-13174.9	9.1359 µg/L	9.1359 ppb		15:28:58
3	As 188.979†	455.5	439.8	257.80 µg/L	257.80 ppb		15:29:18
3	B 249.677†	2923.9	2669.7	25.448 µg/L	25.448 ppb		15:28:58
3	Ba 233.527†	80532.5	76372.3	702.55 µg/L	702.55 ppb		15:28:58
3	Be 313.107†	18804.1	25787.2	14.001 µg/L	14.001 ppb		15:28:58
3	Cd 226.502†	5275.3	5216.9	22.328 µg/L	22.328 ppb		15:29:18
3	Co 228.616†	4105.1	3905.1	82.380 µg/L	82.380 ppb		15:29:18
3	Cr 267.716†	9581.3	8872.4	178.14 µg/L	178.14 ppb		15:29:18
3	Cu 324.752†	287750.4	265792.1	1150.0 µg/L	1150.0 ppb		15:28:58
3	Mn 257.610†	5726580.4	5418103.4	7762.1 µg/L	7762.1 ppb		15:28:53
3	Mo 202.031†	1114.5	1032.5	84.653 µg/L	84.653 ppb		15:29:18
3	Ni 231.604†	3775.0	3700.7	113.43 µg/L	113.43 ppb		15:29:18
3	P 214.914†	6326.2	5861.1	4149.8 µg/L	4149.8 ppb		15:29:18
3	Pb 220.353†	53425.6	50401.6	7636.2 µg/L	7636.2 ppb		15:28:58
3	S 181.975 Axial†	7699.4	7223.6	12501 µg/L	12501 ppb		15:29:18
3	Sb 206.836†	169.7	94.9	24.269 µg/L	24.269 ppb		15:29:18
3	Se 196.026†	-177.8	-162.9	55.665 µg/L	55.665 ppb		15:29:18
3	SiO2†	140826.3	130302.4	16298 µg/L	16298 ppb		15:28:58
3	Si 251.611†	169582.7	160280.6	7548.7 µg/L	7548.7 ppb		15:28:58
3	Sn 189.927†	-104.9	-126.0	28.973 µg/L	28.973 ppb		15:29:18
3	Ti 334.940†	2535101.3	2398772.2	6015.5 µg/L	6015.5 ppb		15:28:53
3	Tl 190.801†	-152.2	-95.6	15.524 µg/L	15.524 ppb		15:29:18
3	U 367.007†	7252.0	6567.6	-82.77 µg/L	-82.77 ppb		15:28:58
3	V 292.402†	63215.9	59876.3	585.68 µg/L	585.68 ppb		15:28:58
3	Zn 213.857†	2232802.8	2111522.6	19410 µg/L	19410 ppb		15:28:53

Mean Data: 306122006|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	745232.1	104.58	%	0.985				0.94%
Sc RADIAL	22042.1	105	%	0.5				0.44%
Y 371.029	759087.3	122.61	%	0.930				0.76%
Ag 328.068†	-13271.9	8.4099	µg/L	0.62973	8.4099	ppb	0.62973	7.49%
Al 396.153Radial†	326737.5	97400	µg/L	861.3	97400	ppb	861.3	0.88%
As 188.979†	438.4	257.02	µg/L	1.127	257.02	ppb	1.127	0.44%
B 249.677†	2702.0	26.443	µg/L	1.6112	26.443	ppb	1.6112	6.09%
Ba 233.527†	76934.5	707.81	µg/L	5.081	707.81	ppb	5.081	0.72%
Be 313.107†	25883.1	14.042	µg/L	0.0350	14.042	ppb	0.0350	0.25%
Ca 317.933Radial†	80635.4	38238	µg/L	210.1	38238	ppb	210.1	0.55%
Cd 226.502†	5267.8	23.168	µg/L	0.9364	23.168	ppb	0.9364	4.04%
Co 228.616†	3928.2	82.817	µg/L	0.8422	82.817	ppb	0.8422	1.02%
Cr 267.716†	8937.8	179.40	µg/L	1.601	179.40	ppb	1.601	0.89%
Cu 324.752†	267534.7	1157.1	µg/L	6.58	1157.1	ppb	6.58	0.57%
Fe 238.204 Radial†	638698.6	348340	µg/L	1114.8	348340	ppb	1114.8	0.32%
K 766.490 Radial†	44046.2	20992	µg/L	145.0	20992	ppb	145.0	0.69%
Mg 279.077 IEC†	6113.7	32356	µg/L	129.2	32356	ppb	129.2	0.40%
Mn 257.610†	5471364.2	7838.0	µg/L	69.67	7838.0	ppb	69.67	0.89%
Mo 202.031†	1050.9	85.888	µg/L	1.3689	85.888	ppb	1.3689	1.59%
Na 589.592 Radial†	102.2	212.70	µg/L	36.507	212.70	ppb	36.507	17.16%

Ni 231.604†	3747.9	114.80 µg/L	1.296	114.80 ppb	1.296	1.13%
P 214.914†	5925.3	4197.9 µg/L	48.81	4197.9 ppb	48.81	1.16%
Pb 220.353†	50862.5	7706.2 µg/L	61.62	7706.2 ppb	61.62	0.80%
S 181.975 Axial†	7301.2	12635 µg/L	136.4	12635 ppb	136.4	1.08%
Sb 206.836†	84.2	20.838 µg/L	3.2688	20.838 ppb	3.2688	15.69%
Se 196.026†	-165.5	53.548 µg/L	4.1082	53.548 ppb	4.1082	7.67%
SiO2†	135022.6	16886 µg/L	687.7	16886 ppb	687.7	4.07%
Si 251.611†	166036.4	7819.9 µg/L	316.48	7819.9 ppb	316.48	4.05%
Sn 189.927†	-123.2	29.693 µg/L	0.8734	29.693 ppb	0.8734	2.94%
Sr 421.552†	51454.2	251.10 µg/L	1.968	251.10 ppb	1.968	0.78%
Ti 334.940†	2423915.7	6078.5 µg/L	57.67	6078.5 ppb	57.67	0.95%
Tl 190.801†	-97.9	14.976 µg/L	0.8278	14.976 ppb	0.8278	5.53%
U 367.007†	6617.5	-67.90 µg/L	18.193	-67.90 ppb	18.193	26.79%
V 292.402†	60251.7	589.33 µg/L	3.169	589.33 ppb	3.169	0.54%
Zn 213.857†	2131465.6	19594 µg/L	164.9	19594 ppb	164.9	0.84%

Sequence No.: 29 **Autosampler Location: 320**
Sample ID: 306122007|1221778|1 **Date Collected: 6/15/2012 15:29:26**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122007|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22428.2	22428.2	107	%			15:30:00
1	Al 396.153Radial†	406447.6	380374.8	113390	µg/L	113390	ppb	15:29:55
1	Ca 317.933Radial†	166033.3	155215.7	73605	µg/L	73605	ppb	15:30:00
1	Fe 238.204 Radial†	359771.7	336506.7	183530	µg/L	183530	ppb	15:29:55
1	K 766.490 Radial†	179740.3	167444.2	79317	µg/L	79317	ppb	15:29:55
1	Mg 279.077 IEC†	12125.6	11332.7	59961	µg/L	59961	ppb	15:30:00
1	Na 589.592 Radial†	1269.0	1232.4	2565.3	µg/L	2565.3	ppb	15:30:00
1	Sr 421.552†	98638.8	92881.1	453.25	µg/L	453.25	ppb	15:29:55
1	Sc 361.383	749634.5	749634.5	105.20	%			15:30:29
1	Y 371.029	735369.0	735369.0	118.78	%			15:30:29
1	Ag 328.068†	-7250.5	-6513.2	7.4976	µg/L	7.4976	ppb	15:30:34
1	As 188.979†	138.7	140.6	84.887	µg/L	84.887	ppb	15:30:54
1	B 249.677†	3554.7	3282.0	66.681	µg/L	66.681	ppb	15:30:34
1	Ba 233.527†	98944.3	94226.5	873.59	µg/L	873.59	ppb	15:30:34
1	Be 313.107†	13245.3	20585.3	11.575	µg/L	11.575	ppb	15:30:34
1	Cd 226.502†	3053.0	3127.4	17.470	µg/L	17.470	ppb	15:30:34
1	Co 228.616†	3627.4	3469.0	75.527	µg/L	75.527	ppb	15:30:54
1	Cr 267.716†	6380.6	5871.8	117.76	µg/L	117.76	ppb	15:30:54
1	Cu 324.752†	205852.8	189198.9	809.27	µg/L	809.27	ppb	15:30:34
1	Mn 257.610†	4564207.7	4338196.9	6204.9	µg/L	6204.9	ppb	15:30:29
1	Mo 202.031†	150.1	120.6	15.725	µg/L	15.725	ppb	15:30:54
1	Ni 231.604†	4655.6	4554.3	135.52	µg/L	135.52	ppb	15:30:54
1	P 214.914†	7916.6	7400.6	5434.8	µg/L	5434.8	ppb	15:30:54
1	Pb 220.353†	28902.2	27323.4	4117.8	µg/L	4117.8	ppb	15:30:34
1	S 181.975 Axial†	6314.3	5940.7	10263	µg/L	10263	ppb	15:30:54
1	Sb 206.836†	98.9	28.2	2.3320	µg/L	2.3320	ppb	15:30:54
1	Se 196.026†	-110.2	-99.5	19.083	µg/L	19.083	ppb	15:30:54
1	SiO2†	66753.0	60504.6	7572.8	µg/L	7572.8	ppb	15:30:34
1	Si 251.611†	78846.8	74769.1	3521.5	µg/L	3521.5	ppb	15:30:34
1	Sn 189.927†	-171.2	-189.5	-4.2066	µg/L	-4.2066	ppb	15:30:54
1	Ti 334.940†	1834041.6	1743433.3	4373.1	µg/L	4373.1	ppb	15:30:29
1	Tl 190.801†	-123.2	-68.7	6.8061	µg/L	6.8061	ppb	15:30:54
1	U 367.007†	3797.3	3315.2	-79.24	µg/L	-79.24	ppb	15:30:34
1	V 292.402†	33786.7	32177.5	313.43	µg/L	313.43	ppb	15:30:34
1	Zn 213.857†	725650.1	688596.2	6318.7	µg/L	6318.7	ppb	15:30:29
2	Sc RADIAL	22326.4	22326.4	106	%			15:30:10
2	Al 396.153Radial†	406512.3	382169.5	113930	µg/L	113930	ppb	15:30:05
2	Ca 317.933Radial†	165867.6	155768.3	73867	µg/L	73867	ppb	15:30:10
2	Fe 238.204 Radial†	359101.1	337411.4	184020	µg/L	184020	ppb	15:30:05
2	K 766.490 Radial†	179491.9	167977.5	79570	µg/L	79570	ppb	15:30:05
2	Mg 279.077 IEC†	12122.5	11381.5	60219	µg/L	60219	ppb	15:30:10
2	Na 589.592 Radial†	1191.7	1165.2	2425.5	µg/L	2425.5	ppb	15:30:10
2	Sr 421.552†	98649.1	93311.6	455.35	µg/L	455.35	ppb	15:30:05
2	Sc 361.383	748648.6	748648.6	105.06	%			15:31:01
2	Y 371.029	734391.6	734391.6	118.62	%			15:31:01
2	Ag 328.068†	-7098.9	-6377.9	8.4698	µg/L	8.4698	ppb	15:31:06
2	As 188.979†	146.2	147.9	89.011	µg/L	89.011	ppb	15:31:26
2	B 249.677†	3489.1	3224.1	64.964	µg/L	64.964	ppb	15:31:06
2	Ba 233.527†	98559.4	93984.0	871.31	µg/L	871.31	ppb	15:31:06
2	Be 313.107†	13165.8	20526.2	11.543	µg/L	11.543	ppb	15:31:06
2	Cd 226.502†	3001.6	3082.3	16.720	µg/L	16.720	ppb	15:31:06
2	Co 228.616†	3637.2	3482.9	75.859	µg/L	75.859	ppb	15:31:26
2	Cr 267.716†	6417.5	5914.9	118.61	µg/L	118.61	ppb	15:31:26
2	Cu 324.752†	204653.4	188315.0	805.71	µg/L	805.71	ppb	15:31:06
2	Mn 257.610†	4552695.7	4332952.9	6197.4	µg/L	6197.4	ppb	15:31:01
2	Mo 202.031†	151.4	122.0	15.839	µg/L	15.839	ppb	15:31:26
2	Ni 231.604†	4651.4	4556.1	135.58	µg/L	135.58	ppb	15:31:26
2	P 214.914†	7919.2	7413.0	5444.0	µg/L	5444.0	ppb	15:31:26
2	Pb 220.353†	28712.2	27178.7	4095.7	µg/L	4095.7	ppb	15:31:06

2	S 181.975 Axial†	6325.7	5959.4	10296 µg/L	10296 ppb		15:31:26
2	Sb 206.836†	104.6	33.9	4.1032 µg/L	4.1032 ppb		15:31:26
2	Se 196.026†	-85.4	-75.9	36.772 µg/L	36.772 ppb		15:31:26
2	SiO2†	66336.4	60191.6	7533.9 µg/L	7533.9 ppb		15:31:06
2	Si 251.611†	78338.8	74384.3	3503.4 µg/L	3503.4 ppb		15:31:06
2	Sn 189.927†	-169.8	-188.4	-3.8727 µg/L	-3.8727 ppb		15:31:26
2	Ti 334.940†	1832046.0	1743829.9	4374.1 µg/L	4374.1 ppb		15:31:01
2	Tl 190.801†	-117.9	-63.8	8.4994 µg/L	8.4994 ppb		15:31:26
2	U 367.007†	3785.1	3308.4	-83.35 µg/L	-83.35 ppb		15:31:06
2	V 292.402†	33537.3	31982.4	311.52 µg/L	311.52 ppb		15:31:06
2	Zn 213.857†	723216.5	687188.2	6305.7 µg/L	6305.7 ppb		15:31:01
3	Sc RADIAL	22420.1	22420.1	107 %			15:30:21
3	Al 396.153Radial†	403073.9	377355.0	112490 µg/L	112490 ppb		15:30:16
3	Ca 317.933Radial†	164891.5	154203.4	73125 µg/L	73125 ppb		15:30:21
3	Fe 238.204 Radial†	355429.6	332565.1	181380 µg/L	181380 ppb		15:30:16
3	K 766.490 Radial†	178172.8	166038.1	78651 µg/L	78651 ppb		15:30:16
3	Mg 279.077 IEC†	12074.1	11288.6	59728 µg/L	59728 ppb		15:30:21
3	Na 589.592 Radial†	1303.7	1265.4	2634.0 µg/L	2634.0 ppb		15:30:21
3	Sr 421.552†	97877.4	92201.9	449.93 µg/L	449.93 ppb		15:30:16
3	Sc 361.383	748991.8	748991.8	105.11 %			15:31:33
3	Y 371.029	735572.0	735572.0	118.81 %			15:31:33
3	Ag 328.068†	-7136.8	-6410.9	7.5879 µg/L	7.5879 ppb		15:31:38
3	As 188.979†	151.9	153.4	91.979 µg/L	91.979 ppb		15:31:58
3	B 249.677†	3459.1	3194.0	64.490 µg/L	64.490 ppb		15:31:38
3	Ba 233.527†	98627.8	94006.1	871.59 µg/L	871.59 ppb		15:31:38
3	Be 313.107†	13127.3	20483.8	11.510 µg/L	11.510 ppb		15:31:38
3	Cd 226.502†	3033.5	3111.3	17.571 µg/L	17.571 ppb		15:31:38
3	Co 228.616†	3655.8	3499.0	76.232 µg/L	76.232 ppb		15:31:58
3	Cr 267.716†	6428.5	5922.5	118.71 µg/L	118.71 ppb		15:31:58
3	Cu 324.752†	204920.7	188480.0	806.00 µg/L	806.00 ppb		15:31:38
3	Mn 257.610†	4567526.7	4345077.3	6214.5 µg/L	6214.5 ppb		15:31:33
3	Mo 202.031†	149.7	120.3	15.616 µg/L	15.616 ppb		15:31:58
3	Ni 231.604†	4655.3	4557.8	135.59 µg/L	135.59 ppb		15:31:58
3	P 214.914†	7927.0	7417.0	5448.4 µg/L	5448.4 ppb		15:31:58
3	Pb 220.353†	28869.3	27315.6	4116.6 µg/L	4116.6 ppb		15:31:38
3	S 181.975 Axial†	6345.9	5975.8	10325 µg/L	10325 ppb		15:31:58
3	Sb 206.836†	116.7	45.3	7.8344 µg/L	7.8344 ppb		15:31:58
3	Se 196.026†	-81.2	-71.9	38.448 µg/L	38.448 ppb		15:31:58
3	SiO2†	66496.4	60314.9	7549.0 µg/L	7549.0 ppb		15:31:38
3	Si 251.611†	78518.6	74521.2	3509.9 µg/L	3509.9 ppb		15:31:38
3	Sn 189.927†	-178.4	-196.5	-5.9695 µg/L	-5.9695 ppb		15:31:58
3	Ti 334.940†	1837787.6	1748493.2	4385.8 µg/L	4385.8 ppb		15:31:33
3	Tl 190.801†	-122.4	-68.1	6.9286 µg/L	6.9286 ppb		15:31:58
3	U 367.007†	3819.0	3339.0	-62.91 µg/L	-62.91 ppb		15:31:38
3	V 292.402†	33595.2	32022.9	311.91 µg/L	311.91 ppb		15:31:38
3	Zn 213.857†	725921.7	689446.5	6326.9 µg/L	6326.9 ppb		15:31:33

Mean Data: 306122007|1221778|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	749091.6	105.12	%	0.070				0.07%
Sc RADIAL	22391.5	107	%	0.3				0.25%
Y 371.029	735110.9	118.73	%	0.102				0.09%
Ag 328.068†	-6434.0	7.8518	µg/L	0.53715	7.8518	ppb	0.53715	6.84%
Al 396.153Radial†	379966.4	113270	µg/L	725.3	113270	ppb	725.3	0.64%
As 188.979†	147.3	88.626	µg/L	3.5615	88.626	ppb	3.5615	4.02%
B 249.677†	3233.4	65.378	µg/L	1.1531	65.378	ppb	1.1531	1.76%
Ba 233.527†	94072.2	872.16	µg/L	1.241	872.16	ppb	1.241	0.14%
Be 313.107†	20531.8	11.542	µg/L	0.0325	11.542	ppb	0.0325	0.28%
Ca 317.933Radial†	155062.5	73532	µg/L	376.4	73532	ppb	376.4	0.51%
Cd 226.502†	3107.0	17.254	µg/L	0.4648	17.254	ppb	0.4648	2.69%
Co 228.616†	3483.6	75.873	µg/L	0.3525	75.873	ppb	0.3525	0.46%
Cr 267.716†	5903.0	118.36	µg/L	0.523	118.36	ppb	0.523	0.44%
Cu 324.752†	188664.6	806.99	µg/L	1.979	806.99	ppb	1.979	0.25%
Fe 238.204 Radial†	335494.4	182970	µg/L	1405.4	182970	ppb	1405.4	0.77%
K 766.490 Radial†	167153.2	79179	µg/L	474.8	79179	ppb	474.8	0.60%
Mg 279.077 IEC†	11334.3	59969	µg/L	245.8	59969	ppb	245.8	0.41%
Mn 257.610†	4338742.4	6205.6	µg/L	8.55	6205.6	ppb	8.55	0.14%
Mo 202.031†	121.0	15.727	µg/L	0.1116	15.727	ppb	0.1116	0.71%
Na 589.592 Radial†	1221.0	2541.6	µg/L	106.22	2541.6	ppb	106.22	4.18%

Ni 231.604†	4556.0	135.56 µg/L	0.037	135.56 ppb	0.037	0.03%
P 214.914†	7410.2	5442.4 µg/L	6.95	5442.4 ppb	6.95	0.13%
Pb 220.353†	27272.5	4110.0 µg/L	12.42	4110.0 ppb	12.42	0.30%
S 181.975 Axial†	5958.6	10295 µg/L	30.6	10295 ppb	30.6	0.30%
Sb 206.836†	35.8	4.7565 µg/L	2.80879	4.7565 ppb	2.80879	59.05%
Se 196.026†	-82.4	31.434 µg/L	10.7294	31.434 ppb	10.7294	34.13%
SiO2†	60337.0	7551.9 µg/L	19.60	7551.9 ppb	19.60	0.26%
Si 251.611†	74558.2	3511.6 µg/L	9.19	3511.6 ppb	9.19	0.26%
Sn 189.927†	-191.5	-4.6829 µg/L	1.12668	-4.6829 ppb	1.12668	24.06%
Sr 421.552†	92798.2	452.84 µg/L	2.730	452.84 ppb	2.730	0.60%
Ti 334.940†	1745252.1	4377.7 µg/L	7.05	4377.7 ppb	7.05	0.16%
Tl 190.801†	-66.9	7.4114 µg/L	0.94425	7.4114 ppb	0.94425	12.74%
U 367.007†	3320.9	-75.17 µg/L	10.811	-75.17 ppb	10.811	14.38%
V 292.402†	32061.0	312.29 µg/L	1.011	312.29 ppb	1.011	0.32%
Zn 213.857†	688410.3	6317.1 µg/L	10.68	6317.1 ppb	10.68	0.17%

Sequence No.: 30 **Autosampler Location: 321**
Sample ID: 306122008|1221778|1 **Date Collected: 6/15/2012 15:32:06**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122008|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21938.5	21938.5	105	%			15:32:40
1	Al 396.153Radial†	440027.5	420973.1	125490	µg/L	125490	ppb	15:32:35
1	Ca 317.933Radial†	234883.0	224523.4	106470	µg/L	106470	ppb	15:32:35
1	Fe 238.204 Radial†	364768.1	348796.2	190230	µg/L	190230	ppb	15:32:35
1	K 766.490 Radial†	81451.4	77202.9	36600	µg/L	36600	ppb	15:32:40
1	Mg 279.077 IEC†	13100.1	12517.8	66231	µg/L	66231	ppb	15:32:40
1	Na 589.592 Radial†	505.3	528.6	1100.4	µg/L	1100.4	ppb	15:32:40
1	Sr 421.552†	138018.3	132599.2	647.06	µg/L	647.06	ppb	15:32:35
1	Sc 361.383	738786.3	738786.3	103.68	%			15:33:08
1	Y 371.029	757385.1	757385.1	122.33	%			15:33:08
1	Ag 328.068†	-7071.1	-6441.3	9.8496	µg/L	9.8496	ppb	15:33:13
1	As 188.979†	179.6	182.0	108.26	µg/L	108.26	ppb	15:33:33
1	B 249.677†	3911.3	3675.6	76.840	µg/L	76.840	ppb	15:33:13
1	Ba 233.527†	151537.7	146336.6	1359.3	µg/L	1359.3	ppb	15:33:13
1	Be 313.107†	17713.8	25080.3	14.343	µg/L	14.343	ppb	15:33:13
1	Cd 226.502†	2892.8	3015.5	14.752	µg/L	14.752	ppb	15:33:13
1	Co 228.616†	4424.2	4288.2	94.772	µg/L	94.772	ppb	15:33:33
1	Cr 267.716†	6578.4	6151.6	123.38	µg/L	123.38	ppb	15:33:33
1	Cu 324.752†	237894.3	222977.9	949.74	µg/L	949.74	ppb	15:33:13
1	Mn 257.610†	5445031.6	5251504.8	7508.3	µg/L	7508.3	ppb	15:33:08
1	Mo 202.031†	496.1	456.4	38.895	µg/L	38.895	ppb	15:33:33
1	Ni 231.604†	5279.6	5221.1	155.02	µg/L	155.02	ppb	15:33:33
1	P 214.914†	9436.9	8977.6	6612.8	µg/L	6612.8	ppb	15:33:33
1	Pb 220.353†	33543.7	32203.7	4855.6	µg/L	4855.6	ppb	15:33:13
1	S 181.975 Axial†	1770.0	1645.6	2788.4	µg/L	2788.4	ppb	15:33:33
1	Sb 206.836†	121.8	51.8	9.6222	µg/L	9.6222	ppb	15:33:33
1	Se 196.026†	-99.3	-90.5	29.172	µg/L	29.172	ppb	15:33:33
1	SiO2†	161037.4	152378.5	19015	µg/L	19015	ppb	15:33:13
1	Si 251.611†	194410.1	187336.4	8826.2	µg/L	8826.2	ppb	15:33:13
1	Sn 189.927†	-195.0	-214.9	-6.0831	µg/L	-6.0831	ppb	15:33:33
1	Ti 334.940†	2014179.4	1942785.5	4873.8	µg/L	4873.8	ppb	15:33:08
1	Tl 190.801†	-126.5	-73.6	7.6375	µg/L	7.6375	ppb	15:33:33
1	U 367.007†	3914.8	3481.6	-71.87	µg/L	-71.87	ppb	15:33:13
1	V 292.402†	36466.8	35234.2	343.31	µg/L	343.31	ppb	15:33:13
1	Zn 213.857†	339154.0	325930.0	2975.1	µg/L	2975.1	ppb	15:33:13
2	Sc RADIAL	22343.2	22343.2	106	%			15:32:50
2	Al 396.153Radial†	444392.9	417450.4	124440	µg/L	124440	ppb	15:32:45
2	Ca 317.933Radial†	236717.9	222177.8	105360	µg/L	105360	ppb	15:32:45
2	Fe 238.204 Radial†	367327.3	344880.9	188090	µg/L	188090	ppb	15:32:45
2	K 766.490 Radial†	82357.2	76642.6	36335	µg/L	36335	ppb	15:32:50
2	Mg 279.077 IEC†	13320.2	12497.5	66124	µg/L	66124	ppb	15:32:50
2	Na 589.592 Radial†	504.7	519.3	1080.9	µg/L	1080.9	ppb	15:32:50
2	Sr 421.552†	139625.4	131717.6	642.76	µg/L	642.76	ppb	15:32:45
2	Sc 361.383	740716.1	740716.1	103.95	%			15:33:40
2	Y 371.029	759090.0	759090.0	122.61	%			15:33:40
2	Ag 328.068†	-6862.1	-6222.5	10.660	µg/L	10.660	ppb	15:33:45
2	As 188.979†	189.3	190.9	113.20	µg/L	113.20	ppb	15:34:05
2	B 249.677†	3805.7	3564.2	73.985	µg/L	73.985	ppb	15:33:45
2	Ba 233.527†	149259.9	143764.5	1335.4	µg/L	1335.4	ppb	15:33:45
2	Be 313.107†	17467.9	24799.2	14.170	µg/L	14.170	ppb	15:33:45
2	Cd 226.502†	2795.1	2914.3	13.585	µg/L	13.585	ppb	15:33:45
2	Co 228.616†	4418.9	4272.0	94.376	µg/L	94.376	ppb	15:34:05
2	Cr 267.716†	6588.9	6145.2	123.23	µg/L	123.23	ppb	15:34:05
2	Cu 324.752†	234998.5	219594.2	935.49	µg/L	935.49	ppb	15:33:45
2	Mn 257.610†	5452122.3	5244643.2	7498.4	µg/L	7498.4	ppb	15:33:40
2	Mo 202.031†	494.1	453.3	38.595	µg/L	38.595	ppb	15:34:05
2	Ni 231.604†	5232.1	5162.2	153.27	µg/L	153.27	ppb	15:34:05
2	P 214.914†	9405.3	8923.5	6573.7	µg/L	6573.7	ppb	15:34:05
2	Pb 220.353†	33024.2	31619.7	4767.3	µg/L	4767.3	ppb	15:33:45

2	S 181.975 Axial†	1763.3	1634.7	2769.8 µg/L	2769.8 ppb	15:34:05
2	Sb 206.836†	115.7	45.6	7.6571 µg/L	7.6571 ppb	15:34:05
2	Se 196.026†	-110.5	-101.0	20.285 µg/L	20.285 ppb	15:34:05
2	SiO2†	151333.8	142638.5	17802 µg/L	17802 ppb	15:33:45
2	Si 251.611†	182723.7	175605.0	8273.4 µg/L	8273.4 ppb	15:33:45
2	Sn 189.927†	-204.3	-223.3	-8.2326 µg/L	-8.2326 ppb	15:34:05
2	Ti 334.940†	2016873.6	1940315.9	4867.6 µg/L	4867.6 ppb	15:33:40
2	Tl 190.801†	-135.8	-82.3	4.4985 µg/L	4.4985 ppb	15:34:05
2	U 367.007†	3891.2	3449.0	-69.41 µg/L	-69.41 ppb	15:33:45
2	V 292.402†	36004.5	34697.9	338.04 µg/L	338.04 ppb	15:33:45
2	Zn 213.857†	334126.7	320241.2	2923.0 µg/L	2923.0 ppb	15:33:45
3	Sc RADIAL	22112.6	22112.6	105 %		15:33:00
3	Al 396.153Radial†	445583.3	422932.4	126080 µg/L	126080 ppb	15:32:55
3	Ca 317.933Radial†	237558.0	225293.4	106840 µg/L	106840 ppb	15:32:55
3	Fe 238.204 Radial†	368718.6	349798.8	190780 µg/L	190780 ppb	15:32:55
3	K 766.490 Radial†	81700.5	76826.2	36423 µg/L	36423 ppb	15:33:00
3	Mg 279.077 IEC†	13219.1	12532.1	66306 µg/L	66306 ppb	15:33:00
3	Na 589.592 Radial†	500.7	520.4	1083.3 µg/L	1083.3 ppb	15:33:00
3	Sr 421.552†	140089.8	133525.8	651.58 µg/L	651.58 ppb	15:32:55
3	Sc 361.383	744082.9	744082.9	104.42 %		15:34:12
3	Y 371.029	761099.3	761099.3	122.93 %		15:34:12
3	Ag 328.068†	-6853.0	-6183.9	11.575 µg/L	11.575 ppb	15:34:17
3	As 188.979†	176.8	178.1	106.05 µg/L	106.05 ppb	15:34:37
3	B 249.677†	3828.8	3569.7	73.755 µg/L	73.755 ppb	15:34:17
3	Ba 233.527†	149278.9	143132.9	1329.4 µg/L	1329.4 ppb	15:34:17
3	Be 313.107†	17508.8	24762.3	14.174 µg/L	14.174 ppb	15:34:17
3	Cd 226.502†	2831.9	2937.3	13.502 µg/L	13.502 ppb	15:34:17
3	Co 228.616†	4411.6	4245.8	93.835 µg/L	93.835 ppb	15:34:37
3	Cr 267.716†	6597.9	6125.1	122.88 µg/L	122.88 ppb	15:34:37
3	Cu 324.752†	235443.0	218997.0	933.40 µg/L	933.40 ppb	15:34:17
3	Mn 257.610†	5411387.1	5181898.5	7409.1 µg/L	7409.1 ppb	15:34:12
3	Mo 202.031†	493.7	450.8	38.530 µg/L	38.530 ppb	15:34:37
3	Ni 231.604†	5227.9	5135.4	152.54 µg/L	152.54 ppb	15:34:37
3	P 214.914†	9389.6	8867.5	6530.4 µg/L	6530.4 ppb	15:34:37
3	Pb 220.353†	33013.7	31465.8	4743.8 µg/L	4743.8 ppb	15:34:17
3	S 181.975 Axial†	1753.3	1617.5	2740.0 µg/L	2740.0 ppb	15:34:37
3	Sb 206.836†	127.1	56.0	10.948 µg/L	10.948 ppb	15:34:37
3	Se 196.026†	-89.4	-80.3	36.960 µg/L	36.960 ppb	15:34:37
3	SiO2†	145654.3	136540.6	17043 µg/L	17043 ppb	15:34:17
3	Si 251.611†	175638.1	168023.9	7916.1 µg/L	7916.1 ppb	15:34:17
3	Sn 189.927†	-205.2	-223.3	-7.9845 µg/L	-7.9845 ppb	15:34:37
3	Ti 334.940†	2004917.7	1920086.4	4816.9 µg/L	4816.9 ppb	15:34:12
3	Tl 190.801†	-127.4	-73.6	7.4388 µg/L	7.4388 ppb	15:34:37
3	U 367.007†	3877.7	3419.2	-89.94 µg/L	-89.94 ppb	15:34:17
3	V 292.402†	35900.4	34441.5	335.57 µg/L	335.57 ppb	15:34:17
3	Zn 213.857†	333164.8	317865.6	2900.7 µg/L	2900.7 ppb	15:34:17

Mean Data: 306122008|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	741195.1	104.01	%	0.376				0.36%
Sc RADIAL	22131.4	105	%	1.0				0.92%
Y 371.029	759191.5	122.62	%	0.300				0.24%
Ag 328.068†	-6282.6	10.695	µg/L	0.8630	10.695	ppb	0.8630	8.07%
Al 396.153Radial†	420452.0	125340	µg/L	828.1	125340	ppb	828.1	0.66%
As 188.979†	183.7	109.17	µg/L	3.658	109.17	ppb	3.658	3.35%
B 249.677†	3603.2	74.860	µg/L	1.7189	74.860	ppb	1.7189	2.30%
Ba 233.527†	144411.3	1341.4	µg/L	15.82	1341.4	ppb	15.82	1.18%
Be 313.107†	24880.6	14.229	µg/L	0.0985	14.229	ppb	0.0985	0.69%
Ca 317.933Radial†	223998.2	106220	µg/L	769.6	106220	ppb	769.6	0.72%
Cd 226.502†	2955.7	13.946	µg/L	0.6989	13.946	ppb	0.6989	5.01%
Co 228.616†	4268.7	94.328	µg/L	0.4701	94.328	ppb	0.4701	0.50%
Cr 267.716†	6140.6	123.16	µg/L	0.255	123.16	ppb	0.255	0.21%
Cu 324.752†	220523.0	939.55	µg/L	8.893	939.55	ppb	8.893	0.95%
Fe 238.204 Radial†	347825.3	189700	µg/L	1417.3	189700	ppb	1417.3	0.75%
K 766.490 Radial†	76890.5	36453	µg/L	135.4	36453	ppb	135.4	0.37%
Mg 279.077 IEC†	12515.8	66220	µg/L	91.9	66220	ppb	91.9	0.14%
Mn 257.610†	5226015.5	7471.9	µg/L	54.65	7471.9	ppb	54.65	0.73%
Mo 202.031†	453.5	38.673	µg/L	0.1948	38.673	ppb	0.1948	0.50%
Na 589.592 Radial†	522.8	1088.2	µg/L	10.64	1088.2	ppb	10.64	0.98%

Ni 231.604†	5172.9	153.61 µg/L	1.277	153.61 ppb	1.277	0.83%
P 214.914†	8922.8	6572.3 µg/L	41.20	6572.3 ppb	41.20	0.63%
Pb 220.353†	31763.1	4788.9 µg/L	58.97	4788.9 ppb	58.97	1.23%
S 181.975 Axial†	1632.6	2766.0 µg/L	24.42	2766.0 ppb	24.42	0.88%
Sb 206.836†	51.1	9.4092 µg/L	1.65592	9.4092 ppb	1.65592	17.60%
Se 196.026†	-90.6	28.806 µg/L	8.3435	28.806 ppb	8.3435	28.96%
SiO2†	143852.6	17953 µg/L	994.8	17953 ppb	994.8	5.54%
Si 251.611†	176988.4	8338.5 µg/L	458.56	8338.5 ppb	458.56	5.50%
Sn 189.927†	-220.5	-7.4334 µg/L	1.17594	-7.4334 ppb	1.17594	15.82%
Sr 421.552†	132614.2	647.13 µg/L	4.412	647.13 ppb	4.412	0.68%
Ti 334.940†	1934396.0	4852.8 µg/L	31.22	4852.8 ppb	31.22	0.64%
Tl 190.801†	-76.5	6.5249 µg/L	1.75777	6.5249 ppb	1.75777	26.94%
U 367.007†	3449.9	-77.08 µg/L	11.211	-77.08 ppb	11.211	14.55%
V 292.402†	34791.2	338.97 µg/L	3.956	338.97 ppb	3.956	1.17%
Zn 213.857†	321345.6	2932.9 µg/L	38.17	2932.9 ppb	38.17	1.30%

Sequence No.: 31 **Autosampler Location: 322**
Sample ID: 306122009|1221778|1 **Date Collected: 6/15/2012 15:34:45**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122009|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22108.2	22108.2	105	%			15:35:19
1	Al 396.153Radial†	491738.4	466814.8	139160	µg/L	139160	ppb	15:35:14
1	Ca 317.933Radial†	349527.8	331592.7	157240	µg/L	157240	ppb	15:35:14
1	Fe 238.204 Radial†	346701.9	328974.4	179420	µg/L	179420	ppb	15:35:14
1	K 766.490 Radial†	87475.9	82322.0	39012	µg/L	39012	ppb	15:35:14
1	Mg 279.077 IEC†	16325.0	15481.9	81912	µg/L	81912	ppb	15:35:19
1	Na 589.592 Radial†	552.7	569.9	1186.3	µg/L	1186.3	ppb	15:35:19
1	Sr 421.552†	171344.7	163211.5	796.32	µg/L	796.32	ppb	15:35:14
1	Sc 361.383	735816.6	735816.6	103.26	%			15:35:47
1	Y 371.029	793775.8	793775.8	128.21	%			15:35:47
1	Ag 328.068†	-7426.9	-6813.4	4.5439	µg/L	4.5439	ppb	15:35:52
1	As 188.979†	114.1	119.3	72.776	µg/L	72.776	ppb	15:36:13
1	B 249.677†	4398.1	4162.3	92.234	µg/L	92.234	ppb	15:35:52
1	Ba 233.527†	178495.2	173033.3	1608.5	µg/L	1608.5	ppb	15:35:52
1	Be 313.107†	21918.8	29221.5	17.461	µg/L	17.461	ppb	15:35:52
1	Cd 226.502†	2355.5	2506.4	8.9039	µg/L	8.9039	ppb	15:35:52
1	Co 228.616†	4384.8	4267.3	96.579	µg/L	96.579	ppb	15:36:13
1	Cr 267.716†	6414.2	6018.2	120.78	µg/L	120.78	ppb	15:36:13
1	Cu 324.752†	128242.0	117711.9	513.91	µg/L	513.91	ppb	15:35:52
1	Mn 257.610†	5540969.4	5365611.8	7669.6	µg/L	7669.6	ppb	15:35:47
1	Mo 202.031†	129.2	103.0	14.356	µg/L	14.356	ppb	15:36:13
1	Ni 231.604†	5946.2	5887.2	174.23	µg/L	174.23	ppb	15:36:13
1	P 214.914†	9817.4	9382.8	6939.0	µg/L	6939.0	ppb	15:36:13
1	Pb 220.353†	5702.1	5371.3	791.51	µg/L	791.51	ppb	15:36:13
1	S 181.975 Axial†	7392.7	7097.7	12251	µg/L	12251	ppb	15:36:13
1	Sb 206.836†	104.4	35.4	3.5064	µg/L	3.5064	ppb	15:36:13
1	Se 196.026†	-96.4	-88.0	25.552	µg/L	25.552	ppb	15:36:13
1	SiO2†	120152.0	113410.2	14161	µg/L	14161	ppb	15:35:52
1	Si 251.611†	144661.5	139914.4	6591.8	µg/L	6591.8	ppb	15:35:52
1	Sn 189.927†	-208.0	-228.2	-10.748	µg/L	-10.748	ppb	15:36:13
1	Ti 334.940†	1580044.4	1530191.1	3840.4	µg/L	3840.4	ppb	15:35:47
1	Tl 190.801†	-113.9	-61.9	6.6753	µg/L	6.6753	ppb	15:36:13
1	U 367.007†	3749.1	3336.4	-57.51	µg/L	-57.51	ppb	15:35:52
1	V 292.402†	33164.7	32178.3	313.89	µg/L	313.89	ppb	15:35:52
1	Zn 213.857†	205861.3	198163.7	1798.8	µg/L	1798.8	ppb	15:35:52
2	Sc RADIAL	22248.2	22248.2	106	%			15:35:29
2	Al 396.153Radial†	494168.4	466170.8	138970	µg/L	138970	ppb	15:35:24
2	Ca 317.933Radial†	348429.6	328470.6	155760	µg/L	155760	ppb	15:35:24
2	Fe 238.204 Radial†	345529.8	325799.4	177690	µg/L	177690	ppb	15:35:24
2	K 766.490 Radial†	87838.7	82141.9	38926	µg/L	38926	ppb	15:35:24
2	Mg 279.077 IEC†	16417.6	15471.7	81858	µg/L	81858	ppb	15:35:29
2	Na 589.592 Radial†	532.0	547.1	1138.7	µg/L	1138.7	ppb	15:35:29
2	Sr 421.552†	171695.6	162519.7	792.95	µg/L	792.95	ppb	15:35:24
2	Sc 361.383	742912.2	742912.2	104.25	%			15:36:19
2	Y 371.029	799400.8	799400.8	129.12	%			15:36:19
2	Ag 328.068†	-7451.2	-6768.0	4.3756	µg/L	4.3756	ppb	15:36:24
2	As 188.979†	116.5	120.5	73.424	µg/L	73.424	ppb	15:36:44
2	B 249.677†	4412.9	4135.8	91.729	µg/L	91.729	ppb	15:36:24
2	Ba 233.527†	178001.4	170908.7	1588.8	µg/L	1588.8	ppb	15:36:24
2	Be 313.107†	21931.2	29030.7	17.356	µg/L	17.356	ppb	15:36:24
2	Cd 226.502†	2373.7	2502.1	9.1127	µg/L	9.1127	ppb	15:36:24
2	Co 228.616†	4432.4	4272.4	96.843	µg/L	96.843	ppb	15:36:44
2	Cr 267.716†	6393.2	5938.7	119.21	µg/L	119.21	ppb	15:36:44
2	Cu 324.752†	127910.3	116207.5	507.41	µg/L	507.41	ppb	15:36:24
2	Mn 257.610†	5529838.5	5303683.4	7581.1	µg/L	7581.1	ppb	15:36:19
2	Mo 202.031†	129.5	102.1	14.226	µg/L	14.226	ppb	15:36:44
2	Ni 231.604†	5916.4	5803.6	171.76	µg/L	171.76	ppb	15:36:44
2	P 214.914†	9896.6	9367.9	6929.2	µg/L	6929.2	ppb	15:36:44
2	Pb 220.353†	5713.2	5329.2	784.84	µg/L	784.84	ppb	15:36:44

2	S 181.975 Axial†	7446.1	7080.6	12222 µg/L	12222 ppb		15:36:44
2	Sb 206.836†	111.3	41.1	5.3924 µg/L	5.3924 ppb		15:36:44
2	Se 196.026†	-102.0	-92.5	21.324 µg/L	21.324 ppb		15:36:44
2	SiO2†	119110.2	111299.5	13897 µg/L	13897 ppb		15:36:24
2	Si 251.611†	143320.6	137290.2	6468.1 µg/L	6468.1 ppb		15:36:24
2	Sn 189.927†	-201.6	-220.1	-9.4231 µg/L	-9.4231 ppb		15:36:44
2	Ti 334.940†	1564883.8	1501034.5	3767.2 µg/L	3767.2 ppb		15:36:19
2	Tl 190.801†	-121.2	-67.8	4.2243 µg/L	4.2243 ppb		15:36:44
2	U 367.007†	3755.0	3307.3	-56.20 µg/L	-56.20 ppb		15:36:24
2	V 292.402†	33246.4	31949.9	311.70 µg/L	311.70 ppb		15:36:24
2	Zn 213.857†	205281.1	195703.1	1776.4 µg/L	1776.4 ppb		15:36:24
3	Sc RADIAL	22097.6	22097.6	105 %			15:35:40
3	Al 396.153Radial†	499560.6	474465.4	141440 µg/L	141440 ppb		15:35:34
3	Ca 317.933Radial†	351829.7	333937.5	158360 µg/L	158360 ppb		15:35:34
3	Fe 238.204 Radial†	348616.1	330949.8	180500 µg/L	180500 ppb		15:35:34
3	K 766.490 Radial†	88907.6	83721.1	39674 µg/L	39674 ppb		15:35:34
3	Mg 279.077 IEC†	16375.2	15537.0	82204 µg/L	82204 ppb		15:35:40
3	Na 589.592 Radial†	534.1	552.5	1150.1 µg/L	1150.1 ppb		15:35:40
3	Sr 421.552†	173193.9	165045.3	805.27 µg/L	805.27 ppb		15:35:34
3	Sc 361.383	732232.4	732232.4	102.76 %			15:36:51
3	Y 371.029	789401.2	789401.2	127.50 %			15:36:51
3	Ag 328.068†	-7507.5	-6927.1	4.1169 µg/L	4.1169 ppb		15:36:56
3	As 188.979†	124.3	129.7	78.683 µg/L	78.683 ppb		15:37:16
3	B 249.677†	4440.0	4223.9	93.829 µg/L	93.829 ppb		15:36:56
3	Ba 233.527†	179780.2	175130.0	1628.1 µg/L	1628.1 ppb		15:36:56
3	Be 313.107†	22243.5	29641.4	17.720 µg/L	17.720 ppb		15:36:56
3	Cd 226.502†	2356.6	2518.7	8.9161 µg/L	8.9161 ppb		15:36:56
3	Co 228.616†	4387.9	4291.0	97.213 µg/L	97.213 ppb		15:37:16
3	Cr 267.716†	6422.5	6056.6	121.55 µg/L	121.55 ppb		15:37:16
3	Cu 324.752†	128680.6	118746.6	518.31 µg/L	518.31 ppb		15:36:56
3	Mn 257.610†	5531939.9	5383090.8	7694.7 µg/L	7694.7 ppb		15:36:51
3	Mo 202.031†	150.8	124.7	15.878 µg/L	15.878 ppb		15:37:16
3	Ni 231.604†	5937.6	5907.0	174.82 µg/L	174.82 ppb		15:37:16
3	P 214.914†	9844.2	9455.4	6993.3 µg/L	6993.3 ppb		15:37:16
3	Pb 220.353†	5702.2	5398.4	794.86 µg/L	794.86 ppb		15:37:16
3	S 181.975 Axial†	7423.9	7163.1	12364 µg/L	12364 ppb		15:37:16
3	Sb 206.836†	113.0	44.3	6.2990 µg/L	6.2990 ppb		15:37:16
3	Se 196.026†	-90.3	-82.6	30.110 µg/L	30.110 ppb		15:37:16
3	SiO2†	118170.1	112051.0	13991 µg/L	13991 ppb		15:36:56
3	Si 251.611†	142099.7	138107.1	6506.5 µg/L	6506.5 ppb		15:36:56
3	Sn 189.927†	-198.4	-219.8	-8.7546 µg/L	-8.7546 ppb		15:37:16
3	Ti 334.940†	1563998.3	1522065.4	3820.0 µg/L	3820.0 ppb		15:36:51
3	Tl 190.801†	-111.5	-60.0	7.2970 µg/L	7.2970 ppb		15:37:16
3	U 367.007†	3744.8	3349.9	-59.46 µg/L	-59.46 ppb		15:36:56
3	V 292.402†	33327.3	32493.8	317.03 µg/L	317.03 ppb		15:36:56
3	Zn 213.857†	206820.2	200072.8	1816.2 µg/L	1816.2 ppb		15:36:56

Mean Data: 306122009|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	736987.1	103.42	%	0.763				0.74%
Sc RADIAL	22151.3	106	%	0.4				0.38%
Y 371.029	794192.6	128.28	%	0.810				0.63%
Ag 328.068†	-6836.2	4.3454	µg/L	0.21510	4.3454	ppb	0.21510	4.95%
Al 396.153Radial†	469150.3	139860	µg/L	1375.5	139860	ppb	1375.5	0.98%
As 188.979†	123.2	74.961	µg/L	3.2398	74.961	ppb	3.2398	4.32%
B 249.677†	4174.0	92.597	µg/L	1.0961	92.597	ppb	1.0961	1.18%
Ba 233.527†	173024.0	1608.5	µg/L	19.64	1608.5	ppb	19.64	1.22%
Be 313.107†	29297.9	17.512	µg/L	0.1877	17.512	ppb	0.1877	1.07%
Ca 317.933Radial†	331333.6	157120	µg/L	1300.6	157120	ppb	1300.6	0.83%
Cd 226.502†	2509.0	8.9775	µg/L	0.11722	8.9775	ppb	0.11722	1.31%
Co 228.616†	4276.9	96.878	µg/L	0.3185	96.878	ppb	0.3185	0.33%
Cr 267.716†	6004.5	120.51	µg/L	1.196	120.51	ppb	1.196	0.99%
Cu 324.752†	117555.3	513.21	µg/L	5.487	513.21	ppb	5.487	1.07%
Fe 238.204 Radial†	328574.5	179200	µg/L	1417.1	179200	ppb	1417.1	0.79%
K 766.490 Radial†	82728.4	39204	µg/L	409.4	39204	ppb	409.4	1.04%
Mg 279.077 IEC†	15496.9	81991	µg/L	185.8	81991	ppb	185.8	0.23%
Mn 257.610†	5350795.4	7648.5	µg/L	59.66	7648.5	ppb	59.66	0.78%
Mo 202.031†	109.9	14.820	µg/L	0.9187	14.820	ppb	0.9187	6.20%
Na 589.592 Radial†	556.5	1158.4	µg/L	24.83	1158.4	ppb	24.83	2.14%

Ni 231.604†	5866.0	173.60 µg/L	1.620	173.60 ppb	1.620	0.93%
P 214.914†	9402.0	6953.8 µg/L	34.51	6953.8 ppb	34.51	0.50%
Pb 220.353†	5366.3	790.40 µg/L	5.102	790.40 ppb	5.102	0.65%
S 181.975 Axial†	7113.8	12279 µg/L	75.1	12279 ppb	75.1	0.61%
Sb 206.836†	40.2	5.0659 µg/L	1.42465	5.0659 ppb	1.42465	28.12%
Se 196.026†	-87.7	25.662 µg/L	4.3940	25.662 ppb	4.3940	17.12%
SiO2†	112253.5	14016 µg/L	133.4	14016 ppb	133.4	0.95%
Si 251.611†	138437.2	6522.1 µg/L	63.29	6522.1 ppb	63.29	0.97%
Sn 189.927†	-222.7	-9.6419 µg/L	1.01469	-9.6419 ppb	1.01469	10.52%
Sr 421.552†	163592.2	798.18 µg/L	6.368	798.18 ppb	6.368	0.80%
Ti 334.940†	1517763.7	3809.2 µg/L	37.76	3809.2 ppb	37.76	0.99%
Tl 190.801†	-63.3	6.0655 µg/L	1.62458	6.0655 ppb	1.62458	26.78%
U 367.007†	3331.2	-57.72 µg/L	1.644	-57.72 ppb	1.644	2.85%
V 292.402†	32207.3	314.21 µg/L	2.679	314.21 ppb	2.679	0.85%
Zn 213.857†	197979.9	1797.1 µg/L	19.97	1797.1 ppb	19.97	1.11%

Sequence No.: 32 **Autosampler Location: 323**
Sample ID: 306122010|1221778|1 **Date Collected: 6/15/2012 15:37:24**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122010|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21988.8	21988.8	105	%			15:37:58
1	Al 396.153Radial†	512651.1	489303.1	145860	µg/L	145860	ppb	15:37:53
1	Ca 317.933Radial†	258015.9	246081.6	116690	µg/L	116690	ppb	15:37:53
1	Fe 238.204 Radial†	432210.5	412347.0	224890	µg/L	224890	ppb	15:37:53
1	K 766.490 Radial†	85565.0	80949.7	38389	µg/L	38389	ppb	15:37:53
1	Mg 279.077 IEC†	15305.3	14593.1	77212	µg/L	77212	ppb	15:37:58
1	Na 589.592 Radial†	491.2	514.1	1070.1	µg/L	1070.1	ppb	15:37:58
1	Sr 421.552†	140862.1	135010.9	658.79	µg/L	658.79	ppb	15:37:53
1	Sc 361.383	740586.1	740586.1	103.93	%			15:38:33
1	Y 371.029	759728.8	759728.8	122.71	%			15:38:33
1	Ag 328.068†	-7853.3	-7177.3	14.104	µg/L	14.104	ppb	15:38:33
1	As 188.979†	368.9	363.8	211.29	µg/L	211.29	ppb	15:38:53
1	B 249.677†	5101.5	4811.7	104.10	µg/L	104.10	ppb	15:38:33
1	Ba 233.527†	152122.2	146543.8	1360.2	µg/L	1360.2	ppb	15:38:33
1	Be 313.107†	19584.3	26838.5	15.529	µg/L	15.529	ppb	15:38:33
1	Cd 226.502†	7900.5	7827.2	80.804	µg/L	80.804	ppb	15:38:53
1	Co 228.616†	5015.1	4846.4	108.67	µg/L	108.67	ppb	15:38:53
1	Cr 267.716†	7374.2	6901.8	138.58	µg/L	138.58	ppb	15:38:53
1	Cu 324.752†	495414.4	470207.8	1972.7	µg/L	1972.7	ppb	15:38:33
1	Mn 257.610†	9004267.0	8663461.4	12379	µg/L	12379	ppb	15:38:26
1	Mo 202.031†	970.2	911.4	71.334	µg/L	71.334	ppb	15:38:53
1	Ni 231.604†	6218.0	6111.7	181.50	µg/L	181.50	ppb	15:38:53
1	P 214.914†	10793.3	10260.6	7532.0	µg/L	7532.0	ppb	15:38:53
1	Pb 220.353†	82006.0	78755.8	11899	µg/L	11899	ppb	15:38:33
1	S 181.975 Axial†	12845.0	12297.9	21267	µg/L	21267	ppb	15:38:53
1	Sb 206.836†	138.9	67.9	14.141	µg/L	14.141	ppb	15:38:53
1	Se 196.026†	-106.0	-96.7	42.090	µg/L	42.090	ppb	15:38:53
1	SiO2†	190887.6	180723.0	22552	µg/L	22552	ppb	15:38:33
1	Si 251.611†	231246.7	222325.0	10474	µg/L	10474	ppb	15:38:33
1	Sn 189.927†	-193.9	-213.4	-1.7334	µg/L	-1.7334	ppb	15:38:53
1	Ti 334.940†	1947621.6	1874021.8	4701.5	µg/L	4701.5	ppb	15:38:33
1	Tl 190.801†	-147.9	-93.9	2.3191	µg/L	2.3191	ppb	15:38:53
1	U 367.007†	4532.9	4067.1	-94.18	µg/L	-94.18	ppb	15:38:33
1	V 292.402†	37779.5	36411.8	355.60	µg/L	355.60	ppb	15:38:33
1	Zn 213.857†	2190024.3	2106054.8	19374	µg/L	19374	ppb	15:38:33
2	Sc RADIAL	22438.9	22438.9	107	%			15:38:08
2	Al 396.153Radial†	525422.0	491431.0	146500	µg/L	146500	ppb	15:38:03
2	Ca 317.933Radial†	264890.8	247570.8	117400	µg/L	117400	ppb	15:38:03
2	Fe 238.204 Radial†	442477.2	413673.3	225610	µg/L	225610	ppb	15:38:03
2	K 766.490 Radial†	87732.9	81338.9	38573	µg/L	38573	ppb	15:38:03
2	Mg 279.077 IEC†	15393.3	14382.5	76097	µg/L	76097	ppb	15:38:08
2	Na 589.592 Radial†	512.4	524.5	1091.7	µg/L	1091.7	ppb	15:38:08
2	Sr 421.552†	144558.2	135770.5	662.49	µg/L	662.49	ppb	15:38:03
2	Sc 361.383	740490.2	740490.2	103.91	%			15:39:07
2	Y 371.029	760426.9	760426.9	122.82	%			15:39:07
2	Ag 328.068†	-7962.6	-7283.5	13.636	µg/L	13.636	ppb	15:39:07
2	As 188.979†	364.5	359.5	208.93	µg/L	208.93	ppb	15:39:27
2	B 249.677†	5041.9	4755.0	102.38	µg/L	102.38	ppb	15:39:07
2	Ba 233.527†	152962.4	147371.3	1367.9	µg/L	1367.9	ppb	15:39:07
2	Be 313.107†	19678.1	26931.2	15.582	µg/L	15.582	ppb	15:39:07
2	Cd 226.502†	7967.1	7892.2	81.657	µg/L	81.657	ppb	15:39:27
2	Co 228.616†	5072.4	4902.1	109.97	µg/L	109.97	ppb	15:39:27
2	Cr 267.716†	7434.4	6960.7	139.73	µg/L	139.73	ppb	15:39:27
2	Cu 324.752†	498656.6	473389.6	1985.9	µg/L	1985.9	ppb	15:39:07
2	Mn 257.610†	8962853.8	8624730.2	12324	µg/L	12324	ppb	15:38:59
2	Mo 202.031†	987.7	928.4	72.522	µg/L	72.522	ppb	15:39:27
2	Ni 231.604†	6254.9	6148.0	182.57	µg/L	182.57	ppb	15:39:27
2	P 214.914†	10898.1	10362.8	7608.0	µg/L	7608.0	ppb	15:39:27
2	Pb 220.353†	82562.5	79301.6	11982	µg/L	11982	ppb	15:39:07

2	S 181.975 Axial†	12965.5	12415.4	21471 µg/L	21471 ppb		15:39:27
2	Sb 206.836†	129.0	58.4	11.034 µg/L	11.034 ppb		15:39:27
2	Se 196.026†	-119.0	-109.2	33.162 µg/L	33.162 ppb		15:39:27
2	SiO2†	187907.2	177878.7	22198 µg/L	22198 ppb		15:39:07
2	Si 251.611†	227638.3	218881.4	10312 µg/L	10312 ppb		15:39:07
2	Sn 189.927†	-191.1	-210.7	-0.9462 µg/L	-0.9462 ppb		15:39:27
2	Ti 334.940†	1958789.9	1885012.1	4729.1 µg/L	4729.1 ppb		15:39:07
2	Tl 190.801†	-141.5	-87.8	4.5825 µg/L	4.5825 ppb		15:39:27
2	U 367.007†	4541.0	4075.5	-95.70 µg/L	-95.70 ppb		15:39:07
2	V 292.402†	38126.7	36750.7	358.92 µg/L	358.92 ppb		15:39:07
2	Zn 213.857†	2200367.1	2116280.8	19468 µg/L	19468 ppb		15:39:07
3	Sc RADIAL	22070.9	22070.9	105 %			15:38:19
3	Al 396.153Radial†	521299.2	495704.4	147770 µg/L	147770 ppb		15:38:14
3	Ca 317.933Radial†	261756.1	248721.3	117950 µg/L	117950 ppb		15:38:14
3	Fe 238.204 Radial†	437481.7	415823.9	226780 µg/L	226780 ppb		15:38:14
3	K 766.490 Radial†	86945.7	81958.5	38867 µg/L	38867 ppb		15:38:14
3	Mg 279.077 IEC†	15364.1	14594.8	77220 µg/L	77220 ppb		15:38:19
3	Na 589.592 Radial†	502.6	523.2	1089.0 µg/L	1089.0 ppb		15:38:19
3	Sr 421.552†	143267.5	136797.6	667.51 µg/L	667.51 ppb		15:38:14
3	Sc 361.383	749932.7	749932.7	105.24 %			15:39:40
3	Y 371.029	769760.1	769760.1	124.33 %			15:39:40
3	Ag 328.068†	-8044.4	-7264.7	14.040 µg/L	14.040 ppb		15:39:40
3	As 188.979†	370.8	361.1	209.87 µg/L	209.87 ppb		15:40:00
3	B 249.677†	5059.2	4710.3	100.95 µg/L	100.95 ppb		15:39:40
3	Ba 233.527†	154025.8	146528.4	1360.0 µg/L	1360.0 ppb		15:39:40
3	Be 313.107†	20021.6	27019.2	15.650 µg/L	15.650 ppb		15:39:40
3	Cd 226.502†	7955.0	7784.2	79.865 µg/L	79.865 ppb		15:40:00
3	Co 228.616†	5085.6	4853.2	108.87 µg/L	108.87 ppb		15:40:00
3	Cr 267.716†	7437.7	6873.8	138.06 µg/L	138.06 ppb		15:40:00
3	Cu 324.752†	498812.3	467495.5	1961.8 µg/L	1961.8 ppb		15:39:40
3	Mn 257.610†	9002824.1	8554109.4	12223 µg/L	12223 ppb		15:39:33
3	Mo 202.031†	985.8	914.6	71.630 µg/L	71.630 ppb		15:40:00
3	Ni 231.604†	6291.9	6107.3	181.41 µg/L	181.41 ppb		15:40:00
3	P 214.914†	10920.1	10251.6	7524.8 µg/L	7524.8 ppb		15:40:00
3	Pb 220.353†	83358.0	79057.1	11944 µg/L	11944 ppb		15:39:40
3	S 181.975 Axial†	12981.8	12273.8	21225 µg/L	21225 ppb		15:40:00
3	Sb 206.836†	137.4	64.9	13.107 µg/L	13.107 ppb		15:40:00
3	Se 196.026†	-109.8	-99.0	41.294 µg/L	41.294 ppb		15:40:00
3	SiO2†	183053.8	170990.1	21340 µg/L	21340 ppb		15:39:40
3	Si 251.611†	221533.3	210322.1	9908.6 µg/L	9908.6 ppb		15:39:40
3	Sn 189.927†	-190.2	-207.5	-0.2108 µg/L	-0.2108 ppb		15:40:00
3	Ti 334.940†	1963492.0	1865745.8	4680.8 µg/L	4680.8 ppb		15:39:40
3	Tl 190.801†	-141.2	-85.8	5.1358 µg/L	5.1358 ppb		15:40:00
3	U 367.007†	4586.0	4063.2	-104.5 µg/L	-104.5 ppb		15:39:40
3	V 292.402†	38356.1	36506.7	356.55 µg/L	356.55 ppb		15:39:40
3	Zn 213.857†	2218967.8	2107294.1	19385 µg/L	19385 ppb		15:39:40

Mean Data: 306122010|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	743669.7	104.36	%	0.761				0.73%
Sc RADIAL	22166.2	106	%	1.1				1.08%
Y 371.029	763305.3	123.29	%	0.905				0.73%
Ag 328.068†	-7241.9	13.927	µg/L	0.2539	13.927	ppb	0.2539	1.82%
Al 396.153Radial†	492146.2	146710	µg/L	971.8	146710	ppb	971.8	0.66%
As 188.979†	361.5	210.03	µg/L	1.191	210.03	ppb	1.191	0.57%
B 249.677†	4759.0	102.48	µg/L	1.581	102.48	ppb	1.581	1.54%
Ba 233.527†	146814.5	1362.7	µg/L	4.50	1362.7	ppb	4.50	0.33%
Be 313.107†	26929.7	15.587	µg/L	0.0606	15.587	ppb	0.0606	0.39%
Ca 317.933Radial†	247457.9	117350	µg/L	627.6	117350	ppb	627.6	0.53%
Cd 226.502†	7834.6	80.775	µg/L	0.8963	80.775	ppb	0.8963	1.11%
Co 228.616†	4867.2	109.17	µg/L	0.700	109.17	ppb	0.700	0.64%
Cr 267.716†	6912.1	138.79	µg/L	0.854	138.79	ppb	0.854	0.62%
Cu 324.752†	470364.3	1973.5	µg/L	12.08	1973.5	ppb	12.08	0.61%
Fe 238.204 Radial†	413948.1	225760	µg/L	956.9	225760	ppb	956.9	0.42%
K 766.490 Radial†	81415.7	38610	µg/L	241.2	38610	ppb	241.2	0.62%
Mg 279.077 IEC†	14523.5	76843	µg/L	645.9	76843	ppb	645.9	0.84%
Mn 257.610†	8614100.4	12309	µg/L	79.0	12309	ppb	79.0	0.64%
Mo 202.031†	918.2	71.828	µg/L	0.6184	71.828	ppb	0.6184	0.86%
Na 589.592 Radial†	520.6	1083.6	µg/L	11.77	1083.6	ppb	11.77	1.09%

Ni 231.604†	6122.3	181.83 µg/L	0.646	181.83 ppb	0.646	0.36%
P 214.914†	10291.7	7555.0 µg/L	46.09	7555.0 ppb	46.09	0.61%
Pb 220.353†	79038.2	11942 µg/L	41.3	11942 ppb	41.3	0.35%
S 181.975 Axial†	12329.1	21321 µg/L	131.6	21321 ppb	131.6	0.62%
Sb 206.836†	63.7	12.761 µg/L	1.5821	12.761 ppb	1.5821	12.40%
Se 196.026†	-101.6	38.849 µg/L	4.9411	38.849 ppb	4.9411	12.72%
SiO2†	176530.6	22030 µg/L	623.1	22030 ppb	623.1	2.83%
Si 251.611†	217176.2	10232 µg/L	291.3	10232 ppb	291.3	2.85%
Sn 189.927†	-210.5	-0.9634 µg/L	0.76143	-0.9634 ppb	0.76143	79.03%
Sr 421.552†	135859.7	662.93 µg/L	4.376	662.93 ppb	4.376	0.66%
Ti 334.940†	1874926.6	4703.8 µg/L	24.24	4703.8 ppb	24.24	0.52%
Tl 190.801†	-89.1	4.0125 µg/L	1.49238	4.0125 ppb	1.49238	37.19%
U 367.007†	4068.6	-98.14 µg/L	5.593	-98.14 ppb	5.593	5.70%
V 292.402†	36556.4	357.02 µg/L	1.710	357.02 ppb	1.710	0.48%
Zn 213.857†	2109876.5	19409 µg/L	51.4	19409 ppb	51.4	0.26%

Sequence No.: 33 **Autosampler Location: 324**
Sample ID: 306122011|1221778|1 **Date Collected: 6/15/2012 15:40:08**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306122011|1221778|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	22148.6	22148.6	106	%			15:40:42
1	Al 396.153Radial†	419379.5	397423.7	118470	µg/L	118470	ppb	15:40:37
1	Ca 317.933Radial†	243003.0	230084.4	109110	µg/L	109110	ppb	15:40:37
1	Fe 238.204 Radial†	353412.8	334731.6	182560	µg/L	182560	ppb	15:40:37
1	K 766.490 Radial†	83393.9	78304.1	37117	µg/L	37117	ppb	15:40:37
1	Mg 279.077 IEC†	13189.6	12483.7	66050	µg/L	66050	ppb	15:40:42
1	Na 589.592 Radial†	468.1	488.8	1017.4	µg/L	1017.4	ppb	15:40:42
1	Sr 421.552†	166240.5	158080.4	771.48	µg/L	771.48	ppb	15:40:37
1	Sc 361.383	740517.9	740517.9	103.92	%			15:41:11
1	Y 371.029	757031.3	757031.3	122.27	%			15:41:11
1	Ag 328.068†	-7010.8	-6367.3	8.2057	µg/L	8.2057	ppb	15:41:16
1	As 188.979†	184.9	186.7	110.66	µg/L	110.66	ppb	15:41:36
1	B 249.677†	3663.0	3427.8	70.896	µg/L	70.896	ppb	15:41:16
1	Ba 233.527†	158582.8	152774.3	1419.6	µg/L	1419.6	ppb	15:41:16
1	Be 313.107†	15561.9	22969.5	13.258	µg/L	13.258	ppb	15:41:16
1	Cd 226.502†	3208.2	3312.5	20.383	µg/L	20.383	ppb	15:41:16
1	Co 228.616†	4361.2	4217.6	94.050	µg/L	94.050	ppb	15:41:36
1	Cr 267.716†	6091.8	5668.5	113.83	µg/L	113.83	ppb	15:41:36
1	Cu 324.752†	256425.2	240273.5	1019.5	µg/L	1019.5	ppb	15:41:16
1	Mn 257.610†	5602943.4	5391181.6	7706.9	µg/L	7706.9	ppb	15:41:11
1	Mo 202.031†	321.9	287.7	27.079	µg/L	27.079	ppb	15:41:36
1	Ni 231.604†	5316.5	5244.7	155.58	µg/L	155.58	ppb	15:41:36
1	P 214.914†	9629.5	9141.6	6737.5	µg/L	6737.5	ppb	15:41:36
1	Pb 220.353†	32948.6	31555.4	4759.8	µg/L	4759.8	ppb	15:41:16
1	S 181.975 Axial†	7370.5	7030.9	12145	µg/L	12145	ppb	15:41:36
1	Sb 206.836†	118.7	48.5	8.8895	µg/L	8.8895	ppb	15:41:36
1	Se 196.026†	-83.0	-74.6	37.089	µg/L	37.089	ppb	15:41:36
1	SiO2†	162648.5	153565.6	19161	µg/L	19161	ppb	15:41:16
1	Si 251.611†	196266.5	188684.3	8890.0	µg/L	8890.0	ppb	15:41:16
1	Sn 189.927†	-201.7	-220.8	-9.6012	µg/L	-9.6012	ppb	15:41:36
1	Ti 334.940†	1828998.1	1760043.5	4415.7	µg/L	4415.7	ppb	15:41:11
1	Tl 190.801†	-117.5	-64.7	8.2916	µg/L	8.2916	ppb	15:41:36
1	U 367.007†	3768.8	3332.3	-71.21	µg/L	-71.21	ppb	15:41:16
1	V 292.402†	33894.7	32676.9	318.42	µg/L	318.42	ppb	15:41:16
1	Zn 213.857†	655487.1	629570.9	5774.3	µg/L	5774.3	ppb	15:41:11
2	Sc RADIAL	22200.7	22200.7	106	%			15:40:52
2	Al 396.153Radial†	425350.3	402133.2	119880	µg/L	119880	ppb	15:40:47
2	Ca 317.933Radial†	246242.3	232605.0	110300	µg/L	110300	ppb	15:40:47
2	Fe 238.204 Radial†	356928.2	337267.4	183940	µg/L	183940	ppb	15:40:47
2	K 766.490 Radial†	84355.1	79026.9	37460	µg/L	37460	ppb	15:40:47
2	Mg 279.077 IEC†	13216.5	12479.8	66030	µg/L	66030	ppb	15:40:52
2	Na 589.592 Radial†	480.8	499.8	1040.3	µg/L	1040.3	ppb	15:40:52
2	Sr 421.552†	168215.3	159576.8	778.78	µg/L	778.78	ppb	15:40:47
2	Sc 361.383	743427.8	743427.8	104.33	%			15:41:43
2	Y 371.029	759139.1	759139.1	122.61	%			15:41:43
2	Ag 328.068†	-7090.0	-6416.8	8.2246	µg/L	8.2246	ppb	15:41:48
2	As 188.979†	192.1	192.9	114.19	µg/L	114.19	ppb	15:42:08
2	B 249.677†	3677.6	3428.1	70.702	µg/L	70.702	ppb	15:41:48
2	Ba 233.527†	157373.9	151018.2	1403.1	µg/L	1403.1	ppb	15:41:48
2	Be 313.107†	15426.2	22780.9	13.161	µg/L	13.161	ppb	15:41:48
2	Cd 226.502†	3188.4	3281.5	19.702	µg/L	19.702	ppb	15:41:48
2	Co 228.616†	4364.0	4203.8	93.732	µg/L	93.732	ppb	15:42:08
2	Cr 267.716†	6092.9	5646.6	113.44	µg/L	113.44	ppb	15:42:08
2	Cu 324.752†	255306.6	238235.5	1011.3	µg/L	1011.3	ppb	15:41:48
2	Mn 257.610†	5606388.8	5373380.1	7681.6	µg/L	7681.6	ppb	15:41:43
2	Mo 202.031†	332.3	296.5	27.731	µg/L	27.731	ppb	15:42:08
2	Ni 231.604†	5302.1	5210.9	154.62	µg/L	154.62	ppb	15:42:08
2	P 214.914†	9561.1	9039.8	6660.8	µg/L	6660.8	ppb	15:42:08
2	Pb 220.353†	32732.8	31224.5	4709.4	µg/L	4709.4	ppb	15:41:48

2	S 181.975 Axial†	7347.8	6981.4	12058 µg/L	12058 ppb		15:42:08
2	Sb 206.836†	109.7	39.4	5.9131 µg/L	5.9131 ppb		15:42:08
2	Se 196.026†	-84.5	-75.7	36.950 µg/L	36.950 ppb		15:42:08
2	SiO2†	157955.6	148454.7	18525 µg/L	18525 ppb		15:41:48
2	Si 251.611†	190530.0	182446.4	8596.0 µg/L	8596.0 ppb		15:41:48
2	Sn 189.927†	-207.2	-225.3	-10.392 µg/L	-10.392 ppb		15:42:08
2	Ti 334.940†	1830214.7	1754320.6	4401.3 µg/L	4401.3 ppb		15:41:43
2	Tl 190.801†	-123.5	-70.0	6.4899 µg/L	6.4899 ppb		15:42:08
2	U 367.007†	3719.6	3271.0	-93.07 µg/L	-93.07 ppb		15:41:48
2	V 292.402†	33675.5	32339.1	315.11 µg/L	315.11 ppb		15:41:48
2	Zn 213.857†	655565.1	627176.7	5752.0 µg/L	5752.0 ppb		15:41:43
3	Sc RADIAL	22219.4	22219.4	106 %			15:41:03
3	Al 396.153Radial†	426067.9	402472.9	119980 µg/L	119980 ppb		15:40:58
3	Ca 317.933Radial†	246521.1	232672.7	110340 µg/L	110340 ppb		15:40:58
3	Fe 238.204 Radial†	357344.2	337376.8	184000 µg/L	184000 ppb		15:40:58
3	K 766.490 Radial†	84371.1	78975.1	37435 µg/L	37435 ppb		15:40:58
3	Mg 279.077 IEC†	13244.2	12495.5	66112 µg/L	66112 ppb		15:41:03
3	Na 589.592 Radial†	484.3	502.7	1046.3 µg/L	1046.3 ppb		15:41:03
3	Sr 421.552†	168302.3	159525.4	778.53 µg/L	778.53 ppb		15:40:58
3	Sc 361.383	745396.4	745396.4	104.60 %			15:42:15
3	Y 371.029	761111.3	761111.3	122.93 %			15:42:15
3	Ag 328.068†	-7027.5	-6339.1	8.7315 µg/L	8.7315 ppb		15:42:20
3	As 188.979†	189.1	189.6	112.34 µg/L	112.34 ppb		15:42:40
3	B 249.677†	3683.5	3424.4	70.592 µg/L	70.592 ppb		15:42:20
3	Ba 233.527†	158001.5	151219.8	1405.0 µg/L	1405.0 ppb		15:42:20
3	Be 313.107†	15396.0	22712.9	13.123 µg/L	13.123 ppb		15:42:20
3	Cd 226.502†	3216.4	3300.1	19.969 µg/L	19.969 ppb		15:42:20
3	Co 228.616†	4374.1	4202.4	93.700 µg/L	93.700 ppb		15:42:40
3	Cr 267.716†	6136.2	5672.6	113.94 µg/L	113.94 ppb		15:42:40
3	Cu 324.752†	255581.4	237851.8	1009.7 µg/L	1009.7 ppb		15:42:20
3	Mn 257.610†	5612191.6	5364735.4	7669.3 µg/L	7669.3 ppb		15:42:15
3	Mo 202.031†	326.7	290.3	27.312 µg/L	27.312 ppb		15:42:40
3	Ni 231.604†	5281.3	5177.6	153.65 µg/L	153.65 ppb		15:42:40
3	P 214.914†	9601.8	9054.5	6671.8 µg/L	6671.8 ppb		15:42:40
3	Pb 220.353†	32684.7	31095.6	4689.8 µg/L	4689.8 ppb		15:42:20
3	S 181.975 Axial†	7394.1	7007.0	12103 µg/L	12103 ppb		15:42:40
3	Sb 206.836†	113.9	43.1	7.0918 µg/L	7.0918 ppb		15:42:40
3	Se 196.026†	-88.4	-79.2	34.390 µg/L	34.390 ppb		15:42:40
3	SiO2†	150609.5	141032.0	17600 µg/L	17600 ppb		15:42:20
3	Si 251.611†	181907.2	173720.7	8184.7 µg/L	8184.7 ppb		15:42:20
3	Sn 189.927†	-200.0	-218.0	-8.7675 µg/L	-8.7675 ppb		15:42:40
3	Ti 334.940†	1834923.0	1754188.7	4401.0 µg/L	4401.0 ppb		15:42:15
3	Tl 190.801†	-136.4	-82.0	2.3952 µg/L	2.3952 ppb		15:42:40
3	U 367.007†	3756.3	3296.5	-87.09 µg/L	-87.09 ppb		15:42:20
3	V 292.402†	33744.8	32320.1	314.93 µg/L	314.93 ppb		15:42:20
3	Zn 213.857†	654706.6	624696.5	5729.2 µg/L	5729.2 ppb		15:42:15

Mean Data: 306122011|1221778|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	743114.0	104.28	%	0.344				0.33%
Sc RADIAL	22189.6	106	%	0.2				0.17%
Y 371.029	759093.9	122.61	%	0.330				0.27%
Ag 328.068†	-6374.4	8.3873	µg/L	0.29826	8.3873	ppb	0.29826	3.56%
Al 396.153Radial†	400676.6	119440	µg/L	841.3	119440	ppb	841.3	0.70%
As 188.979†	189.7	112.40	µg/L	1.767	112.40	ppb	1.767	1.57%
B 249.677†	3426.8	70.730	µg/L	0.1540	70.730	ppb	0.1540	0.22%
Ba 233.527†	151670.8	1409.2	µg/L	8.99	1409.2	ppb	8.99	0.64%
Be 313.107†	22821.1	13.181	µg/L	0.0699	13.181	ppb	0.0699	0.53%
Ca 317.933Radial†	231787.4	109920	µg/L	699.6	109920	ppb	699.6	0.64%
Cd 226.502†	3298.0	20.018	µg/L	0.3433	20.018	ppb	0.3433	1.72%
Co 228.616†	4207.9	93.827	µg/L	0.1934	93.827	ppb	0.1934	0.21%
Cr 267.716†	5662.5	113.74	µg/L	0.265	113.74	ppb	0.265	0.23%
Cu 324.752†	238786.9	1013.5	µg/L	5.24	1013.5	ppb	5.24	0.52%
Fe 238.204 Radial†	336458.6	183500	µg/L	816.3	183500	ppb	816.3	0.44%
K 766.490 Radial†	78768.7	37338	µg/L	191.3	37338	ppb	191.3	0.51%
Mg 279.077 IEC†	12486.3	66064	µg/L	43.1	66064	ppb	43.1	0.07%
Mn 257.610†	5376432.4	7685.9	µg/L	19.17	7685.9	ppb	19.17	0.25%
Mo 202.031†	291.5	27.374	µg/L	0.3302	27.374	ppb	0.3302	1.21%
Na 589.592 Radial†	497.1	1034.7	µg/L	15.22	1034.7	ppb	15.22	1.47%

Ni 231.604†	5211.1	154.62 µg/L	0.964	154.62 ppb	0.964	0.62%
P 214.914†	9078.6	6690.0 µg/L	41.48	6690.0 ppb	41.48	0.62%
Pb 220.353†	31291.8	4719.7 µg/L	36.09	4719.7 ppb	36.09	0.76%
S 181.975 Axial†	7006.4	12102 µg/L	43.1	12102 ppb	43.1	0.36%
Sb 206.836†	43.7	7.2981 µg/L	1.49888	7.2981 ppb	1.49888	20.54%
Se 196.026†	-76.5	36.143 µg/L	1.5196	36.143 ppb	1.5196	4.20%
SiO2†	147684.1	18429 µg/L	784.7	18429 ppb	784.7	4.26%
Si 251.611†	181617.2	8556.9 µg/L	354.23	8556.9 ppb	354.23	4.14%
Sn 189.927†	-221.4	-9.5868 µg/L	0.81218	-9.5868 ppb	0.81218	8.47%
Sr 421.552†	159060.9	776.27 µg/L	4.145	776.27 ppb	4.145	0.53%
Ti 334.940†	1756184.3	4406.0 µg/L	8.36	4406.0 ppb	8.36	0.19%
Tl 190.801†	-72.2	5.7256 µg/L	3.02157	5.7256 ppb	3.02157	52.77%
U 367.007†	3299.9	-83.79 µg/L	11.299	-83.79 ppb	11.299	13.48%
V 292.402†	32445.4	316.15 µg/L	1.964	316.15 ppb	1.964	0.62%
Zn 213.857†	627148.0	5751.8 µg/L	22.56	5751.8 ppb	22.56	0.39%

Sequence No.: 34 **Autosampler Location: 1**
Sample ID: CCV **Date Collected: 6/15/2012 15:42:48**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21914.1	21914.1	104	%			15:43:18
1	Al 396.153Radial†	16630.2	16095.1	4780.3	µg/L	4780.3	ppb	15:43:18
1	Ca 317.933Radial†	10299.9	9765.0	4630.6	µg/L	4630.6	ppb	15:43:38
1	Fe 238.204 Radial†	9130.6	8708.9	4754.5	µg/L	4754.5	ppb	15:43:38
1	K 766.490 Radial†	11285.6	10115.2	4783.1	µg/L	4783.1	ppb	15:43:18
1	Mg 279.077 IEC†	971.0	919.7	4872.4	µg/L	4872.4	ppb	15:43:38
1	Na 589.592 Radial†	4633.8	4481.6	9328.8	µg/L	9328.8	ppb	15:43:38
1	Sr 421.552†	99340.0	95717.0	467.41	µg/L	467.41	ppb	15:43:18
1	Sc 361.383	746953.4	746953.4	104.82	%			15:44:35
1	Y 371.029	644849.4	644849.4	104.16	%			15:44:35
1	Ag 328.068†	77622.3	74431.2	476.28	µg/L	476.28	ppb	15:44:40
1	As 188.979†	860.2	829.5	465.90	µg/L	465.90	ppb	15:45:00
1	B 249.677†	17244.1	16353.9	463.39	µg/L	463.39	ppb	15:44:40
1	Ba 233.527†	52785.5	50528.4	471.65	µg/L	471.65	ppb	15:44:40
1	Be 313.107†	850117.7	819010.6	474.26	µg/L	474.26	ppb	15:44:35
1	Cd 226.502†	33243.8	31940.0	474.28	µg/L	474.28	ppb	15:44:40
1	Co 228.616†	20478.8	19557.7	474.87	µg/L	474.87	ppb	15:44:40
1	Cr 267.716†	25446.6	24082.6	470.92	µg/L	470.92	ppb	15:44:40
1	Cu 324.752†	125361.2	113111.9	467.09	µg/L	467.09	ppb	15:44:40
1	Mn 257.610†	342956.0	326676.9	466.37	µg/L	466.37	ppb	15:44:40
1	Mo 202.031†	7230.1	6875.5	468.97	µg/L	468.97	ppb	15:45:00
1	Ni 231.604†	17213.7	16550.7	481.36	µg/L	481.36	ppb	15:44:40
1	P 214.914†	3400.7	3119.5	2322.3	µg/L	2322.3	ppb	15:45:00
1	Pb 220.353†	3429.2	3120.6	472.77	µg/L	472.77	ppb	15:45:00
1	S 181.975 Axial†	635.9	545.0	947.45	µg/L	947.45	ppb	15:45:00
1	Sb 206.836†	1547.9	1411.0	451.32	µg/L	451.32	ppb	15:45:00
1	Se 196.026†	678.0	652.1	487.33	µg/L	487.33	ppb	15:45:00
1	SiO2†	45685.4	40633.8	5092.8	µg/L	5092.8	ppb	15:44:40
1	Si 251.611†	53123.0	50497.5	2372.3	µg/L	2372.3	ppb	15:44:40
1	Sn 189.927†	2274.8	2143.4	470.29	µg/L	470.29	ppb	15:45:00
1	Ti 334.940†	195979.7	186972.8	468.59	µg/L	468.59	ppb	15:44:40
1	Tl 190.801†	1398.1	1382.2	475.01	µg/L	475.01	ppb	15:45:00
1	U 367.007†	2282.6	1883.2	439.7	µg/L	439.7	ppb	15:44:40
1	V 292.402†	50031.4	47790.3	475.46	µg/L	475.46	ppb	15:44:40
1	Zn 213.857†	55817.2	52048.6	475.52	µg/L	475.52	ppb	15:44:40
2	Sc RADIAL	21779.8	21779.8	104	%			15:43:43
2	Al 396.153Radial†	16474.7	16043.4	4764.7	µg/L	4764.7	ppb	15:43:43
2	Ca 317.933Radial†	10244.9	9772.7	4634.3	µg/L	4634.3	ppb	15:44:03
2	Fe 238.204 Radial†	9042.4	8677.8	4737.5	µg/L	4737.5	ppb	15:44:03
2	K 766.490 Radial†	11390.2	10282.6	4862.3	µg/L	4862.3	ppb	15:43:43
2	Mg 279.077 IEC†	967.3	921.9	4883.7	µg/L	4883.7	ppb	15:44:03
2	Na 589.592 Radial†	4582.3	4459.4	9282.5	µg/L	9282.5	ppb	15:44:03
2	Sr 421.552†	99432.5	96392.4	470.71	µg/L	470.71	ppb	15:43:43
2	Sc 361.383	741380.1	741380.1	104.04	%			15:45:06
2	Y 371.029	639049.5	639049.5	103.22	%			15:45:06
2	Ag 328.068†	77672.7	75036.3	480.13	µg/L	480.13	ppb	15:45:11
2	As 188.979†	867.9	843.0	473.51	µg/L	473.51	ppb	15:45:31
2	B 249.677†	17272.5	16504.9	467.68	µg/L	467.68	ppb	15:45:11
2	Ba 233.527†	52719.3	50843.3	474.59	µg/L	474.59	ppb	15:45:11
2	Be 313.107†	850162.4	825150.2	477.82	µg/L	477.82	ppb	15:45:06
2	Cd 226.502†	33178.9	32116.0	476.90	µg/L	476.90	ppb	15:45:11
2	Co 228.616†	20485.7	19711.2	478.60	µg/L	478.60	ppb	15:45:11
2	Cr 267.716†	25448.1	24266.5	474.52	µg/L	474.52	ppb	15:45:11
2	Cu 324.752†	125348.0	113998.3	470.75	µg/L	470.75	ppb	15:45:11
2	Mn 257.610†	342780.1	328967.4	469.64	µg/L	469.64	ppb	15:45:11
2	Mo 202.031†	7237.4	6934.3	472.98	µg/L	472.98	ppb	15:45:31
2	Ni 231.604†	17112.5	16576.8	482.12	µg/L	482.12	ppb	15:45:11
2	P 214.914†	3423.4	3165.7	2356.8	µg/L	2356.8	ppb	15:45:31
2	Pb 220.353†	3430.1	3146.1	476.64	µg/L	476.64	ppb	15:45:31

2	S 181.975 Axial†	632.7	546.5	949.98 µg/L	949.98 ppb	15:45:31
2	Sb 206.836†	1538.7	1413.2	452.03 µg/L	452.03 ppb	15:45:31
2	Se 196.026†	671.3	650.6	486.20 µg/L	486.20 ppb	15:45:31
2	SiO2†	45722.1	40996.7	5138.2 µg/L	5138.2 ppb	15:45:11
2	Si 251.611†	53116.8	50872.6	2389.9 µg/L	2389.9 ppb	15:45:11
2	Sn 189.927†	2286.9	2171.4	476.40 µg/L	476.40 ppb	15:45:31
2	Ti 334.940†	195956.2	188355.7	472.05 µg/L	472.05 ppb	15:45:11
2	Tl 190.801†	1391.9	1386.3	476.41 µg/L	476.41 ppb	15:45:31
2	U 367.007†	2256.8	1874.8	437.8 µg/L	437.8 ppb	15:45:11
2	V 292.402†	50043.5	48160.8	479.15 µg/L	479.15 ppb	15:45:11
2	Zn 213.857†	55611.2	52250.9	477.38 µg/L	477.38 ppb	15:45:11
3	Sc RADIAL	21914.9	21914.9	104 %		15:44:08
3	Al 396.153Radial†	16468.4	15939.6	4733.7 µg/L	4733.7 ppb	15:44:08
3	Ca 317.933Radial†	10253.1	9719.8	4609.2 µg/L	4609.2 ppb	15:44:28
3	Fe 238.204 Radial†	9025.2	8607.7	4699.3 µg/L	4699.3 ppb	15:44:28
3	K 766.490 Radial†	11344.9	10171.5	4809.7 µg/L	4809.7 ppb	15:44:08
3	Mg 279.077 IEC†	967.0	915.8	4852.0 µg/L	4852.0 ppb	15:44:28
3	Na 589.592 Radial†	4543.5	4395.0	9148.5 µg/L	9148.5 ppb	15:44:28
3	Sr 421.552†	99884.6	96234.7	469.94 µg/L	469.94 ppb	15:44:08
3	Sc 361.383	738581.6	738581.6	103.65 %		15:45:36
3	Y 371.029	637017.4	637017.4	102.89 %		15:45:36
3	Ag 328.068†	77696.4	75342.1	482.07 µg/L	482.07 ppb	15:45:42
3	As 188.979†	866.8	845.1	474.67 µg/L	474.67 ppb	15:46:02
3	B 249.677†	17289.8	16584.5	469.94 µg/L	469.94 ppb	15:45:42
3	Ba 233.527†	52708.3	51024.8	476.29 µg/L	476.29 ppb	15:45:42
3	Be 313.107†	849587.1	827691.4	479.29 µg/L	479.29 ppb	15:45:36
3	Cd 226.502†	33089.7	32150.8	477.42 µg/L	477.42 ppb	15:45:42
3	Co 228.616†	20440.3	19742.0	479.34 µg/L	479.34 ppb	15:45:42
3	Cr 267.716†	25403.7	24316.3	475.47 µg/L	475.47 ppb	15:45:42
3	Cu 324.752†	125707.0	114801.1	474.03 µg/L	474.03 ppb	15:45:42
3	Mn 257.610†	342188.9	329645.4	470.60 µg/L	470.60 ppb	15:45:42
3	Mo 202.031†	7224.6	6948.3	473.93 µg/L	473.93 ppb	15:46:02
3	Ni 231.604†	17085.4	16613.0	483.17 µg/L	483.17 ppb	15:45:42
3	P 214.914†	3416.9	3171.9	2361.4 µg/L	2361.4 ppb	15:46:02
3	Pb 220.353†	3402.9	3132.3	474.56 µg/L	474.56 ppb	15:46:02
3	S 181.975 Axial†	637.8	553.7	962.65 µg/L	962.65 ppb	15:46:02
3	Sb 206.836†	1541.6	1421.7	454.76 µg/L	454.76 ppb	15:46:02
3	Se 196.026†	671.9	653.6	488.46 µg/L	488.46 ppb	15:46:02
3	SiO2†	45782.0	41221.0	5166.4 µg/L	5166.4 ppb	15:45:42
3	Si 251.611†	53299.3	51242.1	2407.3 µg/L	2407.3 ppb	15:45:42
3	Sn 189.927†	2291.6	2184.2	479.20 µg/L	479.20 ppb	15:46:02
3	Ti 334.940†	196036.2	189146.5	474.03 µg/L	474.03 ppb	15:45:42
3	Tl 190.801†	1394.5	1393.8	479.01 µg/L	479.01 ppb	15:46:02
3	U 367.007†	2322.5	1946.4	455.5 µg/L	455.5 ppb	15:45:42
3	V 292.402†	49967.1	48269.3	480.24 µg/L	480.24 ppb	15:45:42
3	Zn 213.857†	55583.4	52426.5	478.99 µg/L	478.99 ppb	15:45:42

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	742305.0	104.17	%	0.598				0.57%
Sc RADIAL	21869.6	104	%	0.4				0.36%
Y 371.029	640305.4	103.42	%	0.656				0.63%
Ag 328.068†	74936.5	479.49	µg/L	2.949	479.49	ppb	2.949	0.62%
QC value within limits for Ag 328.068 Recovery = 95.90%								
Al 396.153Radial†	16026.0	4759.6	µg/L	23.70	4759.6	ppb	23.70	0.50%
QC value within limits for Al 396.153Radial Recovery = 95.19%								
As 188.979†	839.2	471.36	µg/L	4.766	471.36	ppb	4.766	1.01%
QC value within limits for As 188.979 Recovery = 94.27%								
B 249.677†	16481.1	467.00	µg/L	3.329	467.00	ppb	3.329	0.71%
QC value within limits for B 249.677 Recovery = 93.40%								
Ba 233.527†	50798.8	474.18	µg/L	2.346	474.18	ppb	2.346	0.49%
QC value within limits for Ba 233.527 Recovery = 94.84%								
Be 313.107†	823950.7	477.12	µg/L	2.585	477.12	ppb	2.585	0.54%
QC value within limits for Be 313.107 Recovery = 95.42%								
Ca 317.933Radial†	9752.5	4624.7	µg/L	13.56	4624.7	ppb	13.56	0.29%
QC value within limits for Ca 317.933Radial Recovery = 92.49%								
Cd 226.502†	32068.9	476.20	µg/L	1.684	476.20	ppb	1.684	0.35%
QC value within limits for Cd 226.502 Recovery = 95.24%								
Co 228.616†	19670.3	477.60	µg/L	2.396	477.60	ppb	2.396	0.50%

QC value within limits for Co 228.616 Recovery = 95.52%

Cr 267.716†	24221.8	473.64 µg/L	2.404	473.64 ppb	2.404	0.51%

QC value within limits for Cr 267.716 Recovery = 94.73%

Cu 324.752†	113970.4	470.62 µg/L	3.474	470.62 ppb	3.474	0.74%

QC value within limits for Cu 324.752 Recovery = 94.12%

Fe 238.204 Radial†	8664.8	4730.4 µg/L	28.26	4730.4 ppb	28.26	0.60%

QC value within limits for Fe 238.204 Radial Recovery = 94.61%

K 766.490 Radial†	10189.8	4818.4 µg/L	40.28	4818.4 ppb	40.28	0.84%

QC value within limits for K 766.490 Radial Recovery = 96.37%

Mg 279.077 IEC†	919.1	4869.4 µg/L	16.03	4869.4 ppb	16.03	0.33%

QC value within limits for Mg 279.077 IEC Recovery = 97.39%

Mn 257.610†	328429.9	468.87 µg/L	2.217	468.87 ppb	2.217	0.47%

QC value within limits for Mn 257.610 Recovery = 93.77%

Mo 202.031†	6919.4	471.96 µg/L	2.633	471.96 ppb	2.633	0.56%

QC value within limits for Mo 202.031 Recovery = 94.39%

Na 589.592 Radial†	4445.3	9253.3 µg/L	93.63	9253.3 ppb	93.63	1.01%

QC value within limits for Na 589.592 Radial Recovery = 92.53%

Ni 231.604†	16580.1	482.22 µg/L	0.909	482.22 ppb	0.909	0.19%

QC value within limits for Ni 231.604 Recovery = 96.44%

P 214.914†	3152.3	2346.8 µg/L	21.37	2346.8 ppb	21.37	0.91%

QC value within limits for P 214.914 Recovery = 93.87%

Pb 220.353†	3133.0	474.66 µg/L	1.939	474.66 ppb	1.939	0.41%

QC value within limits for Pb 220.353 Recovery = 94.93%

S 181.975 Axial†	548.4	953.36 µg/L	8.142	953.36 ppb	8.142	0.85%

QC value within limits for S 181.975 Axial Recovery = 95.34%

Sb 206.836†	1415.3	452.71 µg/L	1.814	452.71 ppb	1.814	0.40%

QC value within limits for Sb 206.836 Recovery = 90.54%

Se 196.026†	652.1	487.33 µg/L	1.131	487.33 ppb	1.131	0.23%

QC value within limits for Se 196.026 Recovery = 97.47%

SiO2†	40950.5	5132.5 µg/L	37.10	5132.5 ppb	37.10	0.72%

QC value within limits for SiO2 Recovery = 95.98%

Si 251.611†	50870.7	2389.8 µg/L	17.50	2389.8 ppb	17.50	0.73%

QC value within limits for Si 251.611 Recovery = 95.59%

Sn 189.927†	2166.3	475.29 µg/L	4.557	475.29 ppb	4.557	0.96%

QC value within limits for Sn 189.927 Recovery = 95.06%

Sr 421.552†	96114.7	469.35 µg/L	1.726	469.35 ppb	1.726	0.37%

QC value within limits for Sr 421.552 Recovery = 93.87%

Ti 334.940†	188158.3	471.56 µg/L	2.755	471.56 ppb	2.755	0.58%

QC value within limits for Ti 334.940 Recovery = 94.31%

Tl 190.801†	1387.4	476.81 µg/L	2.031	476.81 ppb	2.031	0.43%

QC value within limits for Tl 190.801 Recovery = 95.36%

U 367.007†	1901.4	444.4 µg/L	9.74	444.4 ppb	9.74	2.19%

QC value less than the lower limit for U 367.007 Recovery = 88.87%

V 292.402†	48073.5	478.28 µg/L	2.503	478.28 ppb	2.503	0.52%

QC value within limits for V 292.402 Recovery = 95.66%

Zn 213.857†	52242.0	477.30 µg/L	1.738	477.30 ppb	1.738	0.36%

QC value within limits for Zn 213.857 Recovery = 95.46%

QC Failed. Continue with analysis.

Sequence No.: 35 **Autosampler Location: 6**
Sample ID: CCB **Date Collected: 6/15/2012 15:46:09**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	21536.1	21536.1	103	%			15:46:38
1	Al 396.153Radial†	-175.9	2.4	0.6610	µg/L	0.6610	ppb	15:46:38
1	Ca 317.933Radial†	107.0	8.4	3.9918	µg/L	3.9918	ppb	15:46:58
1	Fe 238.204 Radial†	48.4	14.7	8.0402	µg/L	8.0402	ppb	15:46:58
1	K 766.490 Radial†	963.5	249.3	117.99	µg/L	117.99	ppb	15:46:38
1	Mg 279.077 IEC†	6.2	-3.9	-20.345	µg/L	-20.345	ppb	15:46:58
1	Na 589.592 Radial†	-104.4	-56.3	-117.22	µg/L	-117.22	ppb	15:46:38
1	Sr 421.552†	-562.6	63.9	0.3120	µg/L	0.3120	ppb	15:46:38
1	Sc 361.383	731425.2	731425.2	102.64	%			15:47:55
1	Y 371.029	635252.3	635252.3	102.60	%			15:47:55
1	Ag 328.068†	-283.6	102.8	0.6553	µg/L	0.6553	ppb	15:48:00
1	As 188.979†	-17.4	-8.1	-4.5769	µg/L	-4.5769	ppb	15:48:20
1	B 249.677†	172.1	70.7	2.0067	µg/L	2.0067	ppb	15:48:20
1	Ba 233.527†	-146.8	27.8	0.2588	µg/L	0.2588	ppb	15:48:20
1	Be 313.107†	-7648.1	543.2	0.3158	µg/L	0.3158	ppb	15:48:00
1	Cd 226.502†	-208.0	22.6	0.3343	µg/L	0.3343	ppb	15:48:20
1	Co 228.616†	-11.8	9.3	0.2287	µg/L	0.2287	ppb	15:48:20
1	Cr 267.716†	199.7	0.9	0.0114	µg/L	0.0114	ppb	15:48:20
1	Cu 324.752†	6512.0	-138.9	-0.5757	µg/L	-0.5757	ppb	15:48:00
1	Mn 257.610†	607.4	87.1	0.1257	µg/L	0.1257	ppb	15:48:20
1	Mo 202.031†	47.2	23.9	1.6272	µg/L	1.6272	ppb	15:48:20
1	Ni 231.604†	-146.3	-13.8	-0.4023	µg/L	-0.4023	ppb	15:48:20
1	P 214.914†	133.3	5.0	3.7619	µg/L	3.7619	ppb	15:48:20
1	Pb 220.353†	163.7	8.6	1.3032	µg/L	1.3032	ppb	15:48:20
1	S 181.975 Axial†	57.0	-6.2	-10.686	µg/L	-10.686	ppb	15:48:20
1	Sb 206.836†	97.3	29.1	9.4006	µg/L	9.4006	ppb	15:48:20
1	Se 196.026†	-5.3	0.1	0.1253	µg/L	0.1253	ppb	15:48:20
1	SiO2†	3039.2	10.6	1.4177	µg/L	1.4177	ppb	15:48:00
1	Si 251.611†	319.1	128.8	6.0451	µg/L	6.0451	ppb	15:48:20
1	Sn 189.927†	34.2	6.6	1.4374	µg/L	1.4374	ppb	15:48:20
1	Ti 334.940†	-59.0	-50.3	-0.1286	µg/L	-0.1286	ppb	15:48:00
1	Tl 190.801†	-42.1	7.4	2.5500	µg/L	2.5500	ppb	15:48:20
1	U 367.007†	328.5	25.7	6.254	µg/L	6.254	ppb	15:48:00
1	V 292.402†	-45.0	16.3	0.1839	µg/L	0.1839	ppb	15:48:00
1	Zn 213.857†	1517.5	277.2	2.5562	µg/L	2.5562	ppb	15:48:20
2	Sc RADIAL	21374.8	21374.8	102	%			15:47:03
2	Al 396.153Radial†	-164.8	12.1	3.5084	µg/L	3.5084	ppb	15:47:03
2	Ca 317.933Radial†	109.0	11.1	5.2787	µg/L	5.2787	ppb	15:47:23
2	Fe 238.204 Radial†	44.2	11.0	5.9856	µg/L	5.9856	ppb	15:47:23
2	K 766.490 Radial†	926.1	219.8	104.01	µg/L	104.01	ppb	15:47:03
2	Mg 279.077 IEC†	14.8	4.6	24.480	µg/L	24.480	ppb	15:47:23
2	Na 589.592 Radial†	-148.1	-100.0	-208.18	µg/L	-208.18	ppb	15:47:03
2	Sr 421.552†	-587.2	35.6	0.1739	µg/L	0.1739	ppb	15:47:03
2	Sc 361.383	731484.2	731484.2	102.65	%			15:48:25
2	Y 371.029	634302.9	634302.9	102.45	%			15:48:25
2	Ag 328.068†	-334.0	53.8	0.3444	µg/L	0.3444	ppb	15:48:30
2	As 188.979†	-9.9	-0.8	-0.4742	µg/L	-0.4742	ppb	15:48:50
2	B 249.677†	115.3	15.3	0.4338	µg/L	0.4338	ppb	15:48:50
2	Ba 233.527†	-162.3	12.7	0.1190	µg/L	0.1190	ppb	15:48:50
2	Be 313.107†	-7733.1	461.0	0.2687	µg/L	0.2687	ppb	15:48:30
2	Cd 226.502†	-205.1	25.4	0.3775	µg/L	0.3775	ppb	15:48:50
2	Co 228.616†	-13.3	7.9	0.1952	µg/L	0.1952	ppb	15:48:50
2	Cr 267.716†	206.8	7.8	0.1453	µg/L	0.1453	ppb	15:48:50
2	Cu 324.752†	6503.2	-147.9	-0.6152	µg/L	-0.6152	ppb	15:48:30
2	Mn 257.610†	599.8	79.7	0.1136	µg/L	0.1136	ppb	15:48:50
2	Mo 202.031†	56.7	33.1	2.2594	µg/L	2.2594	ppb	15:48:50
2	Ni 231.604†	-122.2	9.6	0.2794	µg/L	0.2794	ppb	15:48:50
2	P 214.914†	128.5	0.4	0.2718	µg/L	0.2718	ppb	15:48:50
2	Pb 220.353†	172.2	16.8	2.5521	µg/L	2.5521	ppb	15:48:50

2	S 181.975 Axial†	61.9	-1.4	-2.3532 µg/L	-2.3532 ppb	15:48:50
2	Sb 206.836†	84.5	16.6	5.3889 µg/L	5.3889 ppb	15:48:50
2	Se 196.026†	-1.3	4.1	3.0422 µg/L	3.0422 ppb	15:48:50
2	SiO2†	3030.1	1.5	0.3331 µg/L	0.3331 ppb	15:48:30
2	Si 251.611†	346.0	155.0	7.2754 µg/L	7.2754 ppb	15:48:50
2	Sn 189.927†	31.3	3.8	0.8181 µg/L	0.8181 ppb	15:48:50
2	Ti 334.940†	-22.9	-15.1	-0.0419 µg/L	-0.0419 ppb	15:48:30
2	Tl 190.801†	-39.9	9.6	3.2716 µg/L	3.2716 ppb	15:48:50
2	U 367.007†	338.2	35.0	8.558 µg/L	8.558 ppb	15:48:30
2	V 292.402†	-31.6	29.4	0.3215 µg/L	0.3215 ppb	15:48:30
2	Zn 213.857†	1508.7	268.4	2.4717 µg/L	2.4717 ppb	15:48:50
3	Sc RADIAL	21661.3	21661.3	103 %		15:47:28
3	Al 396.153Radial†	-131.8	46.1	13.633 µg/L	13.633 ppb	15:47:28
3	Ca 317.933Radial†	100.3	1.3	0.6226 µg/L	0.6226 ppb	15:47:48
3	Fe 238.204 Radial†	39.1	5.4	2.9634 µg/L	2.9634 ppb	15:47:48
3	K 766.490 Radial†	973.1	253.2	119.86 µg/L	119.86 ppb	15:47:28
3	Mg 279.077 IEC†	6.2	-3.9	-20.616 µg/L	-20.616 ppb	15:47:48
3	Na 589.592 Radial†	-94.2	-45.8	-95.428 µg/L	-95.428 ppb	15:47:28
3	Sr 421.552†	-628.9	2.9	0.0141 µg/L	0.0141 ppb	15:47:28
3	Sc 361.383	731366.4	731366.4	102.63 %		15:48:55
3	Y 371.029	635194.7	635194.7	102.60 %		15:48:55
3	Ag 328.068†	-315.7	71.5	0.4548 µg/L	0.4548 ppb	15:49:00
3	As 188.979†	-12.6	-3.4	-1.9482 µg/L	-1.9482 ppb	15:49:20
3	B 249.677†	127.8	27.5	0.7797 µg/L	0.7797 ppb	15:49:20
3	Ba 233.527†	-160.9	14.0	0.1309 µg/L	0.1309 ppb	15:49:20
3	Be 313.107†	-7730.6	462.2	0.2696 µg/L	0.2696 ppb	15:49:00
3	Cd 226.502†	-220.7	10.2	0.1513 µg/L	0.1513 ppb	15:49:20
3	Co 228.616†	-16.9	4.3	0.1102 µg/L	0.1102 ppb	15:49:20
3	Cr 267.716†	177.8	-20.4	-0.4096 µg/L	-0.4096 ppb	15:49:20
3	Cu 324.752†	6547.8	-103.5	-0.4343 µg/L	-0.4343 ppb	15:49:00
3	Mn 257.610†	581.1	61.6	0.0888 µg/L	0.0888 ppb	15:49:20
3	Mo 202.031†	68.5	44.7	3.0484 µg/L	3.0484 ppb	15:49:20
3	Ni 231.604†	-136.7	-4.5	-0.1316 µg/L	-0.1316 ppb	15:49:20
3	P 214.914†	123.7	-4.3	-3.2016 µg/L	-3.2016 ppb	15:49:20
3	Pb 220.353†	167.4	12.2	1.8493 µg/L	1.8493 ppb	15:49:20
3	S 181.975 Axial†	60.2	-3.0	-5.1271 µg/L	-5.1271 ppb	15:49:20
3	Sb 206.836†	93.9	25.7	8.3516 µg/L	8.3516 ppb	15:49:20
3	Se 196.026†	-0.4	4.9	3.6659 µg/L	3.6659 ppb	15:49:20
3	SiO2†	2986.7	-40.2	-4.8680 µg/L	-4.8680 ppb	15:49:00
3	Si 251.611†	387.3	195.3	9.1659 µg/L	9.1659 ppb	15:49:20
3	Sn 189.927†	31.9	4.4	0.9497 µg/L	0.9497 ppb	15:49:20
3	Ti 334.940†	-129.7	-119.2	-0.3030 µg/L	-0.3030 ppb	15:49:00
3	Tl 190.801†	-34.6	14.7	5.0227 µg/L	5.0227 ppb	15:49:20
3	U 367.007†	344.0	40.8	9.984 µg/L	9.984 ppb	15:49:00
3	V 292.402†	-53.6	7.9	0.1191 µg/L	0.1191 ppb	15:49:00
3	Zn 213.857†	1504.9	265.0	2.4428 µg/L	2.4428 ppb	15:49:20

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	731425.3	102.64	%	0.008				0.01%
Sc RADIAL	21524.1	103	%	0.7				0.67%
Y 371.029	634916.6	102.55	%	0.086				0.08%
Ag 328.068†	76.0	0.4849	µg/L	0.15764	0.4849	ppb	0.15764	32.51%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	20.2	5.9342	µg/L	6.81791	5.9342	ppb	6.81791	114.89%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-4.1	-2.3331	µg/L	2.07825	-2.3331	ppb	2.07825	89.08%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	37.8	1.0734	µg/L	0.82654	1.0734	ppb	0.82654	77.00%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	18.2	0.1696	µg/L	0.07752	0.1696	ppb	0.07752	45.72%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	488.8	0.2847	µg/L	0.02697	0.2847	ppb	0.02697	9.47%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	7.0	3.2977	µg/L	2.40439	3.2977	ppb	2.40439	72.91%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	19.4	0.2877	µg/L	0.12009	0.2877	ppb	0.12009	41.75%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	7.2	0.1780	µg/L	0.06111	0.1780	ppb	0.06111	34.33%

```
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -3.9     -0.0843 µg/L       0.28955     -0.0843 ppb        0.28955 343.56%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†            -130.1     -0.5417 µg/L       0.09509     -0.5417 ppb        0.09509  17.55%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†       10.4      5.6631 µg/L       2.55376      5.6631 ppb        2.55376  45.09%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†       240.8      113.95 µg/L         8.661      113.95 ppb          8.661   7.60%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          -1.1     -5.4938 µg/L      25.95883     -5.4938 ppb       25.95883 472.51%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              76.1      0.1093 µg/L       0.01881      0.1093 ppb        0.01881  17.21%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              33.9      2.3117 µg/L       0.71205      2.3117 ppb        0.71205  30.80%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -67.4     -140.28 µg/L        59.806     -140.28 ppb         59.806  42.63%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -2.9     -0.0848 µg/L       0.34323     -0.0848 ppb        0.34323 404.54%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                0.4      0.2773 µg/L       3.48176      0.2773 ppb        3.48176 >999.9%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              12.5      1.9015 µg/L       0.62611      1.9015 ppb        0.62611  32.93%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -3.5     -6.0555 µg/L       4.24339     -6.0555 ppb        4.24339  70.07%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              23.8      7.7137 µg/L       2.08052      7.7137 ppb        2.08052  26.97%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               3.0      2.2778 µg/L       1.89004      2.2778 ppb        1.89004  82.98%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    -9.3     -1.0391 µg/L       3.35997     -1.0391 ppb        3.35997 323.36%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             159.7      7.4955 µg/L       1.57200      7.4955 ppb        1.57200  20.97%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               4.9      1.0684 µg/L       0.32627      1.0684 ppb        0.32627  30.54%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              34.1      0.1667 µg/L       0.14907      0.1667 ppb        0.14907  89.43%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†            -61.5      -0.1578 µg/L       0.13298     -0.1578 ppb        0.13298  84.25%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†              10.6      3.6148 µg/L       1.27156      3.6148 ppb        1.27156  35.18%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               33.8       8.265 µg/L        1.8822       8.265 ppb         1.8822  22.77%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               17.9      0.2081 µg/L       0.10335      0.2081 ppb        0.10335  49.66%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             270.2      2.4902 µg/L       0.05895      2.4902 ppb        0.05895   2.37%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Miscellaneous

Prep Logbook

Acid Digestion of Sediments, Sludges, and Soils

Batch ID: **1221777.0** Verified by: _____

Analyst: Anthony Green

Method: SW846 3050B

Lab SOP: GL-MA-E-009 REV# 21

Instrument: BAL-001

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1202679759	Metals Spike Mix I	UI1778680-01	.25	mL
LCS	1202679759	Metals Spike Mix II	UI1778684-06	.25	mL
MS	1202679761	Metals Spike Mix I	UI1778680-01	.25	mL
MS	1202679761	Metals Spike Mix II	UI1778684-06	.25	mL
MSD	1202679764	Metals Spike Mix I	UI1778680-01	.25	mL
MSD	1202679764	Metals Spike Mix II	UI1778684-06	.25	mL

Sample ID	Run Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)	pH Check 1
1202679758 MB	15-JUN-2012 10:00:00	Soil	0.523	50	95.60229	
1202679759 LCS	15-JUN-2012 10:00:00	Soil	0.517	50	96.7118	
306122001	15-JUN-2012 10:00:00	Soil	0.501	50	99.8004	
306122002	15-JUN-2012 10:00:00	Soil	0.554	50	90.25271	
306122003	15-JUN-2012 10:00:00	Soil	0.5	50	100	
306122004	15-JUN-2012 10:00:00	Soil	0.526	50	95.05703	
306122005	15-JUN-2012 10:00:00	Soil	0.542	50	92.25092	
1202679760 DUP (306122005)	15-JUN-2012 10:00:00	Soil	0.54	50	92.59259	
1202679761 MS (306122005)	15-JUN-2012 10:00:00	Soil	0.516	50	96.89922	
1202679764 MSD (306122005)	15-JUN-2012 10:00:00	Soil	0.509	50	98.23183	
1202679762 SDILT (306122005)	15-JUN-2012 10:00:00	Soil	0.542	50	92.25092	
306122006	15-JUN-2012 10:00:00	Soil	0.513	50	97.46589	
306122007	15-JUN-2012 10:00:00	Soil	0.511	50	97.84736	
306122008	15-JUN-2012 10:00:00	Soil	0.536	50	93.28358	
306122009	15-JUN-2012 10:00:00	Soil	0.505	50	99.0099	
306122010	15-JUN-2012 10:00:00	Soil	0.524	50	95.41985	
306122011	15-JUN-2012 10:00:00	Soil	0.514	50	97.27626	

Reagent/Solvent Lot ID	Description	Amount
1739602	Concentrated Nitric Acid	1.25 mL
1783239	HYDROCHLORIC ACID	10 mL

Comments:

Sample 306122005 consist of brown, soft soil.

Hot Block ID: 5

Thermometer ID: 119004

Block Temperature: 92 C

Serial ID: UI110317-42 **Open/Reference Date:** 15-AUG-11 **Amount :** 200 mL
Name: SILICON **Received:** 17-MAR-11 **Catalog Number :** HP100050-4F
Type: Source Material **Expires:** 15-AUG-12 **Lot Number :** 1029420
Employee: Helen Camello **Solvent :** H20/tr HF
Supplier: High-Purity Standards
Description: SILICON 1000mg/L H20/tr HF
Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI110614-40 **Open/Reference Date:** 27-JUN-11 **Amount :** 500 mL
Name: TRACE ICP Stock PQL Sta **Received:** 14-JUN-11 **Catalog Number :** 160543-01-03
Type: Source Material **Expires:** 27-JUN-12 **Lot Number :** 1026653
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3+TrHF
Supplier: 02si
Description: TRACE ICP Stock PQL Standard
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	100 mg/L	Antimony	5 mg/L
Arsenic	15 mg/L	Barium	2.5 mg/L
Beryllium	2.5 mg/L	Boron	25 mg/L
Cadmium	2.5 mg/L	Calcium	100 mg/L
Chromium	2.5 mg/L	Cobalt	2.5 mg/L
Copper	5 mg/L	Iron	50 mg/L
Lead	5 mg/L	Magnesium	150 mg/L
Manganese	5 mg/L	Molybdenum	5 mg/L
Nickel	2.5 mg/L	Phosphorous	75 mg/L
Potassium	75 mg/L	Selenium	15 mg/L
Silicon	50 mg/L	Silver	2.5 mg/L
Sodium	150 mg/L	Strontium	2.5 mg/L
Sulfur	50 mg/L	Thallium	10 mg/L
Tin	5 mg/L	Titanium	2.5 mg/L
Uranium	25 mg/L	Vanadium	2.5 mg/L
Zinc	5 mg/L		

Serial ID: UI111118-41 **Open/Reference Date:** 22-NOV-11 **Amount :** 500 mL
Name: SI 1000mg/L **Received:** 15-NOV-11 **Catalog Number :** 060014-02-03
Type: Source Material **Expires:** 22-NOV-12 **Lot Number :** 1030808
Employee: Helen Camello **Solvent :** 0.3%H2O(NH4)2SiF6
Supplier: o2si
Description: Silicon 1000mg/L+/-0.3%in H2O(NH4)2SiF6
Comments: None

Analyte	Concentration	Analyte	Concentration

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI111122-40 **Open/Reference Date:** 22-NOV-11 **Amount :** 500 mL
Name: TRACE CALSTD#1A SOUR **Received:** 18-NOV-11 **Catalog Number :** HP2270-1-500
Type: Source Material **Expires:** 17-NOV-12 **Lot Number :** 1131927
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Std #1A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	2000 mg/L	Arsenic	200 mg/L
Barium	200 mg/L	Beryllium	200 mg/L
Boron	200 mg/L	Cadmium	200 mg/L
Calcium	2000 mg/L	Chromium	200 mg/L
Cobalt	200 mg/L	Copper	200 mg/L
Iron	2000 mg/L	Lead	200 mg/L
Magnesium	2000 mg/L	Manganese	200 mg/L
Nickel	200 mg/L	Phosphorous	1000 mg/L
Potassium	2000 mg/L	Selenium	200 mg/L
Sodium	2000 mg/L	Strontium	200 mg/L
Thallium	200 mg/L	Uranium	200 mg/L
Vanadium	200 mg/L	Zinc	200 mg/L

Serial ID: UI111122-41 **Open/Reference Date:** 22-NOV-11 **Amount :** 500 mL
Name: TRACE CALSTD#1B SOUR **Received:** 18-NOV-11 **Catalog Number :** HP2270-2-500
Type: Source Material **Expires:** 17-NOV-12 **Lot Number :** 1131926
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Standard #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	200 mg/L	Molybdenum	200 mg/L
Silver	200 mg/L	Sulfur	400 mg/L
Tin	200 mg/L	Titanium	200 mg/L

Serial ID: UI111223-41 **Open/Reference Date:** 12-JAN-12 **Amount :** 500 mL
Name: TRACE ICP Na-1000SOUR **Received:** 23-DEC-11 **Catalog Number :** 060011-02-03
Type: Source Material **Expires:** 12-JAN-13 **Lot Number :** 1027488
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: 02SI
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI120320-40 **Open/Reference Date:** 20-MAR-12 **Amount :** 500 mL
Name: TRACE ICP ICSA SOLN A **Received:** 19-MAR-12 **Catalog Number :** 160005-01-03
Type: Source Material **Expires:** 20-MAR-13 **Lot Number :** 1034867
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: o2si
Description: TRACE ICP ICSA SOLN A mg/L+/-0.5%IN5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	5000 mg/L	Calcium	5000 mg/L
Iron	2000 mg/L	Magnesium	5000 mg/L

Serial ID: UI120417-40 **Open/Reference Date:** 01-MAY-12 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 16-APR-12 **Catalog Number :** 160358-01-03
Type: Source Material **Expires:** 01-MAY-13 **Lot Number :** 1035452
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: 02si
Description: SECOND SOURCE STD #1A 5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 mg/L	Arsenic	100 mg/L
Barium	100 mg/L	Boron	100 mg/L
Cadmium	100 mg/L	Calcium	1000 mg/L
Chromium	100 mg/L	Cobalt	100 mg/L
Copper	100 mg/L	Iron	1000 mg/L
Lead	100 mg/L	Phosphorous	500 mg/L
Potassium	500 mg/L	Selenium	500 mg/L
Sodium	500 mg/L	Strontium	100 mg/L

Serial ID: UI120417-41 **Open/Reference Date:** 01-MAY-12 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 16-APR-12 **Catalog Number :** 130358-01-03
Type: Source Material **Expires:** 01-MAY-13 **Lot Number :** 1035452
Employee: Helen Camello **Solvent :** 5%HNO3,TR.HF
Supplier: 02si
Description: SECOND SOURCE STD #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 mg/L	Beryllium	50 mg/L
Magnesium	1000 mg/L	Manganese	100 mg/L
Molybdenum	100 mg/L	Nickel	100 mg/L

Analyte	Concentration	Analyte	Concentration
Silver	50 mg/L	Sulfur	500 mg/L
Thallium	100 mg/L	Tin	100 mg/L
Titanium	100 mg/L	Uranium	100 mg/L
Vanadium	100 mg/L	Zinc	100 mg/L

Serial ID: UI120430-41 **Open/Reference Date:** 07-MAY-12 **Amount :** 500 mL
Name: TRACE ICP Na-1000SOUR **Received:** 23-APR-12 **Catalog Number :** 060011-02-03
Type: Source Material **Expires:** 07-MAY-13 **Lot Number :** 1035510
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: 02SI
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI120516-48.2 **Open/Reference Date:** 07-JUN-12 **Amount :** 1000 mL
Name: Trace ICP ICSA **Received:** 16-MAY-12 **Catalog Number :** 160005-02
Type: Source Material **Expires:** 07-JUN-13 **Lot Number :** 1036389
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Interferent Check Standard A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 UG/L	Calcium	500000 UG/L
Iron	200000 UG/L	Magnesium	500000 UG/L

Serial ID: UI120530-40 **Open/Reference Date:** 30-MAY-12 **Amount :** 500 mL
Name: ICP HIGH RANGE STD-A **Received:** 25-MAY-12 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 30-MAY-13 **Lot Number :** 1036537
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION A
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	10000 ug/L	Arsenic	10000 ug/L
Barium	15000 ug/L	Beryllium	3000 ug/L
Boron	5000 ug/L	Cadmium	10000 ug/L
Chromium	25000 ug/L	Cobalt	10000 ug/L
Copper	20000 ug/L	Lead	25000 ug/L
Manganese	10000 ug/L	Molybdenum	10000 ug/L
Nickel	10000 ug/L	Phosphorous	15000 ug/L

Analyte	Concentration	Analyte	Concentration
Potassium	300000 ug/L	Selenium	10000 ug/L
Silica	107000 ug/L	Silicon	50000 ug/L
Silver	1000 ug/L	Strontium	10000 ug/L
Thallium	10000 ug/L	Tin	10000 ug/L
Titanium	10000 ug/L	Vanadium	10000 ug/L
Zinc	15000 ug/L		

Serial ID: UI120530-41 **Open/Reference Date:** 30-MAY-12 **Amount :** 500 mL
Name: ICP HIGH RANGE STD B **Received:** 25-MAY-12 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 30-MAY-13 **Lot Number :** 1036537
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION B
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Calcium	500000 ug/L
Iron	500000 ug/L	Magnesium	500000 ug/L
Sodium	500000 ug/L	Sulfur	50000 ug/L
Uranium	15000 ug/L		

Serial ID: UI120612-49.1 **Open/Reference Date:** 15-JUN-12 **Amount :** 100 ml
Name: Trace ICP ICSAB **Received:** 14-JUN-12 **Catalog Number :** 160066-04
Type: Source Material **Expires:** 16-JUN-12 **Lot Number :** 1036945
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Inteferent Check Standard AB
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Antimony	500 ug/L
Arsenic	500 ug/L	Barium	500 ug/L
Beryllium	250 ug/L	Boron	500 ug/L
Cadmium	500 ug/L	Calcium	500000 ug/L
Chromium	500 ug/L	Cobalt	500 ug/L
Copper	500 ug/L	Iron	200000 ug/L
Lead	500 ug/L	Magnesium	500000 ug/L
Manganese	500 ug/L	Molybdenum	500 ug/L
Nickel	500 ug/L	Phosphorous	2500 ug/L
Potassium	5000 ug/L	Selenium	2500 ug/L
Silica	10696.5 ug/L	Silicon	5000 ug/L
Silver	250 ug/L	Sodium	5000 ug/L
Strontium	500 ug/L	Sulfur	2500 ug/L
Thallium	500 ug/L	Tin	500 ug/L
Titanium	500 ug/L	Uranium	500 ug/L

Analyte	Concentration	Analyte	Concentration
Vanadium	500 ug/L	Zinc	500 ug/L

Serial ID: UI1778680-01 **Open/Reference Date:** 16-MAY-12 **Catalog Number :** 160047-01
Name: METALSPIKE-1 **Received:** 15-MAY-12 **Lot Number :** 1036245
Type: Source Material **Expires:** 16-MAY-13
Employee: Louis Hall
Supplier: OS2I
Description: Metals Spike Mix I
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 ug/mL	Arsenic	100 ug/mL
Barium	100 ug/mL	Beryllium	100 ug/mL
Boron	100 ug/mL	Cadmium	100 ug/mL
Calcium	1000 ug/mL	Cobalt	100 ug/mL
Iron	1000 ug/mL	Lead	100 ug/mL
Magnesium	1000 ug/mL	Phosphorous	100 ug/mL
Potassium	1000 ug/mL	Silver	100 ug/mL
Sodium	1000 ug/mL	Strontium	100 ug/mL

Serial ID: UI1778684-06 **Open/Reference Date:** 16-MAY-12 **Catalog Number :** 160048-01
Name: METALSPIKE-2 **Received:** 15-MAY-12 **Lot Number :** 1036235
Type: Source Material **Expires:** 16-MAY-13
Employee: Louis Hall
Supplier: OS2I
Description: Metals Spike Mix II
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 ug/mL	Chromium	100 ug/mL
Copper	100 ug/mL	Manganese	100 ug/mL
Molybdenum	100 ug/mL	Nickel	100 ug/mL
Selenium	100 ug/mL	Silica	2141 ug/mL
Silicon	1000 ug/mL	Sulfur	1000 ug/mL
Thallium	100 ug/mL	Tin	100 ug/mL
Titanium	100 ug/mL	Uranium	100 ug/mL
Uranium-235	.72 ug/mL	Uranium-238	99.28 ug/mL
Vanadium	100 ug/mL	Zinc	100 ug/mL

Serial ID: WI120615-42 **Open/Reference Date:** 15-JUN-12 **Balance Id :** 216
Name: TRACE ICP 0.1 PPM STD. **Received:** 22-NOV-11 **Pipet Id :** 3581809
Type: Working **Expires:** 16-JUN-12 **Solvent :** 3%HCL and 1%HNO3-1788334
Employee: Helen Camello
Supplier: GEL

Description: TRACE ICP 0.1 PPM CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI120615-44	Aluminum	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120615-44	Antimony	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Arsenic	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Barium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Beryllium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Boron	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Cadmium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Calcium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120615-44	Chromium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Cobalt	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Copper	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Iron	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120615-44	Lead	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Magnesium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120615-44	Manganese	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Molybdenum	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Nickel	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Phosphorous	5000 ug/L	10 mL	100 mL	500 ug/L
WI120615-44	Potassium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120615-44	Selenium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Silica	10698 ug/L	10 mL	100 mL	1069 ug/L
WI120615-44	Silicon	5000 ug/L	10 mL	100 mL	500 ug/L
WI120615-44	Silver	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Sodium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120615-44	Strontium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Sulfur	2000 ug/L	10 mL	100 mL	200 ug/L
WI120615-44	Thallium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Tin	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Titanium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Uranium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Vanadium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120615-44	Zinc	1000 ug/L	10 mL	100 mL	100 ug/L

Serial ID: WI120615-43 **Open/Reference Date:** 15-JUN-12 **Balance Id :** 216
Name: TRACE ICP 0.5/CCV STD. **Received:** 22-NOV-11 **Pipet Id :** 3581809
Type: Working **Expires:** 16-JUN-12 **Solvent :** 3%HCL and 1%HNO3-1788334
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP O.5/CCV CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111118-41	Silica	2139 mg/L	2.5 mL	1000 mL	5348.25 UG/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111118-41	Silicon	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI111122-40	Aluminum	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Arsenic	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Barium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Beryllium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Boron	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Cadmium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Calcium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Chromium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Cobalt	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Copper	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Iron	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Lead	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Magnesium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Manganese	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Nickel	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Phosphorous	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI111122-40	Potassium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Selenium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Sodium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI111122-40	Strontium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Thallium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Uranium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Vanadium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-40	Zinc	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Antimony	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Molybdenum	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Silver	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Sulfur	400 mg/L	2.5 mL	1000 mL	1000 UG/L
UI111122-41	Tin	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI111122-41	Titanium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120430-41	Sodium	1000 ug/mL	5 mL	1000 mL	5000 UG/L

Serial ID: WI120615-44 **Open/Reference Date:** 15-JUN-12 **Balance Id :** 216

Name: TRACE ICP SCAL 1.0 **Received:** 22-NOV-11 **Pipet Id :** 3581809

Type: Working **Expires:** 16-JUN-12 **Solvent :** 3%HCL and 1 %HNO3-1788334

Employee: Helen Camello

Supplier: o2si

Description: Trace ICP Calibration Standard 1.0ppm

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111118-41	Silica	2139 mg/L	2.5 mL	500 mL	10698 ug/L
UI111118-41	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI111122-40	Aluminum	2000 mg/L	2.5 mL	500 mL	10000 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111122-40	Arsenic	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Barium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Beryllium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Boron	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Cadmium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Calcium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Chromium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Cobalt	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Copper	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Iron	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Lead	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Magnesium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Manganese	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Nickel	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Phosphorous	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI111122-40	Potassium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Selenium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Sodium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI111122-40	Strontium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Thallium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Uranium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Vanadium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-40	Zinc	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Antimony	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Molybdenum	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Silver	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Sulfur	400 mg/L	2.5 mL	500 mL	2000 ug/L
UI111122-41	Tin	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI111122-41	Titanium	200 mg/L	2.5 mL	500 mL	1000 ug/L

Serial ID: WI120615-45 **Open/Reference Date:** 15-JUN-12 **Balance Id :** 216

Name: TRACE ICP S-10 STD **Received:** 20-MAR-12 **Pipet Id :** 3581809

Type: Working **Expires:** 16-JUN-12 **Solvent :** 3%HCL and 1%HNO3 -1788334

Employee: Helen Camello

Supplier: GEL

Description: TRACE ICP S-10 CALIBRATION STD.

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI111223-41	Sodium	1000 ug/mL	10 mL	500 mL	20000 UG/L
UI120320-40	Aluminum	5000 mg/L	5 mL	500 mL	50000 UG/L
UI120320-40	Calcium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI120320-40	Iron	2000 mg/L	5 mL	500 mL	20000 UG/L
UI120320-40	Magnesium	5000 mg/L	5 mL	500 mL	50000 UG/L

Standard Logbook

Serial ID: WI120615-46 **Open/Reference Date:** 15-JUN-12 **Balance Id :** 216
Name: ICP TRACE ICV **Received:** 17-APR-12 **Pipet Id :** 3581809
Type: Working **Expires:** 16-JUN-12 **Solvent :** 3%HCL AND 1%HNO3-1788334
Employee: Helen Camello
Supplier: GEL
Description: Initial Calibration Verification ICP Trace Metals
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI110317-42	Silica	2139 mg/L	2.5 mL	500 mL	10695 ug/L
UI110317-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Aluminum	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Arsenic	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Barium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Boron	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Cadmium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Calcium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Chromium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Cobalt	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Copper	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Iron	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Lead	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Phosphorous	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Potassium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Selenium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Sodium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Strontium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Antimony	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Beryllium	50 mg/L	2.5 mL	500 mL	250 ug/L
UI120417-41	Magnesium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-41	Manganese	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Molybdenum	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Nickel	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Silver	50 mg/L	2.5 mL	500 mL	250 ug/L
UI120417-41	Sulfur	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-41	Thallium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Tin	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Titanium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Uranium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Vanadium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Zinc	100 mg/L	2.5 mL	500 mL	500 ug/L

Standard Logbook

Serial ID: WI120615-47 **Open/Reference Date:** 15-JUN-12 **Balance Id :** 216
Name: PQL Working Standard **Received:** 14-JUN-11 **Pipet Id :** 3581809
Type: Working **Expires:** 16-JUN-12 **Solvent :** 3%HCL &1%HNO3-1788334
Employee: Helen Camello
Supplier: 02si
Description: PQL Working Standard
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI110614-40	Aluminum	100 mg/L	2 mL	1000 mL	200 ug/L
UI110614-40	Antimony	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Arsenic	15 mg/L	2 mL	1000 mL	15 ug/L
UI110614-40	Barium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Beryllium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Boron	25 mg/L	2 mL	1000 mL	50 ug/L
UI110614-40	Cadmium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Calcium	100 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Chromium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Cobalt	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Copper	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Iron	50 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Lead	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Magnesium	150 mg/L	2 mL	1000 mL	300 ug/L
UI110614-40	Manganese	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Molybdenum	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Nickel	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Phosphorous	75 mg/L	2 mL	1000 mL	150 ug/L
UI110614-40	Potassium	75 mg/L	2 mL	1000 mL	150 ug/L
UI110614-40	Selenium	15 mg/L	2 mL	1000 mL	15 ug/L
UI110614-40	Silicon	50 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Silver	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Sodium	150 mg/L	2 mL	1000 mL	150 ug/L
UI110614-40	Strontium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Sulfur	50 mg/L	2 mL	1000 mL	100 ug/L
UI110614-40	Thallium	10 mg/L	2 mL	1000 mL	20 ug/L
UI110614-40	Tin	5 mg/L	2 mL	1000 mL	10 ug/L
UI110614-40	Titanium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Uranium	25 mg/L	2 mL	1000 mL	50 ug/L
UI110614-40	Vanadium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI110614-40	Zinc	5 mg/L	2 mL	1000 mL	10 ug/L

Serial ID: 120418 **Open/Reference Date:** 18-JAN-12 **Lot Number :** K48AO2
Name: I-HCL **Received:** 18-JAN-12
Type: Reagent/Solvent **Expires:** 18-JAN-13
Employee: Richard Dollinger
Supplier: Macron Chemicals

Description: HYDROCHLORIC ACID
Comments: None

Serial ID: 1739602 **Open/Reference Date:** 14-FEB-12 **Lot Number :** L03022
Name: I-HNO3 **Received:** 14-FEB-12
Type: Reagent/Solvent **Expires:** 14-FEB-13
Employee: Louis Hall
Supplier: Macron Chemicals
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 1760073 **Open/Reference Date:** 03-APR-12 **Lot Number :** K45047
Name: I-HNO3 **Received:** 03-APR-12
Type: Reagent/Solvent **Expires:** 03-APR-13
Employee: Louis Hall
Supplier: Macron Chemicals
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 1783239 **Open/Reference Date:** 29-MAY-12 **Lot Number :** L02A02
Name: I-HCL **Received:** 29-MAY-12 **Preservative_Id :** 5 none
Type: Reagent/Solvent **Expires:** 29-MAY-13
Employee: Bryan Davis
Supplier: Macron Chemicals
Description: HYDROCHLORIC ACID
Comments: None

Serial ID: 1788334 **Open/Reference Date:** 11-JUN-12 **Amount :** 8 L
Name: B-ICP-RINSE SOLN **Received:** 03-APR-12 **Solvent :** 3%HCL+1%HNO3
Type: Reagent/Solvent **Expires:** 17-JUN-12
Employee: Helen Camello
Supplier: GEL
Description: 3%HCL+1%HNO3 RINSE SOLN.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
120418	I-HCL	36.5-38.0	240 mL	10000 mL	N/A
1760073	I-HNO3	68.0-70.0%	80 mL	10000 mL	N/A

This data package file was not reviewed. Reported data was R9 Tier 2 reviewed. If this package is included as a report deliverable then data in this package needs to include qualifiers or be stamped as "Data without validation Qualifiers.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178

www.gel.com

July 02, 2012

Ms. Mindy Song
Ecology & Environment, Inc.
3700 Industry Ave.
#102
Lakewood, California 90712

Re: Klondyke Tailings Removal Project
Work Order: 306325

Dear Ms. Song:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 19, 2012. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4422.

Sincerely,

Jennifer Pellegrini for
Jake Crook
Project Manager

Purchase Order: 002693.2105.06TTO
Enclosures

Ecology and Environment, Inc. Project #002693
Klondyke Tailings Removal Project
SDG: 306325

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Case Narrative

Case Narrative
for
Ecology and Environment, Inc. Project #002693
SDG: 306325

July 02, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample Receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 19, 2012 for analysis. Please see sample receipt form. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
306325001	RB-061212
306325002	RB-061312

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Metals.

Jennifer Pellegrini for
Jake Crook
Project Manager

Chain of Custody and Supporting Documentation

Page: 1 of 1
Project #:
GEL Quote #:
COC Number (1):
PO Number:

GEL Chain of Custody and Analytical Request

GEL Work Order Number: 20120692 181 / 305844 % 306325

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Ecology + Environment Phone #: 562-997-1200
Project/Site Name: Klondyke Tailing Removal Fax #:
Address: 3700 Industry Ave #102, Lakewood, CA 90712
Collected by: M. Diener / K. Villar Send Results To: RKELLY@EINE.COM

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	Should this sample be considered: TSCA Regulated	Total number of containers	EPA 6010B										<-- Preservative Type (6)
RB-061212	06-12-12	1500	EB		water			1	X										
RB-061312	06-13-12	1505	EB		↓			1	X										

Comments
Note: extra sample is required for sample specific QC

TAT Requested: Normal: X Rush: ____ Specify: ____ (Subject to Surcharge) Fax Results: Yes / No

Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

none

Sample Collection Time Zone
Eastern (Pacific) Central Other ____ Mountain

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	[signature]	6/18/12	0515	to FedEx		
2				[signature]	6-19-12	0905
3						

Sample Shipping and Delivery Details

GEL PM:
Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite
3.) Field Filtered: For liquid matrices, indicate with a - **Y** - for yes the sample was field filtered or - **N** - for sample was not field filtered.
4.) Matrix Codes: **DW**=Drinking Water, **GW**=Groundwater, **SW**=Surface Water, **WW**=Waste Water, **W**=Water, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **SS**=Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, **U**=Urine, **F**=Fecal, **N**=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. **8260B, 6010B/7470A**) and number of containers provided for each (i.e. *8260B* - **3**, *6010B/7470A* - **1**).
6.) Preservative Type: **HA** = Hydrochloric Acid, **NI** = Nitric Acid, **SH** = Sodium Hydroxide, **SA** = Sulfuric Acid, **AA** = Ascorbic Acid, **HX** = Hexane, **ST** = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? *YES* *NO*
Cooler Temp: ____ C

WHITE = LABORATORY **YELLOW = FILE** **PINK = CLIENT**

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ECOL	**SDG/AR/COC/Work Order:** 301325
Received By: JP	**Date Received:** 6-19-12

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 6cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 6
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 41502289 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓		✓	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?			✓	Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?			✓	Sample ID's and containers affected: Both ID's say RB-061212
10	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: time on 6/12/12 bottle is 1709, 6/13/12 is 1705
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 7985 2048 4935

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials JP Date 6-19-12 Page 1 of 1

Subject: RE: Klondyke Samples Received This Morning
From: "Kelly, Robyn K." <RKelly@ene.com>
Date: 6/19/2012 1:30 PM
To: Jennifer Pellegrini <jennifer.pellegrini@gel.com>
CC: Jake Crook <jhc@mail.gel.com>, "Song, Mindy" <MSong@ene.com>

Hi Jennifer, I received clarification from the field as to the sample IDs/times. These two water samples should be run for lead and arsenic by EPA 6010B, just like the soil samples. However, the water samples can be run on standard TAT, 24-hr is not necessary for the two water samples.

Correct information for the water samples is below:

Sample ID: RB-061212
Date: 06/12/12
Time: 1700

Sample ID: RB-061312
Date: 06/13/12
Time: 1705

Please let me know if you have any other questions.
Thank you so much,
Robyn

Robyn Kelly, PhD, PG #8338
Ecology and Environment, Inc.
3700 Industry Ave #102, Lakewood, CA 90712
Phone: 562-997-1200 Ext: 4854 | Cell: 310-947-2483
Fax: 562-391-4486
rkelly@ene.com | www.ene.com

Celebrating 40 Years of Green Solutions

-----Original Message-----
From: Jennifer Pellegrini [mailto:jennifer.pellegrini@gel.com]
Sent: Tuesday, June 19, 2012 8:12 AM
To: Kelly, Robyn K.
Cc: Jake Crook
Subject: Klondyke Samples Received This Morning

Good Morning,

We received two samples this morning, both with the ID RB-061212. The container with the date of 06-12-12 has a time of 1700 on the container and the COC says 1500. The container with the date of 06-13-12 has a time of 1705 on the container and 1505 on the COC. Please let us know how you'd like us to proceed with these samples.

Thanks,
Jennifer
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Data Review Qualifier Definitions

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

List of current GEL Certifications as of 02 July 2012

State	Certification
Arizona	AZ0766
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−09−00191
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
Wisconsin	999887790

Metals Analysis

Case Narrative

Metals Fractional Narrative
Ecology and Environment, Inc. Project #002693 (ECOL)
SDG 306325

Sample Analysis

Sample ID	Client ID
306325001	RB-061212
306325002	RB-061312
1202683375	Method Blank (MB) **ICP**
1202683376	Laboratory Control Sample (LCS)
1202683379	306325001(RB-061212L) Serial Dilution (SD)
1202683377	306325001(RB-061212D) Sample Duplicate (DUP)
1202683378	306325001(RB-061212S) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch: 1223291
Prep Batch : 1223290
Standard Operating Procedures: GL-MA-E-013 REV# 21 and GL-MA-E-006 REV# 9
Analytical Method: SW846 3005/6010B
Prep Method : SW846 3005A

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic

pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this SDG: 306325001 (RB-061212).

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Nicole A. Elmore **Date:** 07.09.12

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ECOL007 Ecology and Environment, Inc. Project #002693

Client SDG: 306325 GEL Work Order: 306325

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

B Metals--Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the RL or LOQ.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Jake Crook.

Reviewed By: Nick-Cole A. Ehmke 09.09.12

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306325 **METHOD TYPE:** SW846

SAMPLE ID: 306325001 **CLIENT ID:** RB−061212

CONTRACT: ECOL00720

MATRIX: Water **DATE RECEIVED** 19−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	5	ug/L	U		P	5	1	OPTIMA5	062612−1
7439−92−1	Lead	3.32	ug/L	B		P	3.3	1	OPTIMA5	062612−1

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306325 **METHOD TYPE:** SW846

SAMPLE ID: 306325002 **CLIENT ID:** RB−061312

CONTRACT: ECOL00720

MATRIX: Water **DATE RECEIVED** 19−JUN−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−38−2	Arsenic	5	ug/L	U		P	5	1	OPTIMA5	062612−1
7439−92−1	Lead	3.3	ug/L	U		P	3.3	1	OPTIMA5	062612−1

***Analytical Methods:**

P SW846 3005/6010B

Quality Control Summary

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 306325

Contract: ECOL00720 **Lab Code:** GEL

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: O2Si

Instrument ID: OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
ICV01										
	Arsenic	518	ug/L	500	ug/L	103.6	90.0 − 110.0	P	26−JUN−12 10:09	062612−1
	Lead	525	ug/L	500	ug/L	104.9	90.0 − 110.0	P	26−JUN−12 10:09	062612−1
CCV01										
	Arsenic	528	ug/L	500	ug/L	105.6	90.0 − 110.0	P	26−JUN−12 10:26	062612−1
	Lead	526	ug/L	500	ug/L	105.2	90.0 − 110.0	P	26−JUN−12 10:26	062612−1
CCV02										
	Arsenic	516	ug/L	500	ug/L	103.2	90.0 − 110.0	P	26−JUN−12 11:02	062612−1
	Lead	511	ug/L	500	ug/L	102.1	90.0 − 110.0	P	26−JUN−12 11:02	062612−1

***Analytical Methods:**

P SW846 3005/6010B

METALS
−2b−
CRDL Standard for AA & ICP

SDG No: 306325

Contract: ECOL00720 **Lab Code:** GEL

AA CRDL Standard Source: SPEX

ICP CRDL Standard Source Solutions Plus

Instrument ID: OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Advisory Limits (%R)	M*	Analysis Date/Time	Run Number
PQL01										
	Arsenic	33	ug/L	30	ug/L	110.1	70.0 − 130.0	P	26−JUN−12 10:14	062612−1
	Lead	9.48	ug/L	10	ug/L	94.8	70.0 − 130.0	P	26−JUN−12 10:14	062612−1

***Analytical Methods:**

P **SW846 3005/6010B**

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 306325

Contract: ECOL00720

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
ICB01										
	Arsenic	5.0	+/−30	U	5.0	30.0	LIQ	P	26−JUN−12 10:12	062612−1
	Lead	3.3	+/−10	U	3.3	10.0	LIQ	P	26−JUN−12 10:12	062612−1
CCB01										
	Arsenic	5.0	+/−30	U	5.0	30.0	LIQ	P	26−JUN−12 10:29	062612−1
	Lead	3.3	+/−10	U	3.3	10.0	LIQ	P	26−JUN−12 10:29	062612−1
CCB02										
	Arsenic	5.0	+/−30	U	5.0	30.0	LIQ	P	26−JUN−12 11:05	062612−1
	Lead	3.3	+/−10	U	3.3	10.0	LIQ	P	26−JUN−12 11:05	062612−1

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 306325
Contract: ECOL00720
Matrix: Water

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202683375								
	Arsenic	5	ug/L	+/−30	U	P	5	30
	Lead	3.3	ug/L	+/−10	U	P	3.3	10

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−4−
Interference Check Sample

SDG No: 306325

Contract: ECOL00720 **Lab Code:** GEL

ICS: O2Si

Instrument: OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Arsenic	−6.18	ug/L					26−JUN−12 10:17	062612−1
	Lead	−15.7	ug/L					26−JUN−12 10:17	062612−1
ICSAB01									
	Arsenic	601	ug/L	500	ug/L	120	80.0 − 120.0	26−JUN−12 10:19	062612−1
	Lead	533	ug/L	500	ug/L	107	80.0 − 120.0	26−JUN−12 10:19	062612−1

METALS
−5a−

Matrix Spike Summary

SDG NO. 306325 **Client ID** RB−061212S

Contract: ECOL00720 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 306325001 **Spike ID:** 1202683378

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Arsenic	ug/L	75−125	532		5	U	500	106		P
Lead	ug/L	75−125	538		3.32	B	500	107		P

***Analytical Methods:**

P **SW846 3005/6010B**

Metals
−6−
Duplicate Sample Summary

SDG No.: 306325 **Lab Code:** GEL

Contract: ECOL00720 **Client ID:** RB−061212D

Matrix: LIQUID **Level:** Low

Sample ID: 306325001 **Duplicate ID:** 1202683377 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Arsenic	ug/L		5	U	5	U			P
Lead	ug/L		3.32	B	3.3	U	200		P

***Analytical Methods:**

P SW846 3005/6010B

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 306325

Contract: ECOL00720

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202683376								
	Arsenic	ug/L	500	527		105	80−120	P
	Lead	ug/L	500	533		107	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 306325 **Client ID** RB−061212L

Contract: ECOL00720

Matrix: LIQUID **Level:** Low

Sample ID: 306325001 **Serial Dilution ID:** 1202683379

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Arsenic	5	U	25	U				P
Lead	3.32	B	16.5	U	100			P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−13−
SAMPLE PREPARATION SUMMARY

SDG No: 306325 **Method Type:** P

Contract: ECOL00720 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
Batch Number 1223290							
1202683375	MB for batch 1223290	MB	W	25−JUN−12	50mL	50mL	
1202683376	LCS for batch 1223290	LCS	W	25−JUN−12	50mL	50mL	
1202683378	RB−061212S	MS	W	25−JUN−12	50mL	50mL	
1202683377	RB−061212D	DUP	W	25−JUN−12	50mL	50mL	
306325001	RB−061212	SAMPLE	W	25−JUN−12	50mL	50mL	
306325002	RB−061312	SAMPLE	W	25−JUN−12	50mL	50mL	

Metals
−14−
Analysis Run Log

Contract: ECOL00720
Lab Code: GEL
Inst Name: OPTIMA5
Start Date: 26−JUN−12
End Date: 26−JUN−12
Client Sdg: 306325
Method*: P
Data File: 062612−1

Samp No.	D/F	Run Time	As	Pb
S0.0	1	09:57:33	X	X
S0.1	1	10:00:27	X	X
S0.5	1	10:02:17	X	X
SCAL	1	10:05:14	X	X
S10	1	10:08:11		
ICV01	1	10:09:06	X	X
ICB01	1	10:12:04	X	X
PQL01	1	10:14:54	X	X
ICSA01	1	10:17:45	X	X
ICSAB01	1	10:19:44	X	X
LR01	1	10:21:43	X	X
LR02	1	10:23:41	X	X
CCV01	1	10:26:58	X	X
CCB01	1	10:29:53	X	X
1202683375	1	10:42:24	X	X
1202683376	1	10:45:16	X	X
306325002	1	10:48:10	X	X
306325001	1	10:51:00	X	X
1202683377	1	10:53:51	X	X
1202683378	1	10:56:42	X	X
1202683379	5	10:59:35	X	X
CCV02	1	11:02:27	X	X
CCB02	1	11:05:25	X	X

Standards

METALS
−10−
Instrument Detection Limits

SDG NO. 306325

Contract: ECOL00720 **Lab Code: GEL** **MDL Effective Date:** 23−JAN−11

ICP	Analyte	Wavelength (nm)	MDL ug/L	RDL ug/L
LIQUID	Arsenic	188.979	5.0	30
	Lead	220.353	3.3	10

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 306325
Contract: ECOL00720
Instrument: OPTIMA5
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Aluminum	Antimony	Arsenic	Barium	Beryllium
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00123	0.00000	0.00000	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	1.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**288.616**	0.00000	0.00000	0.00000	−1.41213	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	−0.12970	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	−0.00078	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	−0.70449	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	−0.08483	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	−0.01965	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Sodium	**589.592**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.11053	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00814	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 306325
Contract: ECOL00720
Instrument: OPTIMA5
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Boron	Cadmium	Calcium	Chromium	Cobalt
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	0.00000	0.00000	13.6640	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	−7.45340	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	−0.00608	−0.24503	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	3.53500
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**288.616**	0.00000	0.00000	0.00000	0.14037	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	−0.77096
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	−1.50000
Lead	**220.353**	0.00000	0.00000	0.00000	0.00000	−0.64327
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.37374
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	−0.16220	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	−1.67173
Silver	**328.068**	0.00000	0.00000	0.04350	0.00000	0.00000
Sodium	**589.592**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.01789	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	5.00883
Tin	**189.927**	0.00000	0.00000	−0.05385	0.00000	−0.09147
Titanium	**334.94**	0.00000	0.00000	−0.04510	0.30129	0.00000
Uranium	**367.007**	0.00000	0.00000	0.01298	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	−4.78200	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 306325
Contract: ECOL00720
Instrument: OPTIMA5
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Copper	Iron	Lead	Magnesium	Manganese
Aluminum	**396.153**	0.00000	−0.42900	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	0.00760	0.00000	−0.00090	0.00000
Arsenic	**188.979**	0.00000	−0.14040	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.01040	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	−6.03060	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.08813	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	−0.01361	0.00000	0.00617	0.00000
Cobalt	**288.616**	0.00000	0.02215	0.00000	0.00000	0.00000
Copper	**324.752**	0.00000	−0.11800	0.00000	0.04430	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.30523	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	−0.00681	0.00000	0.01420	0.00000
Molybdenum	**202.031**	0.00000	−0.09285	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	−0.00570	0.00000	0.00000	0.00000
Phosphorous	**214.914**	6.20470	0.79221	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.04497	0.00000	−0.24600	0.00000
Selenium	**196.026**	0.00000	−0.78490	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	−0.16920	0.00000	0.00000	0.00000
Sodium	**589.592**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	−0.08811	0.00000	0.03414	4.12814
Thallium	**190.801**	0.00000	−0.04708	0.00000	0.00000	−1.43864
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	−0.02630	0.00000
Uranium	**367.007**	0.00000	5.57300	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.11040	0.00000	−0.00267	0.00000
Zinc	**213.857**	0.81049	0.09740	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 306325
Contract: ECOL00720
Instrument: OPTIMA5
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Molybdenum	Nickel	Phosphorous	Potassium	Selenium
Aluminum	**396.153**	31.8455	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	−12.0100	0.00000	0.00000	0.00000	0.00000
Arsenic	**188.979**	−2.21136	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	−3.05405	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	−0.63647	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**288.616**	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	−1.21800	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	10.1912	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	−0.63451	0.00000	0.00000	0.00000	0.00000
Sodium	**589.592**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	−5.78442	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	−0.52747	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	−8.69848	0.00000	0.00000	0.00000	0.00000
Zinc	**213.857**	0.00000	6.36102	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 306325
Contract: ECOL00720
Instrument: OPTIMA5
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Silver	Sodium	Strontium	Sulfur	Thallium
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	288.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00874	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Sodium	589.592	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	1.61430
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 306325
Contract: ECOL00720
Instrument: OPTIMA5
Effective Dates: 01−MAY−12
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Tin	Titanium	Uranium	Vanadium	Zinc
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	−1.72624	−0.81687	−0.08800	−1.47908	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	−1.07229	0.00000
Beryllium	**313.107**	0.00000	0.36899	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	1.99427	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	−0.62088	0.00000
Cobalt	**288.616**	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	**324.752**	0.00000	0.00000	−0.01060	0.00000	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	−0.37486	0.00000	0.00000	0.00000
Sodium	**589.592**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	−7.58419	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	−3.46230	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.97039	−1.82500	0.00000	0.00000
Zinc	**213.857**	0.00000	−0.67406	0.00000	0.00000	0.00000

METALS
−12−
Linear Ranges

SDG NO. 306325

Contract: ECOL00720 **Lab Code: GEL**

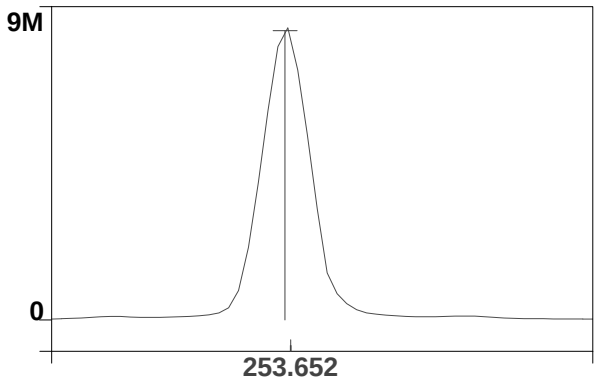
Instrument ID OPTIMA5

Analyte	Integration Time (sec)	LDR	Units	Effective Date
Arsenic	20	10000	ug/L	01−MAY−12
Lead	20	25000	ug/L	01−MAY−12

Raw Data

Method: Hg_ReAlign **Sample ID: Hg_ReAlign**
Result: 062612

Hg 253.652 **Rep: 1**



Intensity: 8313352.0 cps
Conc:

1

6/26/2012 09:51:49 Hg ReAlign... Actual peak offset (nm): -0.004
Drift (nm): 0.000 Slit adjustment: -4

Analysis Begun

Start Time: 6/26/2012 09:57:31 **Plasma On Time: 6/25/2012 09:11:19**
Logged In Analyst: 7300Test **Technique: ICP Continuous**
Spectrometer Model: Optima 7300 DV, S/N 077C0052701Autosampler Model: AS-93plus

Sample Information File: C:\pe\Administrator\Sample Information\062612A.sif
Batch ID:
Results Data Set: 062612
Results Library: C:\pe\Administrator\Results\Results.mdb

Method Loaded
Method Name: Gen Eng fast_new SiU **Method Last Saved: 6/25/2012 11:50:22**
IEC File: 042412.iec **MSF File:**
Method Description:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Al 396.153Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
B 249.677	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Be 313.107	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ca 317.933Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Cd 226.502	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cr 267.716	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Fe 238.204 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
K 766.490 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mg 279.077 IEC	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Mn 257.610	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Na 589.592 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Ni 231.604	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
P 214.914	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
S 181.975 Axial	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sc 361.383	Lin Thru 0	Peak Area	Axial	n/a	n/a
Sc RADIAL	Lin, Calc Int	Peak Area	Radial	n/a	n/a
Se 196.026	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
SiO2	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Si 251.611	Lin Thru 0	Peak Area	Axial	Sc 361.383	No
Sn 189.927	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Ti 334.940	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
U 367.007	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Y 371.029	Lin, Calc Int	Peak Area	Axial	n/a	n/a
Zn 213.857	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes

Sequence No.: 1 **Autosampler Location: 8**
Sample ID: S0 **Date Collected: 6/26/2012 09:57:33**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time

1	Sc RADIAL	15283.6	15283.6	102	%	09:58:06
1	Al 396.153Radial†	-161.5	-159.0	[0.00]	µg/L	09:58:06
1	Ca 317.933Radial†	199.5	196.4	[0.00]	µg/L	09:58:26
1	Fe 238.204 Radial†	22.0	21.7	[0.00]	µg/L	09:58:26
1	K 766.490 Radial†	207.9	204.7	[0.00]	µg/L	09:58:06
1	Mg 279.077 IEC†	0.9	0.9	[0.00]	µg/L	09:58:26
1	Na 589.592 Radial†	792.1	779.8	[0.00]	µg/L	09:58:06
1	Sr 421.552†	721.3	710.1	[0.00]	µg/L	09:58:06
1	Sc 361.383	731609.9	731609.9	99.913	%	09:59:14
1	Y 371.029	580901.2	580901.2	100.09	%	09:59:14
1	Ag 328.068†	-871.5	-872.3	[0.00]	µg/L	09:59:14
1	As 188.979†	-15.5	-15.5	[0.00]	µg/L	09:59:34
1	B 249.677†	-216.3	-216.5	[0.00]	µg/L	09:59:34
1	Ba 233.527†	10.6	10.6	[0.00]	µg/L	09:59:34
1	Be 313.107†	-7262.5	-7268.8	[0.00]	µg/L	09:59:14
1	Cd 226.502†	-121.7	-121.8	[0.00]	µg/L	09:59:34
1	Co 228.616†	-195.7	-195.9	[0.00]	µg/L	09:59:34
1	Cr 267.716†	140.2	140.4	[0.00]	µg/L	09:59:34
1	Cu 324.752†	3378.6	3381.5	[0.00]	µg/L	09:59:14
1	Mn 257.610†	346.1	346.4	[0.00]	µg/L	09:59:34
1	Mo 202.031†	105.5	105.6	[0.00]	µg/L	09:59:34
1	Ni 231.604†	22.0	22.0	[0.00]	µg/L	09:59:34
1	P 214.914†	6.1	6.1	[0.00]	µg/L	09:59:34
1	Pb 220.353†	-48.7	-48.7	[0.00]	µg/L	09:59:34
1	S 181.975 Axial†	51.8	51.8	[0.00]	µg/L	09:59:34
1	Sb 206.836†	12.3	12.3	[0.00]	µg/L	09:59:34
1	Se 196.026†	9.1	9.1	[0.00]	µg/L	09:59:34
1	SiO2†	1753.0	1754.5	[0.00]	µg/L	09:59:34
1	Si 251.611†	1320.5	1321.6	[0.00]	µg/L	09:59:34
1	Sn 189.927†	9.3	9.3	[0.00]	µg/L	09:59:34
1	Ti 334.940†	-1299.4	-1300.6	[0.00]	µg/L	09:59:14
1	Tl 190.801†	-51.1	-51.1	[0.00]	µg/L	09:59:34
1	U 367.007†	-388.0	-388.3	[0.00]	µg/L	09:59:14
1	V 292.402†	10.0	10.0	[0.00]	µg/L	09:59:14
1	Zn 213.857†	327.5	327.8	[0.00]	µg/L	09:59:34
2	Sc RADIAL	14790.6	14790.6	98.3	%	09:58:28
2	Al 396.153Radial†	-101.9	-103.7	[0.00]	µg/L	09:58:28
2	Ca 317.933Radial†	202.4	205.9	[0.00]	µg/L	09:58:48
2	Fe 238.204 Radial†	26.3	26.8	[0.00]	µg/L	09:58:48
2	K 766.490 Radial†	330.2	336.0	[0.00]	µg/L	09:58:28
2	Mg 279.077 IEC†	11.1	11.3	[0.00]	µg/L	09:58:48
2	Na 589.592 Radial†	789.9	803.7	[0.00]	µg/L	09:58:28
2	Sr 421.552†	623.0	633.9	[0.00]	µg/L	09:58:28
2	Sc 361.383	724169.3	724169.3	98.897	%	09:59:36
2	Y 371.029	573083.8	573083.8	98.741	%	09:59:36
2	Ag 328.068†	-979.2	-990.1	[0.00]	µg/L	09:59:36
2	As 188.979†	-17.6	-17.8	[0.00]	µg/L	09:59:56
2	B 249.677†	-173.9	-175.9	[0.00]	µg/L	09:59:56
2	Ba 233.527†	18.8	19.0	[0.00]	µg/L	09:59:56
2	Be 313.107†	-7132.2	-7211.7	[0.00]	µg/L	09:59:36
2	Cd 226.502†	-111.4	-112.7	[0.00]	µg/L	09:59:56
2	Co 228.616†	-196.7	-198.8	[0.00]	µg/L	09:59:56
2	Cr 267.716†	134.7	136.2	[0.00]	µg/L	09:59:56
2	Cu 324.752†	3320.9	3358.0	[0.00]	µg/L	09:59:36
2	Mn 257.610†	347.0	350.9	[0.00]	µg/L	09:59:56
2	Mo 202.031†	113.2	114.5	[0.00]	µg/L	09:59:56
2	Ni 231.604†	32.6	32.9	[0.00]	µg/L	09:59:56
2	P 214.914†	26.4	26.7	[0.00]	µg/L	09:59:56
2	Pb 220.353†	-55.7	-56.4	[0.00]	µg/L	09:59:56
2	S 181.975 Axial†	51.9	52.5	[0.00]	µg/L	09:59:56
2	Sb 206.836†	17.0	17.2	[0.00]	µg/L	09:59:56
2	Se 196.026†	5.8	5.9	[0.00]	µg/L	09:59:56
2	SiO2†	1766.2	1785.9	[0.00]	µg/L	09:59:56
2	Si 251.611†	1349.9	1365.0	[0.00]	µg/L	09:59:56
2	Sn 189.927†	7.7	7.8	[0.00]	µg/L	09:59:56
2	Ti 334.940†	-868.4	-878.1	[0.00]	µg/L	09:59:36
2	Tl 190.801†	-57.7	-58.3	[0.00]	µg/L	09:59:56
2	U 367.007†	-361.0	-365.0	[0.00]	µg/L	09:59:36
2	V 292.402†	63.4	64.1	[0.00]	µg/L	09:59:36
2	Zn 213.857†	331.0	334.7	[0.00]	µg/L	09:59:56
3	Sc RADIAL	15069.1	15069.1	100	%	09:58:50

3	Al 396.153Radial†	-101.5	-101.4	[0.00] µg/L	09:58:50
3	Ca 317.933Radial†	208.2	207.9	[0.00] µg/L	09:59:10
3	Fe 238.204 Radial†	24.8	24.7	[0.00] µg/L	09:59:10
3	K 766.490 Radial†	288.7	288.3	[0.00] µg/L	09:58:50
3	Mg 279.077 IEC†	2.6	2.6	[0.00] µg/L	09:59:10
3	Na 589.592 Radial†	798.3	797.1	[0.00] µg/L	09:58:50
3	Sr 421.552†	653.5	652.5	[0.00] µg/L	09:58:50
3	Sc 361.383	740968.0	740968.0	101.19 %	09:59:59
3	Y 371.029	587184.1	587184.1	101.17 %	09:59:59
3	Ag 328.068†	-611.7	-604.5	[0.00] µg/L	09:59:59
3	As 188.979†	-7.9	-7.8	[0.00] µg/L	10:00:19
3	B 249.677†	-212.7	-210.1	[0.00] µg/L	10:00:19
3	Ba 233.527†	16.6	16.4	[0.00] µg/L	10:00:19
3	Be 313.107†	-7612.6	-7523.0	[0.00] µg/L	09:59:59
3	Cd 226.502†	-93.2	-92.1	[0.00] µg/L	10:00:19
3	Co 228.616†	-210.9	-208.4	[0.00] µg/L	10:00:19
3	Cr 267.716†	148.6	146.9	[0.00] µg/L	10:00:19
3	Cu 324.752†	3304.4	3265.5	[0.00] µg/L	09:59:59
3	Mn 257.610†	345.3	341.3	[0.00] µg/L	10:00:19
3	Mo 202.031†	120.2	118.8	[0.00] µg/L	10:00:19
3	Ni 231.604†	12.0	11.9	[0.00] µg/L	10:00:19
3	P 214.914†	22.3	22.1	[0.00] µg/L	10:00:19
3	Pb 220.353†	-39.1	-38.7	[0.00] µg/L	10:00:19
3	S 181.975 Axial†	56.8	56.1	[0.00] µg/L	10:00:19
3	Sb 206.836†	11.0	10.9	[0.00] µg/L	10:00:19
3	Se 196.026†	12.2	12.0	[0.00] µg/L	10:00:19
3	SiO2†	1738.0	1717.5	[0.00] µg/L	10:00:19
3	Si 251.611†	1329.1	1313.5	[0.00] µg/L	10:00:19
3	Sn 189.927†	5.9	5.8	[0.00] µg/L	10:00:19
3	Ti 334.940†	-913.8	-903.0	[0.00] µg/L	09:59:59
3	Tl 190.801†	-55.3	-54.6	[0.00] µg/L	10:00:19
3	U 367.007†	-339.1	-335.1	[0.00] µg/L	09:59:59
3	V 292.402†	41.0	40.5	[0.00] µg/L	09:59:59
3	Zn 213.857†	322.7	318.9	[0.00] µg/L	10:00:19

Mean Data: S0

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	732249.1	8417.60	1.15%	100.00	%
Sc RADIAL	15047.8	247.15	1.64%	100	%
Y 371.029	580389.7	7064.04	1.22%	100.00	%
Ag 328.068†	-822.3	197.63	24.03%	[0.00]	µg/L
Al 396.153Radial†	-121.4	32.63	26.89%	[0.00]	µg/L
As 188.979†	-13.7	5.25	38.26%	[0.00]	µg/L
B 249.677†	-200.8	21.88	10.89%	[0.00]	µg/L
Ba 233.527†	15.3	4.28	27.94%	[0.00]	µg/L
Be 313.107†	-7334.5	165.73	2.26%	[0.00]	µg/L
Ca 317.933Radial†	203.4	6.17	3.03%	[0.00]	µg/L
Cd 226.502†	-108.9	15.20	13.96%	[0.00]	µg/L
Co 228.616†	-201.1	6.54	3.25%	[0.00]	µg/L
Cr 267.716†	141.2	5.38	3.81%	[0.00]	µg/L
Cu 324.752†	3335.0	61.34	1.84%	[0.00]	µg/L
Fe 238.204 Radial†	24.4	2.57	10.55%	[0.00]	µg/L
K 766.490 Radial†	276.3	66.45	24.05%	[0.00]	µg/L
Mg 279.077 IEC†	4.9	5.59	113.94%	[0.00]	µg/L
Mn 257.610†	346.2	4.81	1.39%	[0.00]	µg/L
Mo 202.031†	112.9	6.74	5.97%	[0.00]	µg/L
Na 589.592 Radial†	793.6	12.31	1.55%	[0.00]	µg/L
Ni 231.604†	22.3	10.53	47.27%	[0.00]	µg/L
P 214.914†	18.3	10.79	58.91%	[0.00]	µg/L
Pb 220.353†	-47.9	8.87	18.50%	[0.00]	µg/L
S 181.975 Axial†	53.5	2.28	4.26%	[0.00]	µg/L
Sb 206.836†	13.5	3.27	24.30%	[0.00]	µg/L
Se 196.026†	9.0	3.08	34.23%	[0.00]	µg/L
SiO2†	1752.6	34.22	1.95%	[0.00]	µg/L
Si 251.611†	1333.4	27.68	2.08%	[0.00]	µg/L
Sn 189.927†	7.6	1.75	22.91%	[0.00]	µg/L
Sr 421.552†	665.5	39.75	5.97%	[0.00]	µg/L
Ti 334.940†	-1027.2	237.03	23.07%	[0.00]	µg/L
Tl 190.801†	-54.7	3.62	6.61%	[0.00]	µg/L

U 367.007†	-362.8	26.69	7.36%	[0.00] µg/L
V 292.402†	38.2	27.13	70.95%	[0.00] µg/L
Zn 213.857†	327.1	7.92	2.42%	[0.00] µg/L

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: S0.1 **Date Collected: 6/26/2012 10:00:27**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	14760.7	14760.7	98.1	%	10:00:57
1	K 766.490 Radial†	1292.1	1040.9	[1000]	µg/L	10:00:57
1	Sr 421.552†	21070.9	20815.1	[100]	µg/L	10:00:57
1	Sc 361.383	739514.1	739514.1	100.99	%	10:01:05
1	Y 371.029	582651.4	582651.4	100.39	%	10:01:05
1	Ag 328.068†	14646.8	15325.2	[100]	µg/L	10:01:05
1	As 188.979†	135.8	148.1	[100]	µg/L	10:01:25
1	B 249.677†	3645.8	3810.9	[100]	µg/L	10:01:05
1	Ba 233.527†	12704.4	12564.2	[100]	µg/L	10:01:05
1	Be 313.107†	239260.0	244244.0	[100]	µg/L	10:01:05
1	Cd 226.502†	13389.4	13366.7	[100]	µg/L	10:01:05
1	Co 228.616†	2553.0	2729.0	[100]	µg/L	10:01:25
1	Cr 267.716†	10113.0	9872.5	[100]	µg/L	10:01:05
1	Cu 324.752†	25070.9	21489.6	[100]	µg/L	10:01:05
1	Mn 257.610†	56992.1	56086.0	[100]	µg/L	10:01:05
1	Mo 202.031†	2044.5	1911.5	[100]	µg/L	10:01:25
1	Ni 231.604†	2831.6	2781.5	[100]	µg/L	10:01:25
1	P 214.914†	552.3	528.5	[500]	µg/L	10:01:25
1	Pb 220.353†	562.4	604.8	[100]	µg/L	10:01:25
1	S 181.975 Axial†	175.5	120.3	[200]	µg/L	10:01:25
1	Sb 206.836†	177.6	162.4	[100]	µg/L	10:01:25
1	Se 196.026†	139.8	129.4	[100]	µg/L	10:01:25
1	SiO2†	10402.2	8547.4	[1069.5]	µg/L	10:01:05
1	Si 251.611†	17359.7	15855.8	[500]	µg/L	10:01:05
1	Sn 189.927†	485.2	472.8	[100]	µg/L	10:01:25
1	Ti 334.940†	41082.0	41705.7	[100]	µg/L	10:01:05
1	Tl 190.801†	202.9	255.6	[100]	µg/L	10:01:25
1	U 367.007†	24.9	387.5	[100]	µg/L	10:01:05
1	V 292.402†	12040.6	11884.1	[100]	µg/L	10:01:05
1	Zn 213.857†	7307.3	6908.4	[100]	µg/L	10:01:25
2	Sc RADIAL	15209.8	15209.8	101	%	10:00:59
2	K 766.490 Radial†	1240.4	950.8	[1000]	µg/L	10:00:59
2	Sr 421.552†	21203.2	20311.8	[100]	µg/L	10:00:59
2	Sc 361.383	730488.5	730488.5	99.760	%	10:01:28
2	Y 371.029	578398.7	578398.7	99.657	%	10:01:28
2	Ag 328.068†	14871.3	15729.4	[100]	µg/L	10:01:28
2	As 188.979†	131.3	145.3	[100]	µg/L	10:01:48
2	B 249.677†	3645.3	3855.0	[100]	µg/L	10:01:28
2	Ba 233.527†	12749.4	12764.8	[100]	µg/L	10:01:28
2	Be 313.107†	241047.3	248962.8	[100]	µg/L	10:01:28
2	Cd 226.502†	13406.1	13547.3	[100]	µg/L	10:01:28
2	Co 228.616†	2543.8	2751.0	[100]	µg/L	10:01:48
2	Cr 267.716†	10076.3	9959.4	[100]	µg/L	10:01:28
2	Cu 324.752†	24928.9	21653.9	[100]	µg/L	10:01:28
2	Mn 257.610†	57255.5	57047.2	[100]	µg/L	10:01:28
2	Mo 202.031†	2042.8	1934.8	[100]	µg/L	10:01:48
2	Ni 231.604†	2801.9	2786.4	[100]	µg/L	10:01:48
2	P 214.914†	555.1	538.1	[500]	µg/L	10:01:48
2	Pb 220.353†	564.6	613.9	[100]	µg/L	10:01:48
2	S 181.975 Axial†	180.2	127.1	[200]	µg/L	10:01:48
2	Sb 206.836†	175.0	161.9	[100]	µg/L	10:01:48
2	Se 196.026†	141.0	132.3	[100]	µg/L	10:01:48
2	SiO2†	10565.6	8838.4	[1069.5]	µg/L	10:01:28
2	Si 251.611†	17340.2	16048.6	[500]	µg/L	10:01:28
2	Sn 189.927†	470.8	464.3	[100]	µg/L	10:01:48
2	Ti 334.940†	41133.5	42259.9	[100]	µg/L	10:01:28
2	Tl 190.801†	191.9	247.0	[100]	µg/L	10:01:48
2	U 367.007†	-161.6	200.8	[100]	µg/L	10:01:28
2	V 292.402†	11973.6	11964.2	[100]	µg/L	10:01:28

2	Zn 213.857†	7319.6	7010.1	[100] µg/L	10:01:48
3	Sc RADIAL	14854.0	14854.0	98.7 %	10:01:02
3	K 766.490 Radial†	1295.9	1036.5	[1000] µg/L	10:01:02
3	Sr 421.552†	21160.9	20771.3	[100] µg/L	10:01:02
3	Sc 361.383	727411.2	727411.2	99.339 %	10:01:50
3	Y 371.029	575235.7	575235.7	99.112 %	10:01:50
3	Ag 328.068†	14540.5	15459.5	[100] µg/L	10:01:50
3	As 188.979†	124.1	138.7	[100] µg/L	10:02:10
3	B 249.677†	3569.7	3794.3	[100] µg/L	10:01:50
3	Ba 233.527†	12511.7	12579.6	[100] µg/L	10:01:50
3	Be 313.107†	234880.0	243776.6	[100] µg/L	10:01:50
3	Cd 226.502†	13094.0	13289.9	[100] µg/L	10:01:50
3	Co 228.616†	2554.0	2772.1	[100] µg/L	10:02:10
3	Cr 267.716†	9944.9	9869.9	[100] µg/L	10:01:50
3	Cu 324.752†	24701.2	21530.5	[100] µg/L	10:01:50
3	Mn 257.610†	56084.0	56110.8	[100] µg/L	10:01:50
3	Mo 202.031†	2056.6	1957.4	[100] µg/L	10:02:10
3	Ni 231.604†	2881.1	2877.9	[100] µg/L	10:02:10
3	P 214.914†	555.5	540.9	[500] µg/L	10:02:10
3	Pb 220.353†	595.6	647.5	[100] µg/L	10:02:10
3	S 181.975 Axial†	189.6	137.3	[200] µg/L	10:02:10
3	Sb 206.836†	180.9	168.7	[100] µg/L	10:02:10
3	Se 196.026†	136.0	127.9	[100] µg/L	10:02:10
3	SiO2†	10224.6	8539.9	[1069.5] µg/L	10:01:50
3	Si 251.611†	17011.1	15790.8	[500] µg/L	10:01:50
3	Sn 189.927†	488.1	483.7	[100] µg/L	10:02:10
3	Ti 334.940†	40504.5	41801.1	[100] µg/L	10:01:50
3	Tl 190.801†	193.1	249.0	[100] µg/L	10:02:10
3	U 367.007†	-0.0	362.8	[100] µg/L	10:01:50
3	V 292.402†	11871.2	11911.9	[100] µg/L	10:01:50
3	Zn 213.857†	7363.6	7085.5	[100] µg/L	10:02:10

Mean Data: S0.1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	732471.3	6290.35	0.86%	100.03	%
Sc RADIAL	14941.5	236.96	1.59%	99.3	%
Y 371.029	578761.9	3721.15	0.64%	99.720	%
Ag 328.068†	15504.7	205.88	1.33%	[100]	µg/L
As 188.979†	144.1	4.86	3.37%	[100]	µg/L
B 249.677†	3820.0	31.37	0.82%	[100]	µg/L
Ba 233.527†	12636.2	111.61	0.88%	[100]	µg/L
Be 313.107†	245661.1	2868.85	1.17%	[100]	µg/L
Cd 226.502†	13401.3	132.15	0.99%	[100]	µg/L
Co 228.616†	2750.7	21.55	0.78%	[100]	µg/L
Cr 267.716†	9900.6	50.96	0.51%	[100]	µg/L
Cu 324.752†	21558.0	85.56	0.40%	[100]	µg/L
K 766.490 Radial†	1009.4	50.78	5.03%	[1000]	µg/L
Mn 257.610†	56414.7	547.97	0.97%	[100]	µg/L
Mo 202.031†	1934.5	22.94	1.19%	[100]	µg/L
Ni 231.604†	2815.3	54.32	1.93%	[100]	µg/L
P 214.914†	535.9	6.48	1.21%	[500]	µg/L
Pb 220.353†	622.1	22.48	3.61%	[100]	µg/L
S 181.975 Axial†	128.2	8.60	6.70%	[200]	µg/L
Sb 206.836†	164.3	3.76	2.29%	[100]	µg/L
Se 196.026†	129.9	2.26	1.74%	[100]	µg/L
SiO2†	8641.9	170.20	1.97%	[1069.5]	µg/L
Si 251.611†	15898.4	134.05	0.84%	[500]	µg/L
Sn 189.927†	473.6	9.69	2.05%	[100]	µg/L
Sr 421.552†	20632.8	278.80	1.35%	[100]	µg/L
Ti 334.940†	41922.2	296.28	0.71%	[100]	µg/L
Tl 190.801†	250.6	4.50	1.80%	[100]	µg/L
U 367.007†	317.0	101.39	31.98%	[100]	µg/L
V 292.402†	11920.1	40.69	0.34%	[100]	µg/L
Zn 213.857†	7001.3	88.88	1.27%	[100]	µg/L

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: S0.5 **Date Collected: 6/26/2012 10:02:17**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	15054.6	15054.6	100	%	10:03:07
1	Al 396.153Radial†	7683.9	7801.8	[5000]	µg/L	10:03:07
1	Ca 317.933Radial†	17349.6	17138.3	[5000]	µg/L	10:03:07
1	K 766.490 Radial†	4563.0	4284.6	[5000]	µg/L	10:02:47
1	Mg 279.077 IEC†	1364.3	1358.8	[5000]	µg/L	10:03:07
1	Sr 421.552†	102981.7	102269.5	[500]	µg/L	10:02:47
1	Sc 361.383	728625.7	728625.7	99.505	%	10:03:55
1	Y 371.029	569982.3	569982.3	98.207	%	10:03:55
1	Ag 328.068†	77220.8	78427.1	[500]	µg/L	10:03:57
1	As 188.979†	728.5	745.8	[500]	µg/L	10:04:17
1	B 249.677†	19588.7	19887.0	[500]	µg/L	10:03:57
1	Ba 233.527†	62968.7	63266.5	[500]	µg/L	10:03:57
1	Be 313.107†	1234923.7	1248399.5	[500]	µg/L	10:03:55
1	Cd 226.502†	67104.3	67546.9	[500]	µg/L	10:03:57
1	Co 228.616†	13534.4	13802.7	[500]	µg/L	10:04:17
1	Cr 267.716†	49898.2	50005.2	[500]	µg/L	10:03:57
1	Cu 324.752†	111684.5	108904.8	[500]	µg/L	10:03:57
1	Mn 257.610†	277869.3	278904.9	[500]	µg/L	10:03:57
1	Mo 202.031†	9962.2	9898.8	[500]	µg/L	10:04:17
1	Ni 231.604†	13988.9	14036.2	[500]	µg/L	10:03:57
1	P 214.914†	2782.9	2778.4	[2500]	µg/L	10:04:17
1	Pb 220.353†	3085.3	3148.5	[500]	µg/L	10:04:17
1	S 181.975 Axial†	716.4	666.5	[1000]	µg/L	10:04:17
1	Sb 206.836†	860.0	850.8	[500]	µg/L	10:04:17
1	Se 196.026†	682.4	676.8	[500]	µg/L	10:04:17
1	SiO2†	44764.3	43234.3	[5347.5]	µg/L	10:03:57
1	Si 251.611†	80204.8	79270.2	[2500]	µg/L	10:03:57
1	Sn 189.927†	2402.7	2407.0	[500]	µg/L	10:04:17
1	Ti 334.940†	209880.7	211951.6	[500]	µg/L	10:03:57
1	Tl 190.801†	1170.0	1230.6	[500]	µg/L	10:04:17
1	U 367.007†	1691.6	2062.8	[500]	µg/L	10:03:57
1	V 292.402†	61203.4	61469.5	[500]	µg/L	10:03:57
1	Zn 213.857†	35467.9	35317.2	[500]	µg/L	10:03:57
2	Sc RADIAL	14992.9	14992.9	99.6	%	10:03:29
2	Al 396.153Radial†	7656.2	7805.6	[5000]	µg/L	10:03:29
2	Ca 317.933Radial†	17353.7	17213.8	[5000]	µg/L	10:03:29
2	K 766.490 Radial†	4516.1	4256.3	[5000]	µg/L	10:03:09
2	Mg 279.077 IEC†	1372.7	1372.8	[5000]	µg/L	10:03:29
2	Sr 421.552†	101829.7	101536.8	[500]	µg/L	10:03:09
2	Sc 361.383	738874.9	738874.9	100.90	%	10:04:19
2	Y 371.029	581639.6	581639.6	100.22	%	10:04:19
2	Ag 328.068†	78615.6	78732.9	[500]	µg/L	10:04:21
2	As 188.979†	723.8	731.0	[500]	µg/L	10:04:41
2	B 249.677†	20082.3	20103.1	[500]	µg/L	10:04:21
2	Ba 233.527†	63717.4	63130.7	[500]	µg/L	10:04:21
2	Be 313.107†	1244422.3	1240597.5	[500]	µg/L	10:04:19
2	Cd 226.502†	68239.8	67736.7	[500]	µg/L	10:04:21
2	Co 228.616†	13348.7	13430.1	[500]	µg/L	10:04:41
2	Cr 267.716†	50812.8	50216.0	[500]	µg/L	10:04:21
2	Cu 324.752†	112926.3	108578.6	[500]	µg/L	10:04:21
2	Mn 257.610†	281246.4	278378.1	[500]	µg/L	10:04:21
2	Mo 202.031†	9831.4	9630.3	[500]	µg/L	10:04:41
2	Ni 231.604†	14212.8	14063.1	[500]	µg/L	10:04:21
2	P 214.914†	2749.6	2706.6	[2500]	µg/L	10:04:41
2	Pb 220.353†	3048.7	3069.2	[500]	µg/L	10:04:41
2	S 181.975 Axial†	709.1	649.2	[1000]	µg/L	10:04:41
2	Sb 206.836†	856.5	835.4	[500]	µg/L	10:04:41
2	Se 196.026†	681.1	666.0	[500]	µg/L	10:04:41
2	SiO2†	45169.8	43012.1	[5347.5]	µg/L	10:04:21

2	Si 251.611†	81237.3	79175.4	[2500]	µg/L	10:04:21
2	Sn 189.927†	2359.4	2330.6	[500]	µg/L	10:04:41
2	Ti 334.940†	212670.4	211790.5	[500]	µg/L	10:04:21
2	Tl 190.801†	1169.7	1213.9	[500]	µg/L	10:04:41
2	U 367.007†	1729.3	2076.6	[500]	µg/L	10:04:21
2	V 292.402†	61464.5	60875.1	[500]	µg/L	10:04:21
2	Zn 213.857†	35879.1	35230.3	[500]	µg/L	10:04:21
3	Sc RADIAL	15067.5	15067.5	100	%	10:03:51
3	Al 396.153Radial†	7671.3	7782.6	[5000]	µg/L	10:03:51
3	Ca 317.933Radial†	17454.4	17228.2	[5000]	µg/L	10:03:51
3	K 766.490 Radial†	4571.3	4289.0	[5000]	µg/L	10:03:31
3	Mg 279.077 IEC†	1376.2	1369.5	[5000]	µg/L	10:03:51
3	Sr 421.552†	102102.4	101303.3	[500]	µg/L	10:03:31
3	Sc 361.383	732211.9	732211.9	99.995	%	10:04:43
3	Y 371.029	572771.0	572771.0	98.687	%	10:04:43
3	Ag 328.068†	74549.1	75375.2	[500]	µg/L	10:04:45
3	As 188.979†	633.3	647.0	[500]	µg/L	10:05:06
3	B 249.677†	18930.9	19132.7	[500]	µg/L	10:04:45
3	Ba 233.527†	59535.1	59522.8	[500]	µg/L	10:04:45
3	Be 313.107†	1180153.2	1187547.6	[500]	µg/L	10:04:43
3	Cd 226.502†	63711.8	63823.9	[500]	µg/L	10:04:45
3	Co 228.616†	11295.2	11496.9	[500]	µg/L	10:05:06
3	Cr 267.716†	45899.8	45761.0	[500]	µg/L	10:04:45
3	Cu 324.752†	104755.9	101426.2	[500]	µg/L	10:04:45
3	Mn 257.610†	259778.6	259445.6	[500]	µg/L	10:04:45
3	Mo 202.031†	8328.8	8216.3	[500]	µg/L	10:05:06
3	Ni 231.604†	13211.9	13190.3	[500]	µg/L	10:04:45
3	P 214.914†	2370.7	2352.5	[2500]	µg/L	10:05:06
3	Pb 220.353†	2668.1	2716.1	[500]	µg/L	10:05:06
3	S 181.975 Axial†	639.2	585.7	[1000]	µg/L	10:05:06
3	Sb 206.836†	749.5	736.1	[500]	µg/L	10:05:06
3	Se 196.026†	599.0	590.1	[500]	µg/L	10:05:06
3	SiO2†	42527.0	40776.6	[5347.5]	µg/L	10:04:45
3	Si 251.611†	76387.1	75057.6	[2500]	µg/L	10:04:45
3	Sn 189.927†	1993.1	1985.6	[500]	µg/L	10:05:06
3	Ti 334.940†	194204.6	195241.7	[500]	µg/L	10:04:45
3	Tl 190.801†	1074.4	1129.2	[500]	µg/L	10:05:06
3	U 367.007†	1559.8	1922.7	[500]	µg/L	10:04:45
3	V 292.402†	57336.0	57300.7	[500]	µg/L	10:04:45
3	Zn 213.857†	33337.6	33012.1	[500]	µg/L	10:04:45

Mean Data: S0.5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	733237.5	5201.04	0.71%	100.13	%
Sc RADIAL	15038.3	39.87	0.27%	99.9	%
Y 371.029	574797.7	6087.17	1.06%	99.037	%
Ag 328.068†	77511.7	1856.61	2.40%	[500]	µg/L
Al 396.153Radial†	7796.7	12.33	0.16%	[5000]	µg/L
As 188.979†	708.0	53.29	7.53%	[500]	µg/L
B 249.677†	19707.6	509.44	2.58%	[500]	µg/L
Ba 233.527†	61973.3	2123.29	3.43%	[500]	µg/L
Be 313.107†	1225514.9	33111.18	2.70%	[500]	µg/L
Ca 317.933Radial†	17193.4	48.25	0.28%	[5000]	µg/L
Cd 226.502†	66369.2	2206.33	3.32%	[500]	µg/L
Co 228.616†	12909.9	1237.81	9.59%	[500]	µg/L
Cr 267.716†	48660.7	2513.45	5.17%	[500]	µg/L
Cu 324.752†	106303.2	4226.73	3.98%	[500]	µg/L
K 766.490 Radial†	4276.7	17.75	0.41%	[5000]	µg/L
Mg 279.077 IEC†	1367.0	7.32	0.54%	[5000]	µg/L
Mn 257.610†	272242.9	11085.87	4.07%	[500]	µg/L
Mo 202.031†	9248.5	903.92	9.77%	[500]	µg/L
Ni 231.604†	13763.2	496.33	3.61%	[500]	µg/L
P 214.914†	2612.5	227.99	8.73%	[2500]	µg/L
Pb 220.353†	2978.0	230.21	7.73%	[500]	µg/L
S 181.975 Axial†	633.8	42.51	6.71%	[1000]	µg/L
Sb 206.836†	807.4	62.27	7.71%	[500]	µg/L
Se 196.026†	644.3	47.25	7.33%	[500]	µg/L
SiO2†	42341.0	1359.38	3.21%	[5347.5]	µg/L
Si 251.611†	77834.4	2405.23	3.09%	[2500]	µg/L

Sn 189.927†	2241.1	224.50	10.02%	[500] µg/L
Sr 421.552†	101703.2	504.10	0.50%	[500] µg/L
Ti 334.940†	206327.9	9601.34	4.65%	[500] µg/L
Tl 190.801†	1191.2	54.36	4.56%	[500] µg/L
U 367.007†	2020.7	85.16	4.21%	[500] µg/L
V 292.402†	59881.8	2254.94	3.77%	[500] µg/L
Zn 213.857†	34519.9	1306.45	3.78%	[500] µg/L

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SCAL **Date Collected: 6/26/2012 10:05:14**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: SCAL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	14958.5	14958.5	99.4	%	10:06:03
1	Al 396.153Radial†	15138.2	15349.9	[10000]	µg/L	10:06:03
1	Ca 317.933Radial†	34024.8	34024.5	[10000]	µg/L	10:06:03
1	Fe 238.204 Radial†	10377.8	10415.4	[10000]	µg/L	10:06:03
1	K 766.490 Radial†	8585.3	8360.2	[10000]	µg/L	10:05:43
1	Mg 279.077 IEC†	2693.7	2704.9	[10000]	µg/L	10:06:03
1	Na 589.592 Radial†	44201.6	43671.8	[10000]	µg/L	10:05:43
1	Sr 421.552†	200729.5	201261.8	[1000]	µg/L	10:05:43
1	Sc 361.383	716220.4	716220.4	97.811	%	10:06:51
1	Y 371.029	564236.1	564236.1	97.217	%	10:06:53
1	Ag 328.068†	153274.6	157527.1	[1000]	µg/L	10:06:53
1	As 188.979†	1465.7	1512.3	[1000]	µg/L	10:07:13
1	B 249.677†	39158.7	40235.9	[1000]	µg/L	10:06:53
1	Ba 233.527†	124438.4	127207.9	[1000]	µg/L	10:06:53
1	Be 313.107†	2434832.0	2496656.7	[1000]	µg/L	10:06:51
1	Cd 226.502†	131512.2	134564.2	[1000]	µg/L	10:06:53
1	Co 228.616†	26397.2	27189.0	[1000]	µg/L	10:07:13
1	Cr 267.716†	97938.6	99989.2	[1000]	µg/L	10:06:53
1	Cu 324.752†	217017.3	218539.0	[1000]	µg/L	10:06:53
1	Mn 257.610†	546548.8	558434.1	[1000]	µg/L	10:06:53
1	Mo 202.031†	19590.0	19915.5	[1000]	µg/L	10:07:13
1	Ni 231.604†	27367.5	27957.7	[1000]	µg/L	10:07:13
1	P 214.914†	5462.3	5566.2	[5000]	µg/L	10:07:13
1	Pb 220.353†	6081.2	6265.2	[1000]	µg/L	10:07:13
1	S 181.975 Axial†	1375.8	1353.1	[2000]	µg/L	10:07:13
1	Sb 206.836†	1702.9	1727.6	[1000]	µg/L	10:07:13
1	Se 196.026†	1337.7	1358.6	[1000]	µg/L	10:07:13
1	SiO2†	89167.0	89409.8	[10695]	µg/L	10:06:53
1	Si 251.611†	161946.6	164237.5	[5000]	µg/L	10:06:53
1	Sn 189.927†	4823.5	4923.9	[1000]	µg/L	10:07:13
1	Ti 334.940†	421339.5	431796.1	[1000]	µg/L	10:06:53
1	Tl 190.801†	2329.4	2436.3	[1000]	µg/L	10:07:13
1	U 367.007†	3742.5	4189.1	[1000]	µg/L	10:06:53
1	V 292.402†	120442.3	123099.5	[1000]	µg/L	10:06:53
1	Zn 213.857†	69387.1	70612.9	[1000]	µg/L	10:06:53
2	Sc RADIAL	14988.1	14988.1	99.6	%	10:06:25
2	Al 396.153Radial†	15109.3	15290.9	[10000]	µg/L	10:06:25
2	Ca 317.933Radial†	34057.2	33989.4	[10000]	µg/L	10:06:25
2	Fe 238.204 Radial†	10400.9	10417.9	[10000]	µg/L	10:06:25
2	K 766.490 Radial†	8904.8	8663.9	[10000]	µg/L	10:06:05
2	Mg 279.077 IEC†	2699.4	2705.3	[10000]	µg/L	10:06:25
2	Na 589.592 Radial†	44560.0	43943.9	[10000]	µg/L	10:06:05
2	Sr 421.552†	201811.8	201950.0	[1000]	µg/L	10:06:05
2	Sc 361.383	738462.6	738462.6	100.85	%	10:07:16
2	Y 371.029	563835.1	563835.1	97.148	%	10:07:18
2	Ag 328.068†	154907.8	154426.7	[1000]	µg/L	10:07:18
2	As 188.979†	1455.2	1456.7	[1000]	µg/L	10:07:38
2	B 249.677†	39450.5	39319.4	[1000]	µg/L	10:07:18
2	Ba 233.527†	124369.2	123307.3	[1000]	µg/L	10:07:18
2	Be 313.107†	2499339.5	2485644.0	[1000]	µg/L	10:07:16
2	Cd 226.502†	132749.3	131741.2	[1000]	µg/L	10:07:18
2	Co 228.616†	26250.4	26230.6	[1000]	µg/L	10:07:38
2	Cr 267.716†	99012.0	98037.7	[1000]	µg/L	10:07:18
2	Cu 324.752†	216931.3	211771.0	[1000]	µg/L	10:07:18
2	Mn 257.610†	546015.9	541075.4	[1000]	µg/L	10:07:18
2	Mo 202.031†	19440.9	19164.4	[1000]	µg/L	10:07:38
2	Ni 231.604†	27148.9	26898.2	[1000]	µg/L	10:07:38
2	P 214.914†	5432.9	5368.9	[5000]	µg/L	10:07:38
2	Pb 220.353†	6065.9	6062.8	[1000]	µg/L	10:07:38

2	S 181.975 Axial†	1373.7	1308.7	[2000]	µg/L	10:07:38
2	Sb 206.836†	1692.1	1664.4	[1000]	µg/L	10:07:38
2	Se 196.026†	1334.1	1313.9	[1000]	µg/L	10:07:38
2	SiO2†	88766.0	86266.5	[10695]	µg/L	10:07:18
2	Si 251.611†	161645.7	158952.2	[5000]	µg/L	10:07:18
2	Sn 189.927†	4768.0	4720.2	[1000]	µg/L	10:07:38
2	Ti 334.940†	420648.9	418136.7	[1000]	µg/L	10:07:18
2	Tl 190.801†	2347.3	2382.3	[1000]	µg/L	10:07:38
2	U 367.007†	3768.4	4099.5	[1000]	µg/L	10:07:18
2	V 292.402†	121546.0	120485.0	[1000]	µg/L	10:07:18
2	Zn 213.857†	69476.7	68565.0	[1000]	µg/L	10:07:18
3	Sc RADIAL	14937.7	14937.7	99.3	%	10:06:47
3	Al 396.153Radial†	15121.6	15354.4	[10000]	µg/L	10:06:47
3	Ca 317.933Radial†	33963.5	34010.4	[10000]	µg/L	10:06:47
3	Fe 238.204 Radial†	10414.6	10466.9	[10000]	µg/L	10:06:47
3	K 766.490 Radial†	8789.1	8577.5	[10000]	µg/L	10:06:27
3	Mg 279.077 IEC†	2687.2	2702.1	[10000]	µg/L	10:06:47
3	Na 589.592 Radial†	44246.3	43778.8	[10000]	µg/L	10:06:27
3	Sr 421.552†	199972.1	200780.2	[1000]	µg/L	10:06:27
3	Sc 361.383	731876.7	731876.7	99.949	%	10:07:40
3	Y 371.029	564628.4	564628.4	97.284	%	10:07:43
3	Ag 328.068†	145523.2	146419.5	[1000]	µg/L	10:07:43
3	As 188.979†	1228.2	1242.6	[1000]	µg/L	10:08:03
3	B 249.677†	37085.4	37305.1	[1000]	µg/L	10:07:43
3	Ba 233.527†	115742.2	115785.7	[1000]	µg/L	10:07:43
3	Be 313.107†	2249414.4	2257893.3	[1000]	µg/L	10:07:40
3	Cd 226.502†	122229.3	122400.4	[1000]	µg/L	10:07:43
3	Co 228.616†	21878.8	22091.0	[1000]	µg/L	10:08:03
3	Cr 267.716†	87763.7	87667.2	[1000]	µg/L	10:07:43
3	Cu 324.752†	199832.8	196599.4	[1000]	µg/L	10:07:43
3	Mn 257.610†	501930.3	501839.5	[1000]	µg/L	10:07:43
3	Mo 202.031†	16186.1	16081.4	[1000]	µg/L	10:08:03
3	Ni 231.604†	22594.2	22583.4	[1000]	µg/L	10:08:03
3	P 214.914†	4587.6	4571.6	[5000]	µg/L	10:08:03
3	Pb 220.353†	5216.9	5267.5	[1000]	µg/L	10:08:03
3	S 181.975 Axial†	1199.8	1146.9	[2000]	µg/L	10:08:03
3	Sb 206.836†	1431.5	1418.8	[1000]	µg/L	10:08:03
3	Se 196.026†	1158.2	1149.8	[1000]	µg/L	10:08:03
3	SiO2†	83454.3	81744.1	[10695]	µg/L	10:07:43
3	Si 251.611†	151735.7	150479.5	[5000]	µg/L	10:07:43
3	Sn 189.927†	3871.3	3865.7	[1000]	µg/L	10:08:03
3	Ti 334.940†	381455.5	382676.8	[1000]	µg/L	10:07:43
3	Tl 190.801†	2135.2	2191.0	[1000]	µg/L	10:08:03
3	U 367.007†	3305.6	3670.1	[1000]	µg/L	10:07:43
3	V 292.402†	110231.4	110249.3	[1000]	µg/L	10:07:43
3	Zn 213.857†	64005.8	63711.2	[1000]	µg/L	10:07:43

Mean Data: SCAL

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	728853.3	11425.18	1.57%	99.536	%
Sc RADIAL	14961.4	25.32	0.17%	99.4	%
Y 371.029	564233.2	396.64	0.07%	97.216	%
Ag 328.068†	152791.1	5731.57	3.75%	[1000]	µg/L
Al 396.153Radial†	15331.8	35.47	0.23%	[10000]	µg/L
As 188.979†	1403.8	142.40	10.14%	[1000]	µg/L
B 249.677†	38953.5	1499.25	3.85%	[1000]	µg/L
Ba 233.527†	122100.3	5805.99	4.76%	[1000]	µg/L
Be 313.107†	2413398.0	134783.58	5.58%	[1000]	µg/L
Ca 317.933Radial†	34008.1	17.63	0.05%	[10000]	µg/L
Cd 226.502†	129568.6	6366.30	4.91%	[1000]	µg/L
Co 228.616†	25170.2	2709.39	10.76%	[1000]	µg/L
Cr 267.716†	95231.4	6623.04	6.95%	[1000]	µg/L
Cu 324.752†	208969.8	11234.84	5.38%	[1000]	µg/L
Fe 238.204 Radial†	10433.4	29.05	0.28%	[10000]	µg/L
K 766.490 Radial†	8533.9	156.46	1.83%	[10000]	µg/L
Mg 279.077 IEC†	2704.1	1.73	0.06%	[10000]	µg/L
Mn 257.610†	533783.0	28993.47	5.43%	[1000]	µg/L
Mo 202.031†	18387.1	2031.82	11.05%	[1000]	µg/L
Na 589.592 Radial†	43798.2	137.05	0.31%	[10000]	µg/L

Ni 231.604†	25813.1	2846.71	11.03%	[1000]	µg/L
P 214.914†	5168.9	526.60	10.19%	[5000]	µg/L
Pb 220.353†	5865.2	527.39	8.99%	[1000]	µg/L
S 181.975 Axial†	1269.6	108.52	8.55%	[2000]	µg/L
Sb 206.836†	1603.6	163.15	10.17%	[1000]	µg/L
Se 196.026†	1274.1	109.96	8.63%	[1000]	µg/L
SiO2†	85806.8	3853.46	4.49%	[10695]	µg/L
Si 251.611†	157889.7	6940.27	4.40%	[5000]	µg/L
Sn 189.927†	4503.2	561.46	12.47%	[1000]	µg/L
Sr 421.552†	201330.7	587.94	0.29%	[1000]	µg/L
Ti 334.940†	410869.8	25353.14	6.17%	[1000]	µg/L
Tl 190.801†	2336.5	128.88	5.52%	[1000]	µg/L
U 367.007†	3986.2	277.43	6.96%	[1000]	µg/L
V 292.402†	117944.6	6791.35	5.76%	[1000]	µg/L
Zn 213.857†	67629.7	3544.61	5.24%	[1000]	µg/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: S10 **Date Collected: 6/26/2012 10:08:11**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	14750.6	14750.6	98.0	%	10:08:42
1	Al 396.153Radial†	75344.5	76983.7	[50000]	µg/L	10:08:42
1	Ca 317.933Radial†	171675.8	174930.8	[50000]	µg/L	10:08:42
1	Fe 238.204 Radial†	20689.3	21081.7	[20000]	µg/L	10:08:42
1	Mg 279.077 IEC†	13124.4	13383.8	[50000]	µg/L	10:08:42
1	Na 589.592 Radial†	88174.4	89157.1	[20000]	µg/L	10:08:40
1	Sc 361.383	729275.1	729275.1	99.594	%	10:08:54
1	Y 371.029	570232.3	570232.3	98.250	%	10:08:54
2	Sc RADIAL	14661.2	14661.2	97.4	%	10:08:46
2	Al 396.153Radial†	75440.0	77550.7	[50000]	µg/L	10:08:46
2	Ca 317.933Radial†	171223.5	175535.1	[50000]	µg/L	10:08:46
2	Fe 238.204 Radial†	20634.6	21154.3	[20000]	µg/L	10:08:46
2	Mg 279.077 IEC†	13116.5	13457.5	[50000]	µg/L	10:08:46
2	Na 589.592 Radial†	88418.4	89956.4	[20000]	µg/L	10:08:44
2	Sc 361.383	712798.5	712798.5	97.344	%	10:08:56
2	Y 371.029	557813.8	557813.8	96.110	%	10:08:56
3	Sc RADIAL	14963.5	14963.5	99.4	%	10:08:50
3	Al 396.153Radial†	76413.9	76965.6	[50000]	µg/L	10:08:50
3	Ca 317.933Radial†	174522.5	175301.9	[50000]	µg/L	10:08:50
3	Fe 238.204 Radial†	21116.2	21210.8	[20000]	µg/L	10:08:50
3	Mg 279.077 IEC†	13345.4	13415.7	[50000]	µg/L	10:08:50
3	Na 589.592 Radial†	88182.8	87885.9	[20000]	µg/L	10:08:48
3	Sc 361.383	723666.6	723666.6	98.828	%	10:08:59
3	Y 371.029	565181.9	565181.9	97.380	%	10:08:59

Mean Data: S10

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	721913.4	8377.05	1.16%	98.589	%
Sc RADIAL	14791.8	155.31	1.05%	98.3	%
Y 371.029	564409.3	6245.19	1.11%	97.247	%
Al 396.153Radial†	77166.6	332.71	0.43%	[50000]	µg/L
Ca 317.933Radial†	175255.9	304.79	0.17%	[50000]	µg/L
Fe 238.204 Radial†	21148.9	64.70	0.31%	[20000]	µg/L
Mg 279.077 IEC†	13419.0	36.92	0.28%	[50000]	µg/L
Na 589.592 Radial†	88999.8	1044.17	1.17%	[20000]	µg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	3	Lin Thru 0	0.0	153.3	0.00000	0.999983	
Al 396.153Radial	3	Lin Thru 0	0.0	1.543	0.00000	0.999999	
As 188.979	3	Lin Thru 0	0.0	1.407	0.00000	0.999992	
B 249.677	3	Lin Thru 0	0.0	39.04	0.00000	0.999987	
Ba 233.527	3	Lin Thru 0	0.0	122.5	0.00000	0.999978	
Be 313.107	3	Lin Thru 0	0.0	2421	0.00000	0.999980	
Ca 317.933Radial	3	Lin Thru 0	0.0	3.501	0.00000	0.999982	
Cd 226.502	3	Lin Thru 0	0.0	130.2	0.00000	0.999950	
Co 228.616	3	Lin Thru 0	0.0	25.32	0.00000	0.999918	
Cr 267.716	3	Lin Thru 0	0.0	95.68	0.00000	0.999957	
Cu 324.752	3	Lin Thru 0	0.0	209.7	0.00000	0.999973	
Fe 238.204 Radia	2	Lin Thru 0	0.0	1.055	0.00000	0.999986	
K 766.490 Radial	3	Lin Thru 0	0.0	0.8550	0.00000	0.999869	
Mg 279.077 IEC	3	Lin Thru 0	0.0	0.2685	0.00000	0.999997	
Mn 257.610	3	Lin Thru 0	0.0	536.1	0.00000	0.999957	
Mo 202.031	3	Lin Thru 0	0.0	18.42	0.00000	0.999987	
Na 589.592 Radia	2	Lin Thru 0	0.0	4.436	0.00000	0.999980	

Ni 231.604	3	Lin Thru 0	0.0	26.17	0.00000	0.999637
P 214.914	3	Lin Thru 0	0.0	1.036	0.00000	0.999986
Pb 220.353	3	Lin Thru 0	0.0	5.886	0.00000	0.999968
S 181.975 Axial	3	Lin Thru 0	0.0	0.6346	0.00000	0.999999
Sb 206.836	3	Lin Thru 0	0.0	1.606	0.00000	0.999994
Se 196.026	3	Lin Thru 0	0.0	1.277	0.00000	0.999989
SiO2	3	Lin Thru 0	0.0	8.003	0.00000	0.999986
Si 251.611	3	Lin Thru 0	0.0	31.49	0.00000	0.999984
Sn 189.927	3	Lin Thru 0	0.0	4.501	0.00000	0.999987
Sr 421.552	3	Lin Thru 0	0.0	201.8	0.00000	0.999990
Ti 334.940	3	Lin Thru 0	0.0	411.3	0.00000	0.999997
Tl 190.801	3	Lin Thru 0	0.0	2.347	0.00000	0.999951
U 367.007	3	Lin Thru 0	0.0	3.991	0.00000	0.999816
V 292.402	3	Lin Thru 0	0.0	118.3	0.00000	0.999981
Zn 213.857	3	Lin Thru 0	0.0	67.93	0.00000	0.999962

Sequence No.: 6 **Autosampler Location: 9**
Sample ID: ICV **Date Collected: 6/26/2012 10:09:06**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15148.9	15148.9	101	%			10:10:02
1	Al 396.153Radial†	7762.7	7832.2	5061.1	µg/L	5061.1	ppb	10:10:02
1	Ca 317.933Radial†	17839.6	17517.2	5004.2	µg/L	5004.2	ppb	10:10:02
1	Fe 238.204 Radial†	5362.0	5301.8	5028.0	µg/L	5028.0	ppb	10:10:02
1	K 766.490 Radial†	2424.8	2132.3	2487.3	µg/L	2487.3	ppb	10:09:42
1	Mg 279.077 IEC†	1416.7	1402.3	5222.8	µg/L	5222.8	ppb	10:10:02
1	Na 589.592 Radial†	12344.4	11468.5	2585.3	µg/L	2585.3	ppb	10:09:42
1	Sr 421.552†	102107.2	100760.1	499.26	µg/L	499.26	ppb	10:09:42
1	Sc 361.383	735609.8	735609.8	100.46	%			10:10:50
1	Y 371.029	576996.8	576996.8	99.415	%			10:10:50
1	Ag 328.068†	39727.6	40368.4	264.38	µg/L	264.38	ppb	10:10:50
1	As 188.979†	727.1	737.5	530.07	µg/L	530.07	ppb	10:11:10
1	B 249.677†	19692.5	19803.4	533.25	µg/L	533.25	ppb	10:10:50
1	Ba 233.527†	64560.4	64250.1	525.00	µg/L	525.00	ppb	10:10:50
1	Be 313.107†	630305.1	634760.0	262.14	µg/L	262.14	ppb	10:10:50
1	Cd 226.502†	69172.9	68965.8	528.42	µg/L	528.42	ppb	10:10:50
1	Co 228.616†	13615.5	13754.4	543.83	µg/L	543.83	ppb	10:11:10
1	Cr 267.716†	51400.1	51024.1	533.66	µg/L	533.66	ppb	10:10:50
1	Cu 324.752†	116288.1	112421.8	536.55	µg/L	536.55	ppb	10:10:50
1	Mn 257.610†	284838.3	283190.8	528.16	µg/L	528.16	ppb	10:10:50
1	Mo 202.031†	9845.9	9688.0	526.28	µg/L	526.28	ppb	10:11:10
1	Ni 231.604†	14170.7	14083.6	537.95	µg/L	537.95	ppb	10:11:10
1	P 214.914†	2740.4	2709.6	2604.5	µg/L	2604.5	ppb	10:11:10
1	Pb 220.353†	3128.3	3161.9	538.66	µg/L	538.66	ppb	10:11:10
1	S 181.975 Axial†	1707.8	1646.6	2595.0	µg/L	2595.0	ppb	10:11:10
1	Sb 206.836†	856.2	838.8	523.44	µg/L	523.44	ppb	10:11:10
1	Se 196.026†	3404.4	3379.8	2650	µg/L	2650	ppb	10:11:10
1	SiO2†	90834.1	88666.5	11092	µg/L	11092	ppb	10:10:50
1	Si 251.611†	164382.3	162298.0	5153.7	µg/L	5153.7	ppb	10:10:50
1	Sn 189.927†	2429.3	2410.6	537.65	µg/L	537.65	ppb	10:11:10
1	Ti 334.940†	213231.7	213284.7	518.88	µg/L	518.88	ppb	10:10:50
1	Tl 190.801†	1209.4	1258.6	537.61	µg/L	537.61	ppb	10:11:10
1	U 367.007†	1728.7	2083.6	490.60	µg/L	490.60	ppb	10:10:50
1	V 292.402†	62681.3	62356.7	534.66	µg/L	534.66	ppb	10:10:50
1	Zn 213.857†	36165.0	35672.6	521.15	µg/L	521.15	ppb	10:11:10
2	Sc RADIAL	15081.9	15081.9	100	%			10:10:24
2	Al 396.153Radial†	7730.3	7834.1	5062.4	µg/L	5062.4	ppb	10:10:24
2	Ca 317.933Radial†	17817.7	17574.0	5020.4	µg/L	5020.4	ppb	10:10:24
2	Fe 238.204 Radial†	5345.9	5309.4	5035.3	µg/L	5035.3	ppb	10:10:24
2	K 766.490 Radial†	2629.3	2347.1	2738.5	µg/L	2738.5	ppb	10:10:04
2	Mg 279.077 IEC†	1402.8	1394.8	5194.6	µg/L	5194.6	ppb	10:10:24
2	Na 589.592 Radial†	12332.6	11511.2	2595.0	µg/L	2595.0	ppb	10:10:04
2	Sr 421.552†	103189.2	102290.4	506.84	µg/L	506.84	ppb	10:10:04
2	Sc 361.383	736142.0	736142.0	100.53	%			10:11:12
2	Y 371.029	577511.1	577511.1	99.504	%			10:11:12
2	Ag 328.068†	38654.6	39272.4	257.22	µg/L	257.22	ppb	10:11:12
2	As 188.979†	723.4	733.3	526.94	µg/L	526.94	ppb	10:11:32
2	B 249.677†	19105.5	19205.3	517.97	µg/L	517.97	ppb	10:11:12
2	Ba 233.527†	63587.3	63235.7	516.71	µg/L	516.71	ppb	10:11:12
2	Be 313.107†	619541.8	623599.9	257.53	µg/L	257.53	ppb	10:11:12
2	Cd 226.502†	67488.7	67240.7	515.19	µg/L	515.19	ppb	10:11:12
2	Co 228.616†	13522.6	13652.2	539.78	µg/L	539.78	ppb	10:11:32
2	Cr 267.716†	49833.3	49428.6	516.98	µg/L	516.98	ppb	10:11:12
2	Cu 324.752†	114724.6	110782.9	528.74	µg/L	528.74	ppb	10:11:12
2	Mn 257.610†	281256.7	279423.1	521.13	µg/L	521.13	ppb	10:11:12
2	Mo 202.031†	9777.4	9612.8	522.19	µg/L	522.19	ppb	10:11:32
2	Ni 231.604†	14144.6	14047.5	536.57	µg/L	536.57	ppb	10:11:32
2	P 214.914†	2716.3	2683.7	2579.5	µg/L	2579.5	ppb	10:11:32
2	Pb 220.353†	3132.2	3163.6	538.95	µg/L	538.95	ppb	10:11:32

2	S 181.975 Axial†	1687.4	1625.0	2561.1 µg/L	2561.1 ppb	10:11:32
2	Sb 206.836†	854.4	836.4	522.11 µg/L	522.11 ppb	10:11:32
2	Se 196.026†	3386.6	3359.7	2630 µg/L	2630 ppb	10:11:32
2	SiO2†	89955.9	87727.6	10974 µg/L	10974 ppb	10:11:12
2	Si 251.611†	162464.7	160272.2	5089.4 µg/L	5089.4 ppb	10:11:12
2	Sn 189.927†	2418.8	2398.4	534.92 µg/L	534.92 ppb	10:11:32
2	Ti 334.940†	210616.2	210529.7	512.18 µg/L	512.18 ppb	10:11:12
2	Tl 190.801†	1209.0	1257.3	537.03 µg/L	537.03 ppb	10:11:32
2	U 367.007†	1696.4	2050.2	482.21 µg/L	482.21 ppb	10:11:12
2	V 292.402†	61676.4	61312.0	525.71 µg/L	525.71 ppb	10:11:12
2	Zn 213.857†	35932.6	35415.5	517.38 µg/L	517.38 ppb	10:11:32
3	Sc RADIAL	15059.1	15059.1	100 %		10:10:46
3	Al 396.153Radial†	7742.5	7858.0	5079.6 µg/L	5079.6 ppb	10:10:46
3	Ca 317.933Radial†	17807.3	17590.5	5025.1 µg/L	5025.1 ppb	10:10:46
3	Fe 238.204 Radial†	5331.6	5303.2	5029.3 µg/L	5029.3 ppb	10:10:46
3	K 766.490 Radial†	2514.1	2235.9	2608.5 µg/L	2608.5 ppb	10:10:26
3	Mg 279.077 IEC†	1395.9	1389.9	5176.4 µg/L	5176.4 ppb	10:10:46
3	Na 589.592 Radial†	12308.0	11505.2	2593.6 µg/L	2593.6 ppb	10:10:26
3	Sr 421.552†	102956.3	102213.0	506.46 µg/L	506.46 ppb	10:10:26
3	Sc 361.383	716680.3	716680.3	97.874 %		10:11:35
3	Y 371.029	560793.8	560793.8	96.624 %		10:11:35
3	Ag 328.068†	38108.5	39758.6	260.36 µg/L	260.36 ppb	10:11:35
3	As 188.979†	662.8	690.9	496.62 µg/L	496.62 ppb	10:11:55
3	B 249.677†	18898.7	19510.1	525.80 µg/L	525.80 ppb	10:11:35
3	Ba 233.527†	61785.4	63112.3	515.69 µg/L	515.69 ppb	10:11:35
3	Be 313.107†	594865.8	615122.8	254.03 µg/L	254.03 ppb	10:11:35
3	Cd 226.502†	65136.3	66660.1	510.72 µg/L	510.72 ppb	10:11:35
3	Co 228.616†	11849.4	12307.9	486.68 µg/L	486.68 ppb	10:11:55
3	Cr 267.716†	47678.3	48572.9	508.03 µg/L	508.03 ppb	10:11:35
3	Cu 324.752†	110945.5	110020.6	525.06 µg/L	525.06 ppb	10:11:35
3	Mn 257.610†	270795.2	276331.6	515.36 µg/L	515.36 ppb	10:11:35
3	Mo 202.031†	8570.1	8643.3	469.55 µg/L	469.55 ppb	10:11:55
3	Ni 231.604†	12443.2	12691.3	484.77 µg/L	484.77 ppb	10:11:55
3	P 214.914†	2417.6	2451.8	2356.4 µg/L	2356.4 ppb	10:11:55
3	Pb 220.353†	2803.4	2912.3	496.15 µg/L	496.15 ppb	10:11:55
3	S 181.975 Axial†	1548.1	1528.2	2408.3 µg/L	2408.3 ppb	10:11:55
3	Sb 206.836†	756.5	759.5	473.59 µg/L	473.59 ppb	10:11:55
3	Se 196.026†	3080.3	3138.2	2460 µg/L	2460 ppb	10:11:55
3	SiO2†	87466.1	87613.6	10960 µg/L	10960 ppb	10:11:35
3	Si 251.611†	157955.7	160053.6	5082.4 µg/L	5082.4 ppb	10:11:35
3	Sn 189.927†	2096.2	2134.1	476.16 µg/L	476.16 ppb	10:11:55
3	Ti 334.940†	201349.4	206750.6	502.97 µg/L	502.97 ppb	10:11:35
3	Tl 190.801†	1130.5	1209.7	516.98 µg/L	516.98 ppb	10:11:55
3	U 367.007†	1578.8	1975.9	463.61 µg/L	463.61 ppb	10:11:35
3	V 292.402†	58936.6	60178.7	515.61 µg/L	515.61 ppb	10:11:35
3	Zn 213.857†	31553.6	31912.0	466.13 µg/L	466.13 ppb	10:11:55

Mean Data: ICV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	729477.4	99.621	%	1.5139				1.52%
Sc RADIAL	15096.6	100	%	0.3				0.31%
Y 371.029	571767.3	98.514	%	1.6380				1.66%
Ag 328.068†	39799.8	260.65	µg/L	3.587	260.65	ppb	3.587	1.38%
QC value within limits for Ag 328.068 Recovery = 104.26%								
Al 396.153Radial†	7841.5	5067.7	µg/L	10.32	5067.7	ppb	10.32	0.20%
QC value within limits for Al 396.153Radial Recovery = 101.35%								
As 188.979†	720.5	517.88	µg/L	18.473	517.88	ppb	18.473	3.57%
QC value within limits for As 188.979 Recovery = 103.58%								
B 249.677†	19506.3	525.67	µg/L	7.639	525.67	ppb	7.639	1.45%
QC value within limits for B 249.677 Recovery = 105.13%								
Ba 233.527†	63532.7	519.14	µg/L	5.106	519.14	ppb	5.106	0.98%
QC value within limits for Ba 233.527 Recovery = 103.83%								
Be 313.107†	624494.3	257.90	µg/L	4.068	257.90	ppb	4.068	1.58%
QC value within limits for Be 313.107 Recovery = 103.16%								
Ca 317.933Radial†	17560.5	5016.6	µg/L	10.99	5016.6	ppb	10.99	0.22%
QC value within limits for Ca 317.933Radial Recovery = 100.33%								
Cd 226.502†	67622.2	518.11	µg/L	9.207	518.11	ppb	9.207	1.78%
QC value within limits for Cd 226.502 Recovery = 103.62%								
Co 228.616†	13238.1	523.43	µg/L	31.888	523.43	ppb	31.888	6.09%

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   QC value within limits for Co 228.616  Recovery = 104.69%
Cr 267.716†           49675.2      519.56 µg/L        13.008      519.56 ppb         13.008   2.50%
   QC value within limits for Cr 267.716  Recovery = 103.91%
Cu 324.752†          111075.1      530.12 µg/L         5.867      530.12 ppb          5.867   1.11%
   QC value within limits for Cu 324.752  Recovery = 106.02%
Fe 238.204 Radial†      5304.8      5030.9 µg/L          3.86      5030.9 ppb          3.86   0.08%
   QC value within limits for Fe 238.204 Radial  Recovery = 100.62%
K 766.490 Radial†       2238.4      2611.4 µg/L        125.64      2611.4 ppb        125.64   4.81%
   QC value within limits for K 766.490 Radial  Recovery = 104.46%
Mg 279.077 IEC†         1395.7      5197.9 µg/L         23.36      5197.9 ppb         23.36   0.45%
   QC value within limits for Mg 279.077 IEC  Recovery = 103.96%
Mn 257.610†           279648.5      521.55 µg/L         6.407      521.55 ppb         6.407   1.23%
   QC value within limits for Mn 257.610  Recovery = 104.31%
Mo 202.031†             9314.7      506.01 µg/L        31.638      506.01 ppb        31.638   6.25%
   QC value within limits for Mo 202.031  Recovery = 101.20%
Na 589.592 Radial†     11494.9      2591.3 µg/L          5.21      2591.3 ppb          5.21   0.20%
   QC value within limits for Na 589.592 Radial  Recovery = 103.65%
Ni 231.604†            13607.5      519.77 µg/L        30.313      519.77 ppb        30.313   5.83%
   QC value within limits for Ni 231.604  Recovery = 103.95%
P 214.914†              2615.0      2513.5 µg/L        136.62      2513.5 ppb        136.62   5.44%
   QC value within limits for P 214.914  Recovery = 100.54%
Pb 220.353†             3079.3      524.59 µg/L        24.628      524.59 ppb        24.628   4.69%
   QC value within limits for Pb 220.353  Recovery = 104.92%
S 181.975 Axial†        1599.9      2521.4 µg/L         99.48      2521.4 ppb         99.48   3.95%
   QC value within limits for S 181.975 Axial  Recovery = 100.86%
Sb 206.836†              811.6      506.38 µg/L        28.407      506.38 ppb        28.407   5.61%
   QC value within limits for Sb 206.836  Recovery = 101.28%
Se 196.026†             3292.6       2580 µg/L         105.0       2580 ppb         105.0   4.07%
   QC value within limits for Se 196.026  Recovery = 103.28%
SiO2†                  88002.5       11009 µg/L          72.5       11009 ppb          72.5   0.66%
   QC value within limits for SiO2  Recovery = 102.93%
Si 251.611†           160874.6      5108.5 µg/L         39.30      5108.5 ppb         39.30   0.77%
   QC value within limits for Si 251.611  Recovery = 102.17%
Sn 189.927†             2314.4      516.24 µg/L        34.742      516.24 ppb        34.742   6.73%
   QC value within limits for Sn 189.927  Recovery = 103.25%
Sr 421.552†           101754.5      504.19 µg/L         4.272      504.19 ppb         4.272   0.85%
   QC value within limits for Sr 421.552  Recovery = 100.84%
Ti 334.940†           210188.3      511.34 µg/L         7.988      511.34 ppb         7.988   1.56%
   QC value within limits for Ti 334.940  Recovery = 102.27%
Tl 190.801†             1241.8      530.54 µg/L        11.747      530.54 ppb        11.747   2.21%
   QC value within limits for Tl 190.801  Recovery = 106.11%
U 367.007†              2036.6      478.81 µg/L        13.814      478.81 ppb        13.814   2.89%
   QC value within limits for U 367.007  Recovery = 95.76%
V 292.402†             61282.5      525.33 µg/L         9.535      525.33 ppb         9.535   1.82%
   QC value within limits for V 292.402  Recovery = 105.07%
Zn 213.857†            34333.4      501.55 µg/L        30.737      501.55 ppb        30.737   6.13%
   QC value within limits for Zn 213.857  Recovery = 100.31%
All analyte(s) passed QC.
```

Sequence No.: 7 **Autosampler Location: 10**
Sample ID: ICB **Date Collected: 6/26/2012 10:12:04**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15399.0	15399.0	102	%			10:12:33
1	Al 396.153Radial†	-98.8	24.9	16.132	µg/L	16.132	ppb	10:12:33
1	Ca 317.933Radial†	238.3	29.5	8.4287	µg/L	8.4287	ppb	10:12:53
1	Fe 238.204 Radial†	28.4	3.4	3.1806	µg/L	3.1806	ppb	10:12:53
1	K 766.490 Radial†	416.6	130.8	153.01	µg/L	153.01	ppb	10:12:33
1	Mg 279.077 IEC†	11.4	6.3	23.386	µg/L	23.386	ppb	10:12:53
1	Na 589.592 Radial†	775.7	-35.6	-8.0191	µg/L	-8.0191	ppb	10:12:33
1	Sr 421.552†	783.0	99.6	0.4935	µg/L	0.4935	ppb	10:12:33
1	Sc 361.383	719794.2	719794.2	98.299	%			10:13:41
1	Y 371.029	572348.7	572348.7	98.615	%			10:13:41
1	Ag 328.068†	-824.2	-16.2	-0.1060	µg/L	-0.1060	ppb	10:13:41
1	As 188.979†	-11.2	2.3	1.6129	µg/L	1.6129	ppb	10:14:01
1	B 249.677†	-123.8	74.9	1.9315	µg/L	1.9315	ppb	10:14:01
1	Ba 233.527†	30.2	15.4	0.1243	µg/L	0.1243	ppb	10:14:01
1	Be 313.107†	-7344.0	-136.5	-0.0561	µg/L	-0.0561	ppb	10:13:41
1	Cd 226.502†	-96.9	10.3	0.0792	µg/L	0.0792	ppb	10:14:01
1	Co 228.616†	-195.1	2.6	0.1027	µg/L	0.1027	ppb	10:14:01
1	Cr 267.716†	154.9	16.5	0.1712	µg/L	0.1712	ppb	10:14:01
1	Cu 324.752†	3332.2	54.9	0.2596	µg/L	0.2596	ppb	10:13:41
1	Mn 257.610†	387.9	48.4	0.0900	µg/L	0.0900	ppb	10:14:01
1	Mo 202.031†	103.3	-7.8	-0.4234	µg/L	-0.4234	ppb	10:14:01
1	Ni 231.604†	3.0	-19.2	-0.7328	µg/L	-0.7328	ppb	10:14:01
1	P 214.914†	11.8	-6.3	-6.0790	µg/L	-6.0790	ppb	10:14:01
1	Pb 220.353†	-32.5	14.8	2.5239	µg/L	2.5239	ppb	10:14:01
1	S 181.975 Axial†	49.8	-2.8	-4.4398	µg/L	-4.4398	ppb	10:14:01
1	Sb 206.836†	6.0	-7.3	-4.5679	µg/L	-4.5679	ppb	10:14:01
1	Se 196.026†	10.1	1.2	0.968	µg/L	0.968	ppb	10:14:01
1	SiO2†	1779.2	57.3	7.1685	µg/L	7.1685	ppb	10:14:01
1	Si 251.611†	1342.6	32.5	1.0322	µg/L	1.0322	ppb	10:14:01
1	Sn 189.927†	7.9	0.4	0.0894	µg/L	0.0894	ppb	10:14:01
1	Ti 334.940†	-1201.5	-195.0	-0.4737	µg/L	-0.4737	ppb	10:13:41
1	Tl 190.801†	-38.0	16.0	6.8107	µg/L	6.8107	ppb	10:14:01
1	U 367.007†	-477.4	-122.8	-30.802	µg/L	-30.802	ppb	10:13:41
1	V 292.402†	-83.9	-123.6	-1.1030	µg/L	-1.1030	ppb	10:13:41
1	Zn 213.857†	363.3	42.4	0.6286	µg/L	0.6286	ppb	10:14:01
2	Sc RADIAL	15106.0	15106.0	100	%			10:12:55
2	Al 396.153Radial†	-89.4	32.4	20.970	µg/L	20.970	ppb	10:12:55
2	Ca 317.933Radial†	227.1	22.9	6.5317	µg/L	6.5317	ppb	10:13:15
2	Fe 238.204 Radial†	22.0	-2.5	-2.3267	µg/L	-2.3267	ppb	10:13:15
2	K 766.490 Radial†	302.4	24.9	29.096	µg/L	29.096	ppb	10:12:55
2	Mg 279.077 IEC†	10.6	5.7	21.094	µg/L	21.094	ppb	10:13:15
2	Na 589.592 Radial†	908.3	111.3	25.085	µg/L	25.085	ppb	10:12:55
2	Sr 421.552†	715.0	46.7	0.2314	µg/L	0.2314	ppb	10:12:55
2	Sc 361.383	728894.0	728894.0	99.542	%			10:14:03
2	Y 371.029	577225.4	577225.4	99.455	%			10:14:03
2	Ag 328.068†	-998.2	-180.5	-1.1788	µg/L	-1.1788	ppb	10:14:03
2	As 188.979†	-23.0	-9.4	-6.6763	µg/L	-6.6763	ppb	10:14:23
2	B 249.677†	-120.7	79.5	2.0321	µg/L	2.0321	ppb	10:14:23
2	Ba 233.527†	12.0	-3.3	-0.0268	µg/L	-0.0268	ppb	10:14:23
2	Be 313.107†	-7009.6	292.7	0.1210	µg/L	0.1210	ppb	10:14:03
2	Cd 226.502†	-99.5	8.9	0.0690	µg/L	0.0690	ppb	10:14:23
2	Co 228.616†	-205.2	-5.0	-0.1990	µg/L	-0.1990	ppb	10:14:23
2	Cr 267.716†	165.2	24.8	0.2590	µg/L	0.2590	ppb	10:14:23
2	Cu 324.752†	3418.9	99.6	0.4729	µg/L	0.4729	ppb	10:14:03
2	Mn 257.610†	419.2	74.9	0.1394	µg/L	0.1394	ppb	10:14:23
2	Mo 202.031†	110.7	-1.7	-0.0929	µg/L	-0.0929	ppb	10:14:23
2	Ni 231.604†	23.8	1.6	0.0628	µg/L	0.0628	ppb	10:14:23
2	P 214.914†	8.3	-9.9	-9.5836	µg/L	-9.5836	ppb	10:14:23
2	Pb 220.353†	-46.1	1.6	0.2679	µg/L	0.2679	ppb	10:14:23

2	S 181.975 Axial†	65.3	12.1	19.121 µg/L	19.121 ppb	10:14:23
2	Sb 206.836†	13.5	0.1	0.0544 µg/L	0.0544 ppb	10:14:23
2	Se 196.026†	7.5	-1.5	-1.18 µg/L	-1.18 ppb	10:14:23
2	SiO2†	1799.0	54.6	6.8301 µg/L	6.8301 ppb	10:14:23
2	Si 251.611†	1350.4	23.2	0.7372 µg/L	0.7372 ppb	10:14:23
2	Sn 189.927†	10.0	2.4	0.5403 µg/L	0.5403 ppb	10:14:23
2	Ti 334.940†	-1096.8	-74.6	-0.1810 µg/L	-0.1810 ppb	10:14:03
2	Tl 190.801†	-57.5	-3.1	-1.3111 µg/L	-1.3111 ppb	10:14:23
2	U 367.007†	-337.6	23.7	5.9522 µg/L	5.9522 ppb	10:14:03
2	V 292.402†	25.5	-12.6	-0.0948 µg/L	-0.0948 ppb	10:14:03
2	Zn 213.857†	372.7	47.3	0.6961 µg/L	0.6961 ppb	10:14:23
3	Sc RADIAL	15245.5	15245.5	101 %		10:13:17
3	Al 396.153Radial†	-92.1	30.5	19.760 µg/L	19.760 ppb	10:13:17
3	Ca 317.933Radial†	233.4	27.0	7.7073 µg/L	7.7073 ppb	10:13:37
3	Fe 238.204 Radial†	28.3	3.6	3.3776 µg/L	3.3776 ppb	10:13:37
3	K 766.490 Radial†	301.0	20.7	24.263 µg/L	24.263 ppb	10:13:17
3	Mg 279.077 IEC†	16.4	11.3	41.976 µg/L	41.976 ppb	10:13:37
3	Na 589.592 Radial†	856.5	51.8	11.682 µg/L	11.682 ppb	10:13:17
3	Sr 421.552†	676.4	2.1	0.0103 µg/L	0.0103 ppb	10:13:17
3	Sc 361.383	730652.2	730652.2	99.782 %		10:14:25
3	Y 371.029	578397.0	578397.0	99.657 %		10:14:25
3	Ag 328.068†	-661.7	159.2	1.0390 µg/L	1.0390 ppb	10:14:25
3	As 188.979†	-12.0	1.7	1.1873 µg/L	1.1873 ppb	10:14:45
3	B 249.677†	-144.9	55.6	1.4378 µg/L	1.4378 ppb	10:14:45
3	Ba 233.527†	26.4	11.2	0.0913 µg/L	0.0913 ppb	10:14:45
3	Be 313.107†	-7125.1	193.9	0.0795 µg/L	0.0795 ppb	10:14:25
3	Cd 226.502†	-101.5	7.1	0.0511 µg/L	0.0511 ppb	10:14:45
3	Co 228.616†	-187.9	12.7	0.5026 µg/L	0.5026 ppb	10:14:45
3	Cr 267.716†	155.3	14.5	0.1516 µg/L	0.1516 ppb	10:14:45
3	Cu 324.752†	3302.4	-25.4	-0.1243 µg/L	-0.1243 ppb	10:14:25
3	Mn 257.610†	390.2	44.9	0.0831 µg/L	0.0831 ppb	10:14:45
3	Mo 202.031†	104.3	-8.4	-0.4587 µg/L	-0.4587 ppb	10:14:45
3	Ni 231.604†	25.8	3.6	0.1382 µg/L	0.1382 ppb	10:14:45
3	P 214.914†	18.9	0.7	0.6512 µg/L	0.6512 ppb	10:14:45
3	Pb 220.353†	-43.8	4.1	0.6947 µg/L	0.6947 ppb	10:14:45
3	S 181.975 Axial†	53.6	0.2	0.3403 µg/L	0.3403 ppb	10:14:45
3	Sb 206.836†	-0.5	-13.9	-8.6758 µg/L	-8.6758 ppb	10:14:45
3	Se 196.026†	10.7	1.7	1.32 µg/L	1.32 ppb	10:14:45
3	SiO2†	1795.7	46.9	5.8702 µg/L	5.8702 ppb	10:14:45
3	Si 251.611†	1344.9	14.4	0.4578 µg/L	0.4578 ppb	10:14:45
3	Sn 189.927†	2.0	-5.6	-1.2345 µg/L	-1.2345 ppb	10:14:45
3	Ti 334.940†	-344.0	682.5	1.6604 µg/L	1.6604 ppb	10:14:25
3	Tl 190.801†	-45.5	9.1	3.8910 µg/L	3.8910 ppb	10:14:45
3	U 367.007†	-454.9	-93.1	-23.357 µg/L	-23.357 ppb	10:14:25
3	V 292.402†	69.6	31.5	0.2188 µg/L	0.2188 ppb	10:14:25
3	Zn 213.857†	357.1	30.8	0.4535 µg/L	0.4535 ppb	10:14:45

Mean Data: ICB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	726446.8	99.208	%	0.7959				0.80%
Sc RADIAL	15250.2	101	%	1.0				0.96%
Y 371.029	575990.3	99.242	%	0.5527				0.56%
Ag 328.068†	-12.5	-0.0819	µg/L	1.10909	-0.0819	ppb	1.10909	>999.9%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	29.2	18.954	µg/L	2.5178	18.954	ppb	2.5178	13.28%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.8	-1.2920	µg/L	4.66779	-1.2920	ppb	4.66779	361.27%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	70.0	1.8004	µg/L	0.31808	1.8004	ppb	0.31808	17.67%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	7.8	0.0630	µg/L	0.07943	0.0630	ppb	0.07943	126.17%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	116.7	0.0482	µg/L	0.09266	0.0482	ppb	0.09266	192.41%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	26.4	7.5559	µg/L	0.95749	7.5559	ppb	0.95749	12.67%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	8.8	0.0664	µg/L	0.01426	0.0664	ppb	0.01426	21.47%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	3.4	0.1354	µg/L	0.35195	0.1354	ppb	0.35195	259.84%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              18.6      0.1939 µg/L       0.05718      0.1939 ppb        0.05718  29.48%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              43.0      0.2027 µg/L       0.30264      0.2027 ppb        0.30264 149.29%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        1.5      1.4105 µg/L       3.23801      1.4105 ppb        3.23801 229.56%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        58.8      68.791 µg/L       72.9797      68.791 ppb        72.9797 106.09%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           7.7      28.819 µg/L       11.4525      28.819 ppb        11.4525  39.74%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              56.1      0.1042 µg/L       0.03072      0.1042 ppb        0.03072  29.49%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              -6.0     -0.3250 µg/L       0.20174     -0.3250 ppb        0.20174  62.07%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       42.5      9.5825 µg/L      16.65150      9.5825 ppb       16.65150 173.77%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -4.6     -0.1773 µg/L       0.48261     -0.1773 ppb        0.48261 272.25%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -5.2     -5.0038 µg/L       5.20146     -5.0038 ppb        5.20146 103.95%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               6.8      1.1621 µg/L       1.19843      1.1621 ppb        1.19843 103.12%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          3.2      5.0072 µg/L      12.45446      5.0072 ppb       12.45446 248.73%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              -7.0     -4.3964 µg/L       4.36760     -4.3964 ppb        4.36760  99.34%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               0.5       0.372 µg/L        1.3513       0.372 ppb         1.3513 363.59%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    53.0      6.6229 µg/L       0.67347      6.6229 ppb        0.67347  10.17%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              23.4      0.7424 µg/L       0.28724      0.7424 ppb        0.28724  38.69%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†              -0.9     -0.2016 µg/L       0.92245     -0.2016 ppb        0.92245 457.54%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              49.5      0.2451 µg/L       0.24186      0.2451 ppb        0.24186  98.69%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             137.6      0.3352 µg/L       1.15693      0.3352 ppb        1.15693 345.12%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               7.3      3.1302 µg/L       4.11400      3.1302 ppb        4.11400 131.43%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†              -64.1     -16.069 µg/L       19.4307     -16.069 ppb        19.4307 120.92%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              -34.9     -0.3263 µg/L       0.69064     -0.3263 ppb        0.69064 211.64%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              40.2      0.5928 µg/L       0.12523      0.5928 ppb        0.12523  21.13%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 8 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 6/26/2012 10:14:54**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15173.9	15173.9	101	%			10:15:24
1	Al 396.153Radial†	250.6	369.9	239.40	µg/L	239.40	ppb	10:15:24
1	Ca 317.933Radial†	926.7	715.6	204.43	µg/L	204.43	ppb	10:15:44
1	Fe 238.204 Radial†	132.6	107.1	101.59	µg/L	101.59	ppb	10:15:44
1	K 766.490 Radial†	454.6	174.5	203.99	µg/L	203.99	ppb	10:15:24
1	Mg 279.077 IEC†	90.4	84.7	315.59	µg/L	315.59	ppb	10:15:44
1	Na 589.592 Radial†	2115.2	1304.1	293.98	µg/L	293.98	ppb	10:15:24
1	Sr 421.552†	1659.6	980.2	4.8543	µg/L	4.8543	ppb	10:15:24
1	Sc 361.383	731410.1	731410.1	99.885	%			10:16:32
1	Y 371.029	581077.1	581077.1	100.12	%			10:16:32
1	Ag 328.068†	-177.3	644.8	4.2194	µg/L	4.2194	ppb	10:16:32
1	As 188.979†	31.0	44.8	31.905	µg/L	31.905	ppb	10:16:52
1	B 249.677†	1772.1	1974.9	51.111	µg/L	51.111	ppb	10:16:32
1	Ba 233.527†	673.0	658.4	5.3791	µg/L	5.3791	ppb	10:16:52
1	Be 313.107†	5399.0	12739.7	5.2625	µg/L	5.2625	ppb	10:16:32
1	Cd 226.502†	592.3	701.9	5.3742	µg/L	5.3742	ppb	10:16:52
1	Co 228.616†	-60.4	140.6	5.5562	µg/L	5.5562	ppb	10:16:52
1	Cr 267.716†	697.0	556.6	5.8204	µg/L	5.8204	ppb	10:16:52
1	Cu 324.752†	5680.4	2351.9	11.202	µg/L	11.202	ppb	10:16:32
1	Mn 257.610†	6258.7	5919.7	11.037	µg/L	11.037	ppb	10:16:52
1	Mo 202.031†	304.9	192.3	10.448	µg/L	10.448	ppb	10:16:52
1	Ni 231.604†	177.6	155.5	5.9419	µg/L	5.9419	ppb	10:16:52
1	P 214.914†	188.7	170.6	164.52	µg/L	164.52	ppb	10:16:52
1	Pb 220.353†	4.7	52.6	8.9858	µg/L	8.9858	ppb	10:16:52
1	S 181.975 Axial†	121.0	67.6	106.56	µg/L	106.56	ppb	10:16:52
1	Sb 206.836†	22.6	9.1	5.7630	µg/L	5.7630	ppb	10:16:52
1	Se 196.026†	64.8	55.8	43.8	µg/L	43.8	ppb	10:16:52
1	SiO2†	3451.4	1702.7	212.90	µg/L	212.90	ppb	10:16:32
1	Si 251.611†	4519.2	3191.0	101.33	µg/L	101.33	ppb	10:16:52
1	Sn 189.927†	55.5	47.9	10.675	µg/L	10.675	ppb	10:16:52
1	Ti 334.940†	1065.6	2094.0	5.1054	µg/L	5.1054	ppb	10:16:32
1	Tl 190.801†	3.4	58.1	24.770	µg/L	24.770	ppb	10:16:52
1	U 367.007†	-212.1	150.5	37.077	µg/L	37.077	ppb	10:16:32
1	V 292.402†	606.7	569.2	4.9947	µg/L	4.9947	ppb	10:16:32
1	Zn 213.857†	1084.3	758.5	11.112	µg/L	11.112	ppb	10:16:52
2	Sc RADIAL	14950.0	14950.0	99.4	%			10:15:46
2	Al 396.153Radial†	224.8	347.6	224.99	µg/L	224.99	ppb	10:15:46
2	Ca 317.933Radial†	914.0	716.6	204.70	µg/L	204.70	ppb	10:16:06
2	Fe 238.204 Radial†	126.6	103.1	97.760	µg/L	97.760	ppb	10:16:06
2	K 766.490 Radial†	437.6	164.2	191.96	µg/L	191.96	ppb	10:15:46
2	Mg 279.077 IEC†	104.1	99.9	372.03	µg/L	372.03	ppb	10:16:06
2	Na 589.592 Radial†	2238.4	1459.4	329.00	µg/L	329.00	ppb	10:15:46
2	Sr 421.552†	1732.5	1078.3	5.3403	µg/L	5.3403	ppb	10:15:46
2	Sc 361.383	718308.7	718308.7	98.096	%			10:16:54
2	Y 371.029	571946.2	571946.2	98.545	%			10:16:54
2	Ag 328.068†	-171.4	647.6	4.2366	µg/L	4.2366	ppb	10:16:54
2	As 188.979†	35.7	50.1	35.704	µg/L	35.704	ppb	10:17:14
2	B 249.677†	1873.7	2110.9	54.570	µg/L	54.570	ppb	10:16:54
2	Ba 233.527†	663.2	660.7	5.3994	µg/L	5.3994	ppb	10:17:14
2	Be 313.107†	5346.2	12784.5	5.2811	µg/L	5.2811	ppb	10:16:54
2	Cd 226.502†	593.9	714.3	5.4703	µg/L	5.4703	ppb	10:17:14
2	Co 228.616†	-63.5	136.3	5.3876	µg/L	5.3876	ppb	10:17:14
2	Cr 267.716†	666.1	537.9	5.6249	µg/L	5.6249	ppb	10:17:14
2	Cu 324.752†	5716.4	2492.3	11.866	µg/L	11.866	ppb	10:16:54
2	Mn 257.610†	6205.4	5979.6	11.148	µg/L	11.148	ppb	10:17:14
2	Mo 202.031†	299.0	191.9	10.424	µg/L	10.424	ppb	10:17:14
2	Ni 231.604†	152.1	132.8	5.0712	µg/L	5.0712	ppb	10:17:14
2	P 214.914†	179.5	164.6	158.75	µg/L	158.75	ppb	10:17:14
2	Pb 220.353†	5.2	53.3	9.0914	µg/L	9.0914	ppb	10:17:14

2	S 181.975 Axial†	113.5	62.2	97.996 µg/L	97.996 ppb	10:17:14
2	Sb 206.836†	31.4	18.5	11.622 µg/L	11.622 ppb	10:17:14
2	Se 196.026†	54.9	47.0	36.9 µg/L	36.9 ppb	10:17:14
2	SiO2†	3519.2	1834.9	229.41 µg/L	229.41 ppb	10:16:54
2	Si 251.611†	4516.6	3270.9	103.87 µg/L	103.87 ppb	10:17:14
2	Sn 189.927†	62.6	56.2	12.503 µg/L	12.503 ppb	10:17:14
2	Ti 334.940†	887.6	1932.1	4.7131 µg/L	4.7131 ppb	10:16:54
2	Tl 190.801†	0.9	55.6	23.718 µg/L	23.718 ppb	10:17:14
2	U 367.007†	-188.2	170.9	42.217 µg/L	42.217 ppb	10:16:54
2	V 292.402†	762.1	738.6	6.4357 µg/L	6.4357 ppb	10:16:54
2	Zn 213.857†	1072.9	766.6	11.237 µg/L	11.237 ppb	10:17:14
3	Sc RADIAL	15016.7	15016.7	99.8 %		10:16:08
3	Al 396.153Radial†	254.9	376.8	243.95 µg/L	243.95 ppb	10:16:08
3	Ca 317.933Radial†	916.8	715.3	204.33 µg/L	204.33 ppb	10:16:28
3	Fe 238.204 Radial†	131.3	107.2	101.68 µg/L	101.68 ppb	10:16:28
3	K 766.490 Radial†	438.6	163.2	190.82 µg/L	190.82 ppb	10:16:08
3	Mg 279.077 IEC†	94.7	89.9	334.97 µg/L	334.97 ppb	10:16:28
3	Na 589.592 Radial†	2252.9	1464.0	330.04 µg/L	330.04 ppb	10:16:08
3	Sr 421.552†	1793.5	1131.6	5.6046 µg/L	5.6046 ppb	10:16:08
3	Sc 361.383	733408.9	733408.9	100.16 %		10:17:16
3	Y 371.029	580302.3	580302.3	99.985 %		10:17:16
3	Ag 328.068†	-40.8	781.5	5.1103 µg/L	5.1103 ppb	10:17:16
3	As 188.979†	30.5	44.1	31.432 µg/L	31.432 ppb	10:17:37
3	B 249.677†	1921.0	2118.8	54.793 µg/L	54.793 ppb	10:17:16
3	Ba 233.527†	628.0	611.6	4.9969 µg/L	4.9969 ppb	10:17:37
3	Be 313.107†	5124.5	12450.9	5.1430 µg/L	5.1430 ppb	10:17:16
3	Cd 226.502†	512.4	620.5	4.7496 µg/L	4.7496 ppb	10:17:37
3	Co 228.616†	-63.9	137.2	5.4248 µg/L	5.4248 ppb	10:17:37
3	Cr 267.716†	571.0	429.0	4.4857 µg/L	4.4857 ppb	10:17:37
3	Cu 324.752†	5519.2	2175.4	10.359 µg/L	10.359 ppb	10:17:16
3	Mn 257.610†	5531.0	5176.1	9.6502 µg/L	9.6502 ppb	10:17:37
3	Mo 202.031†	276.0	162.6	8.8346 µg/L	8.8346 ppb	10:17:37
3	Ni 231.604†	164.2	141.6	5.4107 µg/L	5.4107 ppb	10:17:37
3	P 214.914†	173.9	155.3	149.80 µg/L	149.80 ppb	10:17:37
3	Pb 220.353†	12.8	60.7	10.356 µg/L	10.356 ppb	10:17:37
3	S 181.975 Axial†	119.1	65.4	103.02 µg/L	103.02 ppb	10:17:37
3	Sb 206.836†	26.2	12.7	7.9661 µg/L	7.9661 ppb	10:17:37
3	Se 196.026†	42.4	33.3	26.2 µg/L	26.2 ppb	10:17:37
3	SiO2†	3462.7	1704.6	213.11 µg/L	213.11 ppb	10:17:16
3	Si 251.611†	4208.4	2868.3	91.083 µg/L	91.083 ppb	10:17:37
3	Sn 189.927†	56.8	49.1	10.925 µg/L	10.925 ppb	10:17:37
3	Ti 334.940†	907.2	1933.0	4.7139 µg/L	4.7139 ppb	10:17:16
3	Tl 190.801†	-6.2	48.5	20.703 µg/L	20.703 ppb	10:17:37
3	U 367.007†	-158.1	204.9	50.718 µg/L	50.718 ppb	10:17:16
3	V 292.402†	610.3	571.1	5.0158 µg/L	5.0158 ppb	10:17:16
3	Zn 213.857†	982.9	654.2	9.5816 µg/L	9.5816 ppb	10:17:37

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	727709.2	99.380	%	1.1201				1.13%
Sc RADIAL	15046.9	100.0	%	0.76				0.76%
Y 371.029	577775.2	99.550	%	0.8723				0.88%
Ag 328.068†	691.3	4.5221	µg/L	0.50945	4.5221	ppb	0.50945	11.27%
QC value within limits for Ag 328.068 Recovery = 90.44%								
Al 396.153Radial†	364.8	236.11	µg/L	9.896	236.11	ppb	9.896	4.19%
QC value within limits for Al 396.153Radial Recovery = 118.06%								
As 188.979†	46.3	33.014	µg/L	2.3416	33.014	ppb	2.3416	7.09%
QC value within limits for As 188.979 Recovery = 110.05%								
B 249.677†	2068.2	53.491	µg/L	2.0642	53.491	ppb	2.0642	3.86%
QC value within limits for B 249.677 Recovery = 106.98%								
Ba 233.527†	643.6	5.2585	µg/L	0.22675	5.2585	ppb	0.22675	4.31%
QC value within limits for Ba 233.527 Recovery = 105.17%								
Be 313.107†	12658.4	5.2289	µg/L	0.07492	5.2289	ppb	0.07492	1.43%
QC value within limits for Be 313.107 Recovery = 104.58%								
Ca 317.933Radial†	715.8	204.49	µg/L	0.192	204.49	ppb	0.192	0.09%
QC value within limits for Ca 317.933Radial Recovery = 102.24%								
Cd 226.502†	678.9	5.1980	µg/L	0.39128	5.1980	ppb	0.39128	7.53%
QC value within limits for Cd 226.502 Recovery = 103.96%								
Co 228.616†	138.0	5.4562	µg/L	0.08859	5.4562	ppb	0.08859	1.62%

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   QC value within limits for Co 228.616  Recovery = 109.12%
Cr 267.716†              507.8      5.3103 µg/L       0.72079      5.3103 ppb        0.72079  13.57%
   QC value within limits for Cr 267.716  Recovery = 106.21%
Cu 324.752†             2339.9      11.142 µg/L        0.7553      11.142 ppb         0.7553   6.78%
   QC value within limits for Cu 324.752  Recovery = 111.42%
Fe 238.204 Radial†       105.8      100.34 µg/L         2.236      100.34 ppb          2.236   2.23%
   QC value within limits for Fe 238.204 Radial  Recovery = 100.34%
K 766.490 Radial†        167.3      195.59 µg/L         7.293      195.59 ppb          7.293   3.73%
   QC value greater than the upper limit for K 766.490 Radial  Recovery = 130.39%
Mg 279.077 IEC†           91.5      340.86 µg/L        28.678      340.86 ppb         28.678   8.41%
   QC value within limits for Mg 279.077 IEC  Recovery = 113.62%
Mn 257.610†             5691.8      10.612 µg/L        0.8348      10.612 ppb         0.8348   7.87%
   QC value within limits for Mn 257.610  Recovery = 106.12%
Mo 202.031†              182.3      9.9021 µg/L       0.92455      9.9021 ppb        0.92455   9.34%
   QC value within limits for Mo 202.031  Recovery = 99.02%
Na 589.592 Radial†      1409.2      317.67 µg/L        20.528      317.67 ppb         20.528   6.46%
   QC value within limits for Na 589.592 Radial  Recovery = 105.89%
Ni 231.604†              143.3      5.4746 µg/L       0.43885      5.4746 ppb        0.43885   8.02%
   QC value within limits for Ni 231.604  Recovery = 109.49%
P 214.914†               163.5      157.69 µg/L         7.415      157.69 ppb          7.415   4.70%
   QC value within limits for P 214.914  Recovery = 105.13%
Pb 220.353†               55.5      9.4779 µg/L       0.76272      9.4779 ppb        0.76272   8.05%
   QC value within limits for Pb 220.353  Recovery = 94.78%
S 181.975 Axial†          65.1      102.52 µg/L         4.302      102.52 ppb          4.302   4.20%
   QC value within limits for S 181.975 Axial  Recovery = 102.52%
Sb 206.836†               13.4      8.4505 µg/L       2.95952      8.4505 ppb        2.95952  35.02%
   QC value within limits for Sb 206.836  Recovery = 84.51%
Se 196.026†               45.4       35.6 µg/L          8.88       35.6 ppb           8.88  24.93%
   QC value within limits for Se 196.026  Recovery = 118.68%
SiO2†                   1747.4      218.47 µg/L         9.474      218.47 ppb          9.474   4.34%
   QC value within limits for SiO2  Recovery = 102.57%
Si 251.611†             3110.1      98.759 µg/L        6.7675      98.759 ppb         6.7675   6.85%
   QC value within limits for Si 251.611  Recovery = 98.76%
Sn 189.927†               51.0      11.368 µg/L        0.9908      11.368 ppb         0.9908   8.72%
   QC value within limits for Sn 189.927  Recovery = 113.68%
Sr 421.552†             1063.4      5.2664 µg/L       0.38058      5.2664 ppb        0.38058   7.23%
   QC value within limits for Sr 421.552  Recovery = 105.33%
Ti 334.940†             1986.3      4.8441 µg/L       0.22626      4.8441 ppb        0.22626   4.67%
   QC value within limits for Ti 334.940  Recovery = 96.88%
Tl 190.801†               54.1      23.063 µg/L        2.1110      23.063 ppb         2.1110   9.15%
   QC value within limits for Tl 190.801  Recovery = 115.32%
U 367.007†                175.5      43.337 µg/L        6.8895      43.337 ppb         6.8895  15.90%
   QC value within limits for U 367.007  Recovery = 86.67%
V 292.402†                626.3      5.4821 µg/L       0.82592      5.4821 ppb        0.82592  15.07%
   QC value within limits for V 292.402  Recovery = 109.64%
Zn 213.857†               726.4      10.644 µg/L        0.9219      10.644 ppb         0.9219   8.66%
   QC value within limits for Zn 213.857  Recovery = 106.44%
QC Failed.  Continue with analysis.
```

Sequence No.: 9 **Autosampler Location: 103**
Sample ID: ICSA **Date Collected: 6/26/2012 10:17:45**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSA

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	13821.3	13821.3	91.8	%			10:18:18
1	Al 396.153Radial†	707471.8	770370.1	499320	µg/L	499320	ppb	10:18:16
1	Ca 317.933Radial†	1562570.4	1701020.4	485930	µg/L	485930	ppb	10:18:16
1	Fe 238.204 Radial†	187254.3	203845.8	193290	µg/L	193290	ppb	10:18:18
1	K 766.490 Radial†	440.6	203.3	129.88	µg/L	129.88	ppb	10:18:18
1	Mg 279.077 IEC†	119117.6	129682.5	482980	µg/L	482980	ppb	10:18:18
1	Na 589.592 Radial†	1024.5	321.8	72.550	µg/L	72.550	ppb	10:18:18
1	Sr 421.552†	1008.1	432.0	-6.5543	µg/L	-6.5543	ppb	10:18:18
1	Sc 361.383	642679.7	642679.7	87.768	%			10:18:30
1	Y 371.029	501889.0	501889.0	86.474	%			10:18:30
1	Ag 328.068†	-878.7	-178.9	-0.3251	µg/L	-0.3251	ppb	10:18:30
1	As 188.979†	-40.0	-31.9	0.3817	µg/L	0.3817	ppb	10:18:50
1	B 249.677†	-37257.2	-42248.8	-51.250	µg/L	-51.250	ppb	10:18:30
1	Ba 233.527†	164.6	172.2	-0.6150	µg/L	-0.6150	ppb	10:18:50
1	Be 313.107†	-14483.9	-9168.0	-0.8269	µg/L	-0.8269	ppb	10:18:30
1	Cd 226.502†	2074.6	2472.6	1.9879	µg/L	1.9879	ppb	10:18:50
1	Co 228.616†	-120.6	63.7	-1.7645	µg/L	-1.7645	ppb	10:18:50
1	Cr 267.716†	72.4	-58.7	-0.9704	µg/L	-0.9704	ppb	10:18:50
1	Cu 324.752†	6898.3	4524.7	1.8447	µg/L	1.8447	ppb	10:18:30
1	Mn 257.610†	5198.4	5576.7	4.8608	µg/L	4.8608	ppb	10:18:30
1	Mo 202.031†	-112.1	-240.7	-6.0580	µg/L	-6.0580	ppb	10:18:50
1	Ni 231.604†	22.8	3.7	1.2416	µg/L	1.2416	ppb	10:18:50
1	P 214.914†	-107.0	-140.2	3.2040	µg/L	3.2040	ppb	10:18:50
1	Pb 220.353†	-457.2	-473.0	-19.474	µg/L	-19.474	ppb	10:18:50
1	S 181.975 Axial†	74.5	31.4	-5.2413	µg/L	-5.2413	ppb	10:18:50
1	Sb 206.836†	4.6	-8.2	-7.7775	µg/L	-7.7775	ppb	10:18:50
1	Se 196.026†	-146.9	-176.4	-33.5	µg/L	-33.5	ppb	10:18:50
1	SiO2†	1443.2	-108.4	-13.554	µg/L	-13.554	ppb	10:18:50
1	Si 251.611†	1614.2	505.8	16.063	µg/L	16.063	ppb	10:18:50
1	Sn 189.927†	-87.6	-107.4	-1.8269	µg/L	-1.8269	ppb	10:18:50
1	Ti 334.940†	-7531.4	-7553.8	-0.9082	µg/L	-0.9082	ppb	10:18:30
1	Tl 190.801†	-73.2	-28.7	-3.2678	µg/L	-3.2678	ppb	10:18:50
1	U 367.007†	3886.0	4790.4	-14.744	µg/L	-14.744	ppb	10:18:30
1	V 292.402†	-1019.7	-1200.0	-5.3098	µg/L	-5.3098	ppb	10:18:50
1	Zn 213.857†	2084.8	2048.2	11.295	µg/L	11.295	ppb	10:18:50
2	Sc RADIAL	13867.7	13867.7	92.2	%			10:18:22
2	Al 396.153Radial†	703334.7	763305.4	494740	µg/L	494740	ppb	10:18:20
2	Ca 317.933Radial†	1545749.1	1677079.1	479100	µg/L	479100	ppb	10:18:20
2	Fe 238.204 Radial†	186262.0	202087.4	191620	µg/L	191620	ppb	10:18:22
2	K 766.490 Radial†	416.7	175.9	97.492	µg/L	97.492	ppb	10:18:22
2	Mg 279.077 IEC†	117732.4	127745.8	475770	µg/L	475770	ppb	10:18:22
2	Na 589.592 Radial†	1125.0	427.2	96.299	µg/L	96.299	ppb	10:18:22
2	Sr 421.552†	1013.0	433.7	-6.4235	µg/L	-6.4235	ppb	10:18:22
2	Sc 361.383	652966.4	652966.4	89.173	%			10:18:52
2	Y 371.029	512700.5	512700.5	88.337	%			10:18:52
2	Ag 328.068†	-1117.4	-430.8	-1.8331	µg/L	-1.8331	ppb	10:18:52
2	As 188.979†	-51.4	-43.9	-8.3374	µg/L	-8.3374	ppb	10:19:13
2	B 249.677†	-36324.4	-40534.0	-16.213	µg/L	-16.213	ppb	10:18:52
2	Ba 233.527†	154.7	158.1	-0.7117	µg/L	-0.7117	ppb	10:19:13
2	Be 313.107†	-14557.5	-8990.5	-0.7950	µg/L	-0.7950	ppb	10:18:52
2	Cd 226.502†	2006.6	2359.1	1.2654	µg/L	1.2654	ppb	10:19:13
2	Co 228.616†	-109.4	78.4	-1.1474	µg/L	-1.1474	ppb	10:19:13
2	Cr 267.716†	42.3	-93.8	-1.3144	µg/L	-1.3144	ppb	10:19:13
2	Cu 324.752†	6734.5	4217.2	0.8176	µg/L	0.8176	ppb	10:18:52
2	Mn 257.610†	5375.6	5682.2	5.1486	µg/L	5.1486	ppb	10:18:52
2	Mo 202.031†	-129.6	-258.2	-7.0681	µg/L	-7.0681	ppb	10:19:13
2	Ni 231.604†	43.6	26.6	2.1088	µg/L	2.1088	ppb	10:19:13
2	P 214.914†	-112.9	-144.9	-2.7240	µg/L	-2.7240	ppb	10:19:13
2	Pb 220.353†	-416.2	-418.8	-10.820	µg/L	-10.820	ppb	10:19:13

2	S 181.975 Axial†	61.1	15.0	-30.457 µg/L	-30.457 ppb		10:19:13
2	Sb 206.836†	7.0	-5.6	-6.0586 µg/L	-6.0586 ppb		10:19:13
2	Se 196.026†	-120.7	-144.3	-9.29 µg/L	-9.29 ppb		10:19:13
2	SiO2†	1476.7	-96.6	-12.099 µg/L	-12.099 ppb		10:19:13
2	Si 251.611†	1633.3	498.2	15.822 µg/L	15.822 ppb		10:19:13
2	Sn 189.927†	-79.2	-96.5	0.2710 µg/L	0.2710 ppb		10:19:13
2	Ti 334.940†	-7940.9	-7877.8	-1.9532 µg/L	-1.9532 ppb		10:18:52
2	Tl 190.801†	-74.7	-29.1	-3.5212 µg/L	-3.5212 ppb		10:19:13
2	U 367.007†	3930.4	4770.4	-9.2335 µg/L	-9.2335 ppb		10:18:52
2	V 292.402†	-925.3	-1075.9	-4.3113 µg/L	-4.3113 ppb		10:19:13
2	Zn 213.857†	2086.5	2012.8	10.931 µg/L	10.931 ppb		10:19:13
3	Sc RADIAL	14424.7	14424.7	95.9 %			10:18:27
3	Al 396.153Radial†	711755.8	742619.0	481330 µg/L	481330 ppb		10:18:24
3	Ca 317.933Radial†	1566772.9	1634241.0	466860 µg/L	466860 ppb		10:18:24
3	Fe 238.204 Radial†	189549.6	197712.2	187470 µg/L	187470 ppb		10:18:27
3	K 766.490 Radial†	501.3	246.7	183.05 µg/L	183.05 ppb		10:18:27
3	Mg 279.077 IEC†	120820.4	126034.0	469390 µg/L	469390 ppb		10:18:27
3	Na 589.592 Radial†	964.7	212.8	47.964 µg/L	47.964 ppb		10:18:27
3	Sr 421.552†	965.0	341.1	-6.6634 µg/L	-6.6634 ppb		10:18:27
3	Sc 361.383	643902.8	643902.8	87.935 %			10:19:15
3	Y 371.029	503956.6	503956.6	86.831 %			10:19:15
3	Ag 328.068†	-925.8	-230.5	-0.4454 µg/L	-0.4454 ppb		10:19:15
3	As 188.979†	-52.8	-46.3	-10.571 µg/L	-10.571 ppb		10:19:35
3	B 249.677†	-37001.5	-41877.4	-72.744 µg/L	-72.744 ppb		10:19:15
3	Ba 233.527†	137.5	141.0	-0.8095 µg/L	-0.8095 ppb		10:19:35
3	Be 313.107†	-15063.7	-9796.0	-1.2022 µg/L	-1.2022 ppb		10:19:15
3	Cd 226.502†	2034.3	2422.3	2.1151 µg/L	2.1151 ppb		10:19:35
3	Co 228.616†	-132.7	50.2	-2.1699 µg/L	-2.1699 ppb		10:19:35
3	Cr 267.716†	26.5	-111.0	-1.5125 µg/L	-1.5125 ppb		10:19:35
3	Cu 324.752†	6986.8	4610.4	2.7635 µg/L	2.7635 ppb		10:19:15
3	Mn 257.610†	5426.0	5824.2	5.4759 µg/L	5.4759 ppb		10:19:15
3	Mo 202.031†	-109.3	-237.2	-6.0619 µg/L	-6.0619 ppb		10:19:35
3	Ni 231.604†	31.3	13.3	1.5765 µg/L	1.5765 ppb		10:19:35
3	P 214.914†	-98.3	-130.1	6.8624 µg/L	6.8624 ppb		10:19:35
3	Pb 220.353†	-432.4	-443.9	-16.718 µg/L	-16.718 ppb		10:19:35
3	S 181.975 Axial†	81.0	38.6	8.0622 µg/L	8.0622 ppb		10:19:35
3	Sb 206.836†	3.8	-9.2	-8.3622 µg/L	-8.3622 ppb		10:19:35
3	Se 196.026†	-116.9	-142.0	-9.56 µg/L	-9.56 ppb		10:19:35
3	SiO2†	1409.1	-150.2	-18.794 µg/L	-18.794 ppb		10:19:35
3	Si 251.611†	1634.2	525.1	16.674 µg/L	16.674 ppb		10:19:35
3	Sn 189.927†	-87.1	-106.7	-2.5506 µg/L	-2.5506 ppb		10:19:35
3	Ti 334.940†	-7729.7	-7763.1	-1.9611 µg/L	-1.9611 ppb		10:19:15
3	Tl 190.801†	-67.3	-21.9	-0.6053 µg/L	-0.6053 ppb		10:19:35
3	U 367.007†	3816.5	4703.0	-0.0222 µg/L	-0.0222 ppb		10:19:15
3	V 292.402†	-1019.0	-1197.1	-5.4054 µg/L	-5.4054 ppb		10:19:35
3	Zn 213.857†	2094.9	2055.2	11.962 µg/L	11.962 ppb		10:19:35

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	646516.3	88.292	%	0.7674				0.87%
Sc RADIAL	14037.9	93.3	%	2.23				2.39%
Y 371.029	506182.1	87.214	%	0.9888				1.13%
Ag 328.068†	-280.1	-0.8678	µg/L	0.83808	-0.8678	ppb	0.83808	96.57%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	758764.9	491800	µg/L	9347.4	491800	ppb	9347.4	1.90%
QC value within limits for Al 396.153Radial Recovery = 98.36%								
As 188.979†	-40.7	-6.1756	µg/L	5.78755	-6.1756	ppb	5.78755	93.72%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-41553.4	-46.736	µg/L	28.5348	-46.736	ppb	28.5348	61.06%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	157.1	-0.7120	µg/L	0.09726	-0.7120	ppb	0.09726	13.66%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-9318.2	-0.9414	µg/L	0.22645	-0.9414	ppb	0.22645	24.05%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	1670780.2	477300	µg/L	9665.0	477300	ppb	9665.0	2.02%
QC value within limits for Ca 317.933Radial Recovery = 95.46%								
Cd 226.502†	2418.0	1.7895	µg/L	0.45829	1.7895	ppb	0.45829	25.61%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	64.1	-1.6939	µg/L	0.51489	-1.6939	ppb	0.51489	30.40%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -87.8     -1.2658 µg/L       0.27431     -1.2658 ppb        0.27431  21.67%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             4450.8      1.8086 µg/L       0.97345      1.8086 ppb        0.97345  53.82%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†    201215.1      190790 µg/L        2994.9      190790 ppb         2994.9   1.57%
   QC value within limits for Fe 238.204 Radial  Recovery = 95.40%
K 766.490 Radial†        208.6      136.81 µg/L        43.197      136.81 ppb         43.197  31.58%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†       127820.8      476050 µg/L        6798.5      476050 ppb         6798.5   1.43%
   QC value within limits for Mg 279.077 IEC  Recovery = 95.21%
Mn 257.610†             5694.3      5.1618 µg/L       0.30774      5.1618 ppb        0.30774   5.96%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†             -245.4     -6.3960 µg/L       0.58208     -6.3960 ppb        0.58208   9.10%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       320.6      72.271 µg/L       24.1687      72.271 ppb        24.1687  33.44%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               14.5      1.6423 µg/L       0.43731      1.6423 ppb        0.43731  26.63%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†              -138.4      2.4475 µg/L       4.83775      2.4475 ppb        4.83775 197.66%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†             -445.2     -15.671 µg/L        4.4210     -15.671 ppb         4.4210  28.21%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          28.4     -9.2120 µg/L      19.56411     -9.2120 ppb       19.56411 212.38%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               -7.6     -7.3994 µg/L       1.19745     -7.3994 ppb        1.19745  16.18%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†             -154.2       -17.4 µg/L         13.90       -17.4 ppb          13.90  79.65%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -118.4     -14.816 µg/L        3.5213     -14.816 ppb         3.5213  23.77%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              509.7      16.186 µg/L        0.4393      16.186 ppb         0.4393   2.71%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†             -103.5     -1.3688 µg/L       1.46551     -1.3688 ppb        1.46551 107.07%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              402.3     -6.5470 µg/L       0.12012     -6.5470 ppb        0.12012   1.83%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†            -7731.5     -1.6075 µg/L       0.60563     -1.6075 ppb        0.60563  37.68%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†              -26.6     -2.4648 µg/L       1.61530     -2.4648 ppb        1.61530  65.54%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†              4754.6     -7.9998 µg/L       7.43795     -7.9998 ppb        7.43795  92.98%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†             -1157.7     -5.0088 µg/L       0.60599     -5.0088 ppb        0.60599  12.10%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             2038.7      11.396 µg/L        0.5228      11.396 ppb         0.5228   4.59%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 10 **Autosampler Location: 104**
Sample ID: ICSAB **Date Collected: 6/26/2012 10:19:44**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSAB

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	13865.1	13865.1	92.1	%			10:20:16
1	Al 396.153Radial†	710536.0	771263.2	499880	µg/L	499880	ppb	10:20:14
1	Ca 317.933Radial†	1567687.4	1701201.3	485990	µg/L	485990	ppb	10:20:14
1	Fe 238.204 Radial†	185871.2	201700.9	191250	µg/L	191250	ppb	10:20:16
1	K 766.490 Radial†	5222.6	5391.8	6200.8	µg/L	6200.8	ppb	10:20:16
1	Mg 279.077 IEC†	118460.5	128559.8	478800	µg/L	478800	ppb	10:20:16
1	Na 589.592 Radial†	24489.7	25785.0	5812.7	µg/L	5812.7	ppb	10:20:16
1	Sr 421.552†	103636.0	111810.3	545.42	µg/L	545.42	ppb	10:20:16
1	Sc 361.383	649909.6	649909.6	88.755	%			10:20:28
1	Y 371.029	511036.0	511036.0	88.050	%			10:20:28
1	Ag 328.068†	39131.7	44911.7	294.19	µg/L	294.19	ppb	10:20:28
1	As 188.979†	702.5	805.2	600.68	µg/L	600.68	ppb	10:20:48
1	B 249.677†	-16030.8	-17860.9	561.88	µg/L	561.88	ppb	10:20:28
1	Ba 233.527†	60590.0	68251.0	555.76	µg/L	555.76	ppb	10:20:28
1	Be 313.107†	580087.9	660915.9	275.86	µg/L	275.86	ppb	10:20:28
1	Cd 226.502†	64415.3	72685.2	540.51	µg/L	540.51	ppb	10:20:28
1	Co 228.616†	11875.4	13581.0	532.90	µg/L	532.90	ppb	10:20:48
1	Cr 267.716†	46732.8	52512.4	548.85	µg/L	548.85	ppb	10:20:28
1	Cu 324.752†	118805.4	130522.3	603.11	µg/L	603.11	ppb	10:20:28
1	Mn 257.610†	260889.9	293596.8	542.11	µg/L	542.11	ppb	10:20:28
1	Mo 202.031†	9264.1	10324.9	567.54	µg/L	567.54	ppb	10:20:48
1	Ni 231.604†	12307.1	13844.1	529.86	µg/L	529.86	ppb	10:20:48
1	P 214.914†	2644.2	2960.8	2988.3	µg/L	2988.3	ppb	10:20:48
1	Pb 220.353†	2434.1	2790.5	535.93	µg/L	535.93	ppb	10:20:48
1	S 181.975 Axial†	1763.3	1933.2	2992.4	µg/L	2992.4	ppb	10:20:48
1	Sb 206.836†	821.3	911.9	566.85	µg/L	566.85	ppb	10:20:48
1	Se 196.026†	3004.1	3375.7	2750	µg/L	2750	ppb	10:20:48
1	SiO2†	87768.6	97135.7	12151	µg/L	12151	ppb	10:20:28
1	Si 251.611†	160087.4	179036.1	5685.2	µg/L	5685.2	ppb	10:20:28
1	Sn 189.927†	2176.0	2444.1	567.05	µg/L	567.05	ppb	10:20:48
1	Ti 334.940†	197479.2	223525.8	560.96	µg/L	560.96	ppb	10:20:28
1	Tl 190.801†	995.6	1176.5	511.60	µg/L	511.60	ppb	10:20:48
1	U 367.007†	5737.5	6827.2	508.38	µg/L	508.38	ppb	10:20:28
1	V 292.402†	58411.5	65773.6	568.73	µg/L	568.73	ppb	10:20:28
1	Zn 213.857†	35472.7	39639.8	561.42	µg/L	561.42	ppb	10:20:48
2	Sc RADIAL	13579.1	13579.1	90.2	%			10:20:20
2	Al 396.153Radial†	714365.7	791752.7	513160	µg/L	513160	ppb	10:20:18
2	Ca 317.933Radial†	1575519.8	1745724.3	498710	µg/L	498710	ppb	10:20:18
2	Fe 238.204 Radial†	187805.7	208094.3	197320	µg/L	197320	ppb	10:20:20
2	K 766.490 Radial†	5212.3	5499.7	6322.0	µg/L	6322.0	ppb	10:20:20
2	Mg 279.077 IEC†	118692.4	131525.2	489840	µg/L	489840	ppb	10:20:20
2	Na 589.592 Radial†	24470.1	26323.2	5934.1	µg/L	5934.1	ppb	10:20:20
2	Sr 421.552†	104158.3	114758.6	559.80	µg/L	559.80	ppb	10:20:20
2	Sc 361.383	654115.2	654115.2	89.330	%			10:20:51
2	Y 371.029	518961.6	518961.6	89.416	%			10:20:51
2	Ag 328.068†	39865.9	45450.1	297.86	µg/L	297.86	ppb	10:20:51
2	As 188.979†	707.5	805.7	601.84	µg/L	601.84	ppb	10:21:11
2	B 249.677†	-16587.0	-18367.5	581.24	µg/L	581.24	ppb	10:20:51
2	Ba 233.527†	61748.3	69108.8	562.70	µg/L	562.70	ppb	10:20:51
2	Be 313.107†	596134.0	674676.5	281.62	µg/L	281.62	ppb	10:20:51
2	Cd 226.502†	65810.5	73780.4	548.37	µg/L	548.37	ppb	10:20:51
2	Co 228.616†	11820.0	13433.0	526.92	µg/L	526.92	ppb	10:21:11
2	Cr 267.716†	48209.5	53827.0	562.61	µg/L	562.61	ppb	10:20:51
2	Cu 324.752†	120421.1	131470.3	607.37	µg/L	607.37	ppb	10:20:51
2	Mn 257.610†	266103.8	297543.6	549.36	µg/L	549.36	ppb	10:20:51
2	Mo 202.031†	9239.6	10230.3	562.63	µg/L	562.63	ppb	10:21:11
2	Ni 231.604†	12282.0	13726.8	525.42	µg/L	525.42	ppb	10:21:11
2	P 214.914†	2621.6	2916.4	2948.3	µg/L	2948.3	ppb	10:21:11
2	Pb 220.353†	2409.8	2745.6	529.91	µg/L	529.91	ppb	10:21:11

2	S 181.975 Axial†	1736.3	1890.2	2923.3 µg/L	2923.3 ppb	10:21:11
2	Sb 206.836†	828.0	913.4	567.56 µg/L	567.56 ppb	10:21:11
2	Se 196.026†	3009.1	3359.6	2740 µg/L	2740 ppb	10:21:11
2	SiO2†	89350.1	98270.3	12293 µg/L	12293 ppb	10:20:51
2	Si 251.611†	163326.8	181502.7	5763.5 µg/L	5763.5 ppb	10:20:51
2	Sn 189.927†	2175.4	2427.7	564.01 µg/L	564.01 ppb	10:21:11
2	Ti 334.940†	201295.8	226367.8	568.28 µg/L	568.28 ppb	10:20:51
2	Tl 190.801†	999.2	1173.3	510.62 µg/L	510.62 ppb	10:21:11
2	U 367.007†	5965.9	7041.3	523.95 µg/L	523.95 ppb	10:20:51
2	V 292.402†	59587.0	66666.4	576.46 µg/L	576.46 ppb	10:20:51
2	Zn 213.857†	35432.0	39337.2	556.41 µg/L	556.41 ppb	10:21:11
3	Sc RADIAL	13739.2	13739.2	91.3 %		10:20:24
3	Al 396.153Radial†	714173.3	782313.0	507040 µg/L	507040 ppb	10:20:22
3	Ca 317.933Radial†	1570670.2	1720058.4	491370 µg/L	491370 ppb	10:20:22
3	Fe 238.204 Radial†	189613.1	207647.6	196890 µg/L	196890 ppb	10:20:24
3	K 766.490 Radial†	5225.8	5447.2	6260.0 µg/L	6260.0 ppb	10:20:24
3	Mg 279.077 IEC†	120379.2	131839.3	491010 µg/L	491010 ppb	10:20:24
3	Na 589.592 Radial†	24750.9	26314.7	5932.1 µg/L	5932.1 ppb	10:20:24
3	Sr 421.552†	105117.7	114463.7	558.47 µg/L	558.47 ppb	10:20:24
3	Sc 361.383	652129.9	652129.9	89.058 %		10:21:13
3	Y 371.029	511535.5	511535.5	88.137 %		10:21:13
3	Ag 328.068†	39054.2	44674.7	293.14 µg/L	293.14 ppb	10:21:13
3	As 188.979†	703.2	803.4	600.04 µg/L	600.04 ppb	10:21:33
3	B 249.677†	-15165.1	-16827.4	618.43 µg/L	618.43 ppb	10:21:13
3	Ba 233.527†	60636.1	68070.4	554.22 µg/L	554.22 ppb	10:21:13
3	Be 313.107†	580914.3	659618.6	275.35 µg/L	275.35 ppb	10:21:13
3	Cd 226.502†	64630.1	72679.3	539.97 µg/L	539.97 ppb	10:21:13
3	Co 228.616†	11935.3	13602.7	533.63 µg/L	533.63 ppb	10:21:33
3	Cr 267.716†	47013.3	52648.1	550.27 µg/L	550.27 ppb	10:21:13
3	Cu 324.752†	119251.8	130567.7	602.92 µg/L	602.92 ppb	10:21:13
3	Mn 257.610†	261865.6	293691.6	542.15 µg/L	542.15 ppb	10:21:13
3	Mo 202.031†	9317.8	10349.6	569.13 µg/L	569.13 ppb	10:21:33
3	Ni 231.604†	12357.4	13853.3	530.25 µg/L	530.25 ppb	10:21:33
3	P 214.914†	2639.6	2945.6	2972.8 µg/L	2972.8 ppb	10:21:33
3	Pb 220.353†	2427.2	2773.4	533.90 µg/L	533.90 ppb	10:21:33
3	S 181.975 Axial†	1767.6	1931.2	2988.6 µg/L	2988.6 ppb	10:21:33
3	Sb 206.836†	824.9	912.7	567.26 µg/L	567.26 ppb	10:21:33
3	Se 196.026†	3019.3	3381.2	2760 µg/L	2760 ppb	10:21:33
3	SiO2†	87972.8	97028.3	12137 µg/L	12137 ppb	10:21:13
3	Si 251.611†	160883.5	179315.9	5694.1 µg/L	5694.1 ppb	10:21:13
3	Sn 189.927†	2185.5	2446.4	567.79 µg/L	567.79 ppb	10:21:33
3	Ti 334.940†	198373.1	223772.0	561.93 µg/L	561.93 ppb	10:21:13
3	Tl 190.801†	1027.7	1208.7	525.59 µg/L	525.59 ppb	10:21:33
3	U 367.007†	5884.2	6970.0	508.81 µg/L	508.81 ppb	10:21:13
3	V 292.402†	58450.5	65593.3	567.36 µg/L	567.36 ppb	10:21:13
3	Zn 213.857†	35696.8	39755.3	562.57 µg/L	562.57 ppb	10:21:33

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	652051.6	89.048	%	0.2873				0.32%
Sc RADIAL	13727.8	91.2	%	0.95				1.04%
Y 371.029	513844.4	88.534	%	0.7648				0.86%
Ag 328.068†	45012.2	295.06	µg/L	2.479	295.06	ppb	2.479	0.84%
QC value within limits for Ag 328.068 Recovery = 118.03%								
Al 396.153Radial†	781776.3	506690	µg/L	6647.3	506690	ppb	6647.3	1.31%
QC value within limits for Al 396.153Radial Recovery = 101.34%								
As 188.979†	804.8	600.85	µg/L	0.911	600.85	ppb	0.911	0.15%
QC value greater than the upper limit for As 188.979 Recovery = 120.17%								
B 249.677†	-17685.3	587.18	µg/L	28.742	587.18	ppb	28.742	4.89%
QC value within limits for B 249.677 Recovery = 117.44%								
Ba 233.527†	68476.7	557.56	µg/L	4.520	557.56	ppb	4.520	0.81%
QC value within limits for Ba 233.527 Recovery = 111.51%								
Be 313.107†	665070.3	277.61	µg/L	3.481	277.61	ppb	3.481	1.25%
QC value within limits for Be 313.107 Recovery = 111.04%								
Ca 317.933Radial†	1722328.0	492020	µg/L	6384.2	492020	ppb	6384.2	1.30%
QC value within limits for Ca 317.933Radial Recovery = 98.40%								
Cd 226.502†	73048.3	542.95	µg/L	4.702	542.95	ppb	4.702	0.87%
QC value within limits for Cd 226.502 Recovery = 108.59%								
Co 228.616†	13538.9	531.15	µg/L	3.677	531.15	ppb	3.677	0.69%

QC value within limits for Co 228.616 Recovery = 106.23%

Cr 267.716†	52995.9	553.91 µg/L	7.567	553.91 ppb	7.567	1.37%

QC value within limits for Cr 267.716 Recovery = 110.78%

Cu 324.752†	130853.5	604.47 µg/L	2.516	604.47 ppb	2.516	0.42%

QC value greater than the upper limit for Cu 324.752 Recovery = 120.89%

Fe 238.204 Radial†	205814.3	195150 µg/L	3384.4	195150 ppb	3384.4	1.73%

QC value within limits for Fe 238.204 Radial Recovery = 97.58%

K 766.490 Radial†	5446.2	6260.9 µg/L	60.63	6260.9 ppb	60.63	0.97%

QC value greater than the upper limit for K 766.490 Radial Recovery = 125.22%

Mg 279.077 IEC†	130641.4	486550 µg/L	6739.3	486550 ppb	6739.3	1.39%

QC value within limits for Mg 279.077 IEC Recovery = 97.31%

Mn 257.610†	294944.0	544.54 µg/L	4.171	544.54 ppb	4.171	0.77%

QC value within limits for Mn 257.610 Recovery = 108.91%

Mo 202.031†	10301.6	566.43 µg/L	3.384	566.43 ppb	3.384	0.60%

QC value within limits for Mo 202.031 Recovery = 113.29%

Na 589.592 Radial†	26141.0	5893.0 µg/L	69.50	5893.0 ppb	69.50	1.18%

QC value within limits for Na 589.592 Radial Recovery = 117.86%

Ni 231.604†	13808.1	528.51 µg/L	2.684	528.51 ppb	2.684	0.51%

QC value within limits for Ni 231.604 Recovery = 105.70%

P 214.914†	2940.9	2969.8 µg/L	20.18	2969.8 ppb	20.18	0.68%

QC value within limits for P 214.914 Recovery = 118.79%

Pb 220.353†	2769.8	533.24 µg/L	3.061	533.24 ppb	3.061	0.57%

QC value within limits for Pb 220.353 Recovery = 106.65%

S 181.975 Axial†	1918.2	2968.1 µg/L	38.85	2968.1 ppb	38.85	1.31%

QC value within limits for S 181.975 Axial Recovery = 118.72%

Sb 206.836†	912.7	567.23 µg/L	0.354	567.23 ppb	0.354	0.06%

QC value within limits for Sb 206.836 Recovery = 113.45%

Se 196.026†	3372.2	2750 µg/L	8.5	2750 ppb	8.5	0.31%

QC value within limits for Se 196.026 Recovery = 109.87%

SiO2†	97478.1	12194 µg/L	86.2	12194 ppb	86.2	0.71%

QC value within limits for SiO2 Recovery = 114.01%

Si 251.611†	179951.6	5714.3 µg/L	42.89	5714.3 ppb	42.89	0.75%

QC value within limits for Si 251.611 Recovery = 114.29%

Sn 189.927†	2439.4	566.28 µg/L	2.006	566.28 ppb	2.006	0.35%

QC value within limits for Sn 189.927 Recovery = 113.26%

Sr 421.552†	113677.5	554.56 µg/L	7.948	554.56 ppb	7.948	1.43%

QC value within limits for Sr 421.552 Recovery = 110.91%

Ti 334.940†	224555.2	563.72 µg/L	3.974	563.72 ppb	3.974	0.70%

QC value within limits for Ti 334.940 Recovery = 112.74%

Tl 190.801†	1186.1	515.94 µg/L	8.375	515.94 ppb	8.375	1.62%

QC value within limits for Tl 190.801 Recovery = 103.19%

U 367.007†	6946.2	513.71 µg/L	8.867	513.71 ppb	8.867	1.73%

QC value within limits for U 367.007 Recovery = 102.74%

V 292.402†	66011.1	570.85 µg/L	4.907	570.85 ppb	4.907	0.86%

QC value within limits for V 292.402 Recovery = 114.17%

Zn 213.857†	39577.4	560.13 µg/L	3.278	560.13 ppb	3.278	0.59%

QC value within limits for Zn 213.857 Recovery = 112.03%

QC Failed. Continue with analysis.

Sequence No.: 11 **Autosampler Location: 105**
Sample ID: LR1 **Date Collected: 6/26/2012 10:21:43**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	13817.9	13817.9	91.8	%			10:22:15
1	Al 396.153Radial†	695935.8	757999.7	491410	µg/L	491410	ppb	10:22:13
1	Ca 317.933Radial†	1532572.2	1668777.2	476720	µg/L	476720	ppb	10:22:13
1	Fe 238.204 Radial†	436002.9	474785.5	450190	µg/L	450190	ppb	10:22:15
1	K 766.490 Radial†	631.4	411.3	-100.63	µg/L	-100.63	ppb	10:22:15
1	Mg 279.077 IEC†	114340.7	124512.8	463730	µg/L	463730	ppb	10:22:15
1	Na 589.592 Radial†	2053350.8	2235318.1	503910	µg/L	503910	ppb	10:22:13
1	Sr 421.552†	3336.2	2967.6	6.1766	µg/L	6.1766	ppb	10:22:15
1	Sc 361.383	628771.7	628771.7	85.869	%			10:22:28
1	Y 371.029	491281.9	491281.9	84.647	%			10:22:28
1	Ag 328.068†	-2713.9	-2338.2	22.363	µg/L	22.363	ppb	10:22:28
1	As 188.979†	-70.0	-67.9	5.7606	µg/L	5.7606	ppb	10:22:48
1	B 249.677†	-90895.9	-105653.8	-305.12	µg/L	-305.12	ppb	10:22:28
1	Ba 233.527†	2414.2	2796.1	18.117	µg/L	18.117	ppb	10:22:48
1	Be 313.107†	-15980.3	-11275.6	-1.7526	µg/L	-1.7526	ppb	10:22:28
1	Cd 226.502†	6334.5	7485.8	17.807	µg/L	17.807	ppb	10:22:28
1	Co 228.616†	262.1	506.3	10.052	µg/L	10.052	ppb	10:22:48
1	Cr 267.716†	2947.4	3291.3	37.649	µg/L	37.649	ppb	10:22:28
1	Cu 324.752†	7377.6	5256.7	37.551	µg/L	37.551	ppb	10:22:28
1	Mn 257.610†	6675.9	7428.4	10.337	µg/L	10.337	ppb	10:22:28
1	Mo 202.031†	-250.3	-404.4	-1.7996	µg/L	-1.7996	ppb	10:22:28
1	Ni 231.604†	349.5	384.8	17.260	µg/L	17.260	ppb	10:22:48
1	P 214.914†	158.6	166.4	50.537	µg/L	50.537	ppb	10:22:48
1	Pb 220.353†	-191.1	-174.7	30.235	µg/L	30.235	ppb	10:22:48
1	S 181.975 Axial†	31211.4	36294.4	57158	µg/L	57158	ppb	10:22:48
1	Sb 206.836†	14.6	3.5	2.4097	µg/L	2.4097	ppb	10:22:48
1	Se 196.026†	-355.8	-423.3	-52.9	µg/L	-52.9	ppb	10:22:48
1	SiO2†	1501.4	-4.2	0.2776	µg/L	0.2776	ppb	10:22:48
1	Si 251.611†	1598.8	528.6	16.785	µg/L	16.785	ppb	10:22:48
1	Sn 189.927†	-38.5	-52.5	10.028	µg/L	10.028	ppb	10:22:48
1	Ti 334.940†	115.8	1162.1	19.672	µg/L	19.672	ppb	10:22:28
1	Tl 190.801†	-81.8	-40.6	3.8876	µg/L	3.8876	ppb	10:22:48
1	U 367.007†	65654.7	76822.3	16429	µg/L	16429	ppb	10:22:28
1	V 292.402†	-2543.1	-2999.9	14.364	µg/L	14.364	ppb	10:22:28
1	Zn 213.857†	4770.2	5228.1	33.005	µg/L	33.005	ppb	10:22:48
2	Sc RADIAL	13797.2	13797.2	91.7	%			10:22:20
2	Al 396.153Radial†	700240.6	763829.1	495190	µg/L	495190	ppb	10:22:18
2	Ca 317.933Radial†	1554279.6	1694950.1	484200	µg/L	484200	ppb	10:22:18
2	Fe 238.204 Radial†	434823.4	474209.8	449650	µg/L	449650	ppb	10:22:20
2	K 766.490 Radial†	853.2	654.2	187.07	µg/L	187.07	ppb	10:22:20
2	Mg 279.077 IEC†	115328.3	125776.3	468430	µg/L	468430	ppb	10:22:20
2	Na 589.592 Radial†	2072433.2	2259477.1	509360	µg/L	509360	ppb	10:22:18
2	Sr 421.552†	3372.5	3012.7	6.2660	µg/L	6.2660	ppb	10:22:20
2	Sc 361.383	635813.2	635813.2	86.830	%			10:22:50
2	Y 371.029	499249.7	499249.7	86.020	%			10:22:50
2	Ag 328.068†	-2130.6	-1631.4	26.489	µg/L	26.489	ppb	10:22:50
2	As 188.979†	-67.5	-64.0	8.4321	µg/L	8.4321	ppb	10:23:10
2	B 249.677†	-94319.0	-108423.9	-378.99	µg/L	-378.99	ppb	10:22:50
2	Ba 233.527†	2429.0	2782.0	18.002	µg/L	18.002	ppb	10:23:10
2	Be 313.107†	-15907.3	-10985.5	-1.5870	µg/L	-1.5870	ppb	10:22:50
2	Cd 226.502†	6530.4	7629.8	18.962	µg/L	18.962	ppb	10:22:50
2	Co 228.616†	239.8	477.2	8.9143	µg/L	8.9143	ppb	10:23:10
2	Cr 267.716†	3083.3	3409.8	38.847	µg/L	38.847	ppb	10:22:50
2	Cu 324.752†	6776.6	4469.4	33.318	µg/L	33.318	ppb	10:22:50
2	Mn 257.610†	6136.3	6720.9	8.9473	µg/L	8.9473	ppb	10:22:50
2	Mo 202.031†	-315.9	-476.7	-5.7763	µg/L	-5.7763	ppb	10:22:50
2	Ni 231.604†	364.5	397.5	17.745	µg/L	17.745	ppb	10:23:10
2	P 214.914†	154.9	160.1	47.475	µg/L	47.475	ppb	10:23:10
2	Pb 220.353†	-210.9	-195.0	27.235	µg/L	27.235	ppb	10:23:10

2	S 181.975 Axial†	31627.1	36370.6	57277 µg/L	57277 ppb		10:23:10
2	Sb 206.836†	20.1	9.6	6.1056 µg/L	6.1056 ppb		10:23:10
2	Se 196.026†	-351.2	-413.4	-45.7 µg/L	-45.7 ppb		10:23:10
2	SiO2†	1486.0	-41.2	-4.3172 µg/L	-4.3172 ppb		10:23:10
2	Si 251.611†	1549.3	450.9	14.317 µg/L	14.317 ppb		10:23:10
2	Sn 189.927†	-32.6	-45.2	12.007 µg/L	12.007 ppb		10:23:10
2	Ti 334.940†	-6.8	1019.4	19.519 µg/L	19.519 ppb		10:22:50
2	Tl 190.801†	-67.8	-23.4	11.184 µg/L	11.184 ppb		10:23:10
2	U 367.007†	66690.6	77168.6	16519 µg/L	16519 ppb		10:22:50
2	V 292.402†	-3084.4	-3590.4	9.5115 µg/L	9.5115 ppb		10:22:50
2	Zn 213.857†	4831.9	5237.7	33.198 µg/L	33.198 ppb		10:23:10
3	Sc RADIAL	13510.3	13510.3	89.8 %			10:22:24
3	Al 396.153Radial†	699142.2	778822.7	504910 µg/L	504910 ppb		10:22:22
3	Ca 317.933Radial†	1549216.5	1725306.8	492870 µg/L	492870 ppb		10:22:22
3	Fe 238.204 Radial†	437895.3	487701.4	462440 µg/L	462440 ppb		10:22:24
3	K 766.490 Radial†	709.7	514.2	4.6182 µg/L	4.6182 ppb		10:22:24
3	Mg 279.077 IEC†	115059.8	128148.2	477270 µg/L	477270 ppb		10:22:24
3	Na 589.592 Radial†	2064760.6	2298927.2	518250 µg/L	518250 ppb		10:22:22
3	Sr 421.552†	3283.7	2991.8	6.0075 µg/L	6.0075 ppb		10:22:24
3	Sc 361.383	640629.5	640629.5	87.488 %			10:23:13
3	Y 371.029	501091.0	501091.0	86.337 %			10:23:13
3	Ag 328.068†	-2454.9	-1983.7	25.527 µg/L	25.527 ppb		10:23:13
3	As 188.979†	-51.1	-44.7	23.651 µg/L	23.651 ppb		10:23:33
3	B 249.677†	-93607.4	-106793.8	-269.01 µg/L	-269.01 ppb		10:23:13
3	Ba 233.527†	2463.1	2800.0	18.019 µg/L	18.019 ppb		10:23:33
3	Be 313.107†	-16114.1	-11084.1	-1.5756 µg/L	-1.5756 ppb		10:23:13
3	Cd 226.502†	6348.4	7365.2	15.801 µg/L	15.801 ppb		10:23:13
3	Co 228.616†	245.6	481.8	8.8149 µg/L	8.8149 ppb		10:23:33
3	Cr 267.716†	2944.7	3224.7	37.034 µg/L	37.034 ppb		10:23:13
3	Cu 324.752†	7162.9	4852.3	35.872 µg/L	35.872 ppb		10:23:13
3	Mn 257.610†	6185.3	6723.7	8.9142 µg/L	8.9142 ppb		10:23:13
3	Mo 202.031†	-272.2	-424.1	-2.3184 µg/L	-2.3184 ppb		10:23:13
3	Ni 231.604†	344.4	371.4	16.821 µg/L	16.821 ppb		10:23:33
3	P 214.914†	157.1	161.2	42.625 µg/L	42.625 ppb		10:23:33
3	Pb 220.353†	-208.7	-190.6	29.172 µg/L	29.172 ppb		10:23:33
3	S 181.975 Axial†	31573.5	36035.5	56749 µg/L	56749 ppb		10:23:33
3	Sb 206.836†	10.9	-1.0	-0.4684 µg/L	-0.4684 ppb		10:23:33
3	Se 196.026†	-352.1	-411.5	-36.1 µg/L	-36.1 ppb		10:23:33
3	SiO2†	1523.7	-11.0	-0.5909 µg/L	-0.5909 ppb		10:23:33
3	Si 251.611†	1601.6	497.3	15.791 µg/L	15.791 ppb		10:23:33
3	Sn 189.927†	-34.0	-46.5	12.122 µg/L	12.122 ppb		10:23:33
3	Ti 334.940†	140.7	1188.1	20.249 µg/L	20.249 ppb		10:23:13
3	Tl 190.801†	-89.9	-48.0	1.2960 µg/L	1.2960 ppb		10:23:33
3	U 367.007†	66115.8	75934.1	16129 µg/L	16129 ppb		10:23:13
3	V 292.402†	-2791.6	-3229.1	12.136 µg/L	12.136 ppb		10:23:13
3	Zn 213.857†	4795.1	5153.7	30.721 µg/L	30.721 ppb		10:23:33

Mean Data: LR1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	635071.5	86.729	%	0.8144				0.94%
Sc RADIAL	13708.5	91.1	%	1.14				1.25%
Y 371.029	497207.5	85.668	%	0.8983				1.05%
Ag 328.068†	-1984.4	24.793	µg/L	2.1585	24.793	ppb	2.1585	8.71%
Al 396.153Radial†	766883.9	497170	µg/L	6964.5	497170	ppb	6964.5	1.40%
QC value within limits for Al 396.153Radial Recovery = 99.43%								
As 188.979†	-58.9	12.615	µg/L	9.6507	12.615	ppb	9.6507	76.50%
B 249.677†	-106957.2	-317.71	µg/L	56.064	-317.71	ppb	56.064	17.65%
Ba 233.527†	2792.7	18.046	µg/L	0.0619	18.046	ppb	0.0619	0.34%
Be 313.107†	-11115.1	-1.6384	µg/L	0.09909	-1.6384	ppb	0.09909	6.05%
Ca 317.933Radial†	1696344.7	484600	µg/L	8081.8	484600	ppb	8081.8	1.67%
QC value within limits for Ca 317.933Radial Recovery = 96.92%								
Cd 226.502†	7493.6	17.523	µg/L	1.5993	17.523	ppb	1.5993	9.13%
Co 228.616†	488.4	9.2604	µg/L	0.68745	9.2604	ppb	0.68745	7.42%
Cr 267.716†	3308.6	37.843	µg/L	0.9222	37.843	ppb	0.9222	2.44%
Cu 324.752†	4859.5	35.580	µg/L	2.1313	35.580	ppb	2.1313	5.99%
Fe 238.204 Radial†	478898.9	454090	µg/L	7233.5	454090	ppb	7233.5	1.59%
QC value within limits for Fe 238.204 Radial Recovery = 90.82%								
K 766.490 Radial†	526.6	30.354	µg/L	145.5653	30.354	ppb	145.5653	479.56%
Mg 279.077 IEC†	126145.8	469810	µg/L	6873.7	469810	ppb	6873.7	1.46%

QC value within limits for Mg 279.077 IEC Recovery = 93.96%							
Mn 257.610†	6957.6	9.3996 µg/L	0.81231	9.3996 ppb	0.81231	8.64%	
Mo 202.031†	-435.1	-3.2981 µg/L	2.16177	-3.2981 ppb	2.16177	65.55%	
Na 589.592 Radial†	2264574.1	510500 µg/L	7238.4	510500 ppb	7238.4	1.42%	
QC value within limits for Na 589.592 Radial Recovery = 102.10%							
Ni 231.604†	384.6	17.275 µg/L	0.4620	17.275 ppb	0.4620	2.67%	
P 214.914†	162.6	46.879 µg/L	3.9895	46.879 ppb	3.9895	8.51%	
Pb 220.353†	-186.8	28.881 µg/L	1.5209	28.881 ppb	1.5209	5.27%	
S 181.975 Axial†	36233.5	57062 µg/L	277.0	57062 ppb	277.0	0.49%	
QC value greater than the upper limit for S 181.975 Axial Recovery = 114.12%							
Sb 206.836†	4.0	2.6823 µg/L	3.29547	2.6823 ppb	3.29547	122.86%	
Se 196.026†	-416.1	-44.9 µg/L	8.45	-44.9 ppb	8.45	18.81%	
SiO2†	-18.8	-1.5435 µg/L	2.44103	-1.5435 ppb	2.44103	158.15%	
Si 251.611†	492.2	15.631 µg/L	1.2418	15.631 ppb	1.2418	7.94%	
Sn 189.927†	-48.0	11.386 µg/L	1.1772	11.386 ppb	1.1772	10.34%	
Sr 421.552†	2990.7	6.1500 µg/L	0.13132	6.1500 ppb	0.13132	2.14%	
Ti 334.940†	1123.2	19.813 µg/L	0.3848	19.813 ppb	0.3848	1.94%	
Tl 190.801†	-37.3	5.4558 µg/L	5.12707	5.4558 ppb	5.12707	93.97%	
U 367.007†	76641.7	16359 µg/L	203.9	16359 ppb	203.9	1.25%	
QC value within limits for U 367.007 Recovery = 109.06%							
V 292.402†	-3273.1	12.004 µg/L	2.4289	12.004 ppb	2.4289	20.23%	
Zn 213.857†	5206.5	32.308 µg/L	1.3778	32.308 ppb	1.3778	4.26%	

QC Failed. Continue with analysis.

Sequence No.: 12 **Autosampler Location: 108**
Sample ID: LR2 **Date Collected: 6/26/2012 10:23:41**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR2

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	14778.9	14778.9	98.2	%			10:24:15
1	Al 396.153Radial†	1516.8	1665.8	738.43	µg/L	738.43	ppb	10:24:35
1	Ca 317.933Radial†	2552.9	2395.9	684.45	µg/L	684.45	ppb	10:24:35
1	Fe 238.204 Radial†	729.8	718.7	697.59	µg/L	697.59	ppb	10:24:35
1	K 766.490 Radial†	239873.4	243960.7	285330	µg/L	285330	ppb	10:24:13
1	Mg 279.077 IEC†	162.6	160.6	598.30	µg/L	598.30	ppb	10:24:35
1	Na 589.592 Radial†	4717.6	4009.9	903.95	µg/L	903.95	ppb	10:24:15
1	Sr 421.552†	1973627.9	2008864.9	9955.6	µg/L	9955.6	ppb	10:24:13
1	Sc 361.383	731571.7	731571.7	99.907	%			10:25:31
1	Y 371.029	570084.4	570084.4	98.224	%			10:25:31
1	Ag 328.068†	-5928.6	-5111.8	-22.541	µg/L	-22.541	ppb	10:25:33
1	As 188.979†	14976.0	15003.6	10884	µg/L	10884	ppb	10:25:33
1	B 249.677†	213233.7	213631.9	5460.0	µg/L	5460.0	ppb	10:25:33
1	Ba 233.527†	1850607.5	1852305.6	15132	µg/L	15132	ppb	10:25:31
1	Be 313.107†	7592397.3	7606761.4	3144.2	µg/L	3144.2	ppb	10:25:28
1	Cd 226.502†	1353568.2	1354930.2	10390	µg/L	10390	ppb	10:25:31
1	Co 228.616†	271735.8	272188.5	10769	µg/L	10769	ppb	10:25:33
1	Cr 267.716†	2480033.1	2482188.2	25950	µg/L	25950	ppb	10:25:31
1	Cu 324.752†	4544599.6	4545472.2	21680	µg/L	21680	ppb	10:25:28
1	Mn 257.610†	5418666.1	5423336.9	10115	µg/L	10115	ppb	10:25:28
1	Mo 202.031†	197355.3	197425.1	10720	µg/L	10720	ppb	10:25:33
1	Ni 231.604†	276170.3	276403.8	10557	µg/L	10557	ppb	10:25:33
1	P 214.914†	17068.6	17066.1	16225	µg/L	16225	ppb	10:25:33
1	Pb 220.353†	154297.0	154487.8	26261	µg/L	26261	ppb	10:25:33
1	S 181.975 Axial†	105.2	51.8	101.80	µg/L	101.80	ppb	10:25:53
1	Sb 206.836†	17585.4	17588.2	10768	µg/L	10768	ppb	10:25:33
1	Se 196.026†	13378.6	13382.0	10500	µg/L	10500	ppb	10:25:33
1	SiO2†	885024.2	884091.0	111080	µg/L	111080	ppb	10:25:31
1	Si 251.611†	1621844.0	1622012.2	51506	µg/L	51506	ppb	10:25:31
1	Sn 189.927†	47949.2	47985.9	10699	µg/L	10699	ppb	10:25:33
1	Ti 334.940†	4332836.1	4337875.0	10545	µg/L	10545	ppb	10:25:28
1	Tl 190.801†	23013.0	23089.0	9861.3	µg/L	9861.3	ppb	10:25:33
1	U 367.007†	-270.5	92.0	18.793	µg/L	18.793	ppb	10:25:33
1	V 292.402†	1259761.3	1260889.4	10864	µg/L	10864	ppb	10:25:31
1	Zn 213.857†	1042122.0	1042759.8	15273	µg/L	15273	ppb	10:25:31
2	Sc RADIAL	15137.6	15137.6	101	%			10:24:39
2	Al 396.153Radial†	1566.0	1678.1	742.61	µg/L	742.61	ppb	10:24:59
2	Ca 317.933Radial†	2618.6	2399.7	685.52	µg/L	685.52	ppb	10:24:59
2	Fe 238.204 Radial†	736.1	707.3	687.00	µg/L	687.00	ppb	10:24:59
2	K 766.490 Radial†	246634.6	244895.2	286420	µg/L	286420	ppb	10:24:37
2	Mg 279.077 IEC†	148.9	143.2	533.15	µg/L	533.15	ppb	10:24:59
2	Na 589.592 Radial†	4732.9	3911.2	881.71	µg/L	881.71	ppb	10:24:39
2	Sr 421.552†	1995495.8	1982992.8	9827.4	µg/L	9827.4	ppb	10:24:37
2	Sc 361.383	729582.5	729582.5	99.636	%			10:25:59
2	Y 371.029	567785.9	567785.9	97.828	%			10:25:59
2	Ag 328.068†	-6192.8	-5393.1	-24.313	µg/L	-24.313	ppb	10:26:01
2	As 188.979†	15504.4	15574.8	11289	µg/L	11289	ppb	10:26:01
2	B 249.677†	216018.4	217008.7	5545.9	µg/L	5545.9	ppb	10:26:01
2	Ba 233.527†	1853783.5	1860543.6	15199	µg/L	15199	ppb	10:25:59
2	Be 313.107†	7525201.0	7560039.6	3124.8	µg/L	3124.8	ppb	10:25:56
2	Cd 226.502†	1340236.6	1345244.0	10315	µg/L	10315	ppb	10:25:59
2	Co 228.616†	274007.6	275210.1	10888	µg/L	10888	ppb	10:26:01
2	Cr 267.716†	2450750.1	2459566.3	25714	µg/L	25714	ppb	10:25:59
2	Cu 324.752†	4517346.2	4530521.7	21609	µg/L	21609	ppb	10:25:56
2	Mn 257.610†	5391108.9	5410466.8	10091	µg/L	10091	ppb	10:25:56
2	Mo 202.031†	198997.2	199611.6	10839	µg/L	10839	ppb	10:26:01
2	Ni 231.604†	277348.0	278339.4	10631	µg/L	10631	ppb	10:26:01
2	P 214.914†	17280.7	17325.6	16474	µg/L	16474	ppb	10:26:01
2	Pb 220.353†	156395.2	157014.7	26690	µg/L	26690	ppb	10:26:01

2	S 181.975 Axial†	100.1	46.9	94.911 µg/L	94.911 ppb		10:26:21
2	Sb 206.836†	17824.2	17875.9	10952 µg/L	10952 ppb		10:26:01
2	Se 196.026†	13648.0	13688.9	10700 µg/L	10700 ppb		10:26:01
2	SiO2†	897938.5	899467.8	113000 µg/L	113000 ppb		10:25:59
2	Si 251.611†	1647170.4	1651857.3	52454 µg/L	52454 ppb		10:25:59
2	Sn 189.927†	49064.4	49236.1	10977 µg/L	10977 ppb		10:26:01
2	Ti 334.940†	4309608.3	4326386.9	10517 µg/L	10517 ppb		10:25:56
2	Tl 190.801†	23652.1	23793.2	10161 µg/L	10161 ppb		10:26:01
2	U 367.007†	-256.5	105.3	22.189 µg/L	22.189 ppb		10:26:01
2	V 292.402†	1245499.6	1250013.6	10772 µg/L	10772 ppb		10:25:59
2	Zn 213.857†	1036812.2	1040274.5	15236 µg/L	15236 ppb		10:25:59
3	Sc RADIAL	15143.7	15143.7	101 %			10:25:03
3	Al 396.153Radial†	1580.1	1691.4	827.74 µg/L	827.74 ppb		10:25:23
3	Ca 317.933Radial†	2674.9	2454.5	701.19 µg/L	701.19 ppb		10:25:23
3	Fe 238.204 Radial†	756.4	727.2	702.13 µg/L	702.13 ppb		10:25:23
3	K 766.490 Radial†	249167.6	247312.7	289250 µg/L	289250 ppb		10:25:01
3	Mg 279.077 IEC†	168.4	162.5	605.07 µg/L	605.07 ppb		10:25:23
3	Na 589.592 Radial†	4647.9	3825.0	862.26 µg/L	862.26 ppb		10:25:03
3	Sr 421.552†	2005005.0	1991637.2	9870.2 µg/L	9870.2 ppb		10:25:01
3	Sc 361.383	739859.3	739859.3	101.04 %			10:26:27
3	Y 371.029	578148.1	578148.1	99.614 %			10:26:27
3	Ag 328.068†	-4882.5	-4010.0	-17.477 µg/L	-17.477 ppb		10:26:29
3	As 188.979†	12409.2	12295.3	8911.9 µg/L	8911.9 ppb		10:26:29
3	B 249.677†	185345.1	183639.5	4695.1 µg/L	4695.1 ppb		10:26:29
3	Ba 233.527†	1551246.4	1535274.9	12542 µg/L	12542 ppb		10:26:27
3	Be 313.107†	6173694.0	6117525.6	2528.4 µg/L	2528.4 ppb		10:26:24
3	Cd 226.502†	1130051.1	1118536.2	8576.5 µg/L	8576.5 ppb		10:26:27
3	Co 228.616†	214096.6	212095.4	8392.2 µg/L	8392.2 ppb		10:26:29
3	Cr 267.716†	1964749.8	1944399.2	20328 µg/L	20328 ppb		10:26:27
3	Cu 324.752†	3703870.3	3662437.2	17468 µg/L	17468 ppb		10:26:24
3	Mn 257.610†	4418405.6	4372611.5	8155.6 µg/L	8155.6 ppb		10:26:24
3	Mo 202.031†	157108.3	155379.3	8437.0 µg/L	8437.0 ppb		10:26:29
3	Ni 231.604†	218867.0	216593.4	8272.8 µg/L	8272.8 ppb		10:26:29
3	P 214.914†	13717.1	13557.7	12888 µg/L	12888 ppb		10:26:29
3	Pb 220.353†	126619.4	125364.9	21310 µg/L	21310 ppb		10:26:29
3	S 181.975 Axial†	88.7	34.3	69.111 µg/L	69.111 ppb		10:26:49
3	Sb 206.836†	14539.1	14376.1	8808.7 µg/L	8808.7 ppb		10:26:29
3	Se 196.026†	11171.0	11047.1	8660 µg/L	8660 ppb		10:26:29
3	SiO2†	780424.7	770644.6	96773 µg/L	96773 ppb		10:26:27
3	Si 251.611†	1429729.9	1413690.2	44891 µg/L	44891 ppb		10:26:27
3	Sn 189.927†	38198.0	37797.5	8428.8 µg/L	8428.8 ppb		10:26:29
3	Ti 334.940†	3631106.1	3594783.7	8738.6 µg/L	8738.6 ppb		10:26:24
3	Tl 190.801†	20423.6	20268.2	8658.1 µg/L	8658.1 ppb		10:26:29
3	U 367.007†	-428.5	-61.3	-19.678 µg/L	-19.678 ppb		10:26:29
3	V 292.402†	1027577.4	1016969.4	8757.5 µg/L	8757.5 ppb		10:26:27
3	Zn 213.857†	865582.8	856352.3	12546 µg/L	12546 ppb		10:26:27

Mean Data: LR2

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	733671.2	100.19	%	0.744				0.74%
Sc RADIAL	15020.1	99.8	%	1.39				1.39%
Y 371.029	572006.1	98.556	%	0.9376				0.95%
Ag 328.068†	-4838.3	-21.444	µg/L	3.5478	-21.444	ppb	3.5478	16.54%
Al 396.153Radial†	1678.4	769.59	µg/L	50.399	769.59	ppb	50.399	6.55%
As 188.979†	14291.2	10362	µg/L	1271.8	10362	ppb	1271.8	12.27%
QC value within limits for As 188.979 Recovery = 103.62%								
B 249.677†	204760.0	5233.7	µg/L	468.40	5233.7	ppb	468.40	8.95%
QC value within limits for B 249.677 Recovery = 104.67%								
Ba 233.527†	1749374.7	14291	µg/L	1515.2	14291	ppb	1515.2	10.60%
QC value within limits for Ba 233.527 Recovery = 95.27%								
Be 313.107†	7094775.5	2932.5	µg/L	350.08	2932.5	ppb	350.08	11.94%
QC value within limits for Be 313.107 Recovery = 97.75%								
Ca 317.933Radial†	2416.7	690.39	µg/L	9.372	690.39	ppb	9.372	1.36%
Cd 226.502†	1272903.5	9760.4	µg/L	1025.98	9760.4	ppb	1025.98	10.51%
QC value within limits for Cd 226.502 Recovery = 97.60%								
Co 228.616†	253164.7	10016	µg/L	1407.8	10016	ppb	1407.8	14.05%
QC value within limits for Co 228.616 Recovery = 100.16%								
Cr 267.716†	2295384.5	23997	µg/L	3179.9	23997	ppb	3179.9	13.25%
QC value within limits for Cr 267.716 Recovery = 95.99%								

Cu 324.752†	4246143.7	20252 µg/L	2411.5	20252 ppb	2411.5	11.91%
QC value within limits for Cu 324.752 Recovery = 101.26%						
Fe 238.204 Radial†	717.8	695.57 µg/L	7.762	695.57 ppb	7.762	1.12%
K 766.490 Radial†	245389.6	287000 µg/L	2023.2	287000 ppb	2023.2	0.70%
QC value within limits for K 766.490 Radial Recovery = 95.67%						
Mg 279.077 IEC†	155.4	578.84 µg/L	39.710	578.84 ppb	39.710	6.86%
Mn 257.610†	5068805.1	9454.1 µg/L	1124.61	9454.1 ppb	1124.61	11.90%
QC value within limits for Mn 257.610 Recovery = 94.54%						
Mo 202.031†	184138.7	9998.6 µg/L	1353.69	9998.6 ppb	1353.69	13.54%
QC value within limits for Mo 202.031 Recovery = 99.99%						
Na 589.592 Radial†	3915.4	882.64 µg/L	20.860	882.64 ppb	20.860	2.36%
Ni 231.604†	257112.2	9820.4 µg/L	1340.76	9820.4 ppb	1340.76	13.65%
QC value within limits for Ni 231.604 Recovery = 98.20%						
P 214.914†	15983.1	15196 µg/L	2002.0	15196 ppb	2002.0	13.18%
QC value within limits for P 214.914 Recovery = 101.30%						
Pb 220.353†	145622.5	24754 µg/L	2990.2	24754 ppb	2990.2	12.08%
QC value within limits for Pb 220.353 Recovery = 99.01%						
S 181.975 Axial†	44.3	88.607 µg/L	17.2316	88.607 ppb	17.2316	19.45%
Sb 206.836†	16613.4	10176 µg/L	1187.7	10176 ppb	1187.7	11.67%
QC value within limits for Sb 206.836 Recovery = 101.76%						
Se 196.026†	12706.0	9970 µg/L	1133.6	9970 ppb	1133.6	11.37%
QC value within limits for Se 196.026 Recovery = 99.66%						
SiO2†	851401.1	106950 µg/L	8865.4	106950 ppb	8865.4	8.29%
QC value within limits for SiO2 Recovery = 99.95%						
Si 251.611†	1562519.9	49617 µg/L	4120.2	49617 ppb	4120.2	8.30%
QC value within limits for Si 251.611 Recovery = 99.23%						
Sn 189.927†	45006.5	10035 µg/L	1397.7	10035 ppb	1397.7	13.93%
QC value within limits for Sn 189.927 Recovery = 100.35%						
Sr 421.552†	1994498.3	9884.4 µg/L	65.27	9884.4 ppb	65.27	0.66%
QC value within limits for Sr 421.552 Recovery = 98.84%						
Ti 334.940†	4086348.5	9933.5 µg/L	1034.90	9933.5 ppb	1034.90	10.42%
QC value within limits for Ti 334.940 Recovery = 99.33%						
Tl 190.801†	22383.5	9560.1 µg/L	795.29	9560.1 ppb	795.29	8.32%
QC value within limits for Tl 190.801 Recovery = 95.60%						
U 367.007†	45.4	7.1014 µg/L	23.25336	7.1014 ppb	23.25336	327.45%
V 292.402†	1175957.5	10131 µg/L	1190.6	10131 ppb	1190.6	11.75%
QC value within limits for V 292.402 Recovery = 101.31%						
Zn 213.857†	979795.5	14352 µg/L	1564.1	14352 ppb	1564.1	10.90%
QC value within limits for Zn 213.857 Recovery = 95.68%						

All analyte(s) passed QC.

Sequence No.: 13 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/26/2012 10:26:58**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15445.4	15445.4	103	%			10:27:49
1	Al 396.153Radial†	7840.4	7759.9	5013.7	µg/L	5013.7	ppb	10:27:49
1	Ca 317.933Radial†	17816.6	17154.5	4900.6	µg/L	4900.6	ppb	10:27:49
1	Fe 238.204 Radial†	5347.2	5185.1	4917.4	µg/L	4917.4	ppb	10:27:49
1	K 766.490 Radial†	5292.1	4879.5	5700.5	µg/L	5700.5	ppb	10:27:29
1	Mg 279.077 IEC†	1408.3	1367.2	5091.8	µg/L	5091.8	ppb	10:27:49
1	Na 589.592 Radial†	46429.3	44440.4	10018	µg/L	10018	ppb	10:27:29
1	Sr 421.552†	105084.0	101713.0	503.99	µg/L	503.99	ppb	10:27:29
1	Sc 361.383	744861.3	744861.3	101.72	%			10:28:38
1	Y 371.029	585404.0	585404.0	100.86	%			10:28:38
1	Ag 328.068†	78974.0	78459.1	512.93	µg/L	512.93	ppb	10:28:38
1	As 188.979†	762.3	763.1	548.29	µg/L	548.29	ppb	10:28:58
1	B 249.677†	20223.5	20081.9	539.80	µg/L	539.80	ppb	10:28:38
1	Ba 233.527†	64704.8	63593.8	519.64	µg/L	519.64	ppb	10:28:38
1	Be 313.107†	1272167.7	1257961.5	519.53	µg/L	519.53	ppb	10:28:38
1	Cd 226.502†	69271.9	68207.9	522.62	µg/L	522.62	ppb	10:28:38
1	Co 228.616†	13870.2	13836.4	547.06	µg/L	547.06	ppb	10:28:58
1	Cr 267.716†	51486.4	50473.5	527.90	µg/L	527.90	ppb	10:28:38
1	Cu 324.752†	114504.2	109230.4	521.34	µg/L	521.34	ppb	10:28:38
1	Mn 257.610†	283008.3	277870.1	518.23	µg/L	518.23	ppb	10:28:38
1	Mo 202.031†	10225.0	9938.9	539.90	µg/L	539.90	ppb	10:28:58
1	Ni 231.604†	14431.8	14165.2	541.07	µg/L	541.07	ppb	10:28:58
1	P 214.914†	2874.2	2807.2	2698.7	µg/L	2698.7	ppb	10:28:58
1	Pb 220.353†	3205.4	3199.0	544.98	µg/L	544.98	ppb	10:28:58
1	S 181.975 Axial†	750.3	684.1	1078.7	µg/L	1078.7	ppb	10:28:58
1	Sb 206.836†	886.2	857.7	535.47	µg/L	535.47	ppb	10:28:58
1	Se 196.026†	709.5	688.5	543	µg/L	543	ppb	10:28:58
1	SiO2†	46420.0	43881.4	5495.7	µg/L	5495.7	ppb	10:28:38
1	Si 251.611†	83464.8	80718.2	2563.2	µg/L	2563.2	ppb	10:28:38
1	Sn 189.927†	2532.2	2481.7	553.45	µg/L	553.45	ppb	10:28:58
1	Ti 334.940†	215332.1	212713.3	517.49	µg/L	517.49	ppb	10:28:38
1	Tl 190.801†	1208.4	1242.6	530.79	µg/L	530.79	ppb	10:28:58
1	U 367.007†	1805.8	2138.0	504.94	µg/L	504.94	ppb	10:28:38
1	V 292.402†	62531.0	61434.0	526.98	µg/L	526.98	ppb	10:28:38
1	Zn 213.857†	36998.6	36045.0	526.64	µg/L	526.64	ppb	10:28:58
2	Sc RADIAL	15349.0	15349.0	102	%			10:28:11
2	Al 396.153Radial†	7813.4	7781.4	5027.8	µg/L	5027.8	ppb	10:28:11
2	Ca 317.933Radial†	17730.9	17179.6	4907.7	µg/L	4907.7	ppb	10:28:11
2	Fe 238.204 Radial†	5316.0	5187.3	4919.4	µg/L	4919.4	ppb	10:28:11
2	K 766.490 Radial†	5197.0	4818.7	5629.3	µg/L	5629.3	ppb	10:27:51
2	Mg 279.077 IEC†	1396.2	1363.9	5079.7	µg/L	5079.7	ppb	10:28:11
2	Na 589.592 Radial†	46524.1	44817.5	10103	µg/L	10103	ppb	10:27:51
2	Sr 421.552†	104912.0	102187.6	506.34	µg/L	506.34	ppb	10:27:51
2	Sc 361.383	743282.2	743282.2	101.51	%			10:29:01
2	Y 371.029	576459.3	576459.3	99.323	%			10:29:01
2	Ag 328.068†	78612.0	78267.4	511.67	µg/L	511.67	ppb	10:29:01
2	As 188.979†	762.0	764.4	549.20	µg/L	549.20	ppb	10:29:21
2	B 249.677†	20361.2	20259.8	544.37	µg/L	544.37	ppb	10:29:01
2	Ba 233.527†	64227.1	63258.4	516.89	µg/L	516.89	ppb	10:29:01
2	Be 313.107†	1258557.5	1247210.1	515.09	µg/L	515.09	ppb	10:29:01
2	Cd 226.502†	68868.0	67954.6	520.67	µg/L	520.67	ppb	10:29:01
2	Co 228.616†	13749.7	13746.7	543.51	µg/L	543.51	ppb	10:29:21
2	Cr 267.716†	51330.2	50427.2	527.42	µg/L	527.42	ppb	10:29:01
2	Cu 324.752†	114347.0	109314.6	521.74	µg/L	521.74	ppb	10:29:01
2	Mn 257.610†	281773.3	277244.5	517.07	µg/L	517.07	ppb	10:29:01
2	Mo 202.031†	10142.2	9878.7	536.63	µg/L	536.63	ppb	10:29:21
2	Ni 231.604†	14341.8	14106.6	538.83	µg/L	538.83	ppb	10:29:21
2	P 214.914†	2836.3	2775.9	2668.5	µg/L	2668.5	ppb	10:29:21
2	Pb 220.353†	3190.2	3190.7	543.58	µg/L	543.58	ppb	10:29:21

2	S 181.975 Axial†	733.6	669.3	1055.2 µg/L	1055.2 ppb	10:29:21
2	Sb 206.836†	890.8	864.1	539.39 µg/L	539.39 ppb	10:29:21
2	Se 196.026†	702.9	683.5	539 µg/L	539 ppb	10:29:21
2	SiO2†	46172.3	43734.3	5477.3 µg/L	5477.3 ppb	10:29:01
2	Si 251.611†	82881.2	80317.5	2550.4 µg/L	2550.4 ppb	10:29:01
2	Sn 189.927†	2494.2	2449.5	546.29 µg/L	546.29 ppb	10:29:21
2	Ti 334.940†	214398.5	212243.3	516.35 µg/L	516.35 ppb	10:29:01
2	Tl 190.801†	1219.2	1255.8	536.43 µg/L	536.43 ppb	10:29:21
2	U 367.007†	1893.3	2228.0	527.47 µg/L	527.47 ppb	10:29:01
2	V 292.402†	61753.9	60799.0	521.63 µg/L	521.63 ppb	10:29:01
2	Zn 213.857†	36674.9	35803.4	523.09 µg/L	523.09 ppb	10:29:21
3	Sc RADIAL	15303.4	15303.4	102 %		10:28:33
3	Al 396.153Radial†	7796.1	7787.2	5033.9 µg/L	5033.9 ppb	10:28:33
3	Ca 317.933Radial†	17769.2	17268.9	4933.3 µg/L	4933.3 ppb	10:28:33
3	Fe 238.204 Radial†	5330.0	5216.6	4947.1 µg/L	4947.1 ppb	10:28:33
3	K 766.490 Radial†	5137.0	4774.9	5578.1 µg/L	5578.1 ppb	10:28:13
3	Mg 279.077 IEC†	1400.2	1371.9	5109.5 µg/L	5109.5 ppb	10:28:33
3	Na 589.592 Radial†	46209.9	44644.3	10064 µg/L	10064 ppb	10:28:13
3	Sr 421.552†	104390.2	101980.6	505.31 µg/L	505.31 ppb	10:28:13
3	Sc 361.383	751855.6	751855.6	102.68 %		10:29:24
3	Y 371.029	588737.7	588737.7	101.44 %		10:29:24
3	Ag 328.068†	77981.8	76770.5	501.85 µg/L	501.85 ppb	10:29:24
3	As 188.979†	680.9	676.9	486.60 µg/L	486.60 ppb	10:29:44
3	B 249.677†	20172.7	19847.5	534.05 µg/L	534.05 ppb	10:29:24
3	Ba 233.527†	63462.1	61791.8	504.90 µg/L	504.90 ppb	10:29:24
3	Be 313.107†	1234848.5	1209981.2	499.71 µg/L	499.71 ppb	10:29:24
3	Cd 226.502†	68189.2	66519.9	509.65 µg/L	509.65 ppb	10:29:24
3	Co 228.616†	12077.7	11963.8	473.08 µg/L	473.08 ppb	10:29:44
3	Cr 267.716†	49457.7	48026.8	502.32 µg/L	502.32 ppb	10:29:24
3	Cu 324.752†	111911.7	105658.3	504.25 µg/L	504.25 ppb	10:29:24
3	Mn 257.610†	276979.1	269410.0	502.45 µg/L	502.45 ppb	10:29:24
3	Mo 202.031†	8877.4	8532.9	463.55 µg/L	463.55 ppb	10:29:44
3	Ni 231.604†	12530.3	12181.3	465.29 µg/L	465.29 ppb	10:29:44
3	P 214.914†	2544.6	2459.9	2364.5 µg/L	2364.5 ppb	10:29:44
3	Pb 220.353†	2897.1	2869.5	488.86 µg/L	488.86 ppb	10:29:44
3	S 181.975 Axial†	682.0	610.7	962.63 µg/L	962.63 ppb	10:29:44
3	Sb 206.836†	795.7	761.4	474.76 µg/L	474.76 ppb	10:29:44
3	Se 196.026†	642.4	616.6	487 µg/L	487 ppb	10:29:44
3	SiO2†	45733.6	42788.3	5358.5 µg/L	5358.5 ppb	10:29:24
3	Si 251.611†	82134.5	78659.2	2497.8 µg/L	2497.8 ppb	10:29:24
3	Sn 189.927†	2155.8	2092.0	466.78 µg/L	466.78 ppb	10:29:44
3	Ti 334.940†	208656.9	204242.9	496.87 µg/L	496.87 ppb	10:29:24
3	Tl 190.801†	1149.2	1173.9	501.74 µg/L	501.74 ppb	10:29:44
3	U 367.007†	1537.7	1860.4	435.18 µg/L	435.18 ppb	10:29:24
3	V 292.402†	60493.5	58877.7	504.48 µg/L	504.48 ppb	10:29:24
3	Zn 213.857†	32207.6	31040.6	453.44 µg/L	453.44 ppb	10:29:44

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	746666.4	101.97	%	0.623				0.61%
Sc RADIAL	15365.9	102	%	0.5				0.47%
Y 371.029	583533.6	100.54	%	1.094				1.09%
Ag 328.068†	77832.4	508.82	µg/L	6.063	508.82	ppb	6.063	1.19%
QC value within limits for Ag 328.068 Recovery = 101.76%								
Al 396.153Radial†	7776.2	5025.1	µg/L	10.35	5025.1	ppb	10.35	0.21%
QC value within limits for Al 396.153Radial Recovery = 100.50%								
As 188.979†	734.8	528.03	µg/L	35.882	528.03	ppb	35.882	6.80%
QC value within limits for As 188.979 Recovery = 105.61%								
B 249.677†	20063.1	539.41	µg/L	5.174	539.41	ppb	5.174	0.96%
QC value within limits for B 249.677 Recovery = 107.88%								
Ba 233.527†	62881.4	513.81	µg/L	7.835	513.81	ppb	7.835	1.52%
QC value within limits for Ba 233.527 Recovery = 102.76%								
Be 313.107†	1238384.3	511.44	µg/L	10.398	511.44	ppb	10.398	2.03%
QC value within limits for Be 313.107 Recovery = 102.29%								
Ca 317.933Radial†	17201.0	4913.9	µg/L	17.18	4913.9	ppb	17.18	0.35%
QC value within limits for Ca 317.933Radial Recovery = 98.28%								
Cd 226.502†	67560.8	517.65	µg/L	6.995	517.65	ppb	6.995	1.35%
QC value within limits for Cd 226.502 Recovery = 103.53%								
Co 228.616†	13182.3	521.22	µg/L	41.726	521.22	ppb	41.726	8.01%

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   QC value within limits for Co 228.616  Recovery = 104.24%
Cr 267.716†           49642.5      519.21 µg/L        14.633      519.21 ppb         14.633   2.82%
   QC value within limits for Cr 267.716  Recovery = 103.84%
Cu 324.752†          108067.8      515.78 µg/L         9.982      515.78 ppb          9.982   1.94%
   QC value within limits for Cu 324.752  Recovery = 103.16%
Fe 238.204 Radial†      5196.3      4928.0 µg/L         16.62      4928.0 ppb          16.62   0.34%
   QC value within limits for Fe 238.204 Radial  Recovery = 98.56%
K 766.490 Radial†       4824.4      5636.0 µg/L         61.49      5636.0 ppb          61.49   1.09%
   QC value greater than the upper limit for K 766.490 Radial  Recovery = 112.72%
Mg 279.077 IEC†         1367.7      5093.7 µg/L         14.96      5093.7 ppb          14.96   0.29%
   QC value within limits for Mg 279.077 IEC  Recovery = 101.87%
Mn 257.610†           274841.5      512.58 µg/L         8.793      512.58 ppb          8.793   1.72%
   QC value within limits for Mn 257.610  Recovery = 102.52%
Mo 202.031†             9450.2      513.36 µg/L        43.164      513.36 ppb         43.164   8.41%
   QC value within limits for Mo 202.031  Recovery = 102.67%
Na 589.592 Radial†     44634.1       10062 µg/L          42.6       10062 ppb           42.6   0.42%
   QC value within limits for Na 589.592 Radial  Recovery = 100.62%
Ni 231.604†            13484.4      515.06 µg/L        43.118      515.06 ppb         43.118   8.37%
   QC value within limits for Ni 231.604  Recovery = 103.01%
P 214.914†              2681.0      2577.2 µg/L        184.87      2577.2 ppb         184.87   7.17%
   QC value within limits for P 214.914  Recovery = 103.09%
Pb 220.353†             3086.4      525.81 µg/L        32.004      525.81 ppb         32.004   6.09%
   QC value within limits for Pb 220.353  Recovery = 105.16%
S 181.975 Axial†         654.7      1032.2 µg/L         61.36      1032.2 ppb          61.36   5.94%
   QC value within limits for S 181.975 Axial  Recovery = 103.22%
Sb 206.836†              827.7      516.54 µg/L        36.233      516.54 ppb         36.233   7.01%
   QC value within limits for Sb 206.836  Recovery = 103.31%
Se 196.026†              662.9       523 µg/L          31.5         523 ppb           31.5   6.02%
   QC value within limits for Se 196.026  Recovery = 104.59%
SiO2†                  43468.0      5443.8 µg/L         74.47      5443.8 ppb          74.47   1.37%
   QC value within limits for SiO2  Recovery = 101.80%
Si 251.611†            79898.3      2537.1 µg/L         34.66      2537.1 ppb          34.66   1.37%
   QC value within limits for Si 251.611  Recovery = 101.49%
Sn 189.927†             2341.1      522.17 µg/L        48.107      522.17 ppb         48.107   9.21%
   QC value within limits for Sn 189.927  Recovery = 104.43%
Sr 421.552†           101960.4      505.21 µg/L         1.179      505.21 ppb          1.179   0.23%
   QC value within limits for Sr 421.552  Recovery = 101.04%
Ti 334.940†           209733.1      510.24 µg/L        11.592      510.24 ppb         11.592   2.27%
   QC value within limits for Ti 334.940  Recovery = 102.05%
Tl 190.801†             1224.1      522.98 µg/L        18.615      522.98 ppb         18.615   3.56%
   QC value within limits for Tl 190.801  Recovery = 104.60%
U 367.007†              2075.5      489.20 µg/L        48.115      489.20 ppb         48.115   9.84%
   QC value within limits for U 367.007  Recovery = 97.84%
V 292.402†             60370.2      517.70 µg/L        11.753      517.70 ppb         11.753   2.27%
   QC value within limits for V 292.402  Recovery = 103.54%
Zn 213.857†            34296.3      501.06 µg/L        41.273      501.06 ppb         41.273   8.24%
   QC value within limits for Zn 213.857  Recovery = 100.21%
QC Failed.  Continue with analysis.
```

Sequence No.: 14 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/26/2012 10:29:53**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15528.9	15528.9	103	%			10:30:23
1	Al 396.153Radial†	-108.3	16.4	10.587	µg/L	10.587	ppb	10:30:23
1	Ca 317.933Radial†	208.4	-1.5	-0.4240	µg/L	-0.4240	ppb	10:30:43
1	Fe 238.204 Radial†	27.9	2.7	2.5600	µg/L	2.5600	ppb	10:30:43
1	K 766.490 Radial†	581.7	287.4	336.09	µg/L	336.09	ppb	10:30:23
1	Mg 279.077 IEC†	8.6	3.4	12.824	µg/L	12.824	ppb	10:30:43
1	Na 589.592 Radial†	1104.2	276.5	62.328	µg/L	62.328	ppb	10:30:23
1	Sr 421.552†	620.5	-64.2	-0.3183	µg/L	-0.3183	ppb	10:30:23
1	Sc 361.383	753188.6	753188.6	102.86	%			10:31:31
1	Y 371.029	600570.5	600570.5	103.48	%			10:31:31
1	Ag 328.068†	-973.3	-123.9	-0.8076	µg/L	-0.8076	ppb	10:31:31
1	As 188.979†	-18.4	-4.2	-2.9565	µg/L	-2.9565	ppb	10:31:51
1	B 249.677†	-120.6	83.6	2.1591	µg/L	2.1591	ppb	10:31:51
1	Ba 233.527†	40.2	23.7	0.1940	µg/L	0.1940	ppb	10:31:51
1	Be 313.107†	-7228.5	307.0	0.1268	µg/L	0.1268	ppb	10:31:31
1	Cd 226.502†	-81.2	29.9	0.2302	µg/L	0.2302	ppb	10:31:51
1	Co 228.616†	-200.4	6.2	0.2466	µg/L	0.2466	ppb	10:31:51
1	Cr 267.716†	138.7	-6.3	-0.0660	µg/L	-0.0660	ppb	10:31:51
1	Cu 324.752†	3515.3	82.6	0.3929	µg/L	0.3929	ppb	10:31:31
1	Mn 257.610†	473.9	114.5	0.2134	µg/L	0.2134	ppb	10:31:51
1	Mo 202.031†	134.6	17.9	0.9719	µg/L	0.9719	ppb	10:31:51
1	Ni 231.604†	38.6	15.2	0.5821	µg/L	0.5821	ppb	10:31:51
1	P 214.914†	25.7	6.7	6.4557	µg/L	6.4557	ppb	10:31:51
1	Pb 220.353†	-44.6	4.6	0.7834	µg/L	0.7834	ppb	10:31:51
1	S 181.975 Axial†	56.9	1.8	2.9120	µg/L	2.9120	ppb	10:31:51
1	Sb 206.836†	5.0	-8.6	-5.3282	µg/L	-5.3282	ppb	10:31:51
1	Se 196.026†	15.8	6.4	4.97	µg/L	4.97	ppb	10:31:51
1	SiO2†	2024.7	215.7	26.958	µg/L	26.958	ppb	10:31:51
1	Si 251.611†	1703.1	322.4	10.237	µg/L	10.237	ppb	10:31:51
1	Sn 189.927†	21.5	13.3	2.9541	µg/L	2.9541	ppb	10:31:51
1	Ti 334.940†	-1096.6	-38.9	-0.0937	µg/L	-0.0937	ppb	10:31:31
1	Tl 190.801†	-47.5	8.5	3.6163	µg/L	3.6163	ppb	10:31:51
1	U 367.007†	-378.2	-4.9	-1.2352	µg/L	-1.2352	ppb	10:31:31
1	V 292.402†	83.3	42.7	0.3672	µg/L	0.3672	ppb	10:31:31
1	Zn 213.857†	439.3	99.9	1.4668	µg/L	1.4668	ppb	10:31:51
2	Sc RADIAL	15407.9	15407.9	102	%			10:30:45
2	Al 396.153Radial†	-148.2	-23.4	-15.198	µg/L	-15.198	ppb	10:30:45
2	Ca 317.933Radial†	214.6	6.2	1.7697	µg/L	1.7697	ppb	10:31:05
2	Fe 238.204 Radial†	30.1	5.0	4.7425	µg/L	4.7425	ppb	10:31:05
2	K 766.490 Radial†	547.6	258.5	302.28	µg/L	302.28	ppb	10:30:45
2	Mg 279.077 IEC†	8.8	3.6	13.585	µg/L	13.585	ppb	10:31:05
2	Na 589.592 Radial†	933.2	117.9	26.573	µg/L	26.573	ppb	10:30:45
2	Sr 421.552†	777.1	93.4	0.4629	µg/L	0.4629	ppb	10:30:45
2	Sc 361.383	746504.4	746504.4	101.95	%			10:31:53
2	Y 371.029	589861.4	589861.4	101.63	%			10:31:53
2	Ag 328.068†	-766.4	70.5	0.4614	µg/L	0.4614	ppb	10:31:53
2	As 188.979†	-9.6	4.3	3.0335	µg/L	3.0335	ppb	10:32:13
2	B 249.677†	-129.1	74.2	1.9249	µg/L	1.9249	ppb	10:32:13
2	Ba 233.527†	38.4	22.3	0.1825	µg/L	0.1825	ppb	10:32:13
2	Be 313.107†	-7510.5	-32.5	-0.0135	µg/L	-0.0135	ppb	10:31:53
2	Cd 226.502†	-35.8	73.7	0.5648	µg/L	0.5648	ppb	10:32:13
2	Co 228.616†	-201.0	3.9	0.1535	µg/L	0.1535	ppb	10:32:13
2	Cr 267.716†	153.7	9.6	0.1006	µg/L	0.1006	ppb	10:32:13
2	Cu 324.752†	3462.8	61.6	0.2932	µg/L	0.2932	ppb	10:31:53
2	Mn 257.610†	472.8	117.6	0.2191	µg/L	0.2191	ppb	10:32:13
2	Mo 202.031†	130.5	15.1	0.8215	µg/L	0.8215	ppb	10:32:13
2	Ni 231.604†	18.3	-4.3	-0.1648	µg/L	-0.1648	ppb	10:32:13
2	P 214.914†	23.9	5.2	4.9682	µg/L	4.9682	ppb	10:32:13
2	Pb 220.353†	-31.0	17.5	2.9682	µg/L	2.9682	ppb	10:32:13

2	S 181.975 Axial†	44.6	-9.7	-15.318 µg/L	-15.318 ppb		10:32:13
2	Sb 206.836†	20.3	6.4	4.0133 µg/L	4.0133 ppb		10:32:13
2	Se 196.026†	16.2	6.9	5.38 µg/L	5.38 ppb		10:32:13
2	SiO2†	2012.5	221.4	27.673 µg/L	27.673 ppb		10:32:13
2	Si 251.611†	1666.0	300.8	9.5515 µg/L	9.5515 ppb		10:32:13
2	Sn 189.927†	15.5	7.6	1.6922 µg/L	1.6922 ppb		10:32:13
2	Ti 334.940†	-935.2	109.9	0.2679 µg/L	0.2679 ppb		10:31:53
2	Tl 190.801†	-49.0	6.6	2.8179 µg/L	2.8179 ppb		10:32:13
2	U 367.007†	-434.5	-63.4	-15.915 µg/L	-15.915 ppb		10:31:53
2	V 292.402†	63.0	23.5	0.1773 µg/L	0.1773 ppb		10:31:53
2	Zn 213.857†	433.1	97.7	1.4394 µg/L	1.4394 ppb		10:32:13
3	Sc RADIAL	15153.4	15153.4	101 %			10:31:07
3	Al 396.153Radial†	-64.8	57.0	36.941 µg/L	36.941 ppb		10:31:07
3	Ca 317.933Radial†	219.5	14.5	4.1563 µg/L	4.1563 ppb		10:31:27
3	Fe 238.204 Radial†	30.5	5.9	5.6271 µg/L	5.6271 ppb		10:31:27
3	K 766.490 Radial†	495.8	216.1	252.70 µg/L	252.70 ppb		10:31:07
3	Mg 279.077 IEC†	2.0	-2.9	-10.938 µg/L	-10.938 ppb		10:31:27
3	Na 589.592 Radial†	1220.7	418.6	94.366 µg/L	94.366 ppb		10:31:07
3	Sr 421.552†	778.1	107.1	0.5309 µg/L	0.5309 ppb		10:31:07
3	Sc 361.383	748080.7	748080.7	102.16 %			10:32:15
3	Y 371.029	592802.8	592802.8	102.14 %			10:32:15
3	Ag 328.068†	-925.7	-83.8	-0.5458 µg/L	-0.5458 ppb		10:32:15
3	As 188.979†	-12.2	1.7	1.2292 µg/L	1.2292 ppb		10:32:35
3	B 249.677†	-138.4	65.3	1.6995 µg/L	1.6995 ppb		10:32:35
3	Ba 233.527†	47.5	31.2	0.2542 µg/L	0.2542 ppb		10:32:35
3	Be 313.107†	-7160.0	326.1	0.1347 µg/L	0.1347 ppb		10:32:15
3	Cd 226.502†	-46.6	63.2	0.4848 µg/L	0.4848 ppb		10:32:35
3	Co 228.616†	-176.3	28.5	1.1251 µg/L	1.1251 ppb		10:32:35
3	Cr 267.716†	187.5	42.4	0.4433 µg/L	0.4433 ppb		10:32:35
3	Cu 324.752†	3409.0	1.8	0.0113 µg/L	0.0113 ppb		10:32:15
3	Mn 257.610†	476.4	120.2	0.2243 µg/L	0.2243 ppb		10:32:35
3	Mo 202.031†	124.2	8.6	0.4680 µg/L	0.4680 ppb		10:32:35
3	Ni 231.604†	34.2	11.2	0.4283 µg/L	0.4283 ppb		10:32:35
3	P 214.914†	16.2	-2.4	-2.3310 µg/L	-2.3310 ppb		10:32:35
3	Pb 220.353†	-47.4	1.5	0.2652 µg/L	0.2652 ppb		10:32:35
3	S 181.975 Axial†	51.6	-2.9	-4.6401 µg/L	-4.6401 ppb		10:32:35
3	Sb 206.836†	22.1	8.2	5.0804 µg/L	5.0804 ppb		10:32:35
3	Se 196.026†	9.5	0.3	0.217 µg/L	0.217 ppb		10:32:35
3	SiO2†	2001.2	206.2	25.773 µg/L	25.773 ppb		10:32:35
3	Si 251.611†	1660.2	291.7	9.2627 µg/L	9.2627 ppb		10:32:35
3	Sn 189.927†	8.6	0.8	0.1842 µg/L	0.1842 ppb		10:32:35
3	Ti 334.940†	-970.9	76.9	0.1869 µg/L	0.1869 ppb		10:32:15
3	Tl 190.801†	-52.8	3.0	1.2928 µg/L	1.2928 ppb		10:32:35
3	U 367.007†	-344.5	25.6	6.3731 µg/L	6.3731 ppb		10:32:15
3	V 292.402†	12.0	-26.5	-0.2059 µg/L	-0.2059 ppb		10:32:15
3	Zn 213.857†	411.2	75.4	1.1064 µg/L	1.1064 ppb		10:32:35

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	749257.9	102.32	%	0.477				0.47%
Sc RADIAL	15363.4	102	%	1.3				1.25%
Y 371.029	594411.6	102.42	%	0.953				0.93%
Ag 328.068†	-45.7	-0.2974	µg/L	0.66998	-0.2974	ppb	0.66998	225.32%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	16.7	10.777	µg/L	26.0704	10.777	ppb	26.0704	241.92%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	0.6	0.4354	µg/L	3.07286	0.4354	ppb	3.07286	705.76%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	74.4	1.9278	µg/L	0.22980	1.9278	ppb	0.22980	11.92%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	25.7	0.2102	µg/L	0.03850	0.2102	ppb	0.03850	18.31%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	200.2	0.0827	µg/L	0.08339	0.0827	ppb	0.08339	100.85%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	6.4	1.8340	µg/L	2.29083	1.8340	ppb	2.29083	124.91%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	55.6	0.4266	µg/L	0.17477	0.4266	ppb	0.17477	40.97%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	12.9	0.5084	µg/L	0.53608	0.5084	ppb	0.53608	105.44%

```
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              15.2      0.1593 µg/L       0.25968      0.1593 ppb        0.25968 163.01%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              48.7      0.2325 µg/L       0.19791      0.2325 ppb        0.19791  85.13%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        4.5      4.3098 µg/L       1.57865      4.3098 ppb        1.57865  36.63%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†       254.0      297.02 µg/L        41.945      297.02 ppb         41.945  14.12%
   QC value greater than the upper limit for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           1.4      5.1571 µg/L      13.94366      5.1571 ppb       13.94366 270.38%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†             117.4      0.2190 µg/L       0.00546      0.2190 ppb        0.00546   2.49%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              13.9      0.7538 µg/L       0.25869      0.7538 ppb        0.25869  34.32%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      271.0      61.089 µg/L       33.9137      61.089 ppb        33.9137  55.52%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               7.4      0.2819 µg/L       0.39440      0.2819 ppb        0.39440 139.93%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                3.1      3.0309 µg/L       4.70281      3.0309 ppb        4.70281 155.16%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               7.9      1.3389 µg/L       1.43460      1.3389 ppb        1.43460 107.14%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -3.6     -5.6820 µg/L       9.15951     -5.6820 ppb        9.15951 161.20%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               2.0      1.2551 µg/L       5.72630      1.2551 ppb        5.72630 456.23%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               4.5       3.53 µg/L         2.873        3.53 ppb          2.873  81.49%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   214.5      26.801 µg/L        0.9596      26.801 ppb         0.9596   3.58%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             305.0      9.6837 µg/L       0.50026      9.6837 ppb        0.50026   5.17%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               7.2      1.6102 µg/L       1.38675      1.6102 ppb        1.38675  86.13%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              45.4      0.2252 µg/L       0.47187      0.2252 ppb        0.47187 209.57%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              49.3      0.1204 µg/L       0.18976      0.1204 ppb        0.18976 157.64%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               6.0      2.5757 µg/L       1.18054      2.5757 ppb        1.18054  45.83%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†              -14.2     -3.5925 µg/L      11.32968     -3.5925 ppb       11.32968 315.37%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               13.3      0.1129 µg/L       0.29192      0.1129 ppb        0.29192 258.64%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              91.0      1.3375 µg/L       0.20066      1.3375 ppb        0.20066  15.00%
   QC value within limits for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
```

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Analysis Begun

Start Time: 6/26/2012 10:42:22 **Plasma On Time: 6/25/2012 09:11:19**
Logged In Analyst: 7300Test **Technique: ICP Continuous**
Spectrometer Model: Optima 7300 DV, S/N 077C0052701Autosampler Model: AS-93plus

Sample Information File: C:\pe\Administrator\Sample Information\062612A.sif
Batch ID:
Results Data Set: 062612
Results Library: C:\pe\Administrator\Results\Results.mdb

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Method Loaded
Method Name: Gen Eng fast_new SiU **Method Last Saved: 6/26/2012 10:00:20**
IEC File: 042412.iec **MSF File:**
Method Description:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Al 396.153Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
B 249.677	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Be 313.107	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ca 317.933Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Cd 226.502	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cr 267.716	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Fe 238.204 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
K 766.490 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mg 279.077 IEC	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Mn 257.610	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Na 589.592 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Ni 231.604	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
P 214.914	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
S 181.975 Axial	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sc 361.383	Lin Thru 0	Peak Area	Axial	n/a	n/a
Sc RADIAL	Lin, Calc Int	Peak Area	Radial	n/a	n/a
Se 196.026	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
SiO2	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Si 251.611	Lin Thru 0	Peak Area	Axial	Sc 361.383	No
Sn 189.927	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Ti 334.940	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
U 367.007	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Y 371.029	Lin, Calc Int	Peak Area	Axial	n/a	n/a
Zn 213.857	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes

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Sequence No.: 1 **Autosampler Location: 401**
Sample ID: 1202683375|1223291|1 **Date Collected: 6/26/2012 10:42:24**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202683375|1223291|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15734.9	15734.9	105	%			10:42:56
1	Al 396.153Radial†	-67.7	56.7	36.733	µg/L	36.733	ppb	10:42:56
1	Ca 317.933Radial†	230.7	17.2	4.9227	µg/L	4.9227	ppb	10:43:16
1	Fe 238.204 Radial†	23.1	-2.2	-2.1256	µg/L	-2.1256	ppb	10:43:16

1	K 766.490 Radial†	503.6	205.3	240.09	µg/L	240.09 ppb	10:42:56
1	Mg 279.077 IEC†	8.8	3.5	13.072	µg/L	13.072 ppb	10:43:16
1	Na 589.592 Radial†	976.8	140.6	31.693	µg/L	31.693 ppb	10:42:56
1	Sr 421.552†	800.0	99.5	0.4931	µg/L	0.4931 ppb	10:42:56
1	Sc 361.383	746129.7	746129.7	101.90	%		10:44:04
1	Y 371.029	588909.2	588909.2	101.47	%		10:44:04
1	Ag 328.068†	-792.5	44.6	0.2899	µg/L	0.2899 ppb	10:44:04
1	As 188.979†	-18.4	-4.3	-3.0726	µg/L	-3.0726 ppb	10:44:24
1	B 249.677†	-214.1	-9.2	-0.2466	µg/L	-0.2466 ppb	10:44:24
1	Ba 233.527†	32.2	16.3	0.1321	µg/L	0.1321 ppb	10:44:24
1	Be 313.107†	-7671.4	-194.1	-0.0801	µg/L	-0.0801 ppb	10:44:04
1	Cd 226.502†	-90.4	20.2	0.1562	µg/L	0.1562 ppb	10:44:24
1	Co 228.616†	-200.7	4.1	0.1617	µg/L	0.1617 ppb	10:44:24
1	Cr 267.716†	104.0	-39.1	-0.4089	µg/L	-0.4089 ppb	10:44:24
1	Cu 324.752†	3595.7	193.8	0.9227	µg/L	0.9227 ppb	10:44:04
1	Mn 257.610†	410.5	56.7	0.1055	µg/L	0.1055 ppb	10:44:24
1	Mo 202.031†	109.9	-5.1	-0.2776	µg/L	-0.2776 ppb	10:44:24
1	Ni 231.604†	39.2	16.2	0.6192	µg/L	0.6192 ppb	10:44:24
1	P 214.914†	20.6	1.9	1.8989	µg/L	1.8989 ppb	10:44:24
1	Pb 220.353†	-48.5	0.3	0.0538	µg/L	0.0538 ppb	10:44:24
1	S 181.975 Axial†	48.7	-5.6	-8.9013	µg/L	-8.9013 ppb	10:44:24
1	Sb 206.836†	19.5	5.7	3.5206	µg/L	3.5206 ppb	10:44:24
1	Se 196.026†	10.6	1.4	1.10	µg/L	1.10 ppb	10:44:24
1	SiO2†	1914.4	126.1	15.748	µg/L	15.748 ppb	10:44:24
1	Si 251.611†	1493.2	132.1	4.1945	µg/L	4.1945 ppb	10:44:24
1	Sn 189.927†	10.2	2.4	0.5256	µg/L	0.5256 ppb	10:44:24
1	Ti 334.940†	-1202.2	-152.6	-0.3707	µg/L	-0.3707 ppb	10:44:04
1	Tl 190.801†	-52.9	2.7	1.1659	µg/L	1.1659 ppb	10:44:24
1	U 367.007†	-361.5	8.0	2.0154	µg/L	2.0154 ppb	10:44:04
1	V 292.402†	-36.9	-74.4	-0.6295	µg/L	-0.6295 ppb	10:44:04
1	Zn 213.857†	380.7	46.5	0.6792	µg/L	0.6792 ppb	10:44:24
2	Sc RADIAL	15588.7	15588.7	104	%		10:43:18
2	Al 396.153Radial†	-75.4	48.6	31.520	µg/L	31.520 ppb	10:43:18
2	Ca 317.933Radial†	244.6	32.7	9.3547	µg/L	9.3547 ppb	10:43:38
2	Fe 238.204 Radial†	22.4	-2.7	-2.5892	µg/L	-2.5892 ppb	10:43:38
2	K 766.490 Radial†	428.3	137.2	160.44	µg/L	160.44 ppb	10:43:18
2	Mg 279.077 IEC†	7.8	2.6	9.8312	µg/L	9.8312 ppb	10:43:38
2	Na 589.592 Radial†	1059.6	229.3	51.682	µg/L	51.682 ppb	10:43:18
2	Sr 421.552†	797.1	103.9	0.5148	µg/L	0.5148 ppb	10:43:18
2	Sc 361.383	769548.1	769548.1	105.09	%		10:44:26
2	Y 371.029	611102.7	611102.7	105.29	%		10:44:26
2	Ag 328.068†	-954.8	-86.2	-0.5640	µg/L	-0.5640 ppb	10:44:26
2	As 188.979†	-12.5	1.8	1.2636	µg/L	1.2636 ppb	10:44:46
2	B 249.677†	-184.4	25.4	0.6302	µg/L	0.6302 ppb	10:44:46
2	Ba 233.527†	16.5	0.4	0.0034	µg/L	0.0034 ppb	10:44:46
2	Be 313.107†	-7339.0	351.2	0.1453	µg/L	0.1453 ppb	10:44:26
2	Cd 226.502†	-104.6	9.3	0.0728	µg/L	0.0728 ppb	10:44:46
2	Co 228.616†	-181.7	28.2	1.1136	µg/L	1.1136 ppb	10:44:46
2	Cr 267.716†	130.7	-16.8	-0.1760	µg/L	-0.1760 ppb	10:44:46
2	Cu 324.752†	3482.6	-21.2	-0.1010	µg/L	-0.1010 ppb	10:44:26
2	Mn 257.610†	418.9	52.4	0.0975	µg/L	0.0975 ppb	10:44:46
2	Mo 202.031†	115.1	-3.4	-0.1839	µg/L	-0.1839 ppb	10:44:46
2	Ni 231.604†	23.1	-0.3	-0.0119	µg/L	-0.0119 ppb	10:44:46
2	P 214.914†	6.3	-12.3	-11.865	µg/L	-11.865 ppb	10:44:46
2	Pb 220.353†	-55.2	-4.6	-0.7827	µg/L	-0.7827 ppb	10:44:46
2	S 181.975 Axial†	49.4	-6.4	-10.149	µg/L	-10.149 ppb	10:44:46
2	Sb 206.836†	10.1	-3.8	-2.3680	µg/L	-2.3680 ppb	10:44:46
2	Se 196.026†	17.2	7.3	5.75	µg/L	5.75 ppb	10:44:46
2	SiO2†	1959.9	112.3	14.029	µg/L	14.029 ppb	10:44:46
2	Si 251.611†	1487.9	82.4	2.6154	µg/L	2.6154 ppb	10:44:46
2	Sn 189.927†	6.0	-1.9	-0.4312	µg/L	-0.4312 ppb	10:44:46
2	Ti 334.940†	-1339.2	-247.1	-0.6004	µg/L	-0.6004 ppb	10:44:26
2	Tl 190.801†	-50.4	6.7	2.8472	µg/L	2.8472 ppb	10:44:46
2	U 367.007†	-280.6	95.8	24.025	µg/L	24.025 ppb	10:44:26
2	V 292.402†	42.9	2.6	0.0636	µg/L	0.0636 ppb	10:44:26
2	Zn 213.857†	383.9	38.2	0.5620	µg/L	0.5620 ppb	10:44:46
3	Sc RADIAL	15576.9	15576.9	104	%		10:43:40
3	Al 396.153Radial†	-87.5	36.8	23.877	µg/L	23.877 ppb	10:43:40
3	Ca 317.933Radial†	245.1	33.4	9.5349	µg/L	9.5349 ppb	10:44:00
3	Fe 238.204 Radial†	28.5	3.2	3.0020	µg/L	3.0020 ppb	10:44:00
3	K 766.490 Radial†	393.8	104.1	121.79	µg/L	121.79 ppb	10:43:40

3	Mg 279.077 IEC†	10.6	5.3	19.757 µg/L	19.757 ppb	10:44:00
3	Na 589.592 Radial†	1053.5	224.2	50.541 µg/L	50.541 ppb	10:43:40
3	Sr 421.552†	819.7	126.3	0.6259 µg/L	0.6259 ppb	10:43:40
3	Sc 361.383	764676.5	764676.5	104.43 %		10:44:48
3	Y 371.029	603937.3	603937.3	104.06 %		10:44:48
3	Ag 328.068†	-1058.2	-191.0	-1.2472 µg/L	-1.2472 ppb	10:44:48
3	As 188.979†	-8.2	5.9	4.1756 µg/L	4.1756 ppb	10:45:08
3	B 249.677†	-174.6	33.6	0.8683 µg/L	0.8683 ppb	10:45:08
3	Ba 233.527†	18.3	2.2	0.0167 µg/L	0.0167 ppb	10:45:08
3	Be 313.107†	-7228.1	413.0	0.1707 µg/L	0.1707 ppb	10:44:48
3	Cd 226.502†	-84.1	28.3	0.2175 µg/L	0.2175 ppb	10:45:08
3	Co 228.616†	-196.4	13.0	0.5126 µg/L	0.5126 ppb	10:45:08
3	Cr 267.716†	151.6	4.1	0.0419 µg/L	0.0419 ppb	10:45:08
3	Cu 324.752†	3655.8	165.8	0.7894 µg/L	0.7894 ppb	10:44:48
3	Mn 257.610†	385.3	22.8	0.0422 µg/L	0.0422 ppb	10:45:08
3	Mo 202.031†	102.3	-15.0	-0.8134 µg/L	-0.8134 ppb	10:45:08
3	Ni 231.604†	24.5	1.2	0.0448 µg/L	0.0448 ppb	10:45:08
3	P 214.914†	27.2	7.7	7.4793 µg/L	7.4793 ppb	10:45:08
3	Pb 220.353†	-42.7	7.0	1.1926 µg/L	1.1926 ppb	10:45:08
3	S 181.975 Axial†	53.5	-2.3	-3.6139 µg/L	-3.6139 ppb	10:45:08
3	Sb 206.836†	12.2	-1.7	-1.0944 µg/L	-1.0944 ppb	10:45:08
3	Se 196.026†	9.7	0.3	0.201 µg/L	0.201 ppb	10:45:08
3	SiO2†	1935.0	100.3	12.536 µg/L	12.536 ppb	10:45:08
3	Si 251.611†	1507.7	110.3	3.5040 µg/L	3.5040 ppb	10:45:08
3	Sn 189.927†	14.3	6.0	1.3362 µg/L	1.3362 ppb	10:45:08
3	Ti 334.940†	-1188.6	-110.9	-0.2695 µg/L	-0.2695 ppb	10:44:48
3	Tl 190.801†	-55.5	1.5	0.6572 µg/L	0.6572 ppb	10:45:08
3	U 367.007†	-388.2	-8.9	-2.2520 µg/L	-2.2520 ppb	10:44:48
3	V 292.402†	-60.1	-95.8	-0.8200 µg/L	-0.8200 ppb	10:44:48
3	Zn 213.857†	383.4	40.0	0.5880 µg/L	0.5880 ppb	10:45:08

Mean Data: 1202683375|1223291|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	760118.1	103.81	%	1.688				1.63%
Sc RADIAL	15633.5	104	%	0.6				0.56%
Y 371.029	601316.4	103.61	%	1.952				1.88%
Ag 328.068†	-77.6	-0.5071	µg/L	0.77012	-0.5071	ppb	0.77012	151.88%
Al 396.153Radial†	47.4	30.710	µg/L	6.4663	30.710	ppb	6.4663	21.06%
As 188.979†	1.1	0.7889	µg/L	3.64734	0.7889	ppb	3.64734	462.36%
B 249.677†	16.6	0.4173	µg/L	0.58715	0.4173	ppb	0.58715	140.70%
Ba 233.527†	6.3	0.0507	µg/L	0.07080	0.0507	ppb	0.07080	139.51%
Be 313.107†	190.0	0.0786	µg/L	0.13807	0.0786	ppb	0.13807	175.58%
Ca 317.933Radial†	27.8	7.9374	µg/L	2.61236	7.9374	ppb	2.61236	32.91%
Cd 226.502†	19.2	0.1488	µg/L	0.07264	0.1488	ppb	0.07264	48.81%
Co 228.616†	15.1	0.5959	µg/L	0.48140	0.5959	ppb	0.48140	80.78%
Cr 267.716†	-17.3	-0.1810	µg/L	0.22544	-0.1810	ppb	0.22544	124.57%
Cu 324.752†	112.8	0.5370	µg/L	0.55655	0.5370	ppb	0.55655	103.63%
Fe 238.204 Radial†	-0.6	-0.5709	µg/L	3.10294	-0.5709	ppb	3.10294	543.50%
K 766.490 Radial†	148.9	174.10	µg/L	60.324	174.10	ppb	60.324	34.65%
Mg 279.077 IEC†	3.8	14.220	µg/L	5.0614	14.220	ppb	5.0614	35.59%
Mn 257.610†	43.9	0.0817	µg/L	0.03448	0.0817	ppb	0.03448	42.19%
Mo 202.031†	-7.8	-0.4250	µg/L	0.33960	-0.4250	ppb	0.33960	79.91%
Na 589.592 Radial†	198.0	44.639	µg/L	11.2259	44.639	ppb	11.2259	25.15%
Ni 231.604†	5.7	0.2174	µg/L	0.34915	0.2174	ppb	0.34915	160.63%
P 214.914†	-0.9	-0.8288	µg/L	9.95621	-0.8288	ppb	9.95621	>999.9%
Pb 220.353†	0.9	0.1546	µg/L	0.99149	0.1546	ppb	0.99149	641.42%
S 181.975 Axial†	-4.8	-7.5546	µg/L	3.46929	-7.5546	ppb	3.46929	45.92%
Sb 206.836†	0.0	0.0194	µg/L	3.09824	0.0194	ppb	3.09824	>999.9%
Se 196.026†	3.0	2.35	µg/L	2.978	2.35	ppb	2.978	126.71%
SiO2†	112.9	14.104	µg/L	1.6076	14.104	ppb	1.6076	11.40%
Si 251.611†	108.3	3.4380	µg/L	0.79159	3.4380	ppb	0.79159	23.02%
Sn 189.927†	2.2	0.4769	µg/L	0.88469	0.4769	ppb	0.88469	185.51%
Sr 421.552†	109.9	0.5446	µg/L	0.07124	0.5446	ppb	0.07124	13.08%
Ti 334.940†	-170.2	-0.4135	µg/L	0.16953	-0.4135	ppb	0.16953	41.00%
Tl 190.801†	3.7	1.5568	µg/L	1.14615	1.5568	ppb	1.14615	73.62%
U 367.007†	31.6	7.9296	µg/L	14.10168	7.9296	ppb	14.10168	177.84%
V 292.402†	-55.9	-0.4619	µg/L	0.46501	-0.4619	ppb	0.46501	100.66%
Zn 213.857†	41.6	0.6097	µg/L	0.06158	0.6097	ppb	0.06158	10.10%

Sequence No.: 2 **Autosampler Location: 402**
Sample ID: 1202683376|1223291|1 **Date Collected: 6/26/2012 10:45:16**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202683376|1223291|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15548.3	15548.3	103	%			10:46:06
1	Al 396.153Radial†	8046.2	7908.5	5110.1	µg/L	5110.1	ppb	10:46:06
1	Ca 317.933Radial†	18626.5	17823.5	5091.7	µg/L	5091.7	ppb	10:46:06
1	Fe 238.204 Radial†	5476.6	5275.9	5003.4	µg/L	5003.4	ppb	10:46:06
1	K 766.490 Radial†	4858.0	4425.3	5169.2	µg/L	5169.2	ppb	10:45:46
1	Mg 279.077 IEC†	1435.8	1384.6	5156.8	µg/L	5156.8	ppb	10:46:06
1	Na 589.592 Radial†	24601.7	23016.1	5188.5	µg/L	5188.5	ppb	10:45:46
1	Sr 421.552†	107999.2	103857.0	514.61	µg/L	514.61	ppb	10:45:46
1	Sc 361.383	754029.4	754029.4	102.97	%			10:46:55
1	Y 371.029	589514.7	589514.7	101.57	%			10:46:55
1	Ag 328.068†	81228.7	79704.7	521.06	µg/L	521.06	ppb	10:46:55
1	As 188.979†	773.5	764.8	549.55	µg/L	549.55	ppb	10:47:15
1	B 249.677†	20860.0	20458.3	549.85	µg/L	549.85	ppb	10:46:55
1	Ba 233.527†	67231.3	65274.0	533.37	µg/L	533.37	ppb	10:46:55
1	Be 313.107†	1316682.0	1285983.8	531.10	µg/L	531.10	ppb	10:46:55
1	Cd 226.502†	71982.1	70011.8	536.44	µg/L	536.44	ppb	10:46:55
1	Co 228.616†	14373.6	14159.5	559.84	µg/L	559.84	ppb	10:47:15
1	Cr 267.716†	52782.4	51116.6	534.64	µg/L	534.64	ppb	10:46:55
1	Cu 324.752†	119287.0	112506.4	536.97	µg/L	536.97	ppb	10:46:55
1	Mn 257.610†	293195.5	284380.2	530.37	µg/L	530.37	ppb	10:46:55
1	Mo 202.031†	10323.0	9911.8	538.43	µg/L	538.43	ppb	10:47:15
1	Ni 231.604†	14708.7	14261.6	544.75	µg/L	544.75	ppb	10:47:15
1	P 214.914†	626.1	589.7	558.78	µg/L	558.78	ppb	10:47:15
1	Pb 220.353†	3293.9	3246.6	553.09	µg/L	553.09	ppb	10:47:15
1	S 181.975 Axial†	3486.6	3332.4	5251.5	µg/L	5251.5	ppb	10:47:15
1	Sb 206.836†	900.6	861.1	537.48	µg/L	537.48	ppb	10:47:15
1	Se 196.026†	701.8	672.5	531	µg/L	531	ppb	10:47:15
1	SiO2†	93408.8	88958.0	11129	µg/L	11129	ppb	10:46:55
1	Si 251.611†	168919.3	162706.6	5166.7	µg/L	5166.7	ppb	10:46:55
1	Sn 189.927†	2543.7	2462.6	549.24	µg/L	549.24	ppb	10:47:15
1	Ti 334.940†	222028.5	216642.4	527.05	µg/L	527.05	ppb	10:46:55
1	Tl 190.801†	1244.2	1262.9	539.43	µg/L	539.43	ppb	10:47:15
1	U 367.007†	1828.1	2138.1	504.42	µg/L	504.42	ppb	10:46:55
1	V 292.402†	65082.5	63164.4	541.62	µg/L	541.62	ppb	10:46:55
1	Zn 213.857†	37243.0	35840.1	523.58	µg/L	523.58	ppb	10:47:15
2	Sc RADIAL	15511.2	15511.2	103	%			10:46:29
2	Al 396.153Radial†	8075.4	7955.5	5140.8	µg/L	5140.8	ppb	10:46:29
2	Ca 317.933Radial†	18744.8	17981.3	5136.8	µg/L	5136.8	ppb	10:46:29
2	Fe 238.204 Radial†	5459.4	5271.9	4999.6	µg/L	4999.6	ppb	10:46:29
2	K 766.490 Radial†	5086.1	4657.8	5441.2	µg/L	5441.2	ppb	10:46:08
2	Mg 279.077 IEC†	1447.9	1399.7	5213.1	µg/L	5213.1	ppb	10:46:29
2	Na 589.592 Radial†	24500.0	22974.4	5179.1	µg/L	5179.1	ppb	10:46:08
2	Sr 421.552†	107732.8	103848.5	514.56	µg/L	514.56	ppb	10:46:08
2	Sc 361.383	757584.3	757584.3	103.46	%			10:47:18
2	Y 371.029	590008.1	590008.1	101.66	%			10:47:18
2	Ag 328.068†	80518.7	78648.2	514.16	µg/L	514.16	ppb	10:47:18
2	As 188.979†	768.6	756.6	543.64	µg/L	543.64	ppb	10:47:38
2	B 249.677†	20780.2	20286.1	545.43	µg/L	545.43	ppb	10:47:18
2	Ba 233.527†	67117.7	64857.8	529.96	µg/L	529.96	ppb	10:47:18
2	Be 313.107†	1304158.7	1267879.3	523.62	µg/L	523.62	ppb	10:47:18
2	Cd 226.502†	71732.3	69442.3	532.08	µg/L	532.08	ppb	10:47:18
2	Co 228.616†	14240.8	13965.6	552.18	µg/L	552.18	ppb	10:47:38
2	Cr 267.716†	52457.9	50562.4	528.84	µg/L	528.84	ppb	10:47:18
2	Cu 324.752†	119165.9	111845.7	533.81	µg/L	533.81	ppb	10:47:18
2	Mn 257.610†	292934.6	282792.1	527.41	µg/L	527.41	ppb	10:47:18
2	Mo 202.031†	10234.9	9779.7	531.25	µg/L	531.25	ppb	10:47:38
2	Ni 231.604†	14650.5	14138.3	540.04	µg/L	540.04	ppb	10:47:38
2	P 214.914†	595.0	556.8	527.14	µg/L	527.14	ppb	10:47:38
2	Pb 220.353†	3308.2	3245.5	552.89	µg/L	552.89	ppb	10:47:38

2	S 181.975 Axial†	3493.9	3323.6	5237.5 µg/L	5237.5 ppb	10:47:38
2	Sb 206.836†	899.3	855.7	534.12 µg/L	534.12 ppb	10:47:38
2	Se 196.026†	688.5	656.4	518 µg/L	518 ppb	10:47:38
2	SiO2†	93392.2	88516.3	11073 µg/L	11073 ppb	10:47:18
2	Si 251.611†	168882.0	161900.8	5141.1 µg/L	5141.1 ppb	10:47:18
2	Sn 189.927†	2542.7	2450.0	546.43 µg/L	546.43 ppb	10:47:38
2	Ti 334.940†	221414.0	215036.7	523.14 µg/L	523.14 ppb	10:47:18
2	Tl 190.801†	1233.2	1246.7	532.54 µg/L	532.54 ppb	10:47:38
2	U 367.007†	1844.2	2145.3	506.26 µg/L	506.26 ppb	10:47:18
2	V 292.402†	64029.0	61849.5	530.42 µg/L	530.42 ppb	10:47:18
2	Zn 213.857†	36915.7	35354.0	516.46 µg/L	516.46 ppb	10:47:38
3	Sc RADIAL	15483.0	15483.0	103 %		10:46:51
3	Al 396.153Radial†	8056.8	7951.7	5140.5 µg/L	5140.5 ppb	10:46:51
3	Ca 317.933Radial†	18664.9	17936.9	5124.1 µg/L	5124.1 ppb	10:46:51
3	Fe 238.204 Radial†	5457.4	5279.6	5006.9 µg/L	5006.9 ppb	10:46:51
3	K 766.490 Radial†	5201.9	4779.4	5583.3 µg/L	5583.3 ppb	10:46:31
3	Mg 279.077 IEC†	1446.4	1400.9	5217.2 µg/L	5217.2 ppb	10:46:51
3	Na 589.592 Radial†	24884.2	23391.2	5273.1 µg/L	5273.1 ppb	10:46:31
3	Sr 421.552†	108951.7	105223.7	521.38 µg/L	521.38 ppb	10:46:31
3	Sc 361.383	751115.9	751115.9	102.58 %		10:47:41
3	Y 371.029	589185.3	589185.3	101.52 %		10:47:41
3	Ag 328.068†	78187.9	77046.2	503.65 µg/L	503.65 ppb	10:47:41
3	As 188.979†	682.0	678.6	487.78 µg/L	487.78 ppb	10:48:01
3	B 249.677†	20039.0	19736.5	531.48 µg/L	531.48 ppb	10:47:41
3	Ba 233.527†	63521.2	61910.3	505.87 µg/L	505.87 ppb	10:47:41
3	Be 313.107†	1232848.8	1209216.2	499.40 µg/L	499.40 ppb	10:47:41
3	Cd 226.502†	67786.9	66193.0	507.14 µg/L	507.14 ppb	10:47:41
3	Co 228.616†	12325.0	12216.4	483.06 µg/L	483.06 ppb	10:48:01
3	Cr 267.716†	48526.3	47166.3	493.33 µg/L	493.33 ppb	10:47:41
3	Cu 324.752†	112361.6	106204.2	506.86 µg/L	506.86 ppb	10:47:41
3	Mn 257.610†	275333.9	268071.7	499.96 µg/L	499.96 ppb	10:47:41
3	Mo 202.031†	8841.0	8506.0	462.09 µg/L	462.09 ppb	10:48:01
3	Ni 231.604†	12622.2	12282.9	469.17 µg/L	469.17 ppb	10:48:01
3	P 214.914†	528.9	497.3	470.62 µg/L	470.62 ppb	10:48:01
3	Pb 220.353†	2911.5	2886.3	491.74 µg/L	491.74 ppb	10:48:01
3	S 181.975 Axial†	3136.2	3003.9	4733.5 µg/L	4733.5 ppb	10:48:01
3	Sb 206.836†	790.0	756.7	471.92 µg/L	471.92 ppb	10:48:01
3	Se 196.026†	636.6	611.6	483 µg/L	483 ppb	10:48:01
3	SiO2†	89220.5	85226.8	10661 µg/L	10661 ppb	10:47:41
3	Si 251.611†	161420.9	156032.9	4954.8 µg/L	4954.8 ppb	10:47:41
3	Sn 189.927†	2154.3	2092.6	466.91 µg/L	466.91 ppb	10:48:01
3	Ti 334.940†	206726.9	202561.5	492.78 µg/L	492.78 ppb	10:47:41
3	Tl 190.801†	1093.3	1120.5	478.89 µg/L	478.89 ppb	10:48:01
3	U 367.007†	1739.0	2058.1	484.36 µg/L	484.36 ppb	10:47:41
3	V 292.402†	60740.9	59177.0	507.05 µg/L	507.05 ppb	10:47:41
3	Zn 213.857†	31995.6	30864.8	450.82 µg/L	450.82 ppb	10:48:01

Mean Data: 1202683376|1223291|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	754243.2	103.00	%	0.442				0.43%
Sc RADIAL	15514.2	103	%	0.2				0.21%
Y 371.029	589569.4	101.58	%	0.071				0.07%
Ag 328.068†	78466.4	512.95	µg/L	8.767	512.95	ppb	8.767	1.71%
Al 396.153Radial†	7938.6	5130.5	µg/L	17.65	5130.5	ppb	17.65	0.34%
As 188.979†	733.4	526.99	µg/L	34.085	526.99	ppb	34.085	6.47%
B 249.677†	20160.3	542.26	µg/L	9.589	542.26	ppb	9.589	1.77%
Ba 233.527†	64014.0	523.07	µg/L	14.987	523.07	ppb	14.987	2.87%
Be 313.107†	1254359.8	518.04	µg/L	16.573	518.04	ppb	16.573	3.20%
Ca 317.933Radial†	17913.9	5117.5	µg/L	23.26	5117.5	ppb	23.26	0.45%
Cd 226.502†	68549.0	525.22	µg/L	15.809	525.22	ppb	15.809	3.01%
Co 228.616†	13447.2	531.69	µg/L	42.290	531.69	ppb	42.290	7.95%
Cr 267.716†	49615.1	518.93	µg/L	22.365	518.93	ppb	22.365	4.31%
Cu 324.752†	110185.4	525.88	µg/L	16.548	525.88	ppb	16.548	3.15%
Fe 238.204 Radial†	5275.8	5003.3	µg/L	3.64	5003.3	ppb	3.64	0.07%
K 766.490 Radial†	4620.8	5397.9	µg/L	210.42	5397.9	ppb	210.42	3.90%
Mg 279.077 IEC†	1395.1	5195.7	µg/L	33.74	5195.7	ppb	33.74	0.65%
Mn 257.610†	278414.7	519.25	µg/L	16.772	519.25	ppb	16.772	3.23%
Mo 202.031†	9399.2	510.59	µg/L	42.154	510.59	ppb	42.154	8.26%
Na 589.592 Radial†	23127.3	5213.6	µg/L	51.74	5213.6	ppb	51.74	0.99%

Ni 231.604†	13560.9	517.98 µg/L	42.340	517.98 ppb	42.340	8.17%
P 214.914†	547.9	518.85 µg/L	44.663	518.85 ppb	44.663	8.61%
Pb 220.353†	3126.2	532.58 µg/L	35.362	532.58 ppb	35.362	6.64%
S 181.975 Axial†	3220.0	5074.2 µg/L	295.08	5074.2 ppb	295.08	5.82%
Sb 206.836†	824.5	514.51 µg/L	36.918	514.51 ppb	36.918	7.18%
Se 196.026†	646.8	510 µg/L	24.8	510 ppb	24.8	4.86%
SiO2†	87567.0	10954 µg/L	255.3	10954 ppb	255.3	2.33%
Si 251.611†	160213.4	5087.5 µg/L	115.68	5087.5 ppb	115.68	2.27%
Sn 189.927†	2335.0	520.86 µg/L	46.744	520.86 ppb	46.744	8.97%
Sr 421.552†	104309.7	516.85 µg/L	3.923	516.85 ppb	3.923	0.76%
Ti 334.940†	211413.5	514.32 µg/L	18.756	514.32 ppb	18.756	3.65%
Tl 190.801†	1210.0	516.95 µg/L	33.147	516.95 ppb	33.147	6.41%
U 367.007†	2113.9	498.35 µg/L	12.147	498.35 ppb	12.147	2.44%
V 292.402†	61397.0	526.36 µg/L	17.637	526.36 ppb	17.637	3.35%
Zn 213.857†	34019.7	496.95 µg/L	40.111	496.95 ppb	40.111	8.07%

Sequence No.: 3 **Autosampler Location: 403**
Sample ID: 306325002|1223291|1 **Date Collected: 6/26/2012 10:48:10**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306325002|1223291|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15659.6	15659.6	104	%			10:48:40
1	Al 396.153Radial†	57.3	176.5	114.38	µg/L	114.38	ppb	10:48:40
1	Ca 317.933Radial†	282.5	68.0	19.429	µg/L	19.429	ppb	10:49:00
1	Fe 238.204 Radial†	35.2	9.5	8.9802	µg/L	8.9802	ppb	10:49:00
1	K 766.490 Radial†	368.5	77.8	90.981	µg/L	90.981	ppb	10:48:40
1	Mg 279.077 IEC†	11.3	5.9	22.122	µg/L	22.122	ppb	10:49:00
1	Na 589.592 Radial†	1148.0	309.6	69.802	µg/L	69.802	ppb	10:48:40
1	Sr 421.552†	815.6	118.3	0.5857	µg/L	0.5857	ppb	10:48:40
1	Sc 361.383	762737.4	762737.4	104.16	%			10:49:48
1	Y 371.029	603489.7	603489.7	103.98	%			10:49:48
1	Ag 328.068†	-1090.2	-224.4	-1.4643	µg/L	-1.4643	ppb	10:49:48
1	As 188.979†	-5.9	8.1	5.7281	µg/L	5.7281	ppb	10:50:08
1	B 249.677†	-125.5	80.3	2.0957	µg/L	2.0957	ppb	10:50:08
1	Ba 233.527†	42.9	25.9	0.2100	µg/L	0.2100	ppb	10:50:08
1	Be 313.107†	-7266.4	358.6	0.1482	µg/L	0.1482	ppb	10:49:48
1	Cd 226.502†	-84.6	27.7	0.2117	µg/L	0.2117	ppb	10:50:08
1	Co 228.616†	-191.6	17.1	0.6764	µg/L	0.6764	ppb	10:50:08
1	Cr 267.716†	131.4	-15.0	-0.1571	µg/L	-0.1571	ppb	10:50:08
1	Cu 324.752†	3371.8	-98.0	-0.4676	µg/L	-0.4676	ppb	10:49:48
1	Mn 257.610†	1761.8	1345.1	2.5086	µg/L	2.5086	ppb	10:50:08
1	Mo 202.031†	103.6	-13.5	-0.7328	µg/L	-0.7328	ppb	10:50:08
1	Ni 231.604†	25.0	1.7	0.0642	µg/L	0.0642	ppb	10:50:08
1	P 214.914†	33.8	14.2	13.760	µg/L	13.760	ppb	10:50:08
1	Pb 220.353†	-66.7	-16.1	-2.7181	µg/L	-2.7181	ppb	10:50:08
1	S 181.975 Axial†	65.0	8.9	13.961	µg/L	13.961	ppb	10:50:08
1	Sb 206.836†	16.3	2.2	1.3462	µg/L	1.3462	ppb	10:50:08
1	Se 196.026†	8.1	-1.2	-0.962	µg/L	-0.962	ppb	10:50:08
1	SiO2†	2293.4	449.1	56.111	µg/L	56.111	ppb	10:50:08
1	Si 251.611†	2222.5	800.3	25.413	µg/L	25.413	ppb	10:50:08
1	Sn 189.927†	6.6	-1.3	-0.2985	µg/L	-0.2985	ppb	10:50:08
1	Ti 334.940†	-1077.4	-7.1	-0.0168	µg/L	-0.0168	ppb	10:49:48
1	Tl 190.801†	-60.5	-3.4	-1.4384	µg/L	-1.4384	ppb	10:50:08
1	U 367.007†	-309.3	65.9	16.457	µg/L	16.457	ppb	10:49:48
1	V 292.402†	-93.8	-128.3	-1.0610	µg/L	-1.0610	ppb	10:49:48
1	Zn 213.857†	520.6	172.7	2.5415	µg/L	2.5415	ppb	10:50:08
2	Sc RADIAL	15559.2	15559.2	103	%			10:49:02
2	Al 396.153Radial†	60.4	179.8	116.55	µg/L	116.55	ppb	10:49:02
2	Ca 317.933Radial†	295.1	82.0	23.435	µg/L	23.435	ppb	10:49:22
2	Fe 238.204 Radial†	30.9	5.5	5.2433	µg/L	5.2433	ppb	10:49:22
2	K 766.490 Radial†	426.3	135.9	159.00	µg/L	159.00	ppb	10:49:02
2	Mg 279.077 IEC†	8.1	2.9	10.776	µg/L	10.776	ppb	10:49:22
2	Na 589.592 Radial†	1010.7	183.9	41.456	µg/L	41.456	ppb	10:49:02
2	Sr 421.552†	742.1	52.1	0.2580	µg/L	0.2580	ppb	10:49:02
2	Sc 361.383	764754.9	764754.9	104.44	%			10:50:10
2	Y 371.029	601654.5	601654.5	103.66	%			10:50:10
2	Ag 328.068†	-842.1	16.0	0.1034	µg/L	0.1034	ppb	10:50:10
2	As 188.979†	-8.9	5.2	3.6718	µg/L	3.6718	ppb	10:50:30
2	B 249.677†	-134.5	72.1	1.8681	µg/L	1.8681	ppb	10:50:30
2	Ba 233.527†	30.6	14.0	0.1145	µg/L	0.1145	ppb	10:50:30
2	Be 313.107†	-7210.6	430.5	0.1780	µg/L	0.1780	ppb	10:50:10
2	Cd 226.502†	-65.2	46.4	0.3559	µg/L	0.3559	ppb	10:50:30
2	Co 228.616†	-198.9	10.6	0.4200	µg/L	0.4200	ppb	10:50:30
2	Cr 267.716†	176.5	27.8	0.2911	µg/L	0.2911	ppb	10:50:30
2	Cu 324.752†	3564.4	77.9	0.3709	µg/L	0.3709	ppb	10:50:10
2	Mn 257.610†	1733.7	1313.8	2.4504	µg/L	2.4504	ppb	10:50:30
2	Mo 202.031†	110.6	-7.0	-0.3798	µg/L	-0.3798	ppb	10:50:30
2	Ni 231.604†	21.3	-1.9	-0.0722	µg/L	-0.0722	ppb	10:50:30
2	P 214.914†	25.9	6.5	6.3612	µg/L	6.3612	ppb	10:50:30
2	Pb 220.353†	-57.2	-6.9	-1.1543	µg/L	-1.1543	ppb	10:50:30

2	S 181.975 Axial†	66.2	9.9	15.545 µg/L	15.545 ppb	10:50:30
2	Sb 206.836†	19.5	5.2	3.2514 µg/L	3.2514 ppb	10:50:30
2	Se 196.026†	15.8	6.2	4.81 µg/L	4.81 ppb	10:50:30
2	SiO2†	2325.8	474.3	59.275 µg/L	59.275 ppb	10:50:30
2	Si 251.611†	2219.3	791.6	25.137 µg/L	25.137 ppb	10:50:30
2	Sn 189.927†	13.0	4.8	1.0620 µg/L	1.0620 ppb	10:50:30
2	Ti 334.940†	-1089.0	-15.5	-0.0374 µg/L	-0.0374 ppb	10:50:10
2	Tl 190.801†	-54.3	2.7	1.1637 µg/L	1.1637 ppb	10:50:30
2	U 367.007†	-490.1	-106.4	-26.704 µg/L	-26.704 ppb	10:50:10
2	V 292.402†	61.0	20.2	0.1200 µg/L	0.1200 ppb	10:50:10
2	Zn 213.857†	512.1	163.2	2.4024 µg/L	2.4024 ppb	10:50:30
3	Sc RADIAL	15277.2	15277.2	102 %		10:49:24
3	Al 396.153Radial†	34.7	155.5	100.81 µg/L	100.81 ppb	10:49:24
3	Ca 317.933Radial†	291.0	83.2	23.763 µg/L	23.763 ppb	10:49:44
3	Fe 238.204 Radial†	27.9	3.1	2.9741 µg/L	2.9741 ppb	10:49:44
3	K 766.490 Radial†	365.6	83.8	98.059 µg/L	98.059 ppb	10:49:24
3	Mg 279.077 IEC†	5.9	0.9	3.2924 µg/L	3.2924 ppb	10:49:44
3	Na 589.592 Radial†	1001.5	193.0	43.498 µg/L	43.498 ppb	10:49:24
3	Sr 421.552†	834.0	156.0	0.7725 µg/L	0.7725 ppb	10:49:24
3	Sc 361.383	752425.3	752425.3	102.76 %		10:50:32
3	Y 371.029	593403.3	593403.3	102.24 %		10:50:32
3	Ag 328.068†	-815.3	28.8	0.1871 µg/L	0.1871 ppb	10:50:32
3	As 188.979†	-15.4	-1.2	-0.8746 µg/L	-0.8746 ppb	10:50:52
3	B 249.677†	-160.2	44.9	1.1665 µg/L	1.1665 ppb	10:50:52
3	Ba 233.527†	48.8	32.2	0.2622 µg/L	0.2622 ppb	10:50:52
3	Be 313.107†	-7471.8	63.1	0.0261 µg/L	0.0261 ppb	10:50:32
3	Cd 226.502†	-91.2	20.1	0.1538 µg/L	0.1538 ppb	10:50:52
3	Co 228.616†	-209.3	-2.6	-0.1033 µg/L	-0.1033 ppb	10:50:52
3	Cr 267.716†	156.5	11.1	0.1163 µg/L	0.1163 ppb	10:50:52
3	Cu 324.752†	3516.2	86.9	0.4142 µg/L	0.4142 ppb	10:50:32
3	Mn 257.610†	1594.5	1205.5	2.2485 µg/L	2.2485 ppb	10:50:52
3	Mo 202.031†	105.8	-9.9	-0.5397 µg/L	-0.5397 ppb	10:50:52
3	Ni 231.604†	23.3	0.4	0.0149 µg/L	0.0149 ppb	10:50:52
3	P 214.914†	15.3	-3.5	-3.2829 µg/L	-3.2829 ppb	10:50:52
3	Pb 220.353†	-64.9	-15.3	-2.5799 µg/L	-2.5799 ppb	10:50:52
3	S 181.975 Axial†	57.0	2.0	3.1084 µg/L	3.1084 ppb	10:50:52
3	Sb 206.836†	18.9	5.0	3.0916 µg/L	3.0916 ppb	10:50:52
3	Se 196.026†	20.5	11.0	8.60 µg/L	8.60 ppb	10:50:52
3	SiO2†	2263.1	449.8	56.205 µg/L	56.205 ppb	10:50:52
3	Si 251.611†	2182.2	790.3	25.096 µg/L	25.096 ppb	10:50:52
3	Sn 189.927†	15.9	7.8	1.7441 µg/L	1.7441 ppb	10:50:52
3	Ti 334.940†	-924.9	127.2	0.3092 µg/L	0.3092 ppb	10:50:32
3	Tl 190.801†	-50.9	5.1	2.1994 µg/L	2.1994 ppb	10:50:52
3	U 367.007†	-395.7	-22.3	-5.6067 µg/L	-5.6067 ppb	10:50:32
3	V 292.402†	0.5	-37.7	-0.3334 µg/L	-0.3334 ppb	10:50:32
3	Zn 213.857†	497.5	157.0	2.3108 µg/L	2.3108 ppb	10:50:52

Mean Data: 306325002|1223291|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	759972.5	103.79	%	0.903				0.87%
Sc RADIAL	15498.6	103	%	1.3				1.28%
Y 371.029	599515.8	103.30	%	0.926				0.90%
Ag 328.068†	-59.9	-0.3913	µg/L	0.93022	-0.3913	ppb	0.93022	237.75%
Al 396.153Radial†	170.6	110.58	µg/L	8.528	110.58	ppb	8.528	7.71%
As 188.979†	4.0	2.8418	µg/L	3.37869	2.8418	ppb	3.37869	118.89%
B 249.677†	65.8	1.7101	µg/L	0.48433	1.7101	ppb	0.48433	28.32%
Ba 233.527†	24.0	0.1956	µg/L	0.07493	0.1956	ppb	0.07493	38.32%
Be 313.107†	284.0	0.1174	µg/L	0.08048	0.1174	ppb	0.08048	68.53%
Ca 317.933Radial†	77.7	22.209	µg/L	2.4131	22.209	ppb	2.4131	10.87%
Cd 226.502†	31.4	0.2405	µg/L	0.10409	0.2405	ppb	0.10409	43.28%
Co 228.616†	8.4	0.3310	µg/L	0.39739	0.3310	ppb	0.39739	120.04%
Cr 267.716†	8.0	0.0835	µg/L	0.22590	0.0835	ppb	0.22590	270.64%
Cu 324.752†	22.2	0.1059	µg/L	0.49709	0.1059	ppb	0.49709	469.61%
Fe 238.204 Radial†	6.0	5.7326	µg/L	3.03280	5.7326	ppb	3.03280	52.90%
K 766.490 Radial†	99.2	116.01	µg/L	37.393	116.01	ppb	37.393	32.23%
Mg 279.077 IEC†	3.2	12.064	µg/L	9.4804	12.064	ppb	9.4804	78.59%
Mn 257.610†	1288.2	2.4025	µg/L	0.13654	2.4025	ppb	0.13654	5.68%
Mo 202.031†	-10.1	-0.5507	µg/L	0.17673	-0.5507	ppb	0.17673	32.09%
Na 589.592 Radial†	228.8	51.585	µg/L	15.8090	51.585	ppb	15.8090	30.65%

Ni 231.604†	0.1	0.0023 µg/L	0.06906	0.0023 ppb	0.06906	>999.9%
P 214.914†	5.7	5.6129 µg/L	8.54622	5.6129 ppb	8.54622	152.26%
Pb 220.353†	-12.7	-2.1508 µg/L	0.86576	-2.1508 ppb	0.86576	40.25%
S 181.975 Axial†	6.9	10.871 µg/L	6.7694	10.871 ppb	6.7694	62.27%
Sb 206.836†	4.1	2.5631 µg/L	1.05684	2.5631 ppb	1.05684	41.23%
Se 196.026†	5.3	4.15 µg/L	4.816	4.15 ppb	4.816	116.02%
SiO2†	457.7	57.197 µg/L	1.8001	57.197 ppb	1.8001	3.15%
Si 251.611†	794.1	25.216 µg/L	0.1727	25.216 ppb	0.1727	0.68%
Sn 189.927†	3.8	0.8359 µg/L	1.03991	0.8359 ppb	1.03991	124.41%
Sr 421.552†	108.8	0.5387 µg/L	0.26043	0.5387 ppb	0.26043	48.34%
Ti 334.940†	34.9	0.0850 µg/L	0.19440	0.0850 ppb	0.19440	228.67%
Tl 190.801†	1.5	0.6416 µg/L	1.87429	0.6416 ppb	1.87429	292.14%
U 367.007†	-20.9	-5.2843 µg/L	21.58235	-5.2843 ppb	21.58235	408.43%
V 292.402†	-48.6	-0.4248 µg/L	0.59578	-0.4248 ppb	0.59578	140.25%
Zn 213.857†	164.3	2.4182 µg/L	0.11618	2.4182 ppb	0.11618	4.80%

Sequence No.: 4 **Autosampler Location: 404**
Sample ID: 306325001|1223291|1 **Date Collected: 6/26/2012 10:51:00**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 306325001|1223291|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15683.4	15683.4	104	%			10:51:30
1	Al 396.153Radial†	-92.7	32.4	21.020	µg/L	21.020	ppb	10:51:30
1	Ca 317.933Radial†	502.5	278.7	79.621	µg/L	79.621	ppb	10:51:50
1	Fe 238.204 Radial†	49.5	23.1	21.889	µg/L	21.889	ppb	10:51:50
1	K 766.490 Radial†	342.0	51.8	60.556	µg/L	60.556	ppb	10:51:30
1	Mg 279.077 IEC†	13.9	8.5	31.552	µg/L	31.552	ppb	10:51:50
1	Na 589.592 Radial†	1243.9	400.0	90.162	µg/L	90.162	ppb	10:51:30
1	Sr 421.552†	732.3	37.1	0.1824	µg/L	0.1824	ppb	10:51:30
1	Sc 361.383	752454.3	752454.3	102.76	%			10:52:38
1	Y 371.029	592414.2	592414.2	102.07	%			10:52:38
1	Ag 328.068†	-1001.7	-152.5	-0.9957	µg/L	-0.9957	ppb	10:52:38
1	As 188.979†	-16.0	-1.8	-1.2904	µg/L	-1.2904	ppb	10:52:58
1	B 249.677†	-155.2	49.8	1.3935	µg/L	1.3935	ppb	10:52:58
1	Ba 233.527†	75.4	58.1	0.4732	µg/L	0.4732	ppb	10:52:58
1	Be 313.107†	-7350.3	181.6	0.0751	µg/L	0.0751	ppb	10:52:38
1	Cd 226.502†	-89.3	21.9	0.1644	µg/L	0.1644	ppb	10:52:58
1	Co 228.616†	-202.8	3.7	0.1469	µg/L	0.1469	ppb	10:52:58
1	Cr 267.716†	135.5	-9.3	-0.0972	µg/L	-0.0972	ppb	10:52:58
1	Cu 324.752†	3559.1	128.5	0.6124	µg/L	0.6124	ppb	10:52:38
1	Mn 257.610†	1465.5	1080.0	2.0141	µg/L	2.0141	ppb	10:52:58
1	Mo 202.031†	115.5	-0.6	-0.0306	µg/L	-0.0306	ppb	10:52:58
1	Ni 231.604†	16.6	-6.1	-0.2339	µg/L	-0.2339	ppb	10:52:58
1	P 214.914†	37.2	17.9	17.229	µg/L	17.229	ppb	10:52:58
1	Pb 220.353†	-29.6	19.2	3.2583	µg/L	3.2583	ppb	10:52:58
1	S 181.975 Axial†	55.3	0.3	0.4685	µg/L	0.4685	ppb	10:52:58
1	Sb 206.836†	17.7	3.8	2.3662	µg/L	2.3662	ppb	10:52:58
1	Se 196.026†	9.2	-0.1	-0.056	µg/L	-0.056	ppb	10:52:58
1	SiO2†	3368.6	1525.5	190.62	µg/L	190.62	ppb	10:52:38
1	Si 251.611†	4292.8	2844.1	90.314	µg/L	90.314	ppb	10:52:58
1	Sn 189.927†	8.1	0.2	0.0630	µg/L	0.0630	ppb	10:52:58
1	Ti 334.940†	-625.5	418.6	1.0193	µg/L	1.0193	ppb	10:52:38
1	Tl 190.801†	-43.5	12.4	5.2830	µg/L	5.2830	ppb	10:52:58
1	U 367.007†	-426.6	-52.3	-13.254	µg/L	-13.254	ppb	10:52:38
1	V 292.402†	-27.9	-65.4	-0.5785	µg/L	-0.5785	ppb	10:52:38
1	Zn 213.857†	576.5	233.9	3.4428	µg/L	3.4428	ppb	10:52:58
2	Sc RADIAL	15728.5	15728.5	105	%			10:51:52
2	Al 396.153Radial†	-40.1	83.0	53.798	µg/L	53.798	ppb	10:51:52
2	Ca 317.933Radial†	503.4	278.2	79.478	µg/L	79.478	ppb	10:52:12
2	Fe 238.204 Radial†	54.1	27.4	25.942	µg/L	25.942	ppb	10:52:12
2	K 766.490 Radial†	349.5	58.1	67.906	µg/L	67.906	ppb	10:51:52
2	Mg 279.077 IEC†	10.5	5.2	19.248	µg/L	19.248	ppb	10:52:12
2	Na 589.592 Radial†	1207.4	361.5	81.504	µg/L	81.504	ppb	10:51:52
2	Sr 421.552†	787.4	87.8	0.4335	µg/L	0.4335	ppb	10:51:52
2	Sc 361.383	772069.8	772069.8	105.44	%			10:53:01
2	Y 371.029	604918.7	604918.7	104.23	%			10:53:01
2	Ag 328.068†	-906.4	-37.3	-0.2443	µg/L	-0.2443	ppb	10:53:01
2	As 188.979†	-13.2	1.2	0.8628	µg/L	0.8628	ppb	10:53:21
2	B 249.677†	-172.0	37.7	1.1000	µg/L	1.1000	ppb	10:53:21
2	Ba 233.527†	79.5	60.1	0.4900	µg/L	0.4900	ppb	10:53:21
2	Be 313.107†	-7575.8	149.5	0.0619	µg/L	0.0619	ppb	10:53:01
2	Cd 226.502†	-103.5	10.7	0.0783	µg/L	0.0783	ppb	10:53:21
2	Co 228.616†	-202.2	9.3	0.3678	µg/L	0.3678	ppb	10:53:21
2	Cr 267.716†	139.6	-8.7	-0.0913	µg/L	-0.0913	ppb	10:53:21
2	Cu 324.752†	3639.4	116.7	0.5580	µg/L	0.5580	ppb	10:53:01
2	Mn 257.610†	1471.4	1049.3	1.9571	µg/L	1.9571	ppb	10:53:21
2	Mo 202.031†	109.7	-8.9	-0.4841	µg/L	-0.4841	ppb	10:53:21
2	Ni 231.604†	13.6	-9.4	-0.3594	µg/L	-0.3594	ppb	10:53:21
2	P 214.914†	27.2	7.5	7.2379	µg/L	7.2379	ppb	10:53:21
2	Pb 220.353†	-41.3	8.7	1.4921	µg/L	1.4921	ppb	10:53:21

2	S 181.975 Axial†	63.5	6.7	10.582 µg/L	10.582 ppb	10:53:21
2	Sb 206.836†	16.1	1.8	1.1447 µg/L	1.1447 ppb	10:53:21
2	Se 196.026†	24.9	14.7	11.5 µg/L	11.5 ppb	10:53:21
2	SiO2†	3435.8	1505.9	188.17 µg/L	188.17 ppb	10:53:01
2	Si 251.611†	4257.1	2704.2	85.870 µg/L	85.870 ppb	10:53:21
2	Sn 189.927†	6.9	-1.0	-0.2270 µg/L	-0.2270 ppb	10:53:21
2	Ti 334.940†	-793.8	274.4	0.6682 µg/L	0.6682 ppb	10:53:01
2	Tl 190.801†	-53.3	4.2	1.7888 µg/L	1.7888 ppb	10:53:21
2	U 367.007†	-445.3	-59.5	-15.085 µg/L	-15.085 ppb	10:53:01
2	V 292.402†	16.2	-22.9	-0.2254 µg/L	-0.2254 ppb	10:53:01
2	Zn 213.857†	567.8	211.4	3.1123 µg/L	3.1123 ppb	10:53:21
3	Sc RADIAL	15870.5	15870.5	105 %		10:52:15
3	Al 396.153Radial†	-64.8	59.9	38.831 µg/L	38.831 ppb	10:52:15
3	Ca 317.933Radial†	483.4	254.9	72.817 µg/L	72.817 ppb	10:52:35
3	Fe 238.204 Radial†	54.9	27.7	26.241 µg/L	26.241 ppb	10:52:35
3	K 766.490 Radial†	513.4	210.4	246.08 µg/L	246.08 ppb	10:52:15
3	Mg 279.077 IEC†	5.3	0.1	0.5130 µg/L	0.5130 ppb	10:52:35
3	Na 589.592 Radial†	1266.8	407.6	91.889 µg/L	91.889 ppb	10:52:15
3	Sr 421.552†	754.5	49.9	0.2459 µg/L	0.2459 ppb	10:52:15
3	Sc 361.383	756964.0	756964.0	103.38 %		10:53:23
3	Y 371.029	599215.7	599215.7	103.24 %		10:53:23
3	Ag 328.068†	-851.7	-1.6	-0.0104 µg/L	-0.0104 ppb	10:53:23
3	As 188.979†	-10.7	3.4	2.4112 µg/L	2.4112 ppb	10:53:43
3	B 249.677†	-197.9	9.4	0.3768 µg/L	0.3768 ppb	10:53:43
3	Ba 233.527†	56.1	38.9	0.3167 µg/L	0.3167 ppb	10:53:43
3	Be 313.107†	-7734.9	-147.9	-0.0608 µg/L	-0.0608 ppb	10:53:23
3	Cd 226.502†	-88.7	23.1	0.1734 µg/L	0.1734 ppb	10:53:43
3	Co 228.616†	-200.8	6.8	0.2701 µg/L	0.2701 ppb	10:53:43
3	Cr 267.716†	162.1	15.6	0.1632 µg/L	0.1632 ppb	10:53:43
3	Cu 324.752†	3494.6	45.5	0.2202 µg/L	0.2202 ppb	10:53:23
3	Mn 257.610†	1315.3	926.2	1.7277 µg/L	1.7277 ppb	10:53:43
3	Mo 202.031†	114.1	-2.5	-0.1356 µg/L	-0.1356 ppb	10:53:43
3	Ni 231.604†	22.3	-0.7	-0.0280 µg/L	-0.0280 ppb	10:53:43
3	P 214.914†	35.1	15.6	15.078 µg/L	15.078 ppb	10:53:43
3	Pb 220.353†	-17.8	30.7	5.2191 µg/L	5.2191 ppb	10:53:43
3	S 181.975 Axial†	57.9	2.5	3.9033 µg/L	3.9033 ppb	10:53:43
3	Sb 206.836†	13.7	-0.2	-0.1154 µg/L	-0.1154 ppb	10:53:43
3	Se 196.026†	22.9	13.2	10.3 µg/L	10.3 ppb	10:53:43
3	SiO2†	3322.9	1461.7	182.66 µg/L	182.66 ppb	10:53:23
3	Si 251.611†	3914.8	2453.6	77.912 µg/L	77.912 ppb	10:53:43
3	Sn 189.927†	3.2	-4.6	-1.0102 µg/L	-1.0102 ppb	10:53:43
3	Ti 334.940†	-788.8	264.2	0.6429 µg/L	0.6429 ppb	10:53:23
3	Tl 190.801†	-56.9	-0.3	-0.1389 µg/L	-0.1389 ppb	10:53:43
3	U 367.007†	-386.3	-10.9	-2.8885 µg/L	-2.8885 ppb	10:53:23
3	V 292.402†	-14.4	-52.2	-0.4468 µg/L	-0.4468 ppb	10:53:23
3	Zn 213.857†	533.7	189.1	2.7822 µg/L	2.7822 ppb	10:53:43

Mean Data: 306325001|1223291|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	760496.0	103.86	%	1.403				1.35%
Sc RADIAL	15760.8	105	%	0.6				0.62%
Y 371.029	598849.5	103.18	%	1.079				1.05%
Ag 328.068†	-63.8	-0.4168	µg/L	0.51483	-0.4168	ppb	0.51483	123.52%
Al 396.153Radial†	58.4	37.883	µg/L	16.4098	37.883	ppb	16.4098	43.32%
As 188.979†	0.9	0.6612	µg/L	1.85897	0.6612	ppb	1.85897	281.16%
B 249.677†	32.3	0.9567	µg/L	0.52328	0.9567	ppb	0.52328	54.69%
Ba 233.527†	52.3	0.4266	µg/L	0.09555	0.4266	ppb	0.09555	22.40%
Be 313.107†	61.1	0.0254	µg/L	0.07496	0.0254	ppb	0.07496	295.07%
Ca 317.933Radial†	270.6	77.305	µg/L	3.8874	77.305	ppb	3.8874	5.03%
Cd 226.502†	18.6	0.1387	µg/L	0.05252	0.1387	ppb	0.05252	37.87%
Co 228.616†	6.6	0.2616	µg/L	0.11071	0.2616	ppb	0.11071	42.32%
Cr 267.716†	-0.8	-0.0084	µg/L	0.14870	-0.0084	ppb	0.14870	>999.9%
Cu 324.752†	96.9	0.4635	µg/L	0.21250	0.4635	ppb	0.21250	45.85%
Fe 238.204 Radial†	26.0	24.691	µg/L	2.4313	24.691	ppb	2.4313	9.85%
K 766.490 Radial†	106.8	124.85	µg/L	105.054	124.85	ppb	105.054	84.15%
Mg 279.077 IEC†	4.6	17.105	µg/L	15.6304	17.105	ppb	15.6304	91.38%
Mn 257.610†	1018.5	1.8996	µg/L	0.15159	1.8996	ppb	0.15159	7.98%
Mo 202.031†	-4.0	-0.2167	µg/L	0.23740	-0.2167	ppb	0.23740	109.54%
Na 589.592 Radial†	389.7	87.852	µg/L	5.5645	87.852	ppb	5.5645	6.33%

Ni 231.604†	-5.4	-0.2071 µg/L	0.16730	-0.2071 ppb	0.16730	80.78%
P 214.914†	13.7	13.182 µg/L	5.2586	13.182 ppb	5.2586	39.89%
Pb 220.353†	19.5	3.3231 µg/L	1.86435	3.3231 ppb	1.86435	56.10%
S 181.975 Axial†	3.2	4.9846 µg/L	5.14274	4.9846 ppb	5.14274	103.17%
Sb 206.836†	1.8	1.1318 µg/L	1.24085	1.1318 ppb	1.24085	109.63%
Se 196.026†	9.2	7.25 µg/L	6.355	7.25 ppb	6.355	87.63%
SiO2†	1497.7	187.15 µg/L	4.077	187.15 ppb	4.077	2.18%
Si 251.611†	2667.3	84.699 µg/L	6.2833	84.699 ppb	6.2833	7.42%
Sn 189.927†	-1.8	-0.3914 µg/L	0.55518	-0.3914 ppb	0.55518	141.85%
Sr 421.552†	58.3	0.2873 µg/L	0.13057	0.2873 ppb	0.13057	45.45%
Ti 334.940†	319.0	0.7768 µg/L	0.21042	0.7768 ppb	0.21042	27.09%
Tl 190.801†	5.4	2.3110 µg/L	2.74836	2.3110 ppb	2.74836	118.93%
U 367.007†	-40.9	-10.409 µg/L	6.5770	-10.409 ppb	6.5770	63.19%
V 292.402†	-46.8	-0.4169 µg/L	0.17840	-0.4169 ppb	0.17840	42.79%
Zn 213.857†	211.5	3.1124 µg/L	0.33034	3.1124 ppb	0.33034	10.61%

Sequence No.: 5 **Autosampler Location: 405**
Sample ID: 1202683377|1223291|1 **Date Collected: 6/26/2012 10:53:51**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202683377|1223291|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15684.5	15684.5	104	%			10:54:21
1	Al 396.153Radial†	22.7	143.2	92.800	µg/L	92.800	ppb	10:54:21
1	Ca 317.933Radial†	498.5	274.9	78.526	µg/L	78.526	ppb	10:54:41
1	Fe 238.204 Radial†	55.9	29.3	27.768	µg/L	27.768	ppb	10:54:41
1	K 766.490 Radial†	376.1	84.5	98.791	µg/L	98.791	ppb	10:54:21
1	Mg 279.077 IEC†	10.9	5.6	20.710	µg/L	20.710	ppb	10:54:41
1	Na 589.592 Radial†	1350.0	501.6	113.08	µg/L	113.08	ppb	10:54:21
1	Sr 421.552†	797.6	99.7	0.4927	µg/L	0.4927	ppb	10:54:21
1	Sc 361.383	761164.6	761164.6	103.95	%			10:55:29
1	Y 371.029	598777.7	598777.7	103.17	%			10:55:29
1	Ag 328.068†	-947.2	-88.9	-0.5805	µg/L	-0.5805	ppb	10:55:29
1	As 188.979†	-12.0	2.2	1.5719	µg/L	1.5719	ppb	10:55:49
1	B 249.677†	-159.1	47.8	1.3692	µg/L	1.3692	ppb	10:55:49
1	Ba 233.527†	74.5	56.3	0.4594	µg/L	0.4594	ppb	10:55:49
1	Be 313.107†	-7599.0	24.2	0.0100	µg/L	0.0100	ppb	10:55:29
1	Cd 226.502†	-97.2	15.4	0.1139	µg/L	0.1139	ppb	10:55:49
1	Co 228.616†	-206.3	2.6	0.1009	µg/L	0.1009	ppb	10:55:49
1	Cr 267.716†	118.7	-27.0	-0.2818	µg/L	-0.2818	ppb	10:55:49
1	Cu 324.752†	3591.0	119.6	0.5715	µg/L	0.5715	ppb	10:55:29
1	Mn 257.610†	1506.7	1103.3	2.0577	µg/L	2.0577	ppb	10:55:49
1	Mo 202.031†	110.9	-6.3	-0.3393	µg/L	-0.3393	ppb	10:55:49
1	Ni 231.604†	37.7	14.0	0.5340	µg/L	0.5340	ppb	10:55:49
1	P 214.914†	37.7	18.0	17.399	µg/L	17.399	ppb	10:55:49
1	Pb 220.353†	-54.8	-4.8	-0.7993	µg/L	-0.7993	ppb	10:55:49
1	S 181.975 Axial†	58.7	3.0	4.6784	µg/L	4.6784	ppb	10:55:49
1	Sb 206.836†	11.6	-2.3	-1.4519	µg/L	-1.4519	ppb	10:55:49
1	Se 196.026†	23.6	13.7	10.8	µg/L	10.8	ppb	10:55:49
1	SiO2†	3524.8	1638.3	204.71	µg/L	204.71	ppb	10:55:29
1	Si 251.611†	4583.3	3075.8	97.672	µg/L	97.672	ppb	10:55:49
1	Sn 189.927†	14.8	6.6	1.4704	µg/L	1.4704	ppb	10:55:49
1	Ti 334.940†	-654.9	397.2	0.9671	µg/L	0.9671	ppb	10:55:29
1	Tl 190.801†	-50.3	6.3	2.6788	µg/L	2.6788	ppb	10:55:49
1	U 367.007†	-426.7	-47.7	-12.124	µg/L	-12.124	ppb	10:55:29
1	V 292.402†	63.2	22.5	0.1637	µg/L	0.1637	ppb	10:55:29
1	Zn 213.857†	623.1	272.3	4.0024	µg/L	4.0024	ppb	10:55:49
2	Sc RADIAL	15499.1	15499.1	103	%			10:54:43
2	Al 396.153Radial†	-68.5	54.9	35.573	µg/L	35.573	ppb	10:54:43
2	Ca 317.933Radial†	481.9	264.5	75.551	µg/L	75.551	ppb	10:55:03
2	Fe 238.204 Radial†	57.3	31.3	29.660	µg/L	29.660	ppb	10:55:03
2	K 766.490 Radial†	450.7	161.3	188.57	µg/L	188.57	ppb	10:54:43
2	Mg 279.077 IEC†	16.1	10.7	39.758	µg/L	39.758	ppb	10:55:03
2	Na 589.592 Radial†	1212.9	384.0	86.562	µg/L	86.562	ppb	10:54:43
2	Sr 421.552†	866.5	175.7	0.8696	µg/L	0.8696	ppb	10:54:43
2	Sc 361.383	753306.1	753306.1	102.88	%			10:55:51
2	Y 371.029	593593.1	593593.1	102.27	%			10:55:51
2	Ag 328.068†	-887.9	-40.8	-0.2658	µg/L	-0.2658	ppb	10:55:51
2	As 188.979†	-10.3	3.7	2.6527	µg/L	2.6527	ppb	10:56:12
2	B 249.677†	-99.9	103.7	2.8127	µg/L	2.8127	ppb	10:56:12
2	Ba 233.527†	74.9	57.5	0.4680	µg/L	0.4680	ppb	10:56:12
2	Be 313.107†	-7346.3	193.6	0.0800	µg/L	0.0800	ppb	10:55:51
2	Cd 226.502†	-106.9	5.0	0.0338	µg/L	0.0338	ppb	10:56:12
2	Co 228.616†	-211.0	-4.1	-0.1611	µg/L	-0.1611	ppb	10:56:12
2	Cr 267.716†	143.5	-1.7	-0.0176	µg/L	-0.0176	ppb	10:56:12
2	Cu 324.752†	3529.4	95.7	0.4562	µg/L	0.4562	ppb	10:55:51
2	Mn 257.610†	1473.9	1086.5	2.0262	µg/L	2.0262	ppb	10:56:12
2	Mo 202.031†	111.3	-4.8	-0.2581	µg/L	-0.2581	ppb	10:56:12
2	Ni 231.604†	25.7	2.7	0.1047	µg/L	0.1047	ppb	10:56:12
2	P 214.914†	27.4	8.3	7.9816	µg/L	7.9816	ppb	10:56:12
2	Pb 220.353†	-26.0	22.7	3.8529	µg/L	3.8529	ppb	10:56:12

2	S 181.975 Axial†	62.0	6.8	10.634 µg/L	10.634 ppb	10:56:12
2	Sb 206.836†	3.0	-10.5	-6.5606 µg/L	-6.5606 ppb	10:56:12
2	Se 196.026†	5.3	-3.9	-3.03 µg/L	-3.03 ppb	10:56:12
2	SiO2†	3548.9	1697.0	212.06 µg/L	212.06 ppb	10:55:51
2	Si 251.611†	4558.6	3097.8	98.369 µg/L	98.369 ppb	10:56:12
2	Sn 189.927†	9.0	1.1	0.2469 µg/L	0.2469 ppb	10:56:12
2	Ti 334.940†	-633.8	411.1	1.0013 µg/L	1.0013 ppb	10:55:51
2	Tl 190.801†	-42.9	13.0	5.5354 µg/L	5.5354 ppb	10:56:12
2	U 367.007†	-323.1	48.7	12.020 µg/L	12.020 ppb	10:55:51
2	V 292.402†	-47.7	-84.6	-0.6960 µg/L	-0.6960 ppb	10:55:51
2	Zn 213.857†	619.2	274.8	4.0417 µg/L	4.0417 ppb	10:56:12
3	Sc RADIAL	15221.4	15221.4	101 %		10:55:05
3	Al 396.153Radial†	-42.5	79.4	51.439 µg/L	51.439 ppb	10:55:05
3	Ca 317.933Radial†	496.9	287.9	82.236 µg/L	82.236 ppb	10:55:25
3	Fe 238.204 Radial†	61.9	36.8	34.911 µg/L	34.911 ppb	10:55:25
3	K 766.490 Radial†	431.2	149.9	175.34 µg/L	175.34 ppb	10:55:05
3	Mg 279.077 IEC†	25.7	20.5	76.172 µg/L	76.172 ppb	10:55:25
3	Na 589.592 Radial†	1172.8	365.9	82.477 µg/L	82.477 ppb	10:55:05
3	Sr 421.552†	818.3	143.5	0.7096 µg/L	0.7096 ppb	10:55:05
3	Sc 361.383	752157.4	752157.4	102.72 %		10:56:14
3	Y 371.029	593555.6	593555.6	102.27 %		10:56:14
3	Ag 328.068†	-761.2	81.2	0.5306 µg/L	0.5306 ppb	10:56:14
3	As 188.979†	-7.0	6.9	4.8795 µg/L	4.8795 ppb	10:56:34
3	B 249.677†	-83.2	119.8	3.2507 µg/L	3.2507 ppb	10:56:34
3	Ba 233.527†	47.6	31.0	0.2523 µg/L	0.2523 ppb	10:56:34
3	Be 313.107†	-7509.5	23.8	0.0103 µg/L	0.0103 ppb	10:56:14
3	Cd 226.502†	-107.4	4.3	0.0294 µg/L	0.0294 ppb	10:56:34
3	Co 228.616†	-209.9	-3.3	-0.1289 µg/L	-0.1289 ppb	10:56:34
3	Cr 267.716†	166.8	21.2	0.2215 µg/L	0.2215 ppb	10:56:34
3	Cu 324.752†	3420.7	-4.9	-0.0262 µg/L	-0.0262 ppb	10:56:14
3	Mn 257.610†	1417.7	1034.0	1.9277 µg/L	1.9277 ppb	10:56:34
3	Mo 202.031†	117.1	1.1	0.0595 µg/L	0.0595 ppb	10:56:34
3	Ni 231.604†	26.4	3.4	0.1311 µg/L	0.1311 ppb	10:56:34
3	P 214.914†	20.7	1.9	1.8114 µg/L	1.8114 ppb	10:56:34
3	Pb 220.353†	-48.0	1.2	0.2039 µg/L	0.2039 ppb	10:56:34
3	S 181.975 Axial†	48.9	-5.9	-9.3360 µg/L	-9.3360 ppb	10:56:34
3	Sb 206.836†	11.4	-2.3	-1.4511 µg/L	-1.4511 ppb	10:56:34
3	Se 196.026†	-0.3	-9.3	-7.30 µg/L	-7.30 ppb	10:56:34
3	SiO2†	3487.9	1643.0	205.31 µg/L	205.31 ppb	10:56:14
3	Si 251.611†	4357.4	2908.7	92.365 µg/L	92.365 ppb	10:56:34
3	Sn 189.927†	10.4	2.5	0.5578 µg/L	0.5578 ppb	10:56:34
3	Ti 334.940†	-923.7	128.0	0.3140 µg/L	0.3140 ppb	10:56:14
3	Tl 190.801†	-61.3	-5.0	-2.1105 µg/L	-2.1105 ppb	10:56:34
3	U 367.007†	-444.2	-69.7	-17.681 µg/L	-17.681 ppb	10:56:14
3	V 292.402†	-20.7	-58.4	-0.5239 µg/L	-0.5239 ppb	10:56:14
3	Zn 213.857†	594.3	251.4	3.6975 µg/L	3.6975 ppb	10:56:34

Mean Data: 1202683377|1223291|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	755542.7	103.18	%	0.670				0.65%
Sc RADIAL	15468.4	103	%	1.5				1.51%
Y 371.029	595308.8	102.57	%	0.518				0.50%
Ag 328.068†	-16.2	-0.1053	µg/L	0.57268	-0.1053	ppb	0.57268	544.07%
Al 396.153Radial†	92.5	59.937	µg/L	29.5447	59.937	ppb	29.5447	49.29%
As 188.979†	4.3	3.0347	µg/L	1.68658	3.0347	ppb	1.68658	55.58%
B 249.677†	90.4	2.4775	µg/L	0.98451	2.4775	ppb	0.98451	39.74%
Ba 233.527†	48.3	0.3932	µg/L	0.12212	0.3932	ppb	0.12212	31.06%
Be 313.107†	80.5	0.0335	µg/L	0.04034	0.0335	ppb	0.04034	120.59%
Ca 317.933Radial†	275.7	78.771	µg/L	3.3493	78.771	ppb	3.3493	4.25%
Cd 226.502†	8.2	0.0590	µg/L	0.04755	0.0590	ppb	0.04755	80.56%
Co 228.616†	-1.6	-0.0630	µg/L	0.14287	-0.0630	ppb	0.14287	226.65%
Cr 267.716†	-2.5	-0.0260	µg/L	0.25174	-0.0260	ppb	0.25174	969.95%
Cu 324.752†	70.1	0.3338	µg/L	0.31707	0.3338	ppb	0.31707	94.98%
Fe 238.204 Radial†	32.5	30.780	µg/L	3.7006	30.780	ppb	3.7006	12.02%
K 766.490 Radial†	131.9	154.23	µg/L	48.467	154.23	ppb	48.467	31.42%
Mg 279.077 IEC†	12.2	45.546	µg/L	28.1803	45.546	ppb	28.1803	61.87%
Mn 257.610†	1074.6	2.0039	µg/L	0.06780	2.0039	ppb	0.06780	3.38%
Mo 202.031†	-3.3	-0.1793	µg/L	0.21073	-0.1793	ppb	0.21073	117.52%
Na 589.592 Radial†	417.2	94.038	µg/L	16.6134	94.038	ppb	16.6134	17.67%

Ni 231.604†	6.7	0.2566 µg/L	0.24056	0.2566 ppb	0.24056	93.75%
P 214.914†	9.4	9.0641 µg/L	7.85013	9.0641 ppb	7.85013	86.61%
Pb 220.353†	6.4	1.0858 µg/L	2.44830	1.0858 ppb	2.44830	225.48%
S 181.975 Axial†	1.3	1.9921 µg/L	10.25236	1.9921 ppb	10.25236	514.66%
Sb 206.836†	-5.1	-3.1545 µg/L	2.94973	-3.1545 ppb	2.94973	93.51%
Se 196.026†	0.2	0.145 µg/L	9.4372	0.145 ppb	9.4372	>999.9%
SiO2†	1659.4	207.36 µg/L	4.081	207.36 ppb	4.081	1.97%
Si 251.611†	3027.4	96.135 µg/L	3.2833	96.135 ppb	3.2833	3.42%
Sn 189.927†	3.4	0.7583 µg/L	0.63593	0.7583 ppb	0.63593	83.86%
Sr 421.552†	139.6	0.6906 µg/L	0.18912	0.6906 ppb	0.18912	27.38%
Ti 334.940†	312.1	0.7608 µg/L	0.38730	0.7608 ppb	0.38730	50.91%
Tl 190.801†	4.7	2.0346 µg/L	3.86344	2.0346 ppb	3.86344	189.89%
U 367.007†	-22.9	-5.9282 µg/L	15.79030	-5.9282 ppb	15.79030	266.36%
V 292.402†	-40.2	-0.3521 µg/L	0.45490	-0.3521 ppb	0.45490	129.20%
Zn 213.857†	266.2	3.9139 µg/L	0.18840	3.9139 ppb	0.18840	4.81%

Sequence No.: 6 **Autosampler Location: 406**
Sample ID: 1202683378|1223291|1 **Date Collected: 6/26/2012 10:56:42**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202683378|1223291|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15360.8	15360.8	102	%			10:57:32
1	Al 396.153Radial†	8165.8	8120.8	5247.5	µg/L	5247.5	ppb	10:57:32
1	Ca 317.933Radial†	18739.8	18154.5	5186.2	µg/L	5186.2	ppb	10:57:32
1	Fe 238.204 Radial†	5465.1	5329.3	5054.2	µg/L	5054.2	ppb	10:57:32
1	K 766.490 Radial†	5006.4	4628.1	5406.3	µg/L	5406.3	ppb	10:57:12
1	Mg 279.077 IEC†	1443.9	1409.5	5249.5	µg/L	5249.5	ppb	10:57:32
1	Na 589.592 Radial†	24959.5	23657.3	5333.1	µg/L	5333.1	ppb	10:57:12
1	Sr 421.552†	109142.3	106252.6	526.48	µg/L	526.48	ppb	10:57:12
1	Sc 361.383	742755.1	742755.1	101.43	%			10:58:21
1	Y 371.029	582636.2	582636.2	100.39	%			10:58:21
1	Ag 328.068†	80458.3	80142.5	523.92	µg/L	523.92	ppb	10:58:21
1	As 188.979†	782.5	785.1	564.02	µg/L	564.02	ppb	10:58:41
1	B 249.677†	20685.8	20594.1	553.58	µg/L	553.58	ppb	10:58:21
1	Ba 233.527†	66987.0	66024.1	539.49	µg/L	539.49	ppb	10:58:21
1	Be 313.107†	1311300.6	1300087.2	536.93	µg/L	536.93	ppb	10:58:21
1	Cd 226.502†	71616.5	70712.3	541.81	µg/L	541.81	ppb	10:58:21
1	Co 228.616†	14326.1	14324.5	566.36	µg/L	566.36	ppb	10:58:41
1	Cr 267.716†	52452.8	51569.7	539.37	µg/L	539.37	ppb	10:58:21
1	Cu 324.752†	118573.6	113561.4	542.00	µg/L	542.00	ppb	10:58:21
1	Mn 257.610†	291249.9	286784.0	534.86	µg/L	534.86	ppb	10:58:21
1	Mo 202.031†	10249.0	9991.1	542.73	µg/L	542.73	ppb	10:58:41
1	Ni 231.604†	14659.0	14429.4	551.15	µg/L	551.15	ppb	10:58:41
1	P 214.914†	608.2	581.3	550.68	µg/L	550.68	ppb	10:58:41
1	Pb 220.353†	3294.9	3296.2	561.54	µg/L	561.54	ppb	10:58:41
1	S 181.975 Axial†	3450.5	3348.3	5276.4	µg/L	5276.4	ppb	10:58:41
1	Sb 206.836†	896.4	870.3	543.23	µg/L	543.23	ppb	10:58:41
1	Se 196.026†	705.1	686.1	541	µg/L	541	ppb	10:58:41
1	SiO2†	95009.1	91912.6	11498	µg/L	11498	ppb	10:58:21
1	Si 251.611†	172070.0	168302.7	5344.4	µg/L	5344.4	ppb	10:58:21
1	Sn 189.927†	2536.8	2493.2	556.08	µg/L	556.08	ppb	10:58:41
1	Ti 334.940†	221272.3	219169.8	533.20	µg/L	533.20	ppb	10:58:21
1	Tl 190.801†	1233.1	1270.3	542.62	µg/L	542.62	ppb	10:58:41
1	U 367.007†	1767.5	2105.3	495.88	µg/L	495.88	ppb	10:58:21
1	V 292.402†	64397.1	63448.0	544.06	µg/L	544.06	ppb	10:58:21
1	Zn 213.857†	36951.5	36101.8	527.39	µg/L	527.39	ppb	10:58:41
2	Sc RADIAL	15275.9	15275.9	102	%			10:57:55
2	Al 396.153Radial†	8162.7	8162.1	5274.5	µg/L	5274.5	ppb	10:57:55
2	Ca 317.933Radial†	18738.5	18255.3	5215.0	µg/L	5215.0	ppb	10:57:55
2	Fe 238.204 Radial†	5481.4	5375.1	5097.6	µg/L	5097.6	ppb	10:57:55
2	K 766.490 Radial†	5092.8	4740.4	5537.6	µg/L	5537.6	ppb	10:57:34
2	Mg 279.077 IEC†	1437.4	1411.0	5255.0	µg/L	5255.0	ppb	10:57:55
2	Na 589.592 Radial†	24890.2	23724.9	5348.3	µg/L	5348.3	ppb	10:57:34
2	Sr 421.552†	108898.4	106606.6	528.23	µg/L	528.23	ppb	10:57:34
2	Sc 361.383	738300.5	738300.5	100.83	%			10:58:44
2	Y 371.029	577894.0	577894.0	99.570	%			10:58:44
2	Ag 328.068†	79970.8	80137.6	523.89	µg/L	523.89	ppb	10:58:44
2	As 188.979†	761.3	768.8	552.35	µg/L	552.35	ppb	10:59:04
2	B 249.677†	20608.4	20640.3	555.01	µg/L	555.01	ppb	10:58:44
2	Ba 233.527†	66250.0	65691.6	536.78	µg/L	536.78	ppb	10:58:44
2	Be 313.107†	1295953.7	1292666.1	533.86	µg/L	533.86	ppb	10:58:44
2	Cd 226.502†	70503.2	70034.2	536.60	µg/L	536.60	ppb	10:58:44
2	Co 228.616†	14168.5	14253.4	563.55	µg/L	563.55	ppb	10:59:04
2	Cr 267.716†	51648.9	51084.4	534.30	µg/L	534.30	ppb	10:58:44
2	Cu 324.752†	117618.5	113319.4	540.85	µg/L	540.85	ppb	10:58:44
2	Mn 257.610†	287748.9	285044.2	531.61	µg/L	531.61	ppb	10:58:44
2	Mo 202.031†	10134.9	9938.9	539.90	µg/L	539.90	ppb	10:59:04
2	Ni 231.604†	14497.4	14356.3	548.36	µg/L	548.36	ppb	10:59:04
2	P 214.914†	605.9	582.6	551.92	µg/L	551.92	ppb	10:59:04
2	Pb 220.353†	3268.9	3290.0	560.48	µg/L	560.48	ppb	10:59:04

2	S 181.975 Axial†	3447.0	3365.3	5303.2 µg/L	5303.2 ppb	10:59:04
2	Sb 206.836†	891.8	871.1	543.73 µg/L	543.73 ppb	10:59:04
2	Se 196.026†	696.4	681.6	538 µg/L	538 ppb	10:59:04
2	SiO2†	94135.8	91611.6	11460 µg/L	11460 ppb	10:58:44
2	Si 251.611†	170047.7	167320.5	5313.2 µg/L	5313.2 ppb	10:58:44
2	Sn 189.927†	2518.1	2489.8	555.31 µg/L	555.31 ppb	10:59:04
2	Ti 334.940†	219553.5	218781.2	532.25 µg/L	532.25 ppb	10:58:44
2	Tl 190.801†	1227.0	1271.7	543.19 µg/L	543.19 ppb	10:59:04
2	U 367.007†	1858.3	2205.9	520.82 µg/L	520.82 ppb	10:58:44
2	V 292.402†	63817.9	63256.6	542.44 µg/L	542.44 ppb	10:58:44
2	Zn 213.857†	36555.1	35928.4	524.85 µg/L	524.85 ppb	10:59:04
3	Sc RADIAL	15350.6	15350.6	102 %		10:58:17
3	Al 396.153Radial†	8149.2	8109.8	5243.1 µg/L	5243.1 ppb	10:58:17
3	Ca 317.933Radial†	18843.7	18268.6	5218.8 µg/L	5218.8 ppb	10:58:17
3	Fe 238.204 Radial†	5485.0	5352.4	5075.9 µg/L	5075.9 ppb	10:58:17
3	K 766.490 Radial†	5094.6	4717.8	5511.3 µg/L	5511.3 ppb	10:57:57
3	Mg 279.077 IEC†	1452.4	1418.9	5284.3 µg/L	5284.3 ppb	10:58:17
3	Na 589.592 Radial†	24828.3	23545.0	5307.8 µg/L	5307.8 ppb	10:57:57
3	Sr 421.552†	108351.1	105548.3	522.99 µg/L	522.99 ppb	10:57:57
3	Sc 361.383	749320.0	749320.0	102.33 %		10:59:07
3	Y 371.029	586420.1	586420.1	101.04 %		10:59:07
3	Ag 328.068†	78483.1	77517.4	506.73 µg/L	506.73 ppb	10:59:07
3	As 188.979†	669.6	668.1	480.27 µg/L	480.27 ppb	10:59:27
3	B 249.677†	19858.3	19606.7	528.53 µg/L	528.53 ppb	10:59:07
3	Ba 233.527†	63739.4	62272.0	508.82 µg/L	508.82 ppb	10:59:07
3	Be 313.107†	1232044.3	1211310.4	500.26 µg/L	500.26 ppb	10:59:07
3	Cd 226.502†	67645.9	66213.7	507.29 µg/L	507.29 ppb	10:59:07
3	Co 228.616†	12216.8	12139.6	480.03 µg/L	480.03 ppb	10:59:27
3	Cr 267.716†	48311.2	47069.4	492.31 µg/L	492.31 ppb	10:59:07
3	Cu 324.752†	112568.4	106668.9	509.08 µg/L	509.08 ppb	10:59:07
3	Mn 257.610†	274410.9	267813.1	499.47 µg/L	499.47 ppb	10:59:07
3	Mo 202.031†	8744.0	8431.9	458.07 µg/L	458.07 ppb	10:59:27
3	Ni 231.604†	12527.7	12220.0	466.77 µg/L	466.77 ppb	10:59:27
3	P 214.914†	523.3	493.1	466.59 µg/L	466.59 ppb	10:59:27
3	Pb 220.353†	2898.5	2880.4	490.74 µg/L	490.74 ppb	10:59:27
3	S 181.975 Axial†	3104.9	2980.7	4696.9 µg/L	4696.9 ppb	10:59:27
3	Sb 206.836†	771.7	740.7	461.90 µg/L	461.90 ppb	10:59:27
3	Se 196.026†	626.8	603.5	476 µg/L	476 ppb	10:59:27
3	SiO2†	91298.6	87466.0	10941 µg/L	10941 ppb	10:59:07
3	Si 251.611†	165289.6	160190.6	5086.8 µg/L	5086.8 ppb	10:59:07
3	Sn 189.927†	2137.4	2081.1	464.36 µg/L	464.36 ppb	10:59:27
3	Ti 334.940†	206816.9	203132.4	494.17 µg/L	494.17 ppb	10:59:07
3	Tl 190.801†	1105.9	1135.4	485.27 µg/L	485.27 ppb	10:59:27
3	U 367.007†	1699.0	2023.1	475.14 µg/L	475.14 ppb	10:59:07
3	V 292.402†	60545.5	59128.0	506.58 µg/L	506.58 ppb	10:59:07
3	Zn 213.857†	31640.4	30592.5	446.82 µg/L	446.82 ppb	10:59:27

Mean Data: 1202683378|1223291|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	743458.5	101.53	%	0.757				0.75%
Sc RADIAL	15329.1	102	%	0.3				0.30%
Y 371.029	582316.8	100.33	%	0.736				0.73%
Ag 328.068†	79265.8	518.18	µg/L	9.920	518.18	ppb	9.920	1.91%
Al 396.153Radial†	8130.9	5255.0	µg/L	16.95	5255.0	ppb	16.95	0.32%
As 188.979†	740.7	532.21	µg/L	45.359	532.21	ppb	45.359	8.52%
B 249.677†	20280.4	545.71	µg/L	14.889	545.71	ppb	14.889	2.73%
Ba 233.527†	64662.6	528.36	µg/L	16.977	528.36	ppb	16.977	3.21%
Be 313.107†	1268021.3	523.68	µg/L	20.340	523.68	ppb	20.340	3.88%
Ca 317.933Radial†	18226.1	5206.7	µg/L	17.83	5206.7	ppb	17.83	0.34%
Cd 226.502†	68986.8	528.57	µg/L	18.610	528.57	ppb	18.610	3.52%
Co 228.616†	13572.5	536.65	µg/L	49.055	536.65	ppb	49.055	9.14%
Cr 267.716†	49907.8	522.00	µg/L	25.830	522.00	ppb	25.830	4.95%
Cu 324.752†	111183.2	530.64	µg/L	18.688	530.64	ppb	18.688	3.52%
Fe 238.204 Radial†	5352.3	5075.9	µg/L	21.70	5075.9	ppb	21.70	0.43%
K 766.490 Radial†	4695.4	5485.1	µg/L	69.47	5485.1	ppb	69.47	1.27%
Mg 279.077 IEC†	1413.1	5263.0	µg/L	18.73	5263.0	ppb	18.73	0.36%
Mn 257.610†	279880.4	521.98	µg/L	19.560	521.98	ppb	19.560	3.75%
Mo 202.031†	9453.9	513.57	µg/L	48.083	513.57	ppb	48.083	9.36%
Na 589.592 Radial†	23642.4	5329.7	µg/L	20.48	5329.7	ppb	20.48	0.38%

Ni 231.604†	13668.6	522.10 µg/L	47.934	522.10 ppb	47.934	9.18%
P 214.914†	552.3	523.06 µg/L	48.911	523.06 ppb	48.911	9.35%
Pb 220.353†	3155.5	537.59 µg/L	40.575	537.59 ppb	40.575	7.55%
S 181.975 Axial†	3231.4	5092.2 µg/L	342.56	5092.2 ppb	342.56	6.73%
Sb 206.836†	827.3	516.29 µg/L	47.101	516.29 ppb	47.101	9.12%
Se 196.026†	657.1	519 µg/L	36.5	519 ppb	36.5	7.03%
SiO2†	90330.0	11300 µg/L	311.1	11300 ppb	311.1	2.75%
Si 251.611†	165271.3	5248.1 µg/L	140.59	5248.1 ppb	140.59	2.68%
Sn 189.927†	2354.7	525.25 µg/L	52.731	525.25 ppb	52.731	10.04%
Sr 421.552†	106135.8	525.90 µg/L	2.670	525.90 ppb	2.670	0.51%
Ti 334.940†	213694.5	519.87 µg/L	22.262	519.87 ppb	22.262	4.28%
Tl 190.801†	1225.8	523.69 µg/L	33.279	523.69 ppb	33.279	6.35%
U 367.007†	2111.4	497.28 µg/L	22.872	497.28 ppb	22.872	4.60%
V 292.402†	61944.2	531.02 µg/L	21.183	531.02 ppb	21.183	3.99%
Zn 213.857†	34207.6	499.69 µg/L	45.801	499.69 ppb	45.801	9.17%

Sequence No.: 7 **Autosampler Location: 407**
Sample ID: 1202683379|1223291|5 **Date Collected: 6/26/2012 10:59:35**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1202683379|1223291|5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15157.6	15157.6	101	%			11:00:05
1	Al 396.153Radial†	-43.4	78.3	50.745	µg/L	50.745	ppb	11:00:05
1	Ca 317.933Radial†	243.9	38.7	11.054	µg/L	11.054	ppb	11:00:25
1	Fe 238.204 Radial†	31.6	7.0	6.6010	µg/L	6.6010	ppb	11:00:25
1	K 766.490 Radial†	401.0	121.7	142.39	µg/L	142.39	ppb	11:00:05
1	Mg 279.077 IEC†	8.2	3.2	11.949	µg/L	11.949	ppb	11:00:25
1	Na 589.592 Radial†	976.4	175.8	39.636	µg/L	39.636	ppb	11:00:05
1	Sr 421.552†	707.6	37.0	0.1830	µg/L	0.1830	ppb	11:00:05
1	Sc 361.383	742450.8	742450.8	101.39	%			11:01:13
1	Y 371.029	591438.8	591438.8	101.90	%			11:01:13
1	Ag 328.068†	-921.8	-86.9	-0.5668	µg/L	-0.5668	ppb	11:01:13
1	As 188.979†	-19.1	-5.1	-3.6158	µg/L	-3.6158	ppb	11:01:33
1	B 249.677†	-146.6	56.2	1.4777	µg/L	1.4777	ppb	11:01:33
1	Ba 233.527†	10.7	-4.8	-0.0398	µg/L	-0.0398	ppb	11:01:33
1	Be 313.107†	-7212.6	221.1	0.0914	µg/L	0.0914	ppb	11:01:13
1	Cd 226.502†	-89.6	20.5	0.1573	µg/L	0.1573	ppb	11:01:33
1	Co 228.616†	-207.4	-3.4	-0.1362	µg/L	-0.1362	ppb	11:01:33
1	Cr 267.716†	111.0	-31.7	-0.3312	µg/L	-0.3312	ppb	11:01:33
1	Cu 324.752†	3468.8	86.1	0.4103	µg/L	0.4103	ppb	11:01:13
1	Mn 257.610†	596.9	242.5	0.4522	µg/L	0.4522	ppb	11:01:33
1	Mo 202.031†	106.0	-8.4	-0.4560	µg/L	-0.4560	ppb	11:01:33
1	Ni 231.604†	19.6	-2.9	-0.1105	µg/L	-0.1105	ppb	11:01:33
1	P 214.914†	29.5	10.8	10.466	µg/L	10.466	ppb	11:01:33
1	Pb 220.353†	-54.9	-6.2	-1.0514	µg/L	-1.0514	ppb	11:01:33
1	S 181.975 Axial†	50.8	-3.4	-5.3695	µg/L	-5.3695	ppb	11:01:33
1	Sb 206.836†	11.7	-2.0	-1.2227	µg/L	-1.2227	ppb	11:01:33
1	Se 196.026†	-0.1	-9.1	-7.13	µg/L	-7.13	ppb	11:01:33
1	SiO2†	2176.5	393.9	49.216	µg/L	49.216	ppb	11:01:33
1	Si 251.611†	1938.0	578.0	18.353	µg/L	18.353	ppb	11:01:33
1	Sn 189.927†	15.4	7.6	1.6788	µg/L	1.6788	ppb	11:01:33
1	Ti 334.940†	-1184.8	-141.3	-0.3432	µg/L	-0.3432	ppb	11:01:13
1	Tl 190.801†	-42.5	12.8	5.4557	µg/L	5.4557	ppb	11:01:33
1	U 367.007†	-267.2	99.3	24.832	µg/L	24.832	ppb	11:01:13
1	V 292.402†	-3.4	-41.6	-0.3110	µg/L	-0.3110	ppb	11:01:13
1	Zn 213.857†	366.5	34.3	0.5046	µg/L	0.5046	ppb	11:01:33
2	Sc RADIAL	15636.2	15636.2	104	%			11:00:27
2	Al 396.153Radial†	-163.9	-36.4	-23.572	µg/L	-23.572	ppb	11:00:27
2	Ca 317.933Radial†	245.5	32.8	9.3818	µg/L	9.3818	ppb	11:00:48
2	Fe 238.204 Radial†	33.1	7.5	7.1256	µg/L	7.1256	ppb	11:00:48
2	K 766.490 Radial†	423.4	131.2	153.38	µg/L	153.38	ppb	11:00:27
2	Mg 279.077 IEC†	0.5	-4.4	-16.544	µg/L	-16.544	ppb	11:00:48
2	Na 589.592 Radial†	1048.8	215.8	48.647	µg/L	48.647	ppb	11:00:27
2	Sr 421.552†	713.5	21.1	0.1044	µg/L	0.1044	ppb	11:00:27
2	Sc 361.383	745199.3	745199.3	101.77	%			11:01:36
2	Y 371.029	589202.3	589202.3	101.52	%			11:01:36
2	Ag 328.068†	-870.3	-32.8	-0.2137	µg/L	-0.2137	ppb	11:01:36
2	As 188.979†	-9.2	4.7	3.3505	µg/L	3.3505	ppb	11:01:56
2	B 249.677†	-182.5	21.5	0.5852	µg/L	0.5852	ppb	11:01:56
2	Ba 233.527†	23.9	8.1	0.0665	µg/L	0.0665	ppb	11:01:56
2	Be 313.107†	-7375.7	87.0	0.0360	µg/L	0.0360	ppb	11:01:36
2	Cd 226.502†	-109.8	1.0	0.0072	µg/L	0.0072	ppb	11:01:56
2	Co 228.616†	-194.2	10.3	0.4048	µg/L	0.4048	ppb	11:01:56
2	Cr 267.716†	132.0	-11.4	-0.1192	µg/L	-0.1192	ppb	11:01:56
2	Cu 324.752†	3374.5	-19.1	-0.0887	µg/L	-0.0887	ppb	11:01:36
2	Mn 257.610†	563.2	207.2	0.3868	µg/L	0.3868	ppb	11:01:56
2	Mo 202.031†	119.7	4.7	0.2549	µg/L	0.2549	ppb	11:01:56
2	Ni 231.604†	21.0	-1.6	-0.0624	µg/L	-0.0624	ppb	11:01:56
2	P 214.914†	17.0	-1.6	-1.5676	µg/L	-1.5676	ppb	11:01:56
2	Pb 220.353†	-44.2	4.5	0.7555	µg/L	0.7555	ppb	11:01:56

2	S 181.975 Axial†	63.0	8.4	13.227 µg/L	13.227 ppb	11:01:56
2	Sb 206.836†	16.6	2.8	1.7611 µg/L	1.7611 ppb	11:01:56
2	Se 196.026†	9.5	0.3	0.270 µg/L	0.270 ppb	11:01:56
2	SiO2†	2149.7	359.7	44.942 µg/L	44.942 ppb	11:01:56
2	Si 251.611†	1955.1	587.7	18.664 µg/L	18.664 ppb	11:01:56
2	Sn 189.927†	7.9	0.1	0.0287 µg/L	0.0287 ppb	11:01:56
2	Ti 334.940†	-1087.7	-41.5	-0.1011 µg/L	-0.1011 ppb	11:01:36
2	Tl 190.801†	-48.6	7.0	2.9607 µg/L	2.9607 ppb	11:01:56
2	U 367.007†	-423.7	-53.5	-13.453 µg/L	-13.453 ppb	11:01:36
2	V 292.402†	83.2	43.5	0.3447 µg/L	0.3447 ppb	11:01:36
2	Zn 213.857†	354.5	21.2	0.3122 µg/L	0.3122 ppb	11:01:56
3	Sc RADIAL	15561.1	15561.1	103 %		11:00:50
3	Al 396.153Radial†	-95.9	28.6	18.521 µg/L	18.521 ppb	11:00:50
3	Ca 317.933Radial†	249.8	38.1	10.896 µg/L	10.896 ppb	11:01:10
3	Fe 238.204 Radial†	29.1	3.8	3.6087 µg/L	3.6087 ppb	11:01:10
3	K 766.490 Radial†	358.1	70.0	81.880 µg/L	81.880 ppb	11:00:50
3	Mg 279.077 IEC†	2.1	-2.9	-10.842 µg/L	-10.842 ppb	11:01:10
3	Na 589.592 Radial†	952.3	127.4	28.713 µg/L	28.713 ppb	11:00:50
3	Sr 421.552†	699.1	10.5	0.0520 µg/L	0.0520 ppb	11:00:50
3	Sc 361.383	729789.0	729789.0	99.664 %		11:01:58
3	Y 371.029	578889.8	578889.8	99.742 %		11:01:58
3	Ag 328.068†	-1023.5	-204.6	-1.3350 µg/L	-1.3350 ppb	11:01:58
3	As 188.979†	-14.6	-0.9	-0.6567 µg/L	-0.6567 ppb	11:02:18
3	B 249.677†	-149.4	51.0	1.3249 µg/L	1.3249 ppb	11:02:18
3	Ba 233.527†	19.8	4.5	0.0368 µg/L	0.0368 ppb	11:02:18
3	Be 313.107†	-6935.5	375.7	0.1552 µg/L	0.1552 ppb	11:01:58
3	Cd 226.502†	-93.8	14.7	0.1130 µg/L	0.1130 ppb	11:02:18
3	Co 228.616†	-189.2	11.2	0.4423 µg/L	0.4423 ppb	11:02:18
3	Cr 267.716†	132.4	-8.3	-0.0865 µg/L	-0.0865 ppb	11:02:18
3	Cu 324.752†	3438.7	115.3	0.5511 µg/L	0.5511 ppb	11:01:58
3	Mn 257.610†	568.1	223.8	0.4177 µg/L	0.4177 ppb	11:02:18
3	Mo 202.031†	118.9	6.4	0.3460 µg/L	0.3460 ppb	11:02:18
3	Ni 231.604†	27.7	5.6	0.2123 µg/L	0.2123 ppb	11:02:18
3	P 214.914†	12.6	-5.6	-5.4227 µg/L	-5.4227 ppb	11:02:18
3	Pb 220.353†	-53.6	-5.9	-0.9946 µg/L	-0.9946 ppb	11:02:18
3	S 181.975 Axial†	54.7	1.4	2.1903 µg/L	2.1903 ppb	11:02:18
3	Sb 206.836†	11.1	-2.3	-1.4180 µg/L	-1.4180 ppb	11:02:18
3	Se 196.026†	11.5	2.6	2.02 µg/L	2.02 ppb	11:02:18
3	SiO2†	2140.9	395.4	49.413 µg/L	49.413 ppb	11:02:18
3	Si 251.611†	1894.5	567.5	18.020 µg/L	18.020 ppb	11:02:18
3	Sn 189.927†	4.6	-3.0	-0.6737 µg/L	-0.6737 ppb	11:02:18
3	Ti 334.940†	-1017.9	5.9	0.0143 µg/L	0.0143 ppb	11:01:58
3	Tl 190.801†	-49.0	5.5	2.3416 µg/L	2.3416 ppb	11:02:18
3	U 367.007†	-458.3	-97.0	-24.329 µg/L	-24.329 ppb	11:01:58
3	V 292.402†	26.4	-11.8	-0.1413 µg/L	-0.1413 ppb	11:01:58
3	Zn 213.857†	361.9	36.0	0.5280 µg/L	0.5280 ppb	11:02:18

Mean Data: 1202683379|1223291|5

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	739146.4	100.94	%	1.122				1.11%
Sc RADIAL	15451.6	103	%	1.7				1.67%
Y 371.029	586510.3	101.05	%	1.153				1.14%
Ag 328.068†	-108.1	-0.7052	µg/L	0.57329	-0.7052	ppb	0.57329	81.30%
Al 396.153Radial†	23.5	15.231	µg/L	37.2673	15.231	ppb	37.2673	244.68%
As 188.979†	-0.4	-0.3073	µg/L	3.49631	-0.3073	ppb	3.49631	>999.9%
B 249.677†	42.9	1.1293	µg/L	0.47736	1.1293	ppb	0.47736	42.27%
Ba 233.527†	2.6	0.0212	µg/L	0.05482	0.0212	ppb	0.05482	259.08%
Be 313.107†	227.9	0.0942	µg/L	0.05964	0.0942	ppb	0.05964	63.31%
Ca 317.933Radial†	36.6	10.444	µg/L	0.9231	10.444	ppb	0.9231	8.84%
Cd 226.502†	12.1	0.0925	µg/L	0.07712	0.0925	ppb	0.07712	83.36%
Co 228.616†	6.0	0.2370	µg/L	0.32375	0.2370	ppb	0.32375	136.62%
Cr 267.716†	-17.1	-0.1790	µg/L	0.13288	-0.1790	ppb	0.13288	74.25%
Cu 324.752†	60.7	0.2909	µg/L	0.33617	0.2909	ppb	0.33617	115.57%
Fe 238.204 Radial†	6.1	5.7784	µg/L	1.89723	5.7784	ppb	1.89723	32.83%
K 766.490 Radial†	107.6	125.88	µg/L	38.503	125.88	ppb	38.503	30.59%
Mg 279.077 IEC†	-1.4	-5.1456	µg/L	15.07606	-5.1456	ppb	15.07606	292.99%
Mn 257.610†	224.5	0.4189	µg/L	0.03273	0.4189	ppb	0.03273	7.81%
Mo 202.031†	0.9	0.0483	µg/L	0.43910	0.0483	ppb	0.43910	909.70%
Na 589.592 Radial†	173.0	38.999	µg/L	9.9825	38.999	ppb	9.9825	25.60%

Ni 231.604†	0.3	0.0131 µg/L	0.17417	0.0131 ppb	0.17417	>999.9%
P 214.914†	1.2	1.1584 µg/L	8.28750	1.1584 ppb	8.28750	715.44%
Pb 220.353†	-2.5	-0.4302 µg/L	1.02724	-0.4302 ppb	1.02724	238.79%
S 181.975 Axial†	2.1	3.3492 µg/L	9.35207	3.3492 ppb	9.35207	279.23%
Sb 206.836†	-0.5	-0.2932 µg/L	1.78177	-0.2932 ppb	1.78177	607.72%
Se 196.026†	-2.1	-1.61 µg/L	4.859	-1.61 ppb	4.859	301.47%
SiO2†	383.0	47.857 µg/L	2.5263	47.857 ppb	2.5263	5.28%
Si 251.611†	577.7	18.346 µg/L	0.3218	18.346 ppb	0.3218	1.75%
Sn 189.927†	1.6	0.3446 µg/L	1.20766	0.3446 ppb	1.20766	350.47%
Sr 421.552†	22.9	0.1131 µg/L	0.06595	0.1131 ppb	0.06595	58.30%
Ti 334.940†	-59.0	-0.1433 µg/L	0.18248	-0.1433 ppb	0.18248	127.31%
Tl 190.801†	8.4	3.5860 µg/L	1.64853	3.5860 ppb	1.64853	45.97%
U 367.007†	-17.1	-4.3167 µg/L	25.82258	-4.3167 ppb	25.82258	598.20%
V 292.402†	-3.3	-0.0358 µg/L	0.34034	-0.0358 ppb	0.34034	949.55%
Zn 213.857†	30.5	0.4483 µg/L	0.11842	0.4483 ppb	0.11842	26.42%

Sequence No.: 8 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 6/26/2012 11:02:27**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	15116.9	15116.9	100	%			11:03:19
1	Al 396.153Radial†	7715.1	7801.1	5040.4	µg/L	5040.4	ppb	11:03:19
1	Ca 317.933Radial†	17563.7	17279.9	4936.4	µg/L	4936.4	ppb	11:03:19
1	Fe 238.204 Radial†	5260.7	5212.3	4943.2	µg/L	4943.2	ppb	11:03:19
1	K 766.490 Radial†	4590.2	4292.9	5014.3	µg/L	5014.3	ppb	11:02:59
1	Mg 279.077 IEC†	1380.2	1368.9	5098.3	µg/L	5098.3	ppb	11:03:19
1	Na 589.592 Radial†	45502.9	44501.3	10032	µg/L	10032	ppb	11:02:59
1	Sr 421.552†	103160.6	102023.2	505.52	µg/L	505.52	ppb	11:02:59
1	Sc 361.383	726665.8	726665.8	99.238	%			11:04:07
1	Y 371.029	565179.2	565179.2	97.379	%			11:04:07
1	Ag 328.068†	77224.6	78640.2	514.11	µg/L	514.11	ppb	11:04:09
1	As 188.979†	743.5	763.0	548.17	µg/L	548.17	ppb	11:04:29
1	B 249.677†	19647.1	19998.9	537.81	µg/L	537.81	ppb	11:04:09
1	Ba 233.527†	63699.6	64173.7	524.38	µg/L	524.38	ppb	11:04:09
1	Be 313.107†	1246375.5	1263286.5	521.73	µg/L	521.73	ppb	11:04:07
1	Cd 226.502†	67887.7	68518.1	524.99	µg/L	524.99	ppb	11:04:09
1	Co 228.616†	13645.1	13951.0	551.59	µg/L	551.59	ppb	11:04:29
1	Cr 267.716†	50120.6	50364.5	526.77	µg/L	526.77	ppb	11:04:09
1	Cu 324.752†	112358.2	109886.5	524.47	µg/L	524.47	ppb	11:04:09
1	Mn 257.610†	280546.0	282355.4	526.60	µg/L	526.60	ppb	11:04:09
1	Mo 202.031†	10023.0	9987.1	542.52	µg/L	542.52	ppb	11:04:29
1	Ni 231.604†	14115.5	14201.7	542.46	µg/L	542.46	ppb	11:04:09
1	P 214.914†	2806.9	2810.1	2701.5	µg/L	2701.5	ppb	11:04:29
1	Pb 220.353†	3118.7	3190.6	543.56	µg/L	543.56	ppb	11:04:29
1	S 181.975 Axial†	725.9	678.0	1069.0	µg/L	1069.0	ppb	11:04:29
1	Sb 206.836†	868.2	861.4	537.82	µg/L	537.82	ppb	11:04:29
1	Se 196.026†	681.0	677.3	534	µg/L	534	ppb	11:04:29
1	SiO2†	44960.8	43553.6	5454.7	µg/L	5454.7	ppb	11:04:09
1	Si 251.611†	80892.5	80180.7	2546.1	µg/L	2546.1	ppb	11:04:09
1	Sn 189.927†	2443.7	2454.8	547.48	µg/L	547.48	ppb	11:04:29
1	Ti 334.940†	211567.9	214220.7	521.16	µg/L	521.16	ppb	11:04:09
1	Tl 190.801†	1191.9	1255.8	536.41	µg/L	536.41	ppb	11:04:29
1	U 367.007†	1690.1	2065.9	486.70	µg/L	486.70	ppb	11:04:09
1	V 292.402†	61651.6	62087.1	532.48	µg/L	532.48	ppb	11:04:09
1	Zn 213.857†	35996.9	35946.4	525.17	µg/L	525.17	ppb	11:04:09
2	Sc RADIAL	15052.6	15052.6	100	%			11:03:41
2	Al 396.153Radial†	7738.1	7856.9	5077.3	µg/L	5077.3	ppb	11:03:41
2	Ca 317.933Radial†	17519.9	17310.8	4945.2	µg/L	4945.2	ppb	11:03:41
2	Fe 238.204 Radial†	5269.9	5243.8	4973.0	µg/L	4973.0	ppb	11:03:41
2	K 766.490 Radial†	4802.2	4524.3	5285.0	µg/L	5285.0	ppb	11:03:21
2	Mg 279.077 IEC†	1383.2	1377.9	5131.7	µg/L	5131.7	ppb	11:03:41
2	Na 589.592 Radial†	46006.2	45197.8	10189	µg/L	10189	ppb	11:03:21
2	Sr 421.552†	103658.6	102959.8	510.16	µg/L	510.16	ppb	11:03:21
2	Sc 361.383	752613.6	752613.6	102.78	%			11:04:31
2	Y 371.029	591784.9	591784.9	101.96	%			11:04:31
2	Ag 328.068†	79798.0	78461.1	512.93	µg/L	512.93	ppb	11:04:33
2	As 188.979†	743.8	737.4	529.92	µg/L	529.92	ppb	11:04:53
2	B 249.677†	20351.8	20002.0	538.07	µg/L	538.07	ppb	11:04:33
2	Ba 233.527†	64812.4	63043.3	515.14	µg/L	515.14	ppb	11:04:33
2	Be 313.107†	1261353.7	1234557.9	509.86	µg/L	509.86	ppb	11:04:31
2	Cd 226.502†	69772.0	67992.9	520.97	µg/L	520.97	ppb	11:04:33
2	Co 228.616†	13478.9	13315.2	526.47	µg/L	526.47	ppb	11:04:53
2	Cr 267.716†	51685.1	50145.4	524.47	µg/L	524.47	ppb	11:04:33
2	Cu 324.752†	114496.5	108063.4	515.76	µg/L	515.76	ppb	11:04:33
2	Mn 257.610†	285702.9	277626.0	517.78	µg/L	517.78	ppb	11:04:33
2	Mo 202.031†	9895.3	9514.6	516.86	µg/L	516.86	ppb	11:04:53
2	Ni 231.604†	14556.2	14140.1	540.11	µg/L	540.11	ppb	11:04:33
2	P 214.914†	2780.3	2686.8	2582.8	µg/L	2582.8	ppb	11:04:53
2	Pb 220.353†	3088.9	3053.3	520.19	µg/L	520.19	ppb	11:04:53

2	S 181.975 Axial†	706.9	634.3	1000.0 µg/L	1000.0 ppb	11:04:53
2	Sb 206.836†	861.0	824.2	514.33 µg/L	514.33 ppb	11:04:53
2	Se 196.026†	682.4	654.9	517 µg/L	517 ppb	11:04:53
2	SiO2†	45903.8	42909.1	5374.1 µg/L	5374.1 ppb	11:04:33
2	Si 251.611†	82392.2	78829.4	2503.2 µg/L	2503.2 ppb	11:04:33
2	Sn 189.927†	2426.6	2353.3	524.89 µg/L	524.89 ppb	11:04:53
2	Ti 334.940†	215798.9	210987.0	513.29 µg/L	513.29 ppb	11:04:33
2	Tl 190.801†	1176.5	1199.3	512.41 µg/L	512.41 ppb	11:04:53
2	U 367.007†	1748.7	2064.2	486.08 µg/L	486.08 ppb	11:04:33
2	V 292.402†	62910.9	61170.4	524.51 µg/L	524.51 ppb	11:04:33
2	Zn 213.857†	36712.1	35391.6	517.02 µg/L	517.02 ppb	11:04:33
3	Sc RADIAL	15065.1	15065.1	100 %		11:04:03
3	Al 396.153Radial†	7729.6	7842.1	5069.9 µg/L	5069.9 ppb	11:04:03
3	Ca 317.933Radial†	17431.0	17207.5	4915.7 µg/L	4915.7 ppb	11:04:03
3	Fe 238.204 Radial†	5231.9	5201.5	4932.8 µg/L	4932.8 ppb	11:04:03
3	K 766.490 Radial†	4667.4	4385.7	5122.9 µg/L	5122.9 ppb	11:03:43
3	Mg 279.077 IEC†	1373.5	1367.0	5091.3 µg/L	5091.3 ppb	11:04:03
3	Na 589.592 Radial†	44938.5	44093.2	9940.0 µg/L	9940.0 ppb	11:03:43
3	Sr 421.552†	101947.6	101164.7	501.27 µg/L	501.27 ppb	11:03:43
3	Sc 361.383	732656.3	732656.3	100.06 %		11:04:55
3	Y 371.029	573677.6	573677.6	98.844 %		11:04:55
3	Ag 328.068†	75170.4	75950.9	496.49 µg/L	496.49 ppb	11:04:58
3	As 188.979†	639.6	652.9	469.37 µg/L	469.37 ppb	11:05:18
3	B 249.677†	19124.7	19314.9	520.36 µg/L	520.36 ppb	11:04:58
3	Ba 233.527†	59962.8	59914.2	489.56 µg/L	489.56 ppb	11:04:58
3	Be 313.107†	1174373.3	1181055.1	487.77 µg/L	487.77 ppb	11:04:55
3	Cd 226.502†	64052.7	64125.9	491.33 µg/L	491.33 ppb	11:04:58
3	Co 228.616†	11345.3	11540.1	456.33 µg/L	456.33 ppb	11:05:18
3	Cr 267.716†	45958.9	45792.2	478.95 µg/L	478.95 ppb	11:04:58
3	Cu 324.752†	105423.1	102029.5	486.94 µg/L	486.94 ppb	11:04:58
3	Mn 257.610†	261463.6	260972.0	486.72 µg/L	486.72 ppb	11:04:58
3	Mo 202.031†	8363.1	8245.5	447.95 µg/L	447.95 ppb	11:05:18
3	Ni 231.604†	13241.4	13211.8	504.67 µg/L	504.67 ppb	11:04:58
3	P 214.914†	2402.6	2382.9	2290.5 µg/L	2290.5 ppb	11:05:18
3	Pb 220.353†	2701.1	2747.5	468.13 µg/L	468.13 ppb	11:05:18
3	S 181.975 Axial†	646.8	592.9	934.56 µg/L	934.56 ppb	11:05:18
3	Sb 206.836†	745.6	731.7	456.32 µg/L	456.32 ppb	11:05:18
3	Se 196.026†	607.1	597.8	472 µg/L	472 ppb	11:05:18
3	SiO2†	42904.3	41127.8	5150.4 µg/L	5150.4 ppb	11:04:58
3	Si 251.611†	77040.5	75664.3	2402.7 µg/L	2402.7 ppb	11:04:58
3	Sn 189.927†	2004.5	1995.7	445.32 µg/L	445.32 ppb	11:05:18
3	Ti 334.940†	194823.9	195742.8	476.20 µg/L	476.20 ppb	11:04:58
3	Tl 190.801†	1085.1	1139.2	486.88 µg/L	486.88 ppb	11:05:18
3	U 367.007†	1560.9	1922.9	450.93 µg/L	450.93 ppb	11:04:58
3	V 292.402†	57282.0	57211.9	490.21 µg/L	490.21 ppb	11:04:58
3	Zn 213.857†	33552.3	33206.5	485.08 µg/L	485.08 ppb	11:04:58

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	737311.9	100.69	%	1.855				1.84%
Sc RADIAL	15078.2	100	%	0.2				0.23%
Y 371.029	576880.6	99.395	%	2.3413				2.36%
Ag 328.068†	77684.1	507.84	µg/L	9.852	507.84	ppb	9.852	1.94%
QC value within limits for Ag 328.068 Recovery = 101.57%								
Al 396.153Radial†	7833.4	5062.5	µg/L	19.56	5062.5	ppb	19.56	0.39%
QC value within limits for Al 396.153Radial Recovery = 101.25%								
As 188.979†	717.8	515.82	µg/L	41.248	515.82	ppb	41.248	8.00%
QC value within limits for As 188.979 Recovery = 103.16%								
B 249.677†	19771.9	532.08	µg/L	10.153	532.08	ppb	10.153	1.91%
QC value within limits for B 249.677 Recovery = 106.42%								
Ba 233.527†	62377.1	509.69	µg/L	18.036	509.69	ppb	18.036	3.54%
QC value within limits for Ba 233.527 Recovery = 101.94%								
Be 313.107†	1226299.8	506.45	µg/L	17.234	506.45	ppb	17.234	3.40%
QC value within limits for Be 313.107 Recovery = 101.29%								
Ca 317.933Radial†	17266.1	4932.4	µg/L	15.15	4932.4	ppb	15.15	0.31%
QC value within limits for Ca 317.933Radial Recovery = 98.65%								
Cd 226.502†	66879.0	512.43	µg/L	18.383	512.43	ppb	18.383	3.59%
QC value within limits for Cd 226.502 Recovery = 102.49%								
Co 228.616†	12935.4	511.46	µg/L	49.375	511.46	ppb	49.375	9.65%

QC value within limits for Co 228.616 Recovery = 102.29%

Cr 267.716†	48767.4	510.07 µg/L	26.968	510.07 ppb	26.968	5.29%

QC value within limits for Cr 267.716 Recovery = 102.01%

Cu 324.752†	106659.8	509.06 µg/L	19.645	509.06 ppb	19.645	3.86%

QC value within limits for Cu 324.752 Recovery = 101.81%

Fe 238.204 Radial†	5219.2	4949.7 µg/L	20.89	4949.7 ppb	20.89	0.42%

QC value within limits for Fe 238.204 Radial Recovery = 98.99%

K 766.490 Radial†	4401.0	5140.7 µg/L	136.21	5140.7 ppb	136.21	2.65%

QC value within limits for K 766.490 Radial Recovery = 102.81%

Mg 279.077 IEC†	1371.3	5107.1 µg/L	21.56	5107.1 ppb	21.56	0.42%

QC value within limits for Mg 279.077 IEC Recovery = 102.14%

Mn 257.610†	273651.2	510.36 µg/L	20.950	510.36 ppb	20.950	4.10%

QC value within limits for Mn 257.610 Recovery = 102.07%

Mo 202.031†	9249.1	502.44 µg/L	48.906	502.44 ppb	48.906	9.73%

QC value within limits for Mo 202.031 Recovery = 100.49%

Na 589.592 Radial†	44597.4	10054 µg/L	125.9	10054 ppb	125.9	1.25%

QC value within limits for Na 589.592 Radial Recovery = 100.54%

Ni 231.604†	13851.2	529.08 µg/L	21.173	529.08 ppb	21.173	4.00%

QC value within limits for Ni 231.604 Recovery = 105.82%

P 214.914†	2626.6	2524.9 µg/L	211.51	2524.9 ppb	211.51	8.38%

QC value within limits for P 214.914 Recovery = 101.00%

Pb 220.353†	2997.1	510.63 µg/L	38.616	510.63 ppb	38.616	7.56%

QC value within limits for Pb 220.353 Recovery = 102.13%

S 181.975 Axial†	635.1	1001.2 µg/L	67.22	1001.2 ppb	67.22	6.71%

QC value within limits for S 181.975 Axial Recovery = 100.12%

Sb 206.836†	805.8	502.82 µg/L	41.952	502.82 ppb	41.952	8.34%

QC value within limits for Sb 206.836 Recovery = 100.56%

Se 196.026†	643.3	508 µg/L	32.2	508 ppb	32.2	6.34%

QC value within limits for Se 196.026 Recovery = 101.53%

SiO2†	42530.2	5326.4 µg/L	157.63	5326.4 ppb	157.63	2.96%

QC value within limits for SiO2 Recovery = 99.61%

Si 251.611†	78224.8	2484.0 µg/L	73.61	2484.0 ppb	73.61	2.96%

QC value within limits for Si 251.611 Recovery = 99.36%

Sn 189.927†	2267.9	505.90 µg/L	53.662	505.90 ppb	53.662	10.61%

QC value within limits for Sn 189.927 Recovery = 101.18%

Sr 421.552†	102049.2	505.65 µg/L	4.449	505.65 ppb	4.449	0.88%

QC value within limits for Sr 421.552 Recovery = 101.13%

Ti 334.940†	206983.5	503.55 µg/L	24.011	503.55 ppb	24.011	4.77%

QC value within limits for Ti 334.940 Recovery = 100.71%

Tl 190.801†	1198.1	511.90 µg/L	24.767	511.90 ppb	24.767	4.84%

QC value within limits for Tl 190.801 Recovery = 102.38%

U 367.007†	2017.6	474.57 µg/L	20.476	474.57 ppb	20.476	4.31%

QC value within limits for U 367.007 Recovery = 94.91%

V 292.402†	60156.4	515.73 µg/L	22.464	515.73 ppb	22.464	4.36%

QC value within limits for V 292.402 Recovery = 103.15%

Zn 213.857†	34848.2	509.09 µg/L	21.190	509.09 ppb	21.190	4.16%

QC value within limits for Zn 213.857 Recovery = 101.82%

All analyte(s) passed QC.

Sequence No.: 9 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 6/26/2012 11:05:25**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	14924.9	14924.9	99.2	%			11:05:55
1	Al 396.153Radial†	-99.8	20.7	13.444	µg/L	13.444	ppb	11:05:55
1	Ca 317.933Radial†	194.9	-6.9	-1.9640	µg/L	-1.9640	ppb	11:06:15
1	Fe 238.204 Radial†	24.4	0.2	0.2144	µg/L	0.2144	ppb	11:06:15
1	K 766.490 Radial†	446.9	174.2	203.78	µg/L	203.78	ppb	11:05:55
1	Mg 279.077 IEC†	6.4	1.5	5.7085	µg/L	5.7085	ppb	11:06:15
1	Na 589.592 Radial†	943.9	158.1	35.638	µg/L	35.638	ppb	11:05:55
1	Sr 421.552†	699.0	39.2	0.1944	µg/L	0.1944	ppb	11:05:55
1	Sc 361.383	731409.4	731409.4	99.885	%			11:07:02
1	Y 371.029	576505.8	576505.8	99.331	%			11:07:02
1	Ag 328.068†	-882.0	-60.7	-0.3964	µg/L	-0.3964	ppb	11:07:02
1	As 188.979†	-6.9	6.8	4.8668	µg/L	4.8668	ppb	11:07:23
1	B 249.677†	-161.8	38.8	0.9867	µg/L	0.9867	ppb	11:07:23
1	Ba 233.527†	25.3	10.0	0.0806	µg/L	0.0806	ppb	11:07:23
1	Be 313.107†	-6827.5	499.2	0.2064	µg/L	0.2064	ppb	11:07:02
1	Cd 226.502†	-112.3	-3.5	-0.0256	µg/L	-0.0256	ppb	11:07:23
1	Co 228.616†	-184.1	16.7	0.6603	µg/L	0.6603	ppb	11:07:23
1	Cr 267.716†	140.9	-0.1	-0.0014	µg/L	-0.0014	ppb	11:07:23
1	Cu 324.752†	3558.9	228.0	1.0871	µg/L	1.0871	ppb	11:07:02
1	Mn 257.610†	365.5	19.7	0.0367	µg/L	0.0367	ppb	11:07:23
1	Mo 202.031†	102.3	-10.5	-0.5711	µg/L	-0.5711	ppb	11:07:23
1	Ni 231.604†	33.4	11.1	0.4254	µg/L	0.4254	ppb	11:07:23
1	P 214.914†	26.3	8.0	7.7418	µg/L	7.7418	ppb	11:07:23
1	Pb 220.353†	-57.5	-9.6	-1.6372	µg/L	-1.6372	ppb	11:07:23
1	S 181.975 Axial†	47.5	-6.0	-9.4092	µg/L	-9.4092	ppb	11:07:23
1	Sb 206.836†	8.6	-4.8	-3.0210	µg/L	-3.0210	ppb	11:07:23
1	Se 196.026†	18.8	9.8	7.65	µg/L	7.65	ppb	11:07:23
1	SiO2†	1819.3	68.7	8.5853	µg/L	8.5853	ppb	11:07:23
1	Si 251.611†	1395.4	63.6	2.0210	µg/L	2.0210	ppb	11:07:23
1	Sn 189.927†	9.0	1.4	0.3047	µg/L	0.3047	ppb	11:07:23
1	Ti 334.940†	-1262.8	-237.0	-0.5765	µg/L	-0.5765	ppb	11:07:02
1	Tl 190.801†	-48.8	5.8	2.4683	µg/L	2.4683	ppb	11:07:23
1	U 367.007†	-379.3	-16.9	-4.2401	µg/L	-4.2401	ppb	11:07:02
1	V 292.402†	-26.3	-64.6	-0.5581	µg/L	-0.5581	ppb	11:07:02
1	Zn 213.857†	351.9	25.2	0.3672	µg/L	0.3672	ppb	11:07:23
2	Sc RADIAL	15182.6	15182.6	101	%			11:06:17
2	Al 396.153Radial†	-80.0	42.1	27.306	µg/L	27.306	ppb	11:06:17
2	Ca 317.933Radial†	217.8	12.5	3.5672	µg/L	3.5672	ppb	11:06:37
2	Fe 238.204 Radial†	20.9	-3.7	-3.4675	µg/L	-3.4675	ppb	11:06:37
2	K 766.490 Radial†	376.0	96.3	112.64	µg/L	112.64	ppb	11:06:17
2	Mg 279.077 IEC†	7.9	3.0	11.057	µg/L	11.057	ppb	11:06:37
2	Na 589.592 Radial†	919.4	117.7	26.525	µg/L	26.525	ppb	11:06:17
2	Sr 421.552†	678.1	6.5	0.0323	µg/L	0.0323	ppb	11:06:17
2	Sc 361.383	739030.2	739030.2	100.93	%			11:07:25
2	Y 371.029	583324.5	583324.5	100.51	%			11:07:25
2	Ag 328.068†	-1109.2	-276.7	-1.8065	µg/L	-1.8065	ppb	11:07:25
2	As 188.979†	-14.9	-1.0	-0.7286	µg/L	-0.7286	ppb	11:07:45
2	B 249.677†	-195.0	7.7	0.1789	µg/L	0.1789	ppb	11:07:45
2	Ba 233.527†	26.2	10.7	0.0871	µg/L	0.0871	ppb	11:07:45
2	Be 313.107†	-7101.6	298.1	0.1232	µg/L	0.1232	ppb	11:07:25
2	Cd 226.502†	-95.1	14.7	0.1138	µg/L	0.1138	ppb	11:07:45
2	Co 228.616†	-216.6	-13.5	-0.5337	µg/L	-0.5337	ppb	11:07:45
2	Cr 267.716†	114.7	-27.5	-0.2879	µg/L	-0.2879	ppb	11:07:45
2	Cu 324.752†	3365.0	-0.8	-0.0058	µg/L	-0.0058	ppb	11:07:25
2	Mn 257.610†	380.5	30.8	0.0573	µg/L	0.0573	ppb	11:07:45
2	Mo 202.031†	106.7	-7.2	-0.3899	µg/L	-0.3899	ppb	11:07:45
2	Ni 231.604†	25.7	3.2	0.1214	µg/L	0.1214	ppb	11:07:45
2	P 214.914†	7.1	-11.3	-10.891	µg/L	-10.891	ppb	11:07:45
2	Pb 220.353†	-53.4	-5.0	-0.8479	µg/L	-0.8479	ppb	11:07:45

2	S 181.975 Axial†	56.0	2.0	3.1270 µg/L	3.1270 ppb	11:07:45
2	Sb 206.836†	9.8	-3.8	-2.3645 µg/L	-2.3645 ppb	11:07:45
2	Se 196.026†	4.0	-5.0	-3.96 µg/L	-3.96 ppb	11:07:45
2	SiO2†	1801.4	32.2	4.0216 µg/L	4.0216 ppb	11:07:45
2	Si 251.611†	1375.1	29.1	0.9234 µg/L	0.9234 ppb	11:07:45
2	Sn 189.927†	11.2	3.5	0.7651 µg/L	0.7651 ppb	11:07:45
2	Ti 334.940†	-1213.4	-175.0	-0.4253 µg/L	-0.4253 ppb	11:07:25
2	Tl 190.801†	-38.4	16.7	7.1108 µg/L	7.1108 ppb	11:07:45
2	U 367.007†	-368.0	-1.8	-0.4369 µg/L	-0.4369 ppb	11:07:25
2	V 292.402†	31.4	-7.1	-0.0655 µg/L	-0.0655 ppb	11:07:25
2	Zn 213.857†	348.4	18.1	0.2659 µg/L	0.2659 ppb	11:07:45
3	Sc RADIAL	15114.8	15114.8	100 %		11:06:39
3	Al 396.153Radial†	-87.8	34.0	22.035 µg/L	22.035 ppb	11:06:39
3	Ca 317.933Radial†	215.0	10.7	3.0507 µg/L	3.0507 ppb	11:06:59
3	Fe 238.204 Radial†	24.2	-0.3	-0.2916 µg/L	-0.2916 ppb	11:06:59
3	K 766.490 Radial†	385.3	107.3	125.47 µg/L	125.47 ppb	11:06:39
3	Mg 279.077 IEC†	11.0	6.1	22.654 µg/L	22.654 ppb	11:06:59
3	Na 589.592 Radial†	1041.7	243.5	54.899 µg/L	54.899 ppb	11:06:39
3	Sr 421.552†	772.2	103.3	0.5119 µg/L	0.5119 ppb	11:06:39
3	Sc 361.383	732810.1	732810.1	100.08 %		11:07:47
3	Y 371.029	579672.8	579672.8	99.876 %		11:07:47
3	Ag 328.068†	-931.1	-108.1	-0.7056 µg/L	-0.7056 ppb	11:07:47
3	As 188.979†	-7.9	5.8	4.1528 µg/L	4.1528 ppb	11:08:07
3	B 249.677†	-188.4	12.6	0.3163 µg/L	0.3163 ppb	11:08:07
3	Ba 233.527†	20.4	5.1	0.0412 µg/L	0.0412 ppb	11:08:07
3	Be 313.107†	-7372.2	-32.0	-0.0132 µg/L	-0.0132 ppb	11:07:47
3	Cd 226.502†	-96.5	12.4	0.0948 µg/L	0.0948 ppb	11:08:07
3	Co 228.616†	-197.4	3.8	0.1494 µg/L	0.1494 ppb	11:08:07
3	Cr 267.716†	142.9	1.6	0.0167 µg/L	0.0167 ppb	11:08:07
3	Cu 324.752†	3524.2	186.4	0.8867 µg/L	0.8867 ppb	11:07:47
3	Mn 257.610†	399.4	52.9	0.0983 µg/L	0.0983 ppb	11:08:07
3	Mo 202.031†	110.5	-2.5	-0.1354 µg/L	-0.1354 ppb	11:08:07
3	Ni 231.604†	12.2	-10.1	-0.3848 µg/L	-0.3848 ppb	11:08:07
3	P 214.914†	16.0	-2.3	-2.2470 µg/L	-2.2470 ppb	11:08:07
3	Pb 220.353†	-60.1	-12.1	-2.0531 µg/L	-2.0531 ppb	11:08:07
3	S 181.975 Axial†	53.2	-0.4	-0.5572 µg/L	-0.5572 ppb	11:08:07
3	Sb 206.836†	12.2	-1.3	-0.8073 µg/L	-0.8073 ppb	11:08:07
3	Se 196.026†	12.2	3.2	2.52 µg/L	2.52 ppb	11:08:07
3	SiO2†	1790.2	36.2	4.5206 µg/L	4.5206 ppb	11:08:07
3	Si 251.611†	1370.8	36.3	1.1539 µg/L	1.1539 ppb	11:08:07
3	Sn 189.927†	12.4	4.7	1.0548 µg/L	1.0548 ppb	11:08:07
3	Ti 334.940†	-974.5	53.5	0.1305 µg/L	0.1305 ppb	11:07:47
3	Tl 190.801†	-42.4	12.4	5.2744 µg/L	5.2744 ppb	11:08:07
3	U 367.007†	-458.1	-95.0	-23.792 µg/L	-23.792 ppb	11:07:47
3	V 292.402†	3.1	-35.2	-0.3420 µg/L	-0.3420 ppb	11:07:47
3	Zn 213.857†	343.8	16.4	0.2430 µg/L	0.2430 ppb	11:08:07

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	734416.6	100.30	%	0.554				0.55%
Sc RADIAL	15074.1	100	%	0.9				0.89%
Y 371.029	579834.4	99.904	%	0.5879				0.59%
Ag 328.068†	-148.5	-0.9695	µg/L	0.74116	-0.9695	ppb	0.74116	76.45%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	32.3	20.928	µg/L	6.9968	20.928	ppb	6.9968	33.43%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	3.9	2.7637	µg/L	3.04536	2.7637	ppb	3.04536	110.19%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	19.7	0.4940	µg/L	0.43221	0.4940	ppb	0.43221	87.49%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	8.6	0.0696	µg/L	0.02486	0.0696	ppb	0.02486	35.70%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	255.1	0.1055	µg/L	0.11089	0.1055	ppb	0.11089	105.15%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	5.4	1.5513	µg/L	3.05528	1.5513	ppb	3.05528	196.95%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	7.9	0.0610	µg/L	0.07563	0.0610	ppb	0.07563	123.99%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	2.3	0.0920	µg/L	0.59904	0.0920	ppb	0.59904	651.02%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -8.7     -0.0909 µg/L       0.17091     -0.0909 ppb        0.17091 188.08%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             137.9      0.6560 µg/L       0.58186      0.6560 ppb        0.58186  88.69%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†       -1.2     -1.1816 µg/L       1.99573     -1.1816 ppb        1.99573 168.91%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        125.9      147.29 µg/L        49.332      147.29 ppb         49.332  33.49%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           3.5      13.140 µg/L        8.6624      13.140 ppb         8.6624  65.92%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              34.5      0.0641 µg/L       0.03136      0.0641 ppb        0.03136  48.94%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              -6.7     -0.3655 µg/L       0.21888     -0.3655 ppb        0.21888  59.89%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       173.1      39.021 µg/L       14.4861      39.021 ppb        14.4861  37.12%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               1.4      0.0540 µg/L       0.40930      0.0540 ppb        0.40930 758.39%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -1.9     -1.7986 µg/L       9.32427     -1.7986 ppb        9.32427 518.42%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              -8.9     -1.5127 µg/L       0.61217     -1.5127 ppb        0.61217  40.47%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -1.4     -2.2798 µg/L       6.44315     -2.2798 ppb        6.44315 282.62%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              -3.3     -2.0643 µg/L       1.13698     -2.0643 ppb        1.13698  55.08%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               2.7        2.07 µg/L         5.818        2.07 ppb          5.818 280.62%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    45.7      5.7092 µg/L       2.50327      5.7092 ppb        2.50327  43.85%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              43.0      1.3661 µg/L       0.57874      1.3661 ppb        0.57874  42.36%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               3.2      0.7082 µg/L       0.37829      0.7082 ppb        0.37829  53.41%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              49.7      0.2462 µg/L       0.24392      0.2462 ppb        0.24392  99.08%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†            -119.5     -0.2904 µg/L       0.37230     -0.2904 ppb        0.37230 128.20%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†              11.6      4.9512 µg/L       2.33806      4.9512 ppb        2.33806  47.22%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -37.9     -9.4898 µg/L      12.53145     -9.4898 ppb       12.53145 132.05%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -35.6     -0.3218 µg/L       0.24692     -0.3218 ppb        0.24692  76.72%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              19.9      0.2920 µg/L       0.06607      0.2920 ppb        0.06607  22.63%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
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Miscellaneous

Prep Logbook

Acid Digestion of Total Recoverable or Dissolved Metals in Surface and Groundwater Samples for Analysis by ICP or ICP-MS

Batch ID: **1223290.0** Verified by: _____

Analyst: Anthony Green

Method: SW846 3005A

Lab SOP: GL-MA-E-006 REV# 9

Instrument: NO_INSTRUMENT

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1202683376	Metals Spike Mix I	UI1791865-01	.25	mL
LCS	1202683376	Metals Spike Mix II	UI1791868-06	.25	mL
MS	1202683378	Metals Spike Mix I	UI1791865-01	.25	mL
MS	1202683378	Metals Spike Mix II	UI1791868-06	.25	mL

Sample ID	Run Date	Matrix	Initial Volume (mL)	Final Volume (mL)	Prep Factor (mL/mL)	pH Check
1202683375 MB	25-JUN-2012 08:00:00	Water	50	50	1	<2
1202683376 LCS	25-JUN-2012 08:00:00	Water	50	50	1	<2
306325001	25-JUN-2012 08:00:00	Water	50	50	1	<2
1202683377 DUP (306325001)	25-JUN-2012 08:00:00	Water	50	50	1	<2
1202683378 MS (306325001)	25-JUN-2012 08:00:00	Water	50	50	1	<2
1202683379 SDILT (306325001)	25-JUN-2012 08:00:00	Water	50	50	1	<2
306325002	25-JUN-2012 08:00:00	Water	50	50	1	<2

Reagent/Solvent Lot ID	Description	Amount
1739602	Concentrated Nitric Acid	1 mL
1792708	HYDROCHLORIC ACID	2.5 mL

Comments:

Hot Block ID: 9

Thermometer ID: 119061

Block Temperature: 95 C

Serial ID: UI110317-42 **Open/Reference Date:** 15-AUG-11 **Amount :** 200 mL
Name: SILICON **Received:** 17-MAR-11 **Catalog Number :** HP100050-4F
Type: Source Material **Expires:** 15-AUG-12 **Lot Number :** 1029420
Employee: Helen Camello **Solvent :** H20/tr HF
Supplier: High-Purity Standards
Description: SILICON 1000mg/L H20/tr HF
Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI120320-40 **Open/Reference Date:** 20-MAR-12 **Amount :** 500 mL
Name: TRACE ICP ICSA SOLN A **Received:** 19-MAR-12 **Catalog Number :** 160005-01-03
Type: Source Material **Expires:** 20-MAR-13 **Lot Number :** 1034867
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: o2si
Description: TRACE ICP ICSA SOLN A mg/L+/-0.5%IN5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	5000 mg/L	Calcium	5000 mg/L
Iron	2000 mg/L	Magnesium	5000 mg/L

Serial ID: UI120417-40 **Open/Reference Date:** 01-MAY-12 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 16-APR-12 **Catalog Number :** 160358-01-03
Type: Source Material **Expires:** 01-MAY-13 **Lot Number :** 1035452
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: 02si
Description: SECOND SOURCE STD #1A 5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 mg/L	Arsenic	100 mg/L
Barium	100 mg/L	Boron	100 mg/L
Cadmium	100 mg/L	Calcium	1000 mg/L
Chromium	100 mg/L	Cobalt	100 mg/L
Copper	100 mg/L	Iron	1000 mg/L
Lead	100 mg/L	Phosphorous	500 mg/L
Potassium	500 mg/L	Selenium	500 mg/L
Sodium	500 mg/L	Strontium	100 mg/L

Serial ID: UI120417-41 **Open/Reference Date:** 01-MAY-12 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 16-APR-12 **Catalog Number :** 130358-01-03
Type: Source Material **Expires:** 01-MAY-13 **Lot Number :** 1035452
Employee: Helen Camello **Solvent :** 5%HNO3,TR.HF
Supplier: 02si

Description: SECOND SOURCE STD #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 mg/L	Beryllium	50 mg/L
Magnesium	1000 mg/L	Manganese	100 mg/L
Molybdenum	100 mg/L	Nickel	100 mg/L
Silver	50 mg/L	Sulfur	500 mg/L
Thallium	100 mg/L	Tin	100 mg/L
Titanium	100 mg/L	Uranium	100 mg/L
Vanadium	100 mg/L	Zinc	100 mg/L

Serial ID: UI120430-41 **Open/Reference Date:** 07-MAY-12 **Amount :** 500 mL
Name: TRACE ICP Na-1000SOUR **Received:** 23-APR-12 **Catalog Number :** 060011-02-03
Type: Source Material **Expires:** 07-MAY-13 **Lot Number :** 1035510
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: 02SI
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI120607-42 **Open/Reference Date:** 25-JUN-12 **Amount :** 500 mL
Name: SI 1000mg/L **Received:** 07-JUN-12 **Catalog Number :** 060014-02-03
Type: Source Material **Expires:** 25-JUN-13 **Lot Number :** 1036800
Employee: Helen Camello **Solvent :** 0.3%H2O(NH4)2SiF6
Supplier: o2si
Description: Silicon 1000mg/L+/-0.3%in H2O(NH4)2SiF6
Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI120608-40 **Open/Reference Date:** 25-JUN-12 **Amount :** 500 mL
Name: TRACE CALSTD#1A SOUR **Received:** 08-JUN-12 **Catalog Number :** HP2270-1-500
Type: Source Material **Expires:** 25-JUN-13 **Lot Number :** 1215709
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Std #1A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	2000 mg/L	Arsenic	200 mg/L
Barium	200 mg/L	Beryllium	200 mg/L
Boron	200 mg/L	Cadmium	200 mg/L

Analyte	Concentration	Analyte	Concentration
Calcium	2000 mg/L	Chromium	200 mg/L
Cobalt	200 mg/L	Copper	200 mg/L
Iron	2000 mg/L	Lead	200 mg/L
Magnesium	2000 mg/L	Manganese	200 mg/L
Nickel	200 mg/L	Phosphorous	1000 mg/L
Potassium	2000 mg/L	Selenium	200 mg/L
Sodium	2000 mg/L	Strontium	200 mg/L
Thallium	200 mg/L	Uranium	200 mg/L
Vanadium	200 mg/L	Zinc	200 mg/L

Serial ID: UI120608-41 **Open/Reference Date:** 25-JUN-12 **Amount :** 500 mL
Name: TRACE CALSTD#1B SOUR **Received:** 08-JUN-12 **Catalog Number :** HP2270-2-500
Type: Source Material **Expires:** 25-JUN-13 **Lot Number :** 1215710
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Standard #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	200 mg/L	Molybdenum	200 mg/L
Silver	200 mg/L	Sulfur	400 mg/L
Tin	200 mg/L	Titanium	200 mg/L

Serial ID: UI120612-48.1 **Open/Reference Date:** 25-JUN-12 **Amount :** 1000 mL
Name: Trace ICP ICSA **Received:** 14-JUN-12 **Catalog Number :** 160005-02
Type: Source Material **Expires:** 25-JUN-13 **Lot Number :** 1036944
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Interferent Check Standard A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 UG/L	Calcium	500000 UG/L
Iron	200000 UG/L	Magnesium	500000 UG/L

Serial ID: UI120612-49.8 **Open/Reference Date:** 26-JUN-12 **Amount :** 100 ml
Name: Trace ICP ICSAB **Received:** 14-JUN-12 **Catalog Number :** 160066-04
Type: Source Material **Expires:** 27-JUN-12 **Lot Number :** 1036945
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Inteferent Check Standard AB
Comments: None

Analyte	Concentration	Analyte	Concentration

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Antimony	500 ug/L
Arsenic	500 ug/L	Barium	500 ug/L
Beryllium	250 ug/L	Boron	500 ug/L
Cadmium	500 ug/L	Calcium	500000 ug/L
Chromium	500 ug/L	Cobalt	500 ug/L
Copper	500 ug/L	Iron	200000 ug/L
Lead	500 ug/L	Magnesium	500000 ug/L
Manganese	500 ug/L	Molybdenum	500 ug/L
Nickel	500 ug/L	Phosphorous	2500 ug/L
Potassium	5000 ug/L	Selenium	2500 ug/L
Silica	10696.5 ug/L	Silicon	5000 ug/L
Silver	250 ug/L	Sodium	5000 ug/L
Strontium	500 ug/L	Sulfur	2500 ug/L
Thallium	500 ug/L	Tin	500 ug/L
Titanium	500 ug/L	Uranium	500 ug/L
Vanadium	500 ug/L	Zinc	500 ug/L

Serial ID: UI120615-40 **Open/Reference Date:** 19-JUN-12 **Amount :** 500 mL
Name: ICP HIGH RANGE STD-A **Received:** 14-JUN-12 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 19-JUN-13 **Lot Number :** 1036913
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION A
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	10000 ug/L	Arsenic	10000 ug/L
Barium	15000 ug/L	Beryllium	3000 ug/L
Boron	5000 ug/L	Cadmium	10000 ug/L
Chromium	25000 ug/L	Cobalt	10000 ug/L
Copper	20000 ug/L	Lead	25000 ug/L
Manganese	10000 ug/L	Molybdenum	10000 ug/L
Nickel	10000 ug/L	Phosphorous	15000 ug/L
Potassium	300000 ug/L	Selenium	10000 ug/L
Silica	107000 ug/L	Silicon	50000 ug/L
Silver	1000 ug/L	Strontium	10000 ug/L
Thallium	10000 ug/L	Tin	10000 ug/L
Titanium	10000 ug/L	Vanadium	10000 ug/L
Zinc	15000 ug/L		

Serial ID: UI120615-41 **Open/Reference Date:** 19-JUN-12 **Amount :** 500 mL
Name: ICP HIGH RANGE STD B **Received:** 14-JUN-12 **Catalog Number :** 160211-05-03
Type: Source Material **Expires:** 19-JUN-13 **Lot Number :** 1036913
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION B
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Calcium	500000 ug/L
Iron	500000 ug/L	Magnesium	500000 ug/L
Sodium	500000 ug/L	Sulfur	50000 ug/L
Uranium	15000 ug/L		

Serial ID: UI1791865-01 **Open/Reference Date:** 18-JUN-12 **Catalog Number :** 160047-01
Name: METALSPIKE-1 **Received:** 18-JUN-12 **Lot Number :** 1036911
Type: Source Material **Expires:** 18-JUN-13
Employee: Bryan Davis
Supplier: OS2I
Description: Metals Spike Mix I
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 ug/mL	Arsenic	100 ug/mL
Barium	100 ug/mL	Beryllium	100 ug/mL
Boron	100 ug/mL	Cadmium	100 ug/mL
Calcium	1000 ug/mL	Cobalt	100 ug/mL
Iron	1000 ug/mL	Lead	100 ug/mL
Magnesium	1000 ug/mL	Phosphorous	100 ug/mL
Potassium	1000 ug/mL	Silver	100 ug/mL
Sodium	1000 ug/mL	Strontium	100 ug/mL

Serial ID: UI1791868-06 **Open/Reference Date:** 18-JUN-12 **Catalog Number :** 160048-01
Name: METALSPIKE-2 **Received:** 18-JUN-12 **Lot Number :** 1036912
Type: Source Material **Expires:** 18-JUN-13
Employee: Bryan Davis
Supplier: OS2I
Description: Metals Spike Mix II
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 ug/mL	Chromium	100 ug/mL
Copper	100 ug/mL	Manganese	100 ug/mL
Molybdenum	100 ug/mL	Nickel	100 ug/mL
Selenium	100 ug/mL	Silica	2141 ug/mL
Silicon	1000 ug/mL	Sulfur	1000 ug/mL

Standard Logbook

Analyte	Concentration	Analyte	Concentration
Thallium	100 ug/mL	Tin	100 ug/mL
Titanium	100 ug/mL	Uranium	100 ug/mL
Uranium-235	.72 ug/mL	Uranium-238	99.28 ug/mL
Vanadium	100 ug/mL	Zinc	100 ug/mL

Serial ID: WI120626-42 **Open/Reference Date:** 26-JUN-12 **Balance Id :** 216
Name: TRACE ICP 0.1 PPM STD. **Received:** 08-JUN-12 **Pipet Id :** 3581809
Type: Working **Expires:** 27-JUN-12 **Solvent :** 3%HCL and 1%HNO3-1795044
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP 0.1 PPM CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI120626-44	Aluminum	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120626-44	Antimony	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Arsenic	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Barium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Beryllium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Boron	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Cadmium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Calcium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120626-44	Chromium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Cobalt	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Copper	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Iron	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120626-44	Lead	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Magnesium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120626-44	Manganese	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Molybdenum	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Nickel	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Phosphorous	5000 ug/L	10 mL	100 mL	500 ug/L
WI120626-44	Potassium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120626-44	Selenium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Silica	10698 ug/L	10 mL	100 mL	1069 ug/L
WI120626-44	Silicon	5000 ug/L	10 mL	100 mL	500 ug/L
WI120626-44	Silver	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Sodium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI120626-44	Strontium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Sulfur	2000 ug/L	10 mL	100 mL	200 ug/L
WI120626-44	Thallium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Tin	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Titanium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Uranium	1000 ug/L	10 mL	100 mL	100 ug/L
WI120626-44	Vanadium	1000 ug/L	10 mL	100 mL	100 ug/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI120626-44	Zinc	1000 ug/L	10 mL	100 mL	100 ug/L

Serial ID: WI120626-43 **Open/Reference Date:** 26-JUN-12 **Balance Id :** 216
Name: TRACE ICP 0.5/CCV STD. **Received:** 08-JUN-12 **Pipet Id :** 3581809
Type: Working **Expires:** 27-JUN-12 **Solvent :** 3%HCL and 1%HNO3-1795044
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP O.5/CCV CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI120430-41	Sodium	1000 ug/mL	5 mL	1000 mL	5000 UG/L
UI120607-42	Silica	2139 mg/L	2.5 mL	1000 mL	5348.25 UG/L
UI120607-42	Silicon	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI120608-40	Aluminum	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI120608-40	Arsenic	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Barium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Beryllium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Boron	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Cadmium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Calcium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI120608-40	Chromium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Cobalt	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Copper	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Iron	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI120608-40	Lead	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Magnesium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI120608-40	Manganese	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Nickel	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Phosphorous	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI120608-40	Potassium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI120608-40	Selenium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Sodium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI120608-40	Strontium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Thallium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Uranium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Vanadium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-40	Zinc	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-41	Antimony	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-41	Molybdenum	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-41	Silver	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-41	Sulfur	400 mg/L	2.5 mL	1000 mL	1000 UG/L
UI120608-41	Tin	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI120608-41	Titanium	200 mg/L	2.5 mL	1000 mL	500 UG/L

Standard Logbook

Serial ID: WI120626-44 **Open/Reference Date:** 26-JUN-12 **Balance Id :** 216
Name: TRACE ICP SCAL 1.0 **Received:** 08-JUN-12 **Pipet Id :** 3581809
Type: Working **Expires:** 27-JUN-12 **Solvent :** 3%HCL and 1 %HNO3-1795044
Employee: Helen Camello
Supplier: o2si
Description: Trace ICP Calibration Standard 1.0ppm
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI120607-42	Silica	2139 mg/L	2.5 mL	500 mL	10698 ug/L
UI120607-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120608-40	Aluminum	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI120608-40	Arsenic	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Barium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Beryllium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Boron	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Cadmium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Calcium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI120608-40	Chromium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Cobalt	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Copper	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Iron	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI120608-40	Lead	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Magnesium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI120608-40	Manganese	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Nickel	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Phosphorous	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120608-40	Potassium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI120608-40	Selenium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Sodium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI120608-40	Strontium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Thallium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Uranium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Vanadium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-40	Zinc	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-41	Antimony	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-41	Molybdenum	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-41	Silver	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-41	Sulfur	400 mg/L	2.5 mL	500 mL	2000 ug/L
UI120608-41	Tin	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI120608-41	Titanium	200 mg/L	2.5 mL	500 mL	1000 ug/L

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Serial ID: WI120626-45 **Open/Reference Date:** 26-JUN-12 **Balance Id :** 216
Name: TRACE ICP S-10 STD **Received:** 20-MAR-12 **Pipet Id :** 3581809
Type: Working **Expires:** 27-JUN-12 **Solvent :** 3%HCL and 1%HNO3 -1795044
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP S-10 CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI120320-40	Aluminum	5000 mg/L	5 mL	500 mL	50000 UG/L
UI120320-40	Calcium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI120320-40	Iron	2000 mg/L	5 mL	500 mL	20000 UG/L
UI120320-40	Magnesium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI120430-41	Sodium	1000 ug/mL	10 mL	500 mL	20000 UG/L

Serial ID: WI120626-46 **Open/Reference Date:** 26-JUN-12 **Balance Id :** 216
Name: ICP TRACE ICV **Received:** 17-APR-12 **Pipet Id :** 3581809
Type: Working **Expires:** 27-JUN-12 **Solvent :** 3%HCL AND 1%HNO3-1795044
Employee: Helen Camello
Supplier: GEL
Description: Initial Calibration Verification ICP Trace Metals
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI110317-42	Silica	2139 mg/L	2.5 mL	500 mL	10695 ug/L
UI110317-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Aluminum	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Arsenic	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Barium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Boron	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Cadmium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Calcium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Chromium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Cobalt	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Copper	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Iron	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-40	Lead	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-40	Phosphorous	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Potassium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Selenium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Sodium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-40	Strontium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Antimony	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Beryllium	50 mg/L	2.5 mL	500 mL	250 ug/L
UI120417-41	Magnesium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI120417-41	Manganese	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Molybdenum	100 mg/L	2.5 mL	500 mL	500 ug/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI120417-41	Nickel	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Silver	50 mg/L	2.5 mL	500 mL	250 ug/L
UI120417-41	Sulfur	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI120417-41	Thallium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Tin	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Titanium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Uranium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Vanadium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI120417-41	Zinc	100 mg/L	2.5 mL	500 mL	500 ug/L

Serial ID: 1739602 **Open/Reference Date:** 14-FEB-12 **Lot Number :** L03022
Name: I-HNO3 **Received:** 14-FEB-12
Type: Reagent/Solvent **Expires:** 14-FEB-13
Employee: Louis Hall
Supplier: Macron Chemicals
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 1792708 **Open/Reference Date:** 19-JUN-12 **Lot Number :** 121496
Name: I-HCL **Received:** 19-JUN-12 **Preservative_Id :** 5 none
Type: Reagent/Solvent **Expires:** 19-JUN-13
Employee: Bryan Davis
Supplier: Fisher Scientific
Description: HYDROCHLORIC ACID
Comments: None

United States Environmental Protection Agency
Region 9 Laboratory
1337 S. 46th Street Building 201
Richmond, CA 94804

Date: **11/22/2013**

Subject: **Analytical Testing Results - Project R14S10**
SDG: 13303E

From: **Brenda Bettencourt, Director**
EPA Region 9 Laboratory
MTS-2

To: **Martin Powell**
Emergency Response Section
SFD-9-2

Attached are the results from the analysis of samples from the **Klondyke Tailing 2013 XRF Confirmation** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region 9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Eugenia McNaughton at the Region 9 Quality Assurance Office.

If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Electronic CC: Kate Villars, Ecology and Environment, Inc.
Mindy Song, Ecology and Environment, Inc.

Analyses included in this report:

Mercury by EPA method 7473	Metals by ICP

United States Environmental Protection Agency
Region 9 Laboratory

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Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
AD-SP-NORTH	1310054-01	Soil	10/10/13 11:05	10/29/13 15:05
AD-SP-WEST	1310054-02	Soil	10/10/13 11:11	10/29/13 15:05
RFSP-COMP-01	1310054-03	Soil	10/12/13 11:02	10/29/13 15:05
RFSP-COMP-02	1310054-04	Soil	10/12/13 11:05	10/29/13 15:05
2:3-BLEND-SP-COMP-1	1310054-05	Soil	10/22/13 14:32	10/29/13 15:05
AA-03-00	1310054-06	Soil	10/14/13 14:03	10/29/13 15:05
AA-04-00	1310054-07	Soil	10/14/13 14:06	10/29/13 15:05
HS03-Y1-12	1310054-08	Soil	10/15/13 08:25	10/29/13 15:05
HS03-BF-SIDE	1310054-09	Soil	10/18/13 07:42	10/29/13 15:05
HS04-Y6-12	1310054-10	Soil	10/22/13 08:55	10/29/13 15:05
HS04-Y6-112	1310054-11	Soil	10/22/13 08:55	10/29/13 15:05
HS04-BF-BACK	1310054-12	Soil	10/22/13 14:43	10/29/13 15:05

SDG ID 13303E

Work Order(s)

1310054

Samples were received at 22 degrees C which is above the recommended temperature range of 0 to 6 degrees C.
Mercury results are flagged as estimated..

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Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1310054-01									**Soil - Sampled: 10/10/13 11:05**
Sample ID: AD-SP-NORTH									**Metals by EPA 6000/7000 Series Methods**
Mercury		0.023	A2, C1, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		31,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		10		2	"	"	"	"	6010C/SOP503
Barium		180		5	"	"	"	"	6010C/SOP503
Beryllium		2.0		0.10	"	"	"	"	6010C/SOP503
Cadmium		1.7		0.50	"	"	"	"	6010C/SOP503
Calcium		14,000		100	"	"	"	"	6010C/SOP503
Chromium		21		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		58		4	"	"	"	"	6010C/SOP503
Iron	REI	28,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		170		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		11,000		50	"	"	"	"	6010C/SOP503
Manganese		970		5	"	"	"	"	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		24		5	"	"	"	"	6010C/SOP503
Potassium		6,400		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		260		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		44		2	"	"	"	"	6010C/SOP503
Zinc		340		8	"	"	"	"	6010C/SOP503
Lab ID: 1310054-02									**Soil - Sampled: 10/10/13 11:11**
Sample ID: AD-SP-WEST									**Metals by EPA 6000/7000 Series Methods**
Mercury		0.019	A2, C1, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		30,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		10		2	"	"	"	"	6010C/SOP503
Barium		160		5	"	"	"	"	6010C/SOP503
Beryllium		2.1		0.10	"	"	"	"	6010C/SOP503
Cadmium		1.7		0.50	"	"	"	"	6010C/SOP503
Calcium		12,000		100	"	"	"	"	6010C/SOP503
Chromium		19		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		56		4	"	"	"	"	6010C/SOP503
Iron	REI	26,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		170		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		11,000		50	"	"	"	"	6010C/SOP503

United States Environmental Protection Agency
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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **1310054-02**									**Soil - Sampled: 10/10/13 11:11**
Sample ID: **AD-SP-WEST**									**Metals by EPA 6000/7000 Series Methods**
Manganese		1,000		5	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		22		5	"	"	"	"	6010C/SOP503
Potassium		6,100		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		200		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		41		2	"	"	"	"	6010C/SOP503
Zinc		390		8	"	"	"	"	6010C/SOP503
Lab ID: **1310054-03**									**Soil - Sampled: 10/12/13 11:02**
Sample ID: **RFSP-COMP-01**									**Metals by EPA 6000/7000 Series Methods**
Mercury		0.026	A2, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		14,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		6.0		2	"	"	"	"	6010C/SOP503
Barium		130		5	"	"	"	"	6010C/SOP503
Beryllium		0.84		0.10	"	"	"	"	6010C/SOP503
Cadmium		ND	U	0.50	"	"	"	"	6010C/SOP503
Calcium		8,000		100	"	"	"	"	6010C/SOP503
Chromium		67		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		27		4	"	"	"	"	6010C/SOP503
Iron	RE1	38,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		22		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		5,800		50	"	"	"	"	6010C/SOP503
Manganese		630		5	"	"	"	"	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		32		5	"	"	"	"	6010C/SOP503
Potassium		2,000		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		180		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		100		2	"	"	"	"	6010C/SOP503
Zinc		77		8	"	"	"	"	6010C/SOP503
Lab ID: **1310054-04**									**Soil - Sampled: 10/12/13 11:05**
Sample ID: **RFSP-COMP-02**									**Metals by EPA 6000/7000 Series Methods**
Mercury		0.025	A2, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535

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Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1310054-04									**Soil - Sampled: 10/12/13 11:05**
Sample ID: RFSP-COMP-02									**Metals by EPA 6000/7000 Series Methods**
Aluminum		13,000		100	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		5.5		2	"	"	"	"	6010C/SOP503
Barium		130		5	"	"	"	"	6010C/SOP503
Beryllium		0.81		0.10	"	"	"	"	6010C/SOP503
Cadmium		ND	U	0.50	"	"	"	"	6010C/SOP503
Calcium		8,100		100	"	"	"	"	6010C/SOP503
Chromium		55		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		27		4	"	"	"	"	6010C/SOP503
Iron	RE1	33,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		21		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		5,700		50	"	"	"	"	6010C/SOP503
Manganese		560		5	"	"	"	"	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		30		5	"	"	"	"	6010C/SOP503
Potassium		1,900		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		160		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		89		2	"	"	"	"	6010C/SOP503
Zinc		72		8	"	"	"	"	6010C/SOP503
Lab ID: 1310054-05									**Soil - Sampled: 10/22/13 14:32**
Sample ID: 2:3-BLEND-SP-COMP-1									**Metals by EPA 6000/7000 Series Methods**
Mercury		0.020	A2, C1, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		18,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		7.6		2	"	"	"	"	6010C/SOP503
Barium		130		5	"	"	"	"	6010C/SOP503
Beryllium		1.4		0.10	"	"	"	"	6010C/SOP503
Cadmium		1.3		0.50	"	"	"	"	6010C/SOP503
Calcium		9,100		100	"	"	"	"	6010C/SOP503
Chromium		21		1	"	"	"	"	6010C/SOP503
Cobalt		8.8		2	"	"	"	"	6010C/SOP503
Copper		42		4	"	"	"	"	6010C/SOP503
Iron	RE1	24,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		140		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		7,300		50	"	"	"	"	6010C/SOP503
Manganese		720		5	"	"	"	"	6010C/SOP503

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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID:	**1310054-05**								**Soil - Sampled: 10/22/13 14:32**
Sample ID:	**2:3-BLEND-SP-COMP-1**								**Metals by EPA 6000/7000 Series Methods**
Molybdenum		ND	U	5	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Nickel		20		5	"	"	"	"	6010C/SOP503
Potassium		3,800		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		170		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		46		2	"	"	"	"	6010C/SOP503
Zinc		280		8	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-06**								**Soil - Sampled: 10/14/13 14:03**
Sample ID:	**AA-03-00**								**Metals by EPA 6000/7000 Series Methods**
Arsenic		97		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		3,700		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-07**								**Soil - Sampled: 10/14/13 14:06**
Sample ID:	**AA-04-00**								**Metals by EPA 6000/7000 Series Methods**
Arsenic		74		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		8,100		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-08**								**Soil - Sampled: 10/15/13 08:25**
Sample ID:	**HS03-Y1-12**								**Metals by EPA 6000/7000 Series Methods**
Arsenic		22		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		610		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-09**								**Soil - Sampled: 10/18/13 07:42**
Sample ID:	**HS03-BF-SIDE**								**Metals by EPA 6000/7000 Series Methods**
Arsenic		4.2		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		27		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-10**								**Soil - Sampled: 10/22/13 08:55**
Sample ID:	**HS04-Y6-12**								**Metals by EPA 6000/7000 Series Methods**
Arsenic		6.2		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		180		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-11**								**Soil - Sampled: 10/22/13 08:55**
Sample ID:	**HS04-Y6-I12**								**Metals by EPA 6000/7000 Series Methods**
Arsenic		7.0		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		170		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-12**								**Soil - Sampled: 10/22/13 14:43**
Sample ID:	**HS04-BF-BACK**								**Metals by EPA 6000/7000 Series Methods**
Arsenic		4.7		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		16		3	"	"	"	"	6010C/SOP503

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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B13K007 - 3050B Sld Acid Dig - Metals by 6010									**Prepared: 11/03/13 Analyzed: 11/12/13**	
									Metals by EPA 6000/7000 Series Methods - Quality Control	
Blank (B13K007-BLK1)										
Aluminum	ND	U	100	mg/kg wet						
Antimony	ND	U	2	"						
Arsenic	ND	U	2	"						
Barium	ND	U	5	"						
Beryllium	ND	U	0.1	"						
Cadmium	ND	U	0.5	"						
Calcium	ND	U	100	"						
Chromium	ND	U	1	"						
Cobalt	ND	U	2	"						
Copper	ND	U	4	"						
Lead	ND	U	3	"						
Magnesium	ND	U	50	"						
Manganese	ND	U	5	"						
Molybdenum	ND	U	5	"						
Nickel	ND	U	5	"						
Potassium	ND	U	500	"						
Selenium	ND	U	2	"						
Silver	ND	U	1	"						
Sodium	ND	U	50	"						
Thallium	ND	U	5	"						
Vanadium	ND	U	2	"						
Zinc	ND	U	8	"						
Blank (B13K007-BLK2)										
Iron	ND	U	100	mg/kg wet						
Matrix Spike (B13K007-MS1)		**Source: 1310054-06**								
Aluminum	7,140	Q10	100	mg/kg wet	385	6,830	81	75-125		20
Antimony	48.9		2	"	96.2	3.49	**47**	75-125		20
Arsenic	488		2	"	385	97	102	75-125		20
Barium	364		5	"	385	17.4	90	75-125		20
Beryllium	11.1		0.1	"	9.62	2.19	92	75-125		20
Cadmium	33.7		0.5	"	9.62	24.7	93	75-125		20
Calcium	21,700	Q10	100	"	1920	20,800	**44**	75-125		20
Chromium	49.5		1	"	38.5	11.8	98	75-125		20
Cobalt	97.3		2	"	96.2	10.9	90	75-125		20
Copper	2,320	Q10	4	"	48.1	2,370	**NR**	75-125		20
Iron	42,700	Q10	100	"	192	41,600	**566**	75-125		20
Lead	3,670	Q10	3	"	96.2	3,670	**2**	75-125		20
Magnesium	2,470		50	"	1920	780	88	75-125		20
Manganese	6,080	Q10	5	"	96.2	6,190	**NR**	75-125		20
Molybdenum	155		5	"	96.2	65	94	75-125		20

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B13K007 - 3050B Sld Acid Dig - Metals by 6010								**Prepared: 11/03/13 Analyzed: 11/12/13**		
								Metals by EPA 6000/7000 Series Methods - Quality Control		
Matrix Spike (B13K007-MS1)		**Source: 1310054-06**								
Nickel	105		5	"	96.2	13.2	96	75-125		20
Potassium	3,850		500	"	1920	2,310	80	75-125		20
Selenium	362		2	"	385	10.1	91	75-125		20
Silver	14.1		1	"	9.62	4.55	100	75-125		20
Sodium	1,870		50	"	1920	ND	97	75-125		20
Thallium	343		5	"	385	6.31	87	75-125		20
Vanadium	102		2	"	96.2	10.1	95	75-125		20
Zinc	7,350	Q10	8	"	96.2	7,390	**NR**	75-125		20
Matrix Spike Dup (B13K007-MSD1)		**Source: 1310054-06**								
Aluminum	7,390	Q10	100	mg/kg wet	388	6,830	**145**	75-125	3	20
Antimony	49.9		2	"	97.1	3.49	**48**	75-125	2	20
Arsenic	499		2	"	388	97	104	75-125	2	20
Barium	377		5	"	388	17.4	93	75-125	4	20
Beryllium	11.4		0.1	"	9.71	2.19	95	75-125	3	20
Cadmium	33.9		0.5	"	9.71	24.7	95	75-125	0.7	20
Calcium	21,900	Q10	100	"	1940	20,800	**57**	75-125	1	20
Chromium	50.2		1	"	38.8	11.8	99	75-125	2	20
Cobalt	101		2	"	97.1	10.9	93	75-125	4	20
Copper	2,430	Q10	4	"	48.5	2,370	120	75-125	4	20
Iron	44,900	Q10	100	"	194	41,600	**NR**	75-125	5	20
Lead	3,790	Q10	3	"	97.1	3,670	123	75-125	3	20
Magnesium	2,560		50	"	1940	780	92	75-125	3	20
Manganese	6,150	Q10	5	"	97.1	6,190	**NR**	75-125	1	20
Molybdenum	160		5	"	97.1	65	98	75-125	3	20
Nickel	108		5	"	97.1	13.2	98	75-125	3	20
Potassium	3,950		500	"	1940	2,310	84	75-125	2	20
Selenium	371		2	"	388	10.1	93	75-125	3	20
Silver	14.4		1	"	9.71	4.55	101	75-125	2	20
Sodium	1,920		50	"	1940	ND	99	75-125	3	20
Thallium	351		5	"	388	6.31	89	75-125	2	20
Vanadium	105		2	"	97.1	10.1	98	75-125	3	20
Zinc	7,480	Q10	8	"	97.1	7,390	87	75-125	2	20
Reference (B13K007-SRM1)										
Aluminum	144		100	mg/kg wet	115		125	47.6-152		
Antimony	60.2		2	"	66.1		91	41.2-158		
Arsenic	283		2	"	253		112	60.9-139		
Barium	ND	U	5	"	1.60			62.5-138		
Beryllium	5.06		0.1	"	4.90		103	61.2-139		
Cadmium	10.5		0.5	"	10.9		96	70.6-128		
Calcium	48,900		100	"	44200		111	68.6-132		

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Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B13K007 - 3050B Sld Acid Dig - Metals by 6010								**Prepared: 11/03/13 Analyzed: 11/12/13**		
								Metals by EPA 6000/7000 Series Methods - Quality Control		
Reference (B13K007-SRM1)										
Chromium	29.5		1	"	27.1		109	68.3-132		
Cobalt	38		2	"	37.4		101	64.7-135		
Copper	1,600		4	"	1770		90	74.6-126		
Lead	56.5		3	"	57.0		99	72.8-127		
Magnesium	29,100		50	"	29200		100	70.2-130		
Manganese	67.1		5	"	61.1		110	68.2-132		
Nickel	16.3		5	"	16.3		100	55.2-145		
Potassium	ND	U	500	"	39.7			0-215		
Selenium	5.16		2	"	10.0		52	41-159		
Silver	6.99		1	"	5.91		118	45.8-154		
Sodium	ND	U	50	"	72.6			0-298		
Thallium	5.95		5	"	9.51		63	30.5-169		
Vanadium	17.9		2	"	17.6		102	65.9-135		
Zinc	53.5		8	"	47.5		112	43.2-157		
Reference (B13K007-SRM3)										
Iron	7,220		100	mg/kg wet	6480		111	66.2-134		
Batch B13K041 - 7473 Hg Prep - Mercury by 7473								**Prepared & Analyzed: 11/06/13**		
								Metals by EPA 6000/7000 Series Methods - Quality Control		
Blank (B13K041-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Matrix Spike (B13K041-MS1)		**Source: 1310054-02**								
Mercury	0.517		0.025	mg/kg wet	0.461	0.019	108	80-120		20
Matrix Spike Dup (B13K041-MSD1)		**Source: 1310054-02**								
Mercury	0.486		0.025	mg/kg wet	0.423	0.019	110	80-120	2	20
Reference (B13K041-SRM1)										
Mercury	1.2		0.025	mg/kg wet	1.10		109	80-120		

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Qualifiers and Comments

Q10 The analyte concentration in the unfortified sample is significantly greater than the concentration spiked into the matrix spike and matrix spike duplicate. The reported spike recovery is not a meaningful measure of the dataset's analytical accuracy.

J The reported result for this analyte should be considered an estimated value.

C1 The reported concentration for this analyte is below the quantitation limit.

A2 The sample was received above the recommended temperature range.

U Not Detected

NR Not Reported

RE1, RE2, etc: Result is from a sample re-analysis.

ICF International
Environmental Services Assistance Team, Region 9
1337 South 46th Street, Building 201, Richmond, CA 94804-4698
Phone: (510) 412-2300 Fax: (510) 412-2304

DATE: November 20, 2013

TO: Richard Bauer, Chemistry TM, EPA Region 9, Laboratory Section, MTS-2

FROM: Osell Salvador, Inorganic Group Leader

SUBJECT: Analytical Results for TDF 10101045

As assigned under EPA Contract No. EP-W-13-029, TDF 10101045, ESAT completed analysis of 12 soil samples for the Klondyke Tailings XRF project, Case R14S10, SDG 13303E, Work Order 1310054 for ICP metals and mercury following EPA Region 9 Laboratory SOPs 503 and 535 based on methods SW6010C and SW7473. The draft analytical report and raw data package are attached.

If you have any questions regarding this information please contact me at extension 22358.

EPA Region 9 Laboratory

DATA PACKAGE

Analysis:	**ICP Metals and Mercury**
Project Number:	**R14S10**
SDG Number:	**13303E**
Work Order:	**1310054**
ESAT DCN:	**16474**

Contents

- **Review Forms**
- **Tracking Forms**
- ***Sample Preparation***
- **Data**
  -Initial Calibration Data
  -Sample Data
- ***Miscellaneous Data***
- ***Canister Certification Data***

Sections in italics are included as applicable

REVIEW FORMS.

General Project Management and ESAT Contractor Oversight Review

Project Number: R14S10 SDG: 13303E

Analysis: ICP metals and mercury Number of Pages: 129

Reviewer: J. BERGES

- ☑ Review project notes and requirements (including TDF) and verify that correct analytical procedures and any special instructions were followed. Note any significant deviations or omissions in report narrative or return to contractor for correction.
- ☑ Review project memo field for each work order and include information pertinent to data users in report narrative. (Information important only to chemist reviewing the raw data package should be included in data package, but not in the report narrative).
- ☑ Review chain of custody documentation and verify that information in report corresponds correctly. Verify that any sample shipping or handling issues are properly documented and reported.
- ☑ Review analytical report and QC report and verify that qualifier flags for holding times, sample handling, surrogates, blanks, blank spikes, matrix QC, and calibration range have been appropriately applied.
- ☑ Review LIMS Data Entry table for unaddressed outliers.
- ☑ Verify that all major sections of data package are present.

Comments: ADDED FULL METALS RESULTS TO MS/MSD REPORT

Reviewer Signature [signature] Date 11/22/13

ESAT Region 9 | **ICF International**
Case: R14S10 | **Analysis:** ICP Metals and Mercury **TDF:** 10101045 | **Matrix:** soil
DCN: 16474 | **Site:** Klondyke Tailings XRF | **SDG:** 13303E

ESAT REGION 9 DATA PACKAGE TECHNICAL REVIEW GUIDE

Reviewer:	Package Prep (P): RC	Technical (T): [illegible]	Final (F):
	Date: 11/19/13	Date: 11-14-13	Date:

P T F N/A (indicates that the item is present and reviewed for accuracy and completeness)

Report Section

- ☑ ☑ ☐ ESAT Cover Memo (original)
- ☑ ☑ ☐ TDF included and requirements met (e.g. project analytes, project QLs, special procedures)
- ☑ ☑ ☐ Draft LIMS Report

Data Package Cover

- ☑ ☑ ☐ Case, SDG, Work Order(s), TDF#-DCN [First numbered page in the data package]

Review Forms

- ☑ ☑ ☐ EPA Review Form and Technical Review Guide included and complete.
- ☐ ☑ ☐ ☐ LIMS memo field; include as applicable.
- ☐ ☐ ☐ ☑ Discrepancy form(s) include as applicable
- ☑ ☑ ☐ ☐ Daily folder review forms are complete and reviewed; QC outliers noted
- ☐ ☐ ☐ ☑ Analysis matrix listing all analytical runs is included, as applicable

Tracking Forms

- ☑ ☑ ☐ Work Orders and Chains of Custody forms included and reviewed.
- ☑ ☑ ☐ Preparation and analyses performed within holding times. Qualify and/or explain deviations in memo field
- ☑ ☑ ☐ ☐ Cooler temperatures recorded on COC are within specification. Qualify and/or explain deviations in memo field

Sample Preparation

- ☑ ☑ ☐ ☐ Bench sheets and extraction logs, where applicable
- ☐ ☐ ☐ ☑ Sample cleanup data and records (e.g. GPC logs)
- ☐ ☐ ☐ ☑ Homogenization and Moisture data

Initial Calibration Data

Group ICAL data by instrument and analysis date:

- ☑ ☑ ☐ ☐ All ICALs associated with samples are present, reviewed, and pass SOP criteria. (If failure, discrepancy form must be included)
- ☐ ☐ ☐ ☑ Check for misidentification (e.g. isomers such as dichlorobenzene)

Sample Data

Group data for the following areas in sections by method, instrument, and analysis date.

Continuing Calibrations

- ☑ ☑ ☐ ☐ All CCALs associated with samples are present and meet SOP criteria. If not, discrepancy form included.
- ☐ ☐ ☑ Average RRFs from associated ICAL are correctly transposed to CCAL summary form
- ☐ ☐ ☑ CCAL RRFs and %Ds calculated correctly. Check at least 1 surrogate & 1 target analyte
- ☐ ☐ ☑ Check %Ds and RRFs against SOP criteria

P T F N/A (indicates that the item is present and reviewed for accuracy and completeness)

Quantitation Limit Standards

☑ ☑ ☐ ☐ Percent recoveries of 60-140% met; outliers noted and flagged

Laboratory Control Samples

☑ ☑ ☐ Percent recoveries met. If not, discrepancy form included unless not required because: _____

Method Blanks

☑ ☑ ☐ Present and no target analyte results > ½ QL; if not, flag data as appropriate

MS/MSD or Duplicate Data

☑ ☑ ☐ ☐ Percent recoveries and RPDs were met; outliers are noted and flagged. Note significant deviations in LIMS memo field

Sample Data

☑ ☑ ☐ ☐ Bench sheet(s) and injection or run logs present for all samples
☑ ☑ ☐ ☐ Internal standards meet SOP criteria
☐ ☐ ☐ ☑ System Monitoring Compound/Surrogate recoveries met; outliers are noted and flagged
☑ ☑ ☐ All non-detects are reported as ND on the quantitation report and explained for QC samples
☐ ☐ ☑ Quantitation results are correctly calculated. Check at least one surrogate or one target analyte
☐ ☐ ☑ Mass spectral data are present for all target analytes
☐ ☐ ☐ ☑ Check for manual integrations (m) identified on quantitation reports. Verify presence of manual integration data, initialed and dated by a supervisor
☑ ☑ ☐ ☐ Compound concentrations exceeding the upper range of the instrument are reported from the dilution run
☑ ☑ Check for carry-over contamination
☑ ☑ ☐ ☐ Dilutions and reruns appropriate.
☐ ☐ ☐ TICs properly identified; TIC report and data present; proper TIC name used (Organics)
☑ ☑ ☐ ☐ QC outliers are appropriately flagged in LIMS

Miscellaneous Data

☐ ☐ ☐ ☑ Storage blank data present
☐ ☐ ☐ ☑ Other data, as applicable _____

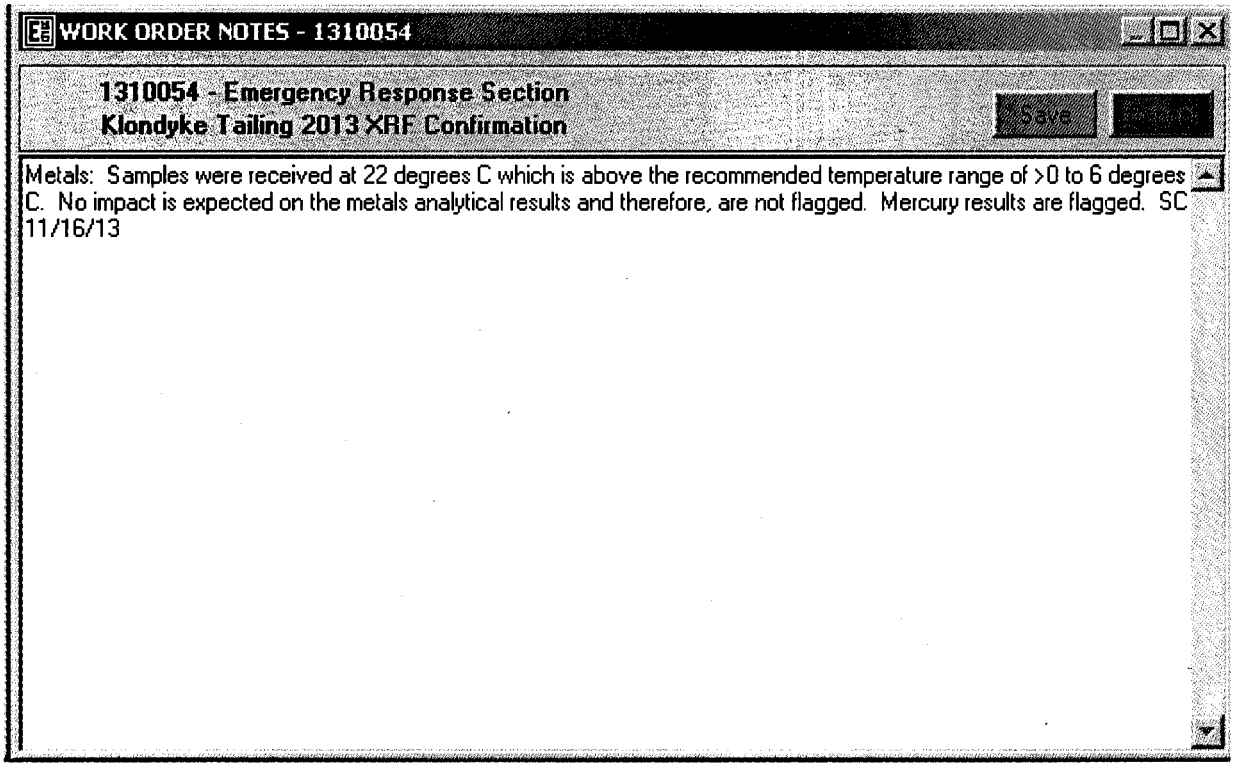
Canister Certification Data (TO 15 only)

☐ ☐ ☐ ☑ Data and supporting QC present

Standards Records

☑ ☑ ☐ ☐ LIMS Standards pdf created and filed as:
I:\PDF\Standard\R14S10_13303E_Metals

For ESAT Files: ESAT Review form (original) and Cover Memo (copy)


WORK ORDER NOTES - 1310054
1310054 - Emergency Response Section
Klondyke Tailing 2013 XRF Confirmation
Save
Metals: Samples were received at 22 degrees C which is above the recommended temperature range of >0 to 6 degrees C. No impact is expected on the metals analytical results and therefore, are not flagged. Mercury results are flagged. SC 11/16/13

Inorganics Daily Folder Preparation/Technical Review Guide

Analysis/ Method	Metals 6010C	Analyst Initial	SC	Peer Review Initial	CS	Projects	R135B5 R135B1 R14512 R14510
Instrument ID	PE5300	Date Analyzed	11/09/13	Date	11-12-13	SDGs	132685 132696 132916 132915 133032E

Review each item listed below. As problems are discovered list them in the non-conformance section of the form and provide and explanation in the discussion part of the table.

N/A	A	PR	Item Description
	✓	✓	Runlog (Present, legible, peer reviewed)
	✓	✓	Initial Calibration (SOP criteria for number of levels, concentration, and linearity)
	✓	✓	Continuing Calibration Verification (frequency and recovery)
	✓	✓	Calibration Blank (frequency and contamination level)
	✓	✓	Method Specific QC (Specify)
	✓	✓	• CRL
	✓	✓	• IFA
	✓	✓	• Internal Standard
	✓	✓	Method Blank (frequency and contamination level)
	✓	✓	LCS (level, frequency, and recovery)
	✓	✓	MS and MSD or MD (level, frequency, recovery, and RPD)
	✓	✓	Samples (within calibration range, results calculated correctly, RPD on multiple readings)
✓			Manual Integration Verified
✓			Standard Prep Log (all pages present, legible, peer reviewed, legible)
✓			Sample Prep/Digestion (all pages present, legible, peer reviewed)

N/A = not applicable A = Analyst check PR = Peer Review Check

Inorganics Non-conformance Report

QC Item and ID	QC Result	QC Limit	High Bias	Low Bias	Flag ND	Flag Hits	Discussion
CCV4 - A Fe	71.0%	90-110%	✓				Rerun affected samples

Inorganics Daily Folder Preparation/Technical Review Guide

Analysis/ Method	Metals 6010c	Analyst Initial	SC	Peer Review Initial	CB	Projects	R 13581 R14512
Instrument ID	PE5300	Date Analyzed	11/12/13	Date	11-13-13	SDGs	132698 132918

Review each item listed below. As problems are discovered list them in the non-conformance section of the form and provide and explanation in the discussion part of the table.

N/A	A	PR	Item Description
	✓	✓	Runlog (Present, legible, peer reviewed)
	✓	✓	Initial Calibration (SOP criteria for number of levels, concentration, and linearity)
	✓	✓	Continuing Calibration Verification (frequency and recovery)
	✓	✓	Calibration Blank (frequency and contamination level)
	✓	✓	Method Specific QC (Specify)
	✓	✓	• CRL
	✓	✓	• Internal Standards
			•
	✓	✓	Method Blank (frequency and contamination level)
	✓	✓	LCS (level, frequency, and recovery)
	✓	✓	MS and MSD or MD (level, frequency, recovery, and RPD)
	✓	✓	Samples (within calibration range, results calculated correctly, RPD on multiple readings)
✓			Manual Integration Verified
✓			Standard Prep Log (all pages present, legible, peer reviewed, legible)
✓			Sample Prep/Digestion (all pages present, legible, peer reviewed)

N/A = not applicable A = Analyst check PR = Peer Review Check

Inorganics Non-conformance Report

QC Item and ID	QC Result	QC Limit	High Bias	Low Bias	Flag ND	Flag Hits	Discussion

Inorganics Daily Folder Preparation/Technical Review Guide

Analysis/ Method	Mercury 7473	Analyst Initial	M.D.	Peer Review Initial		Projects	ICAL
Instrument ID	Milestone DMA-80 #2	Date Analyzed	4/10+11/13	Date	04-15-13	SDGs	NA

Review each item listed below. As problems are discovered list them in the non-conformance section of the form and provide an explanation in the discussion part of the table.

N/A	A	PR	Item Description
	X	✓	Runlog (Present, legible, peer reviewed) (Sequence Sheet)
	X	✓	Initial Calibration (SOP criteria for number of levels, concentration, and linearity)
	X	✓	Continuing Calibration Verification (frequency and recovery)
	X	✓	Calibration Blank (frequency and contamination level)
	X	✓	Method Specific QC (Specify)
			QLS (CRL)
			!
	X	✓	Method Blank (frequency and contamination level)
	X	✓	LCS (level, frequency, and recovery)
X			MS and MSD or MD (level, frequency, recovery, and RPD)
X			Samples (within calibration range, results calculated correctly, RPD on multiple readings)
X			Manual Integration Verified
	X	✓	Standard Prep Log (all pages present, legible, peer reviewed, legible)
X			Sample Prep/Digestion (all pages present, legible, peer reviewed)

N/A = not applicable A = Analyst check PR = Peer Review Check

Inorganics Non-conformance Report

QC Item and ID	QC Result	QC Limit	High Bias	Low Bias	Flag ND	Flag Hits	Discussion

Inorganics Daily Folder Preparation/Technical Review Guide

Analysis/ Method	Mercury 7473	Analyst Initial	M.D.	Peer Review Initial		Projects	R14S10
Instrument ID	Milestone DMA-80 #2	Date Analyzed	11/6/13	Date	11-8-13	SDGs	13303E

Review each item listed below. As problems are discovered list them in the non-conformance section of the form and provide an explanation in the discussion part of the table.

N/A	A	PR	Item Description
	X	✓	Runlog (Present, legible, peer reviewed) (**Sequence**)
	X	✓	Initial Calibration (SOP criteria for number of levels, concentration, and linearity)
	X	✓	Continuing Calibration Verification (frequency and recovery)
	X	✓	Calibration Blank (frequency and contamination level)
	X	✓	Method Specific QC (Specify)
			QLS
			SCV
			!
	X	✓	Method Blank (frequency and contamination level)
	X	✓	LCS (level, frequency, and recovery)
	X	✓	MS and MSD or MD (level, frequency, recovery, and RPD)
	X	✓	Samples (within calibration range, results calculated correctly, RPD on multiple readings)
X			Manual Integration Verified
X			Standard Prep Log (all pages present, legible, peer reviewed, legible)
X			Sample Prep/Digestion (all pages present, legible, peer reviewed)

N/A = not applicable A = Analyst check PR = Peer Review Check

Inorganics Non-conformance Report

QC Item and ID	QC Result	QC Limit	High Bias	Low Bias	Flag ND	Flag Hits	Discussion

TRACKING FORMS

WORK ORDER

Printed: 11/16/2013 2:02:28PM

1310054

EPA Region 9 Laboratory

Client: Emergency Response Section **Project Number:** R14S10
Project: Klondyke Tailing 2013 XRF Confirmation

Report To:	Project Contact
Emergency Response Section	Ecology and Environment, Oakland
Martin Powell	Kate Villars
75 Hawthorne Street	1940 Webster Street, Suite 100
San Francisco, CA 94105	Oakland, CA 94612
Phone: (602) 771-4591	Phone :(510) 893-6700
Fax: xx	Fax: (510) 550-2760

Shipping Containers	Description	Temp C	Custody Seals?	Containers Intact?	Labels COC Agree?	Preservation Confirmed?	Received on Ice?	Comments
Box	Default Cooler	22	Yes	Yes	Yes	No	No	

Date Due:	11/20/13 15:00 (21 day TAT)	SDG:	13303E
Received By:	Susan Sturges	Date Received:	10/29/13 15:05
Logged In By:	Susan Sturges	Date Logged In:	10/30/13 14:13

Analysis	Hold Time Expires	Comments
1310054-01 AD-SP-NORTH [Solid] Sampled 10/10/13 11:05 Pacific		
Mercury by 7473	11/07/13	
Solids, Dry Weight	04/08/14	
Metals by 6010	04/08/14	
1310054-02 AD-SP-WEST [Solid] Sampled 10/10/13 11:11 Pacific		
Metals by 6010	04/08/14	
Solids, Dry Weight	04/08/14	
Mercury by 7473	11/07/13	
1310054-03 RFSP-COMP-01 [Solid] Sampled 10/12/13 11:02 Pacific		
Mercury by 7473	11/09/13	
Metals by 6010	04/10/14	
Solids, Dry Weight	04/10/14	
1310054-04 RFSP-COMP-02 [Solid] Sampled 10/12/13 11:05 Pacific		
Mercury by 7473	11/09/13	
Solids, Dry Weight	04/10/14	
Metals by 6010	04/10/14	
1310054-05 2:3-BLEND-SP-COMP-1 [Solid] Sampled 10/22/13 14:32 Pacific		
Solids, Dry Weight	04/20/14	
Mercury by 7473	11/19/13	
Metals by 6010	04/20/14	

1310054

EPA Region 9 Laboratory

Client: Emergency Response Section **Project Number:** R14S10
Project: Klondyke Tailing 2013 XRF Confirmation

Analysis	Hold Time Expires	Comments

Analysis	Expires	Comments
1310054-06 AA-03-00 [Solid] Sampled 10/14/13 14:03 Pacific		**MS/MSD**
Metals by 6010	04/12/14	Pb and As only
Solids, Dry Weight	04/12/14	
1310054-07 AA-04-00 [Solid] Sampled 10/14/13 14:06 Pacific		
Metals by 6010	04/12/14	Pb and As only
Solids, Dry Weight	04/12/14	
1310054-08 HS03-Y1-12 [Solid] Sampled 10/15/13 08:25 Pacific		
Solids, Dry Weight	04/13/14	
Metals by 6010	04/13/14	Pb and As only
1310054-09 HS03-BF-SIDE [Solid] Sampled 10/18/13 07:42 Pacific		
Solids, Dry Weight	04/16/14	
Metals by 6010	04/16/14	Pb and As only
1310054-10 HS04-Y6-12 [Solid] Sampled 10/22/13 08:55 Pacific		
Metals by 6010	04/20/14	Pb and As only
Solids, Dry Weight	04/20/14	
1310054-11 HS04-Y6-112 [Solid] Sampled 10/22/13 08:55 Pacific		
Metals by 6010	04/20/14	Pb and As only
Solids, Dry Weight	04/20/14	
1310054-12 HS04-BF-BACK [Solid] Sampled 10/22/13 14:43 Pacific		
Metals by 6010	04/20/14	Pb and As only
Solids, Dry Weight	04/20/14	

Reviewed By Date

ENVIRONMENTAL PROTECTION AGENCY
Region 9 Laboratory

CHAIN OF CUSTODY RECORD

1337 S. 46th St., Bldg. 201
Richmond, CA 94804-4698

PROJ. NO.: R14510
PROJECT NAME: Klondyke Tailings Removal
SAMPLERS: (Signature) K. Villars

DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	EPA 6010B Pb+As	EPA 6010B - TAL list					REMARKS
10/10/13	1105	SOIL	X		AD-SP-NORTH	1	~~X~~	X					Full list
10/10/13	1111		X		AD-SP-WEST	1	~~X~~	X					Full list
10/12/13	1102		X		RFSP-COMP-01	1	~~X~~	X					Full list
10/12/13	1105		X		RFSP-COMP-02	1	~~X~~	X					Full list
10/22/13	1432		X		2:3-BLEND-SP-COMP-1	1	~~X~~	X					Full list
10/14/13	1403			X	AA-03-00	2	X						MS/MSD, Pb + As
10/14/13	1406			X	AA-04-00	1	X						Pb + As
10/15/13	0825		X		HS03-Y1-12	1	X						↓
10/18/13	0742			X	HS03-BF-SIDE	1	X						
10/22/13	0855		X		HS04-Y6-12	1	X						
10/22/13	0855		X		HS04-Y6-112	1	X						
10/22/13	1443			X	HS04-BF-BACK	1	X						Pb + As

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	1633 10/25/13	Fedex 8996 3487 1669			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
				[signature]	10/29/13

Received for Laboratory by: (Signature)	Date / Time	Temp.	Seals Intact (Y/N)	Conditions / Remarks
[signature]	11/29/13 1505	22°C	Y	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

9-2472

00014

SAMPLE PREPARATION

Added re-dicts

dk 11-19-13

PREPARATION BENCH SHEET

B13K007

EPA Region 9 Laboratory

'rinted: 11/3/2013 1:44:45PM

Project: R14S10 - Klondyke Tailing 2013 XRF Confirmation

Matrix: Solid **Analysis:Metals by 6010** **Prepared using: Metals - 3050B Sld Acid Dig** **(No Surrogate)**

Lab Number	SampleName	Prepared	Initial (g)	Final (mL)	Source ID	Spike ID 1	ul Spike 1	Spike ID 2	ul Spike 2	Prepared by	Extraction Comments
1310054-01 A	AD-SP-NORTH	11/03/13 08:50	1.01	50						ER	
1310054-02 A	AD-SP-WEST	11/03/13 08:50	1.03	50						ER	
1310054-03 A	RFSP-COMP-01	11/03/13 08:50	1	50						ER	
1310054-04 A	RFSP-COMP-02	11/03/13 08:50	1.01	50						ER	
1310054-05 A	2:3-BLEND-SP-COMP-1	11/03/13 08:50	1.02	50						ER	
1310054-06 A	AA-03-00	11/03/13 08:50	1.02	50						ER	Pb and As only
1310054-07 A	AA-04-00	11/03/13 08:50	1.04	50						ER	Pb and As only
1310054-08 A	HS03-Y1-12	11/03/13 08:50	1	50						ER	Pb and As only
1310054-09 A	HS03-BF-SIDE	11/03/13 08:50	1.05	50						ER	Pb and As only
1310054-10 A	HS04-Y6-12	11/03/13 08:50	1	50						ER	Pb and As only
1310054-11 A	HS04-Y6-112	11/03/13 08:50	1.05	50						ER	Pb and As only
1310054-12 A	HS04-BF-BACK	11/03/13 08:50	1.02	50						ER	Pb and As only
B13K007-BLK1	Blank	11/03/13 08:50	1	50			0		0	ER	
B13K007-MS1	Matrix Spike	11/03/13 08:50	1.04	50	1310054-06	1314063	200	1344133	2000	ER	
B13K007-MSD1	Matrix Spike Dup	11/03/13 08:50	1.03	50	1310054-06	1314063	200	1344133	2000	ER	
B13K007-SRM1	Reference	11/03/13 08:50	1.01	50		9G15002	1011		0	ER	
B13K007-SRM2	Reference	11/03/13 08:50	1.01	50		9G15003	1012		0	ER	

From B13J042 on 11/1/2013 by ER. Digestion cup lot # 1302285-7-3161-MB. H/B #4 temperature 95 C. Thermometer S/N T069.

00016

SC 11/03/13

Spiking Witnessed By Date

SC 11/16/13

Preparation Reviewed By Date

PREPARATION BENCH SHEET

B13K007

EPA Region 9 Laboratory

Project: -

'rinted: 11/3/2013 1:44:45PM

Matrix: Solid **Analysis:QC** **Prepared using: Metals - 3050B Sld Acid Dig** **(No Surrogate)**

Lab Number	SampleName	Prepared	Initial (g)	Final (mL)	Source ID	Spike ID 1	ul Spike 1	Spike ID 2	ul Spike 2	Prepared by	Extraction Comments

Reagents

Reagent #	Description
1331007	Hydrochloric Acid
1344087	Metals, Nitric Acid, 1:1
2H20018	Hydrogen Peroxide, 30% Solution, ACS
2K13005	Nitric Acid

00017

SC 11/03/13

Spiking Witnessed By Date

SC 11/16/13

Preparation Reviewed By Date

ICP-AES METALS

EPA Method 6010C
EPA Region 9 Lab SOP 503

ANALYSIS SEQUENCE

Instrument: PE5300

Calibration ID: UNASSIGNED

S13K066

Printed: 11/12/2013 12:45:29PM

Lab Number	Sample Name	Analysis	Container	Order	Position	STD ID	ISTD ID	Comments
S13K066-CAL1	Cal Standard	QC		1		1344049	1345077	
S13K066-CAL2	Cal Standard	QC		2		1329122	1345077	
S13K066-CAL3	Cal Standard	QC		3		1329123	1345077	
S13K066-CAL4	Cal Standard	QC		4		1329124	1345077	
S13K066-CAL5	Cal Standard	QC		5		1341019	1345077	
S13K066-CAL6	Cal Standard	QC		6		1329125	1345077	
S13K066-CAL7	Cal Standard	QC		7		1337063	1345077	
S13K066-CCV1	Calibration Check	QC		8		1336101	1345077	
S13K066-CCB1	Calibration Blank	QC		9		1344049	1345077	
S13K066-CRL1	Instrument RL Check	QC		10		1333134	1345077	
S13K066-IFA1	Al	QC		11		1341020	1345077	
S13K066-IFA2	Cr	QC		12		1344107	1345077	
S13K066-IFA3	Co	QC		13		1337067	1345077	
S13K066-IFA4	Fe	QC		14		1344108	1345077	
S13K066-IFA5	Mn	QC		15		1346030	1345077	
S13K066-IFA6	Mo	QC		16		1346031	1345077	
S13K066-IFA7	Ni	QC		17		1337068	1345077	
S13K066-IFA8	Ti	QC		18		1346032	1345077	
S13K066-IFA9	V	QC		19		1346033	1345077	
S13K066-CCV2	Calibration Check	QC		20		1336101	1345077	
S13K066-CCB2	Calibration Blank	QC		21		1344049	1345077	
B13J037-BLK2	Blank	QC		22			1345077	
B13J037-SRM2	Reference	QC		23			1345077	
1309087-01RE1	AR-SE1	Metals by 6010	A	24			1345077	Added 11/12/2013 by SC
1309087-02RE1	AR-SE2	Metals by 6010	A	25			1345077	Added 11/12/2013 by SC

090519

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

Instrument: PE5300

Calibration ID: UNASSIGNED

S13K066

Printed: 11/12/2013 12:45:29PM

Lab Number	Sample Name	Analysis	Container	Order	Position	STD ID	ISTD ID	Comments
1309087-03RE1	AR-SE3	Metals by 6010	A	26			1345077	Added 11/12/2013 by SC
1309087-04RE1	AR-SE4	Metals by 6010	A	27			1345077	Added 11/12/2013 by SC
1309087-05RE1	AR-SE5	Metals by 6010	A	28			1345077	Added 11/12/2013 by SC
B13J037-MS3	Matrix Spike	QC		29			1345077	
B13J037-MSD3	Matrix Spike Dup	QC		30			1345077	
S13K066-CCV3	Calibration Check	QC		31		1336101	1345077	
S13K066-CCB3	Calibration Blank	QC		32		1344049	1345077	
1309090-01RE1	Bryant @ Stateline	Metals by 6010	A	33			1345077	Added 11/12/2013 by SC
1309090-02RE1	Bryant Stn 25	Metals by 6010	A	34			1345077	Added 11/12/2013 by SC
1309090-03RE1	Bryant at Doud	Metals by 6010	A	35			1345077	Added 11/12/2013 by SC
1309090-04RE1	Mountaineer Stn 24	Metals by 6010	A	36			1345077	Added 11/12/2013 by SC
1309090-05RE1	Leviathan Stn 23	Metals by 6010	A	37			1345077	Added 11/12/2013 by SC
B13J037-MS4	Matrix Spike	QC		38			1345077	
B13J037-MSD4	Matrix Spike Dup	QC		39			1345077	
1309090-06RE1	Aspen Stn 16	Metals by 6010	A	40			1345077	Added 11/12/2013 by SC
1309090-07RE1	Upper Mountaineer	Metals by 6010	A	41			1345077	Added 11/12/2013 by SC
S13K066-CCV4	Calibration Check	QC		42		1336101	1345077	
S13K066-CCB4	Calibration Blank	QC		43		1344049	1345077	
S13K066-CRL2	Instrument RL Check	QC		44		1333134	1345077	
B13J082-BLK1	Blank	QC		45			1345077	
B13J082-SRM1	Reference	QC		46			1345077	
1310020-01	TS-100213	Metals by 6010	A	47			1345077	RCRA metals only
1310020-02	B-01-092413	Metals by 6010	A	48			1345077	RCRA metals only
1310020-03	TS-092713	Metals by 6010	A	49			1345077	RCRA metals only
1310020-04	TS-100713	Metals by 6010	A	50			1345077	RCRA metals only

Samples Loaded By _____ Date _____

Data Processed By _____ Date _____

ANALYSIS SEQUENCE

S13K066

Instrument: PE5300

Calibration ID: UNASSIGNED

Printed: 11/12/2013 12:45:29PM

Lab Number	Sample Name	Analysis	Container	Order	Position	STD ID	ISTD ID	Comments
1310020-05	Sand-100713	Metals by 6010	A	51			1345077	RCRA metals only
1310020-06	116201-S02-2	Metals by 6010	A	52			1345077	lead and arsenic only
1310020-07	116201-S04-6	Metals by 6010	A	53			1345077	lead and arsenic only
S13K066-CCV5	Calibration Check	QC		54		1336101	1345077	
S13K066-CCB5	Calibration Blank	QC		55		1344049	1345077	
1310020-08	115806-S02-0	Metals by 6010	A	56			1345077	lead and arsenic only
1310020-09	115806-S03-6	Metals by 6010	A	57			1345077	lead and arsenic only
1310020-10	115503-G22-5	Metals by 6010	A	58			1345077	lead and arsenic only
B13J082-MS1	Matrix Spike	QC		59			1345077	
B13J082-MSD1	Matrix Spike Dup	QC		60			1345077	
1310020-11	115503-G0-5	Metals by 6010	A	61			1345077	lead and arsenic only
1310020-12	115503-G14-5	Metals by 6010	A	62			1345077	lead and arsenic only
1310020-13	101107-S02-ConF	Metals by 6010	A	63			1345077	lead and arsenic only
1310020-14	116501-S01-ConF	Metals by 6010	A	64			1345077	lead and arsenic only
1310020-15	100 Robins S02-ConF	Metals by 6010	A	65			1345077	lead and arsenic only
S13K066-CCV6	Calibration Check	QC		66		1336101	1345077	
S13K066-CCB6	Calibration Blank	QC		67		1344049	1345077	
B13J083-BLK1	Blank	QC		68			1345077	
B13J083-SRM1	Reference	QC		69			1345077	
1310021-01	110801-S02-2	Metals by 6010	A	70			1345077	lead and arsenic only
1310021-02	115303-S06-6	Metals by 6010	A	71			1345077	lead and arsenic only
1310021-03	115303-S01-2	Metals by 6010	A	72			1345077	lead and arsenic only
1310021-04	115401-S01-ConF	Metals by 6010	A	73			1345077	lead and arsenic only
1310021-05	103703-S03-ConF	Metals by 6010	A	74			1345077	lead and arsenic only
B13J083-MS1	Matrix Spike	QC		75			1345077	

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

Instrument: PE5300

Calibration ID: UNASSIGNED

S13K066

Printed: 11/12/2013 12:45:29PM

Lab Number	Sample Name	Analysis	Container	Order	Position	STD ID	ISTD ID	Comments
B13J083-MSD1	Matrix Spike Dup	QC		76			1345077	
1310021-06	115303-S04-6	Metals by 6010	A	77			1345077	lead and arsenic only
S13K066-CCV7	Calibration Check	QC		78		1336101	1345077	
S13K066-CCB7	Calibration Blank	QC		79		1344049	1345077	
1310021-07	116101-S01-ConF	Metals by 6010	A	80			1345077	lead and arsenic only
1310021-08	107403-S01-ConF	Metals by 6010	A	81			1345077	lead and arsenic only
1310021-09	100 Robbins-08-6-12	Metals by 6010	A	82			1345077	lead and arsenic only
1310021-10	P12 6-12	Metals by 6010	A	83			1345077	lead and arsenic only
1310021-11	450 Dibble 03-0-2	Metals by 6010	A	84			1345077	lead and arsenic only
1310021-12	181 Spring UnderRock 02	Metals by 6010	A	85			1345077	lead and arsenic only
1310021-13	470 Wittenburg-P1	Metals by 6010	A	86			1345077	lead and arsenic only
1310021-14	116201-S01-2	Metals by 6010	A	87			1345077	lead and arsenic only
1310021-15	P4 6-12	Metals by 6010	A	88			1345077	lead and arsenic only
S13K066-CCV8	Calibration Check	QC		89		1336101	1345077	
S13K066-CCB8	Calibration Blank	QC		90		1344049	1345077	
S13K066-CRL3	Instrument RL Check	QC		91		1333134	1345077	
B13K007-BLK1	Blank	QC		92			1345077	
B13K007-SRM1	Reference	QC		93			1345077	
B13K007-SRM2	Reference	QC		94			1345077	
1310054-01	AD-SP-NORTH	Metals by 6010	A	95			1345077	
1310054-02	AD-SP-WEST	Metals by 6010	A	96			1345077	
1310054-03	RFSP-COMP-01	Metals by 6010	A	97			1345077	
1310054-04	RFSP-COMP-02	Metals by 6010	A	98			1345077	
1310054-05	2:3-BLEND-SP-COMP-1	Metals by 6010	A	99			1345077	
S13K066-CCV9	Calibration Check	QC		100		1336101	1345077	

00022

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

S13K066

Instrument: PE5300

Calibration ID: UNASSIGNED

Printed: 11/12/2013 12:45:29PM

Lab Number	Sample Name	Analysis	Container	Order	Position	STD ID	ISTD ID	Comments
S13K066-CCB9	Calibration Blank	QC		101		1344049	1345077	
1310054-06	AA-03-00	Metals by 6010	A	102			1345077	Pb and As only
B13K007-MS1	Matrix Spike	QC		103			1345077	
B13K007-MSD1	Matrix Spike Dup	QC		104			1345077	
1310054-07	AA-04-00	Metals by 6010	A	105			1345077	Pb and As only
1310054-08	HS03-Y1-12	Metals by 6010	A	106			1345077	Pb and As only
1310054-09	HS03-BF-SIDE	Metals by 6010	A	107			1345077	Pb and As only
1310054-10	HS04-Y6-12	Metals by 6010	A	108			1345077	Pb and As only
1310054-11	HS04-Y6-112	Metals by 6010	A	109			1345077	Pb and As only
1310054-12	HS04-BF-BACK	Metals by 6010	A	110			1345077	Pb and As only
S13K066-CCVA	Calibration Check	QC		111		1336101	1345077	
S13K066-CCBA	Calibration Blank	QC		112		1344049	1345077	
S13K066-CRL4	Instrument RL Check	QC		113		1333134	1345077	

REVIEWED BY:

Name: CS

Date: 11-12-13

000023

Samples Loaded By Date

Data Processed By Date

REVIEWED BY:
Name: CS
Date: 11-15-13

	1131109-1R	PE5300	SC
	Blue Ledge Mine	R135B5	13268C
	Leviathan Mine	R135B1	13269B
	Eureka Smelter	R14512	13291B 13291C
	Klodyke Tailing	R14510	13303E

Seq#	Sample ID	Date	Time	
1	S13K066-CAL1	11/11/2013	3:19:15 PM	1344049
2	S13K066-CAL2	11/11/2013	3:25:26 PM	1329122
3	S13K066-CAL3	11/11/2013	3:29:36 PM	1329123
4	S13K066-CAL4	11/11/2013	3:34:09 PM	1329124
5	S13K066-CAL5	11/11/2013	3:38:23 PM	1341019
6	S13K066-CAL6	11/11/2013	3:42:18 PM	1329125
7	S13K066-CAL7	11/11/2013	3:46:47 PM	1337063
8	S13K066-CCV1	11/11/2013	3:50:53 PM	1336101
9	S13K066-CCB1	11/11/2013	3:58:11 PM	1344049
10	S13K066-CRL1	11/11/2013	4:04:24 PM	1333134
11	S13K066-IFA1	11/11/2013	4:10:39 PM	1341020
12	S13K066-IFA2	11/11/2013	4:16:53 PM	1344107
13	S13K066-IFA3	11/11/2013	4:23:06 PM	1337067
14	S13K066-IFA4	11/11/2013	4:29:20 PM	1344108
15	S13K066-IFA5	11/11/2013	4:35:35 PM	1346030
16	S13K066-IFA6	11/11/2013	4:42:05 PM	1346031
17	S13K066-IFA7	11/11/2013	4:50:23 PM	1337068
18	S13K066-IFA8	11/11/2013	4:57:54 PM	1346032
19	S13K066-IFA9	11/11/2013	5:04:38 PM	1346033
20	S13K066-CCV2	11/11/2013	5:11:04 PM	1336101
21	S13K066-CCB2	11/11/2013	5:18:27 PM	1344049
22	B13J037-BLK2	11/11/2013	5:24:46 PM	x2 5mL + 5mL
23	B13J037-SRM2	11/11/2013	5:31:18 PM	x2 5mL + 5mL
24	1309087-01RE1	11/11/2013	5:37:38 PM	x2 5mL + 5mL
25	1309087-02RE1	11/11/2013	5:43:38 PM	x2 5mL + 5mL
26	1309087-03RE1	11/11/2013	5:49:38 PM	x2 5mL + 5mL
27	1309087-04RE1	11/11/2013	5:55:42 PM	x2 5mL + 5mL
28	1309087-05RE1	11/11/2013	6:01:42 PM	x2 5mL + 5mL
29	B13J037-MS3	11/11/2013	6:07:48 PM	x2 5mL + 5mL
30	B13J037-MSD3	11/11/2013	6:13:06 PM	x2 5mL + 5mL
31	S13K066-CCV3	11/11/2013	6:18:23 PM	1336101
32	S13K066-CCB3	11/11/2013	6:25:47 PM	1344049
33	1309090-01RE1	11/11/2013	6:32:02 PM	x2 5mL + 5mL
34	1309090-02RE1	11/11/2013	6:38:08 PM	x2 5mL + 5mL
35	1309090-03RE1	11/11/2013	6:44:19 PM	x2 5mL + 5mL
36	1309090-04RE1	11/11/2013	6:50:35 PM	x2 5mL + 5mL
37	1309090-05RE1	11/11/2013	6:56:50 PM	x2 5mL + 5mL
38	B13J037-MS4	11/11/2013	7:02:05 PM	x2 5mL + 5mL
39	B13J037-MSD4	11/11/2013	7:07:26 PM	x2 5mL + 5mL
40	1309090-06RE1	11/11/2013	7:12:43 PM	x2 5mL + 5mL
41	1309090-07RE1	11/11/2013	7:18:46 PM	x2 5mL + 5mL

42	S13K066-CCV4	11/11/2013 7:25:09 PM	1336101 Fe out
43	S13K066-CCB4	11/11/2013 7:32:33 PM	1344049
44	S13K066-CRL2	11/11/2013 7:38:49 PM	1333134
45	B13J082-BLK1	11/11/2013 7:45:03 PM	x2 5mL + 5mL
46	B13J082-SRM1	11/11/2013 7:51:17 PM	x2 5mL + 5mL Se out
47	1310020-01	11/11/2013 7:57:34 PM	x2 5mL + 5mL
48	1310020-02	11/11/2013 8:03:36 PM	x2 5mL + 5mL
49	1310020-03	11/11/2013 8:09:43 PM	x2 5mL + 5mL
50	1310020-04	11/11/2013 8:16:03 PM	x2 5mL + 5mL
51	1310020-05	11/11/2013 8:22:08 PM	x2 5mL + 5mL
52	1310020-06	11/11/2013 8:28:25 PM	x2 5mL + 5mL
53	1310020-07	11/11/2013 8:34:46 PM	x2 5mL + 5mL
54	S13K066-CCV5	11/11/2013 8:41:09 PM	1336101 Fe out
55	S13K066-CCB5	11/11/2013 8:48:35 PM	1344049
56	1310020-08	11/11/2013 8:54:52 PM	x2 5mL + 5mL
57	1310020-09	11/11/2013 9:03:14 PM	x2 5mL + 5mL
58	1310020-10	11/11/2013 9:09:38 PM	x2 5mL + 5mL
59	B13J082-M51	11/11/2013 9:17:59 PM	x2 5mL + 5mL
60	B13J082-MSD1	11/11/2013 9:25:32 PM	x2 5mL + 5mL
61	1310020-11	11/11/2013 9:33:02 PM	x2 5mL + 5mL
62	1310020-12	11/11/2013 9:39:23 PM	x2 5mL + 5mL
63	1310020-13	11/11/2013 9:45:47 PM	x2 5mL + 5mL
64	1310020-14	11/11/2013 9:52:09 PM	x2 5mL + 5mL
65	1310020-15	11/11/2013 9:58:34 PM	x2 5mL + 5mL
66	S13K066-CCV6	11/11/2013 10:04:54 PM	1336101 Fe out
67	513K066-CCB6	11/11/2013 10:12:17 PM	1344049
68	B13J083-BLK1	11/11/2013 10:18:32 PM	x2 5mL + 5mL
69	813J083-SRM1	11/11/2013 10:24:46 PM	x2 5mL + 5mL
70	1310021-01	11/11/2013 10:30:50 PM	x2 5mL + 5mL
71	1310021-02	11/11/2013 10:37:15 PM	x2 5mL + 5mL
72	1310021-03	11/11/2013 10:43:38 PM	x2 5mL + 5mL
73	1310021-04	11/11/2013 10:52:00 PM	x2 5mL + 5mL
74	1310021-05	11/11/2013 11:00:21 PM	x2 5mL + 5mL
75	B13J083-M51	11/11/2013 11:08:39 PM	x2 5mL + 5mL
76	B13J083-MSD1	11/11/2013 11:15:17 PM	x2 5mL + 5mL
77	1310021-06	11/11/2013 11:21:54 PM	x2 5mL + 5mL
78	S13K066-CCV7	11/11/2013 11:28:16 PM	1336101 Fe out
79	S13K066-CCB7	11/11/2013 11:35:39 PM	1344049
80	1310021-07	11/11/2013 11:41:58 PM	x2 5mL + 5mL
81	1310021-08	11/11/2013 11:50:21 PM	x2 5mL + 5mL
82	1310021-09	11/11/2013 11:56:26 PM	x2 5mL + 5mL
83	1310021-10	11/12/2013 12:02:48 AM	x2 5mL + 5mL
84	1310021-11	11/12/2013 12:11:10 AM	x2 5mL + 5mL
85	1310021-12	11/12/2013 12:17:32 AM	x2 5mL + 5mL
86	1310021-13	11/12/2013 12:24:00 AM	x2 5mL + 5mL
87	1310021-14	11/12/2013 12:30:36 AM	x2 5mL + 5mL
88	1310021-15	11/12/2013 12:36:58 AM	x2 5mL + 5mL

89	S13K066-CCV8	11/12/2013 12:43:19 AM	1336101 Fe out
90	S13K066-CCB8	11/12/2013 12:50:42 AM	1344049
91	S13K066-CRL3	11/12/2013 12:56:58 AM	1333134
92	B13K007-BLK1	11/12/2013 1:03:15 AM	x2 5mL + 5mL
93	B13K007-SRM1	11/12/2013 1:09:29 AM	x2 5mL + 5mL
94	B13K007-SRM2	11/12/2013 1:15:48 AM	x2 5mL + 5mL
95	1310054-01	11/12/2013 1:22:07 AM	x2 5mL + 5mL
96	1310054-02	11/12/2013 1:28:15 AM	x2 5mL + 5mL
97	1310054-03	11/12/2013 1:34:16 AM	x2 5mL + 5mL
98	1310054-04	11/12/2013 1:40:16 AM	x2 5mL + 5mL
99	1310054-05	11/12/2013 1:46:16 AM	x2 5mL + 5mL
100	S13K066-CCV9	11/12/2013 1:52:18 AM	1336101 Fe out
101	S13K066-CCB9	11/12/2013 1:59:44 AM	1344049
102	1310054-06	11/12/2013 2:06:02 AM	x2 5mL + 5mL
103	B13K007-MS1	11/12/2013 2:12:07 AM	x2 5mL + 5mL
104	B13K007-MSD1	11/12/2013 2:18:47 AM	x2 5mL + 5mL
105	1310054-07	11/12/2013 2:25:23 AM	x2 5mL + 5mL
106	1310054-08	11/12/2013 2:31:32 AM	x2 5mL + 5mL
107	1310054-09	11/12/2013 2:37:40 AM	x2 5mL + 5mL
108	1310054-10	11/12/2013 2:43:44 AM	x2 5mL + 5mL
109	1310054-11	11/12/2013 2:50:01 AM	x2 5mL + 5mL
110	1310054-12	11/12/2013 2:56:18 AM	x2 5mL + 5mL
111	S13K066-CCVA	11/12/2013 3:02:23 AM	1336101 Fe out
112	S13K066-CCBA	11/12/2013 3:09:46 AM	1344049
113	S13K066-CRL4	11/12/2013 3:16:01 AM	1333134

Reprocessing Begun
Logged In Analyst: ins_pe5300 Technique: ICP Continuous

Results Data Set (original): 1131109-1
Results Library (original): C:\pe\ins_pe5300\Results\Results.mdb
Results Data Set (reprocessed): 1131109-1R
Results Library (reprocessed): C:\pe\ins_pe5300\Results\Results.mdb

Method Loaded
Method Name: 6010C_131109 Method Last Saved: 11/12/2013 9:46:13 AM
IEC File: 6010IEC110913A.iec MSF File:
Method Description:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Al 308.215	Lin, Calc Int	Peak Area	Radial	Y Radial	Yes
Sb 206.836	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes
As 188.979	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes
Ba 233.527	Lin, Calc Int	Peak Area	Radial	Y Radial	Yes
Be 313.107	Lin, Calc Int	Peak Area	Radial	Y Radial	Yes
B 249.677	Lin, Calc Int	Peak Area	Radial	Y Radial	Yes
Cd 226.502	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes
Ca 315.887	Lin, Calc Int	Peak Area	Radial	Y Radial	No
Cr 205.560	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes
Co 228.616	Lin, Calc Int	Peak Area	Radial	Y Radial	Yes
Cu 324.752	Lin, Calc Int	Peak Area	Radial	Y Radial	Yes
Fe 273.955	Lin, Calc Int	Peak Area	Radial	Y Radial	No
Pb 220.353	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes
Mg 279.077	Lin, Calc Int	Peak Area	Radial	Y Radial	No
Mn 260.568	Lin, Calc Int	Peak Area	Radial	Y Radial	Yes
Mo 202.031	Lin, Calc Int	Peak Area	Axial	Y Axial	No
Ni 231.604	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes
K 766.490	Lin, Calc Int	Peak Area	Radial	Y Radial	No
Se 196.026	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes
Si 251.611	Lin, Calc Int	Peak Area	Radial	Y Radial	Yes
Ag 328.068	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes
Na 589.592	Lin, Calc Int	Peak Area	Radial	Y Radial	No
Sr 421.552	Lin, Calc Int	Peak Area	Radial	Y Radial	No
Tl 190.801	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes
Sn 189.927	Lin, Calc Int	Peak Area	Axial	Y Axial	No
Ti 334.940	Lin, Calc Int	Peak Area	Radial	Y Radial	Yes
V 292.402	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes
Zn 213.857	Lin, Calc Int	Peak Area	Radial	Y Radial	Yes
Y Radial	Lin, Calc Int	Peak Area	Radial	n/a	n/a
Y Axial	Lin, Calc Int	Peak Area	Axial	n/a	n/a
As 193.696	Lin, Calc Int	Peak Area	Axial	Y Axial	Yes

Sequence No.: 1 Autosampler Location: 2
Sample ID: S13K066-CAL1 Date Collected: 11/11/2013 3:19:15 PM
Analyst: Data Type: Reprocessed on 11/12/2013 9:47:31 AM
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:

Nebulizer Parameters: S13K066-CAL1

Analyte	Back Pressure	Flow
All	136.0 kPa	0.56 L/min

Mean Data: S13K066-CAL1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y Radial	221172.0	2792.30	1.26%	100.00	%
Y Axial	2580623.8	15065.78	0.58%	100.0	%
Al 308.215†	112.5	19.34	17.19%	[0.00]	mg/L
Sb 206.836†	-29.4	6.51	22.15%	[0.00]	mg/L
As 188.979†	10.6	0.68	6.43%	[0.00]	mg/L

Ba 233.527†	12.4	4.73	38.04%	[0.00]	mg/L
Be 313.107†	73.0	0.99	1.36%	[0.00]	mg/L
B 249.677†	-20.8	5.88	28.22%	[0.00]	mg/L
Cd 226.502†	-86.0	11.50	13.38%	[0.00]	mg/L
Ca 315.887†	87.1	4.76	5.47%	[0.00]	mg/L
Cr 205.560†	-17.2	1.74	10.11%	[0.00]	mg/L
Co 228.616†	-2.5	3.20	129.85%	[0.00]	mg/L
Cu 324.752†	76.9	5.48	7.12%	[0.00]	mg/L
Fe 273.955†	-29.8	3.10	10.43%	[0.00]	mg/L
Pb 220.353†	230.5	7.31	3.17%	[0.00]	mg/L
Mg 279.077†	-32.0	5.99	18.72%	[0.00]	mg/L
Mn 260.568†	50.6	2.03	4.02%	[0.00]	mg/L
Mo 202.031†	36.8	2.74	7.44%	[0.00]	mg/L
Ni 231.604†	130.5	7.62	5.84%	[0.00]	mg/L
K 766.490†	229.0	14.09	6.15%	[0.00]	mg/L
Se 196.026†	33.5	2.65	7.92%	[0.00]	mg/L
Si 251.611†	158.0	6.25	3.96%	[0.00]	mg/L
Ag 328.068†	-5582.6	64.00	1.15%	[0.00]	mg/L
Na 589.592†	-53.3	15.47	29.04%	[0.00]	mg/L
Sr 421.552†	534.7	21.64	4.05%	[0.00]	mg/L
Tl 190.801†	-6.5	7.82	120.73%	[0.00]	mg/L
Sn 189.927†	-7.6	4.00	52.91%	[0.00]	mg/L
Ti 334.940†	105.6	18.46	17.48%	[0.00]	mg/L
V 292.402†	-666.5	51.61	7.74%	[0.00]	mg/L
Zn 213.857†	25.2	2.41	9.58%	[0.00]	mg/L
As 193.696†	-8.6	3.39	39.26%	[0.00]	mg/L

Sequence No.: 2
Sample ID: S13K066-CAL2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 9
Date Collected: 11/11/2013 3:25:26 PM
Data Type: Reprocessed on 11/12/2013 9:47:33 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CAL2

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-CAL2

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Unite
Y Radial	223027.4	2261.31	1.01%	100.8	%
Y Axial	2599362.5	16317.77	0.63%	100.7	%
Be 313.107†	121957.3	101.00	0.08%	[1.000]	mg/L
Fe 273.955†	17523.5	59.86	0.34%	[10.000]	mg/L
Pb 220.353†	74027.4	1241.79	1.68%	[10.000]	mg/L
Mg 279.077†	10564.4	48.42	0.46%	[10.000]	mg/L
Ni 231.604†	58380.0	981.61	1.68%	[2.000]	mg/L
Tl 190.801†	8487.8	124.42	1.47%	[5.000]	mg/L

Sequence No.: 3
Sample ID: S13K066-CAL3
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 10
Date Collected: 11/11/2013 3:29:36 PM
Data Type: Reprocessed on 11/12/2013 9:47:36 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CAL3

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-CAL3

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y Radial	228519.4	2027.39	0.89%	103.3	%
Y Axial	2644886.1	11188.37	0.42%	102.5	%
Al 308.215†	18861.9	66.92	0.35%	[10.000]	mg/L
Cr 205.560†	66452.8	99.03	0.15%	[5.000]	mg/L
Si 251.611†	12399.9	43.39	0.35%	[10.000]	mg/L
Sn 189.927†	5631.8	42.64	0.76%	[4.000]	mg/L
Ti 334.940†	446050.1	2094.56	0.47%	[10.000]	mg/L

Sequence No.: 4
Sample ID: S13K066-CAL4
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 11
Date Collected: 11/11/2013 3:34:09 PM
Data Type: Reproceesed on 11/12/2013 9:47:37 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parametere: S13K066-CAL4

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-CAL4

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y Radial	228392.4	602.70	0.26%	103.3	%
Y Axial	2613123.7	29607.88	1.13%	101.3	%
Co 228.616†	10122.4	67.95	0.67%	[2.000]	mg/L
V 292.402†	172267.6	556.22	0.32%	[2.000]	mg/L

Sequence No.: 5
Sample ID: S13K066-CAL5
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 12
Date Collected: 11/11/2013 3:38:23 PM
Data Type: Reprocessed on 11/12/2013 9:47:40 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CAL5

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-CAL5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y Radial	224451.5	260.57	0.12%	101.5	%
Y Axial	2609566.7	9663.18	0.37%	101.1	%
Sb 206.836†	12971.5	185.44	1.43%	[5.000]	mg/L
As 188.979†	17088.4	228.43	1.34%	[10.000]	mg/L
Ba 233.527†	10851.3	125.63	1.16%	[1.000]	mg/L
B 249.677†	5085.5	59.91	1.18%	[2.000]	mg/L
Cd 226.502†	101294.7	358.14	0.35%	[2.000]	mg/L
Ca 315.887†	78802.2	644.02	0.82%	[10.000]	mg/L
Cu 324.752†	43118.0	283.22	0.66%	[2.000]	mg/L
Mn 260.568†	81832.5	548.29	0.67%	[2.000]	mg/L
Se 196.026†	3783.2	54.52	1.44%	[5.000]	mg/L
Ag 328.068†	79871.0	179.83	0.23%	[0.500]	mg/L
As 193.696†	13066.1	200.85	1.54%	[10.000]	mg/L

Sequence No.: 6
Sample ID: S13K066-CAL6
Analyst:
Logged In Analyst (Original) : ine_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 13
Date Collected: 11/11/2013 3:42:18 PM
Data Type: Reprocessed on 11/12/2013 9:47:41 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CAL6

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-CAL6

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y Radial	225449.5	1818.82	0.81%	101.9	%
Y Axial	2599911.6	21600.96	0.83%	100.7	%
Mo 202.031†	81262.8	442.61	0.54%	[10.000]	mg/L
K 766.490†	3964.6	21.81	0.55%	[20.000]	mg/L
Na 589.592†	24110.4	54.92	0.23%	[10.000]	mg/L
Sr 421.552†	391121.7	5609.24	1.43%	[1.000]	mg/L

Sequence No.: 7
Sample ID: S13K066-CAL7
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 14
Date Collected: 11/11/2013 3:46:47 PM
Data Type: Reprocessed on 11/12/2013 9:47:42 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CAL7

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-CAL7

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y Radial	228849.6	2420.58	1.06%	103.5	%
Y Axial	2627429.6	9055.97	0.34%	101.8	%
Zn 213.857†	42992.7	125.18	0.29%	[5.000]	mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Al 308.215	1	Lin, Calc Int	0.0	1886	0.00000	1.000000	
Sb 206.836	1	Lin, Calc Int	0.0	2594	0.00000	1.000000	
As 188.979	1	Lin, Calc Int	0.0	1709	0.00000	1.000000	
Ba 233.527	1	Lin, Calc Int	0.0	10850	0.00000	1.000000	
Be 313.107	1	Lin, Calc Int	0.0	122000	0.00000	1.000000	
B 249.677	1	Lin, Calc Int	0.0	2543	0.00000	1.000000	
Cd 226.502	1	Lin, Calc Int	0.0	50650	0.00000	1.000000	
Ca 315.887	1	Lin, Calc Int	0.0	7880	0.00000	1.000000	
Cr 205.560	1	Lin, Calc Int	0.0	13290	0.00000	1.000000	
Co 228.616	1	Lin, Calc Int	0.0	5061	0.00000	1.000000	
Cu 324.752	1	Lin, Calc Int	0.0	21560	0.00000	1.000000	
Fe 273.955	1	Lin, Calc Int	0.0	1752	0.00000	1.000000	
Pb 220.353	1	Lin, Calc Int	0.0	7403	0.00000	1.000000	
Mg 279.077	1	Lin, Calc Int	0.0	1056	0.00000	1.000000	
Mn 260.568	1	Lin, Calc Int	0.0	40920	0.00000	1.000000	
Mo 202.031	1	Lin, Calc Int	0.0	8126	0.00000	1.000000	
Ni 231.604	1	Lin, Calc Int	0.0	29190	0.00000	1.000000	
K 766.490	1	Lin, Calc Int	-0.0	198.2	0.00000	1.000000	
Se 196.026	1	Lin, Calc Int	0.0	756.6	0.00000	1.000000	
Si 251.611	1	Lin, Calc Int	0.0	1240	0.00000	1.000000	
Ag 328.068	1	Lin, Calc Int	0.0	159700	0.00000	1.000000	
Na 589.592	1	Lin, Calc Int	0.0	2411	0.00000	1.000000	
Sr 421.552	1	Lin, Calc Int	0.0	391100	0.00000	1.000000	
Tl 190.801	1	Lin, Calc Int	0.0	1698	0.00000	1.000000	
Sn 189.927	1	Lin, Calc Int	0.0	1408	0.00000	1.000000	
Ti 334.940	1	Lin, Calc Int	-0.0	44610	0.00000	1.000000	
V 292.402	1	Lin, Calc Int	0.0	86130	0.00000	1.000000	
Zn 213.857	1	Lin, Calc Int	0.0	8599	0.00000	1.000000	
As 193.696	1	Lin, Calc Int	0.0	1307	0.00000	1.000000	

Sequence No.: 8
Sample ID: S13K066-CCV1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 1
Date Collected: 11/11/2013 3:50:53 PM
Data Type: Reprocessed on 11/12/2013 9:47:44 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCV1

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-CCV1

Analyte	Mean Corrected Intensity	Conc.	Calib Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Y Radial	227770.7	103.0	%	1.56				1.51%
Y Axial	2611611.1	101.2	%	0.91				0.90%
Al 308.215†	3839.2	1.969	mg/L	0.0134	1.969	mg/L	0.0134	0.68%
Sb 206.836†	5433.8	2.084	mg/L	0.0186	2.084	mg/L	0.0186	0.89%
As 188.979†	3704.2	2.178	mg/L	0.0193	2.178	mg/L	0.0193	0.89%
Ba 233.527†	21857.2	2.016	mg/L	0.0220	2.016	mg/L	0.0220	1.09%
Be 313.107†	245269.2	2.011	mg/L	0.0096	2.011	mg/L	0.0096	0.48%
B 249.677†	5042.1	1.970	mg/L	0.0115	1.970	mg/L	0.0115	0.58%
Cd 226.502†	100862.9	1.991	mg/L	0.0145	1.991	mg/L	0.0145	0.73%
Ca 315.887†	16025.8	2.034	mg/L	0.0171	2.034	mg/L	0.0171	0.84%
Cr 205.560†	27005.1	2.031	mg/L	0.0165	2.031	mg/L	0.0165	0.81%
Co 228.616†	9902.9	1.953	mg/L	0.0204	1.953	mg/L	0.0204	1.05%
Cu 324.752†	41992.7	1.951	mg/L	0.0211	1.951	mg/L	0.0211	1.08%
Fe 273.955†	3650.3	2.083	mg/L	0.0116	2.083	mg/L	0.0116	0.56%
Pb 220.353†	14960.9	2.020	mg/L	0.0165	2.020	mg/L	0.0165	0.82%
Mg 279.077†	2095.8	1.984	mg/L	0.0241	1.984	mg/L	0.0241	1.21%
Mn 260.568†	82630.3	2.018	mg/L	0.0189	2.018	mg/L	0.0189	0.94%
Mo 202.031†	16493.2	2.030	mg/L	0.0169	2.030	mg/L	0.0169	0.83%
Ni 231.604†	61009.8	2.095	mg/L	0.0134	2.095	mg/L	0.0134	0.64%
K 766.490†	2070.7	10.45	mg/L	0.222	10.45	mg/L	0.222	2.12%
Se 196.026†	1599.3	2.111	mg/L	0.0105	2.111	mg/L	0.0105	0.50%
Si 251.611†	11284.9	9.071	mg/L	0.1150	9.071	mg/L	0.1150	1.27%
Ag 328.068†	79325.7	0.5087	mg/L	0.00351	0.5087	mg/L	0.00351	0.69%
Na 589.592†	5002.3	2.075	mg/L	0.0344	2.075	mg/L	0.0344	1.66%
Sr 421.552†	816328.7	2.087	mg/L	0.0140	2.087	mg/L	0.0140	0.67%
Tl 190.801†	3585.4	2.131	mg/L	0.0163	2.131	mg/L	0.0163	0.76%
Sn 189.927†	7107.2	5.048	mg/L	0.0404	5.048	mg/L	0.0404	0.80%
Ti 334.940†	102920.0	2.307	mg/L	0.0135	2.307	mg/L	0.0135	0.58%
V 292.402†	165581.9	1.956	mg/L	0.0142	1.956	mg/L	0.0142	0.72%
Zn 213.857†	17899.5	2.071	mg/L	0.0246	2.071	mg/L	0.0246	1.19%
As 193.696†	2753.6	2.176	mg/L	0.0197	2.176	mg/L	0.0197	0.91%

Full List Pass

Ti not reported

Sequence No.: 9
Sample ID: S13K066-CCB1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 2
Date Collected: 11/11/2013 3:58:11 PM
Data Type: Reprocessed on 11/12/2013 9:47:46 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCB1

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K066-CCB1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	223670.1	101.1	%	0.48				0.47%
Y Axial	2622662.7	101.6	%	0.38				0.38%
Al 308.215†	-19.8	-0.01054	mg/L	0.001917	-0.01054	mg/L	0.001917	18.19%
Sb 206.836†	-0.5	-0.00016	mg/L	0.001205	-0.00016	mg/L	0.001205	748.66%
As 188.979†	-0.1	-0.00006	mg/L	0.000738	-0.00006	mg/L	0.000738	>999.9%
Ba 233.527†	-0.5	-0.00005	mg/L	0.000259	-0.00005	mg/L	0.000259	572.76%
Be 313.107†	19.0	0.000155	mg/L	0.0001153	0.000155	mg/L	0.0001153	74.20%
B 249.677†	7.5	0.00294	mg/L	0.001938	0.00294	mg/L	0.001938	65.96%
Cd 226.502†	12.5	0.00025	mg/L	0.000229	0.00025	mg/L	0.000229	92.91%
Ca 315.887†	25.1	0.00318	mg/L	0.000502	0.00318	mg/L	0.000502	15.79%
Cr 205.560†	-5.5	-0.00042	mg/L	0.000254	-0.00042	mg/L	0.000254	61.16%
Co 228.616†	-0.9	-0.00017	mg/L	0.000619	-0.00017	mg/L	0.000619	364.48%
Cu 324.752†	-17.5	-0.00081	mg/L	0.000468	-0.00081	mg/L	0.000468	57.76%
Fe 273.955†	-4.1	-0.00233	mg/L	0.000677	-0.00233	mg/L	0.000677	28.97%
Pb 220.353†	2.4	0.00032	mg/L	0.000765	0.00032	mg/L	0.000765	236.46%
Mg 279.077†	-0.9	-0.00081	mg/L	0.001142	-0.00081	mg/L	0.001142	140.45%
Mn 260.568†	15.3	0.00037	mg/L	0.000165	0.00037	mg/L	0.000165	44.00%
Mo 202.031†	15.6	0.00192	mg/L	0.000190	0.00192	mg/L	0.000190	9.90%
Ni 231.604†	-13.4	-0.00045	mg/L	0.000187	-0.00045	mg/L	0.000187	41.30%
K 766.490†	-13.2	-0.06679	mg/L	0.049821	-0.06679	mg/L	0.049821	74.60%
Se 196.026†	2.3	0.00307	mg/L	0.001637	0.00307	mg/L	0.001637	53.39%
Si 251.611†	20.8	0.01672	mg/L	0.004273	0.01672	mg/L	0.004273	25.56%
Ag 328.068†	0.3	0.00000	mg/L	0.000284	0.00000	mg/L	0.000284	>999.9%
Na 589.592†	-48.4	-0.02006	mg/L	0.008723	-0.02006	mg/L	0.008723	43.48%
Sr 421.552†	55.3	0.00014	mg/L	0.000103	0.00014	mg/L	0.000103	72.65%
Tl 190.801†	0.9	0.00051	mg/L	0.001886	0.00051	mg/L	0.001886	370.95%
Sn 189.927†	-3.4	-0.00239	mg/L	0.002851	-0.00239	mg/L	0.002851	119.41%
Ti 334.940†	8.9	0.00020	mg/L	0.000287	0.00020	mg/L	0.000287	143.51%
V 292.402†	25.6	0.00033	mg/L	0.000517	0.00033	mg/L	0.000517	156.73%
Zn 213.857†	1.8	0.00022	mg/L	0.000457	0.00022	mg/L	0.000457	211.34%
As 193.696†	2.1	0.00164	mg/L	0.002715	0.00164	mg/L	0.002715	165.94%

Sequence No.: 10
Sample ID: S13K066-CRL1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 5
Date Collected: 11/11/2013 4:04:24 PM
Data Type: Reprocessed on 11/12/2013 9:47:48 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CRL1

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-CRL1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	229831.2	103.9	%	1.23				1.18%
Y Axial	2604541.9	100.9	%	0.39				0.38%
Al 308.215†	1836.6	0.9723	mg/L	0.01116	0.9723	mg/L	0.01116	1.15%
Sb 206.836†	50.1	0.01978	mg/L	0.004053	0.01978	mg/L	0.004053	20.49%
As 188.979†	35.5	0.02083	mg/L	0.002118	0.02083	mg/L	0.002118	10.17%
Ba 233.527†	525.6	0.04846	mg/L	0.000765	0.04846	mg/L	0.000765	1.58%
Be 313.107†	113.1	0.000931	mg/L	0.0000340	0.000931	mg/L	0.0000340	3.65%
B 249.677†	235.6	0.09284	mg/L	0.003365	0.09284	mg/L	0.003365	3.62%
Cd 226.502†	271.5	0.00528	mg/L	0.000092	0.00528	mg/L	0.000092	1.74%
Ca 315.887†	7747.6	0.9832	mg/L	0.00764	0.9832	mg/L	0.00764	0.78%
Cr 205.560†	125.2	0.00939	mg/L	0.000310	0.00939	mg/L	0.000310	3.30%
Co 228.616†	93.3	0.01841	mg/L	0.000501	0.01841	mg/L	0.000501	2.72%
Cu 324.752†	779.5	0.03615	mg/L	0.001536	0.03615	mg/L	0.001536	4.25%
Fe 273.955†	1764.3	1.007	mg/L	0.0122	1.007	mg/L	0.0122	1.22%
Pb 220.353†	228.7	0.03048	mg/L	0.000439	0.03048	mg/L	0.000439	1.44%
Mg 279.077†	503.1	0.4762	mg/L	0.00762	0.4762	mg/L	0.00762	1.60%
Mn 260.568†	2039.3	0.04982	mg/L	0.000626	0.04982	mg/L	0.000626	1.26%
Mo 202.031†	420.1	0.05170	mg/L	0.000301	0.05170	mg/L	0.000301	0.58%
Ni 231.604†	1455.0	0.04999	mg/L	0.000302	0.04999	mg/L	0.000302	0.60%
K 766.490†	996.8	5.028	mg/L	0.1318	5.028	mg/L	0.1318	2.62%
Se 196.026†	18.1	0.02413	mg/L	0.000917	0.02413	mg/L	0.000917	3.80%
Si 251.611†	9.1	0.00655	mg/L	0.005260	0.00655	mg/L	0.005260	80.31%
Ag 328.068†	1520.0	0.00964	mg/L	0.000228	0.00964	mg/L	0.000228	2.37%
Na 589.592†	1143.3	0.4742	mg/L	0.00364	0.4742	mg/L	0.00364	0.77%
Sr 421.552†	1964.3	0.00502	mg/L	0.000065	0.00502	mg/L	0.000065	1.30%
Tl 190.801†	85.1	0.05055	mg/L	0.003042	0.05055	mg/L	0.003042	6.02%
Sn 189.927†	3.8	0.00269	mg/L	0.001105	0.00269	mg/L	0.001105	41.07%
Ti 334.940†	469.7	0.01053	mg/L	0.000160	0.01053	mg/L	0.000160	1.52%
V 292.402†	1653.9	0.02003	mg/L	0.000433	0.02003	mg/L	0.000433	2.16%
Zn 213.857†	698.3	0.08097	mg/L	0.001323	0.08097	mg/L	0.001323	1.63%
As 193.696†	25.1	0.02025	mg/L	0.003493	0.02025	mg/L	0.003493	17.25%

Sequence No.: 11
Sample ID: S13K066-IFA1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 27
Date Collected: 11/11/2013 4:10:39 PM
Data Type: Reprocessed on 11/12/2013 9:47:50 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-IFA1

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-IFA1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	225042.0	101.7	%	0.46				0.45%
Y Axial	2601898.3	100.8	%	0.66				0.66%
Al 308.215†	373787.9	198.2	mg/L	1.81	198.2	mg/L	1.81	0.91%
Sb 206.836†	-23.3	-0.00896	mg/L	0.001522	-0.00896	mg/L	0.001522	16.99%
As 188.979†	8.9	0.00520	mg/L	0.003183	0.00520	mg/L	0.003183	61.17%
Ba 233.527†	-2.2	-0.00020	mg/L	0.000165	-0.00020	mg/L	0.000165	82.62%
Be 313.107†	-2.6	-0.000022	mg/L	0.0000629	-0.000022	mg/L	0.0000629	290.86%
B 249.677†	-4.0	-0.00156	mg/L	0.001811	-0.00156	mg/L	0.001811	116.29%
Cd 226.502†	42.2	0.00083	mg/L	0.000019	0.00083	mg/L	0.000019	2.26%
Ca 315.887†	28.4	0.00361	mg/L	0.002658	0.00361	mg/L	0.002658	73.63%
Cr 205.560†	-2.1	-0.00016	mg/L	0.000436	-0.00016	mg/L	0.000436	276.77%
Co 228.616†	0.5	0.00009	mg/L	0.000479	0.00009	mg/L	0.000479	540.92%
Cu 324.752†	2.5	0.00011	mg/L	0.002034	0.00011	mg/L	0.002034	>999.9%
Fe 273.955†	5.7	0.00327	mg/L	0.000865	0.00327	mg/L	0.000865	26.47%
Pb 220.353†	611.9	0.00000	mg/L	0.001485	0.00000	mg/L	0.001485	0.00%
Mg 279.077†	1.4	0.00136	mg/L	0.001140	0.00136	mg/L	0.001140	83.89%
Mn 260.568†	14.6	0.00036	mg/L	0.000370	0.00036	mg/L	0.000370	103.45%
Mo 202.031†	26.8	0.00330	mg/L	0.000274	0.00330	mg/L	0.000274	8.31%
Ni 231.604†	-19.6	-0.00066	mg/L	0.000184	-0.00066	mg/L	0.000184	27.80%
K 766.490†	-8.5	-0.04267	mg/L	0.087086	-0.04267	mg/L	0.087086	204.09%
Se 196.026†	9.9	0.00000	mg/L	0.004699	0.00000	mg/L	0.004699	>999.9%
Si 251.611†	20.2	0.01628	mg/L	0.002341	0.01628	mg/L	0.002341	14.38%
Ag 328.068†	-51.0	-0.00032	mg/L	0.000171	-0.00032	mg/L	0.000171	53.58%
Na 589.592†	7.7	0.00318	mg/L	0.001152	0.00318	mg/L	0.001152	36.17%
Sr 421.552†	-26.6	-0.00007	mg/L	0.000060	-0.00007	mg/L	0.000060	88.09%
Tl 190.801†	1.4	0.00082	mg/L	0.001226	0.00082	mg/L	0.001226	149.21%
Sn 189.927†	7.1	0.00504	mg/L	0.004094	0.00504	mg/L	0.004094	81.21%
Ti 334.940†	33.4	0.00075	mg/L	0.000277	0.00075	mg/L	0.000277	37.08%
V 292.402†	6.9	0.00014	mg/L	0.000043	0.00014	mg/L	0.000043	31.46%
Zn 213.857†	-2.7	-0.00031	mg/L	0.000064	-0.00031	mg/L	0.000064	21.04%
As 193.696†	-51.4	0.00001	mg/L	0.006471	0.00001	mg/L	0.006471	>999.9%

Sequence No.: 12
Sample ID: S13K066-IFA2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 28
Date Collected: 11/11/2013 4:16:53 PM
Data Type: Reprocessed on 11/12/2013 9:47:52 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-IFA2

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-IFA2

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	226827.8	102.6	%	0.45				0.44%
Y Axial	2599845.4	100.7	%	0.75				0.74%
Al 308.215†	42.6	0.02239	mg/L	0.007620	0.02239	mg/L	0.007620	34.04%
Sb 206.836†	2196.2	0.00004	mg/L	0.010680	0.00004	mg/L	0.010680	>999.9%
As 188.979†	-685.5	-0.00001	mg/L	0.001683	-0.00001	mg/L	0.001683	>999.9%
Ba 233.527†	-2.6	-0.00023	mg/L	0.000194	-0.00023	mg/L	0.000194	83.98%
Be 313.107†	-702.6	0.000000	mg/L	0.0000881	0.000000	mg/L	0.0000881	>999.9%
B 249.677†	56.4	0.02215	mg/L	0.002058	0.02215	mg/L	0.002058	9.29%
Cd 226.502†	0.3	0.00000	mg/L	0.000242	0.00000	mg/L	0.000242	>999.9%
Ca 315.887†	-377.2	-0.04787	mg/L	0.002420	-0.04787	mg/L	0.002420	5.06%
Cr 205.560†	650873.2	48.97	mg/L	0.391	48.97	mg/L	0.391	0.80%
Co 228.616†	7.5	0.00146	mg/L	0.000409	0.00146	mg/L	0.000409	28.04%
Cu 324.752†	-31.4	-0.00145	mg/L	0.000309	-0.00145	mg/L	0.000309	21.40%
Fe 273.955†	18.7	0.01068	mg/L	0.005301	0.01068	mg/L	0.005301	49.63%
Pb 220.353†	-4.0	-0.00056	mg/L	0.001113	-0.00056	mg/L	0.001113	200.14%
Mg 279.077†	-6.5	-0.00618	mg/L	0.000258	-0.00618	mg/L	0.000258	4.18%
Mn 260.568†	164.6	0.00402	mg/L	0.000139	0.00402	mg/L	0.000139	3.46%
Mo 202.031†	32.3	0.00397	mg/L	0.000687	0.00397	mg/L	0.000687	17.30%
Ni 231.604†	-17.5	-0.00059	mg/L	0.000396	-0.00059	mg/L	0.000396	67.21%
K 766.490†	-15.9	-0.08018	mg/L	0.165233	-0.08018	mg/L	0.165233	206.08%
Se 196.026†	1.7	0.00226	mg/L	0.003939	0.00226	mg/L	0.003939	174.05%
Si 251.611†	-6.5	-0.00531	mg/L	0.004219	-0.00531	mg/L	0.004219	79.43%
Ag 328.068†	184.8	0.00119	mg/L	0.000297	0.00119	mg/L	0.000297	24.96%
Na 589.592†	-27.0	-0.01118	mg/L	0.005532	-0.01118	mg/L	0.005532	49.47%
Sr 421.552†	-72.7	-0.00019	mg/L	0.000050	-0.00019	mg/L	0.000050	26.87%
Tl 190.801†	20.3	0.01201	mg/L	0.002530	0.01201	mg/L	0.002530	21.07%
Sn 189.927†	-12.2	-0.00867	mg/L	0.002407	-0.00867	mg/L	0.002407	27.76%
Ti 334.940†	372.4	0.00000	mg/L	0.000193	0.00000	mg/L	0.000193	>999.9%
V 292.402†	472.5	0.00555	mg/L	0.000372	0.00555	mg/L	0.000372	6.71%
Zn 213.857†	-2.7	-0.00032	mg/L	0.000043	-0.00032	mg/L	0.000043	13.47%
As 193.696†	35.6	0.00019	mg/L	0.003313	0.00019	mg/L	0.003313	>999.9%

Sequence No.: 13 **Autosampler Location: 29**
Sample ID: S13K066-IFA3 **Date Collected: 11/11/2013 4:23:06 PM**
Analyst: **Data Type: Reprocessed on 11/12/2013 9:47:53 AM**
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: S13K066-IFA3

Analyte	Back Pressure	Flow
All	137.0 kPa	0.56 L/min

Mean Data: S13K066-IFA3

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	228544.5	103.3	%	0.22				0.21%
Y Axial	2631796.3	102.0	%	0.52				0.51%
Al 308.215†	-477.9	0.00009	mg/L	0.039847	0.00009	mg/L	0.039847	>999.9%
Sb 206.836†	-6.2	-0.00234	mg/L	0.002687	-0.00234	mg/L	0.002687	114.96%
As 188.979†	-7.7	-0.00452	mg/L	0.002074	-0.00452	mg/L	0.002074	45.89%
Ba 233.527†	0.4	0.00004	mg/L	0.000415	0.00004	mg/L	0.000415	>999.9%
Be 313.107†	-15.2	-0.000124	mg/L	0.0000648	-0.000124	mg/L	0.0000648	52.15%
B 249.677†	278.6	0.00000	mg/L	0.000287	0.00000	mg/L	0.000287	>999.9%
Cd 226.502†	-106.3	-0.00209	mg/L	0.000109	-0.00209	mg/L	0.000109	5.19%
Ca 315.887†	143.2	0.01817	mg/L	0.002621	0.01817	mg/L	0.002621	14.42%
Cr 205.560†	7.0	0.00052	mg/L	0.000077	0.00052	mg/L	0.000077	14.92%
Co 228.616†	235897.9	46.61	mg/L	0.025	46.61	mg/L	0.025	0.05%
Cu 324.752†	28.2	0.00131	mg/L	0.000817	0.00131	mg/L	0.000817	62.56%
Fe 273.955†	36.3	0.02071	mg/L	0.001181	0.02071	mg/L	0.001181	5.71%
Pb 220.353†	-7.2	-0.00087	mg/L	0.000458	-0.00087	mg/L	0.000458	52.95%
Mg 279.077†	-39.2	-0.03711	mg/L	0.008508	-0.03711	mg/L	0.008508	22.92%
Mn 260.568†	1748.5	0.00000	mg/L	0.000455	0.00000	mg/L	0.000455	0.00%
Mo 202.031†	6.4	0.00078	mg/L	0.000581	0.00078	mg/L	0.000581	74.22%
Ni 231.604†	754.0	0.00000	mg/L	0.000402	0.00000	mg/L	0.000402	>999.9%
K 766.490†	-4.5	-0.02282	mg/L	0.128653	-0.02282	mg/L	0.128653	563.82%
Se 196.026†	10.5	0.00000	mg/L	0.002284	0.00000	mg/L	0.002284	>999.9%
Si 251.611†	13.7	0.01103	mg/L	0.004160	0.01103	mg/L	0.004160	37.73%
Ag 328.068†	61.4	0.00038	mg/L	0.000488	0.00038	mg/L	0.000488	128.50%
Na 589.592†	-62.2	-0.02580	mg/L	0.000837	-0.02580	mg/L	0.000837	3.24%
Sr 421.552†	0.5	0.00000	mg/L	0.000048	0.00000	mg/L	0.000048	>999.9%
Tl 190.801†	113.4	0.00038	mg/L	0.002057	0.00038	mg/L	0.002057	540.10%
Sn 189.927†	0.9	0.00066	mg/L	0.001340	0.00066	mg/L	0.001340	204.48%
Ti 334.940†	-9.4	-0.00021	mg/L	0.000423	-0.00021	mg/L	0.000423	199.94%
V 292.402†	23.5	0.00029	mg/L	0.000345	0.00029	mg/L	0.000345	120.89%
Zn 213.857†	-18.5	-0.00228	mg/L	0.000233	-0.00228	mg/L	0.000233	10.20%
As 193.696†	-10.6	-0.00807	mg/L	0.001768	-0.00807	mg/L	0.001768	21.91%

Sequence No.: 14
Sample ID: S13K066-IFA4
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 30
Date Collected: 11/11/2013 4:29:20 PM
Data Type: Reprocessed on 11/12/2013 9:47:55 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-IFA4

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K066-IFA4

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Calib Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Y Radial	229951.1	104.0	%	0.05				0.05%
Y Axial	2622178.9	101.6	%	0.57				0.56%
Al 308.215†	2.2	0.00104	mg/L	0.007649	0.00104	mg/L	0.007649	734.97%
Sb 206.836†	12.2	0.00467	mg/L	0.001201	0.00467	mg/L	0.001201	25.72%
As 188.979†	-40.8	0.00002	mg/L	0.002133	0.00002	mg/L	0.002133	>999.9%
Ba 233.527†	10.9	0.00102	mg/L	0.000228	0.00102	mg/L	0.000228	22.30%
Be 313.107†	-70.9	0.000000	mg/L	0.0000682	0.000000	mg/L	0.0000682	>999.9%
B 249.677†	-150.6	-0.00006	mg/L	0.004034	-0.00006	mg/L	0.004034	>999.9%
Cd 226.502†	923.8	0.00000	mg/L	0.000291	0.00000	mg/L	0.000291	>999.9%
Ca 315.887†	21.2	0.00269	mg/L	0.002203	0.00269	mg/L	0.002203	81.90%
Cr 205.560†	35.8	0.00269	mg/L	0.000441	0.00269	mg/L	0.000441	16.40%
Co 228.616†	10.6	0.00210	mg/L	0.000526	0.00210	mg/L	0.000526	25.00%
Cu 324.752†	5.1	0.00024	mg/L	0.001489	0.00024	mg/L	0.001489	620.50%
Fe 273.955†	350432.5	200.0	mg/L	0.58	200.0	mg/L	0.58	0.29%
Pb 220.353†	84.7	0.01145	mg/L	0.001140	0.01145	mg/L	0.001140	9.96%
Mg 279.077†	-10.3	-0.00979	mg/L	0.002518	-0.00979	mg/L	0.002518	25.71%
Mn 260.568†	184.0	0.00449	mg/L	0.000351	0.00449	mg/L	0.000351	7.80%
Mo 202.031†	-3.4	-0.00042	mg/L	0.000694	-0.00042	mg/L	0.000694	164.48%
Ni 231.604†	-43.4	-0.00149	mg/L	0.000520	-0.00149	mg/L	0.000520	34.93%
K 766.490†	-15.8	-0.07993	mg/L	0.126193	-0.07993	mg/L	0.126193	157.88%
Se 196.026†	-52.1	-0.00001	mg/L	0.005569	-0.00001	mg/L	0.005569	>999.9%
Si 251.611†	-68.5	-0.05523	mg/L	0.003432	-0.05523	mg/L	0.003432	6.21%
Ag 328.068†	111.9	0.00078	mg/L	0.000239	0.00078	mg/L	0.000239	30.78%
Na 589.592†	-107.8	-0.04470	mg/L	0.003429	-0.04470	mg/L	0.003429	7.67%
Sr 421.552†	-46.3	-0.00012	mg/L	0.000009	-0.00012	mg/L	0.000009	7.25%
Tl 190.801†	-22.3	-0.01309	mg/L	0.002268	-0.01309	mg/L	0.002268	17.33%
Sn 189.927†	3.2	0.00227	mg/L	0.001049	0.00227	mg/L	0.001049	46.29%
Ti 334.940†	-11.8	-0.00026	mg/L	0.000185	-0.00026	mg/L	0.000185	69.96%
V 292.402†	1069.2	-0.00001	mg/L	0.000193	-0.00001	mg/L	0.000193	>999.9%
Zn 213.857†	87.5	0.01019	mg/L	0.000143	0.01019	mg/L	0.000143	1.40%
As 193.696†	-18.9	0.00041	mg/L	0.003311	0.00041	mg/L	0.003311	807.44%

Sequence No.: 15
Sample ID: S13K066-IFA5
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 31
Date Collected: 11/11/2013 4:35:35 PM
Data Type: Reprocessed on 11/12/2013 9:47:57 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-IFA5

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K066-IFA5

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	228140.0	103.2	%	0.06				0.06%
Y Axial	2600225.9	100.8	%	0.39				0.39%
Al 308.215†	-243.1	0.00026	mg/L	0.004755	0.00026	mg/L	0.004755	>999.9%
Sb 206.836†	-7.8	-0.00308	mg/L	0.001582	-0.00308	mg/L	0.001582	51.40%
As 188.979†	-1.5	-0.00085	mg/L	0.002132	-0.00085	mg/L	0.002132	250.25%
Ba 233.527†	-4.0	-0.00037	mg/L	0.000188	-0.00037	mg/L	0.000188	50.19%
Be 313.107†	-0.8	-0.000007	mg/L	0.0000141	-0.000007	mg/L	0.0000141	208.67%
B 249.677†	-16.1	-0.00633	mg/L	0.000412	-0.00633	mg/L	0.000412	6.51%
Cd 226.502†	6.4	0.00012	mg/L	0.000346	0.00012	mg/L	0.000346	278.03%
Ca 315.887†	24.5	0.00311	mg/L	0.003468	0.00311	mg/L	0.003468	111.39%
Cr 205.560†	-8.6	-0.00065	mg/L	0.000523	-0.00065	mg/L	0.000523	80.77%
Co 228.616†	3.5	0.00070	mg/L	0.000604	0.00070	mg/L	0.000604	86.60%
Cu 324.752†	-20.8	-0.00096	mg/L	0.000431	-0.00096	mg/L	0.000431	44.89%
Fe 273.955†	36.0	0.02054	mg/L	0.013358	0.02054	mg/L	0.013358	65.02%
Pb 220.353†	33.5	0.00458	mg/L	0.001047	0.00458	mg/L	0.001047	22.88%
Mg 279.077†	-195.0	-0.1846	mg/L	0.00223	-0.1846	mg/L	0.00223	1.21%
Mn 260.568†	1981290.7	48.42	mg/L	0.083	48.42	mg/L	0.083	0.17%
Mo 202.031†	-73.3	-0.00902	mg/L	0.000336	-0.00902	mg/L	0.000336	3.73%
Ni 231.604†	-27.5	-0.00097	mg/L	0.000189	-0.00097	mg/L	0.000189	19.42%
K 766.490†	19.2	0.09668	mg/L	0.157274	0.09668	mg/L	0.157274	162.67%
Se 196.026†	15.9	0.00002	mg/L	0.001642	0.00002	mg/L	0.001642	>999.9%
Si 251.611†	49.5	0.04008	mg/L	0.004097	0.04008	mg/L	0.004097	10.22%
Ag 328.068†	1121.5	-0.00001	mg/L	0.000586	-0.00001	mg/L	0.000586	>999.9%
Na 589.592†	-58.9	-0.02443	mg/L	0.005520	-0.02443	mg/L	0.005520	22.60%
Sr 421.552†	-46.6	-0.00012	mg/L	0.000042	-0.00012	mg/L	0.000042	35.09%
Tl 190.801†	-734.1	0.00000	mg/L	0.002419	0.00000	mg/L	0.002419	>999.9%
Sn 189.927†	-5.7	-0.00408	mg/L	0.003681	-0.00408	mg/L	0.003681	90.14%
Ti 334.940†	-5.7	-0.00013	mg/L	0.000228	-0.00013	mg/L	0.000228	180.18%
V 292.402†	-147.3	-0.00187	mg/L	0.000096	-0.00187	mg/L	0.000096	5.16%
Zn 213.857†	-7.6	-0.00087	mg/L	0.000496	-0.00087	mg/L	0.000496	56.67%
As 193.696†	-31.6	-0.00009	mg/L	0.001250	-0.00009	mg/L	0.001250	>999.9%

Sequence No.: 16
Sample ID: S13K066-IFA6
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 32
Date Collected: 11/11/2013 4:42:05 PM
Data Type: Reprocessed on 11/12/2013 9:47:59 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-IFA6

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K066-IFA6

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	225806.0	102.1	%	1.52				1.49%
Y Axial	2651584.8	102.7	%	1.29				1.25%
Al 308.215†	2331.3	0.01100	mg/L	0.013358	0.01100	mg/L	0.013358	121.46%
Sb 206.836†	-1259.6	-0.00105	mg/L	0.004398	-0.00105	mg/L	0.004398	417.66%
As 188.979†	248.1	0.00006	mg/L	0.002837	0.00006	mg/L	0.002837	>999.9%
Ba 233.527†	-11.1	-0.00194	mg/L	0.000132	-0.00194	mg/L	0.000132	6.81%
Be 313.107†	-18.2	-0.000148	mg/L	0.0000583	-0.000148	mg/L	0.0000583	39.33%
B 249.677†	-124.7	-0.04538	mg/L	0.001615	-0.04538	mg/L	0.001615	3.56%
Cd 226.502†	140.2	-0.00005	mg/L	0.000068	-0.00005	mg/L	0.000068	138.37%
Ca 315.887†	49.9	0.00633	mg/L	0.002796	0.00633	mg/L	0.002796	44.15%
Cr 205.560†	102.5	0.00005	mg/L	0.000528	0.00005	mg/L	0.000528	>999.9%
Co 228.616†	5.4	0.00107	mg/L	0.000347	0.00107	mg/L	0.000347	32.51%
Cu 324.752†	540.9	-0.00036	mg/L	0.000947	-0.00036	mg/L	0.000947	263.55%
Fe 273.955†	-58.5	-0.03337	mg/L	0.001196	-0.03337	mg/L	0.001196	3.59%
Pb 220.353†	-84.7	-0.01195	mg/L	0.001060	-0.01195	mg/L	0.001060	8.87%
Mg 279.077†	-10.4	-0.00984	mg/L	0.003042	-0.00984	mg/L	0.003042	30.93%
Mn 260.568†	79.2	0.00193	mg/L	0.000198	0.00193	mg/L	0.000198	10.23%
Mo 202.031†	385493.6	47.44	mg/L	0.547	47.44	mg/L	0.547	1.15%
Ni 231.604†	-4202.8	0.00000	mg/L	0.000751	0.00000	mg/L	0.000751	>999.9%
K 766.490†	-13.4	-0.06775	mg/L	0.061650	-0.06775	mg/L	0.061650	91.00%
Se 196.026†	14.3	0.00069	mg/L	0.002517	0.00069	mg/L	0.002517	363.35%
Si 251.611†	866.3	0.00000	mg/L	0.006583	0.00000	mg/L	0.006583	>999.9%
Ag 328.068†	-1686.1	-0.00516	mg/L	0.000903	-0.00516	mg/L	0.000903	17.51%
Na 589.592†	231.4	0.09598	mg/L	0.011562	0.09598	mg/L	0.011562	12.05%
Sr 421.552†	-27.6	-0.00007	mg/L	0.000086	-0.00007	mg/L	0.000086	121.86%
Tl 190.801†	-14.5	-0.00770	mg/L	0.001139	-0.00770	mg/L	0.001139	14.81%
Sn 189.927†	0.0	0.00000	mg/L	0.000925	0.00000	mg/L	0.000925	>999.9%
Ti 334.940†	-26.5	-0.00059	mg/L	0.000316	-0.00059	mg/L	0.000316	53.17%
V 292.402†	-71180.5	0.00000	mg/L	0.004337	0.00000	mg/L	0.004337	>999.9%
Zn 213.857†	-10.8	-0.00055	mg/L	0.000309	-0.00055	mg/L	0.000309	56.29%
As 193.696†	-69.1	-0.02729	mg/L	0.005854	-0.02729	mg/L	0.005854	21.46%

Sequence No.: 17
Sample ID: S13K066-IFA7
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 33
Date Collected: 11/11/2013 4:50:23 PM
Data Type: Reprocessed on 11/12/2013 9:48:00 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-IFA7

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K066-IFA7

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	226819.2	102.6	%	0.49				0.48%
Y Axial	2633563.7	102.1	%	0.59				0.58%
Al 308.215†	3.7	0.00151	mg/L	0.003408	0.00151	mg/L	0.003408	226.38%
Sb 206.836†	-258.3	-0.00010	mg/L	0.000493	-0.00010	mg/L	0.000493	480.62%
As 188.979†	-3.8	-0.00215	mg/L	0.000876	-0.00215	mg/L	0.000876	40.70%
Ba 233.527†	12.2	0.00112	mg/L	0.000975	0.00112	mg/L	0.000975	86.92%
Be 313.107†	3.2	0.000028	mg/L	0.0000613	0.000028	mg/L	0.0000613	215.14%
B 249.677†	5.7	0.00223	mg/L	0.002178	0.00223	mg/L	0.002178	97.68%
Cd 226.502†	-934.5	0.00000	mg/L	0.000146	0.00000	mg/L	0.000146	>999.9%
Ca 315.887†	31.2	0.00397	mg/L	0.001469	0.00397	mg/L	0.001469	37.05%
Cr 205.560†	231.9	0.00000	mg/L	0.000236	0.00000	mg/L	0.000236	>999.9%
Co 228.616†	49.7	0.00981	mg/L	0.000254	0.00981	mg/L	0.000254	2.59%
Cu 324.752†	-5.2	-0.00025	mg/L	0.001270	-0.00025	mg/L	0.001270	506.37%
Fe 273.955†	-1.6	-0.00091	mg/L	0.000954	-0.00091	mg/L	0.000954	104.62%
Pb 220.353†	44.0	0.00594	mg/L	0.000803	0.00594	mg/L	0.000803	13.52%
Mg 279.077†	-3.3	-0.00317	mg/L	0.003253	-0.00317	mg/L	0.003253	102.71%
Mn 260.568†	4.4	0.00010	mg/L	0.000178	0.00010	mg/L	0.000178	180.22%
Mo 202.031†	157.8	0.01942	mg/L	0.002517	0.01942	mg/L	0.002517	12.96%
Ni 231.604†	1477462.1	50.62	mg/L	0.139	50.62	mg/L	0.139	0.27%
K 766.490†	2.8	0.01403	mg/L	0.071611	0.01403	mg/L	0.071611	510.49%
Se 196.026†	0.0	0.00000	mg/L	0.001627	0.00000	mg/L	0.001627	>999.9%
Si 251.611†	25.1	0.01998	mg/L	0.004406	0.01998	mg/L	0.004406	22.05%
Ag 328.068†	14.9	0.00010	mg/L	0.000261	0.00010	mg/L	0.000261	258.63%
Na 589.592†	-64.6	-0.02678	mg/L	0.006510	-0.02678	mg/L	0.006510	24.31%
Sr 421.552†	89.7	0.00023	mg/L	0.000063	0.00023	mg/L	0.000063	27.55%
Tl 190.801†	-1.5	-0.00089	mg/L	0.001185	-0.00089	mg/L	0.001185	133.18%
Sn 189.927†	-5.5	-0.00389	mg/L	0.002878	-0.00389	mg/L	0.002878	74.01%
Ti 334.940†	1.8	0.00004	mg/L	0.000105	0.00004	mg/L	0.000105	276.01%
V 292.402†	47.0	0.00088	mg/L	0.000215	0.00088	mg/L	0.000215	24.30%
Zn 213.857†	2124.5	0.00000	mg/L	0.000849	0.00000	mg/L	0.000849	>999.9%
As 193.696†	-71.4	0.00003	mg/L	0.003377	0.00003	mg/L	0.003377	>999.9%

Sequence No.: 18
Sample ID: S13K066-IFA8
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 34
Date Collected: 11/11/2013 4:57:54 PM
Data Type: Reprocessed on 11/12/2013 9:48:02 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-IFA8

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K066-IFA8

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	229366.2	103.7	%	0.37				0.36%
Y Axial	2623552.2	101.7	%	1.11				1.09%
Al 308.215†	200.3	-0.00024	mg/L	0.004343	-0.00024	mg/L	0.004343	>999.9%
Sb 206.836†	85.2	0.00002	mg/L	0.000934	0.00002	mg/L	0.000934	>999.9%
As 188.979†	-9.1	-0.00531	mg/L	0.001824	-0.00531	mg/L	0.001824	34.35%
Ba 233.527†	-0.6	-0.00001	mg/L	0.000264	-0.00001	mg/L	0.000264	>999.9%
Be 313.107†	203.6	0.000000	mg/L	0.0000670	0.000000	mg/L	0.0000670	>999.9%
B 249.677†	12.9	0.00467	mg/L	0.001087	0.00467	mg/L	0.001087	23.26%
Cd 226.502†	539.9	0.00000	mg/L	0.000198	0.00000	mg/L	0.000198	>999.9%
Ca 315.887†	20.3	0.00257	mg/L	0.003891	0.00257	mg/L	0.003891	151.20%
Cr 205.560†	49.6	0.00373	mg/L	0.000189	0.00373	mg/L	0.000189	5.08%
Co 228.616†	455.0	0.00000	mg/L	0.001589	0.00000	mg/L	0.001589	>999.9%
Cu 324.752†	-1532.1	0.00002	mg/L	0.000220	0.00002	mg/L	0.000220	>999.9%
Fe 273.955†	-28.0	-0.01597	mg/L	0.002887	-0.01597	mg/L	0.002887	18.07%
Pb 220.353†	-1.0	-0.00018	mg/L	0.000349	-0.00018	mg/L	0.000349	195.64%
Mg 279.077†	1.6	0.00147	mg/L	0.004557	0.00147	mg/L	0.004557	309.82%
Mn 260.568†	17.7	0.00035	mg/L	0.000283	0.00035	mg/L	0.000283	81.07%
Mo 202.031†	38.0	0.00467	mg/L	0.000487	0.00467	mg/L	0.000487	10.41%
Ni 231.604†	15.1	0.00048	mg/L	0.000453	0.00048	mg/L	0.000453	93.77%
K 766.490†	12.4	0.06254	mg/L	0.012898	0.06254	mg/L	0.012898	20.62%
Se 196.026†	-11.2	-0.00008	mg/L	0.004276	-0.00008	mg/L	0.004276	>999.9%
Si 251.611†	314.1	0.2533	mg/L	0.02534	0.2533	mg/L	0.02534	10.00%
Ag 328.068†	261.5	0.00192	mg/L	0.000528	0.00192	mg/L	0.000528	27.45%
Na 589.592†	-94.2	-0.03906	mg/L	0.007203	-0.03906	mg/L	0.007203	18.44%
Sr 421.552†	-24.4	-0.00006	mg/L	0.000061	-0.00006	mg/L	0.000061	96.98%
Tl 190.801†	-214.2	-0.00017	mg/L	0.004821	-0.00017	mg/L	0.004821	>999.9%
Sn 189.927†	9.8	0.00700	mg/L	0.002978	0.00700	mg/L	0.002978	42.57%
Ti 334.940†	2452280.6	54.98	mg/L	0.190	54.98	mg/L	0.190	0.35%
V 292.402†	3925.8	0.00008	mg/L	0.000484	0.00008	mg/L	0.000484	586.75%
Zn 213.857†	-0.5	-0.00006	mg/L	0.000249	-0.00006	mg/L	0.000249	446.90%
As 193.696†	-1.5	0.00041	mg/L	0.002430	0.00041	mg/L	0.002430	590.93%

Sequence No.: 19
Sample ID: S13K066-IFA9
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 35
Date Collected: 11/11/2013 5:04:38 PM
Data Type: Reprocessed on 11/12/2013 9:48:04 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-IFA9

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K066-IFA9

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	227241.0	102.7	%	1.40				1.36%
Y Axial	2624001.3	101.7	%	0.79				0.78%
Al 308.215†	1207.8	-0.00013	mg/L	0.002528	-0.00013	mg/L	0.002528	>999.9%
Sb 206.836†	-96.3	-0.00003	mg/L	0.002060	-0.00003	mg/L	0.002060	>999.9%
As 188.979†	5.2	0.00309	mg/L	0.001196	0.00309	mg/L	0.001196	38.70%
Ba 233.527†	-583.1	0.00000	mg/L	0.000765	0.00000	mg/L	0.000765	>999.9%
Be 313.107†	48.7	0.000400	mg/L	0.0000911	0.000400	mg/L	0.0000911	22.78%
B 249.677†	542.0	0.00000	mg/L	0.002733	0.00000	mg/L	0.002733	>999.9%
Cd 226.502†	17.4	0.00034	mg/L	0.000098	0.00034	mg/L	0.000098	28.81%
Ca 315.887†	-331.5	-0.04207	mg/L	0.001860	-0.04207	mg/L	0.001860	4.42%
Cr 205.560†	63.2	0.00476	mg/L	0.000198	0.00476	mg/L	0.000198	4.15%
Co 228.616†	4.8	0.00094	mg/L	0.000302	0.00094	mg/L	0.000302	32.21%
Cu 324.752†	-450.5	0.00000	mg/L	0.000204	0.00000	mg/L	0.000204	>999.9%
Fe 273.955†	26.8	0.01530	mg/L	0.004844	0.01530	mg/L	0.004844	31.67%
Pb 220.353†	-20.4	-0.00302	mg/L	0.000405	-0.00302	mg/L	0.000405	13.42%
Mg 279.077†	8.6	0.00815	mg/L	0.005901	0.00815	mg/L	0.005901	72.39%
Mn 260.568†	60.6	0.00148	mg/L	0.000221	0.00148	mg/L	0.000221	14.94%
Mo 202.031†	41.8	0.00514	mg/L	0.000281	0.00514	mg/L	0.000281	5.46%
Ni 231.604†	3.0	0.00012	mg/L	0.000195	0.00012	mg/L	0.000195	163.74%
K 766.490†	-1.1	-0.00536	mg/L	0.020202	-0.00536	mg/L	0.020202	377.20%
Se 196.026†	34.7	-0.00004	mg/L	0.001488	-0.00004	mg/L	0.001488	>999.9%
Si 251.611†	5235.2	4.222	mg/L	0.0419	4.222	mg/L	0.0419	0.99%
Ag 328.068†	-48011.6	0.00000	mg/L	0.002003	0.00000	mg/L	0.002003	>999.9%
Na 589.592†	329.9	0.1368	mg/L	0.00268	0.1368	mg/L	0.00268	1.96%
Sr 421.552†	-10.4	-0.00003	mg/L	0.000028	-0.00003	mg/L	0.000028	105.87%
Tl 190.801†	82.0	0.00002	mg/L	0.002497	0.00002	mg/L	0.002497	>999.9%
Sn 189.927†	-1.4	-0.00101	mg/L	0.001521	-0.00101	mg/L	0.001521	150.44%
Ti 334.940†	102.1	0.00229	mg/L	0.000584	0.00229	mg/L	0.000584	25.51%
V 292.402†	4148787.9	48.17	mg/L	0.132	48.17	mg/L	0.132	0.27%
Zn 213.857†	-2.4	-0.00028	mg/L	0.000294	-0.00028	mg/L	0.000294	104.78%
As 193.696†	-2084.4	0.00013	mg/L	0.010182	0.00013	mg/L	0.010182	>999.9%

Sequence No.: 20
Sample ID: S13K066-CCV2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 138
Date Collected: 11/11/2013 5:11:04 PM
Data Type: Reprocessed on 11/12/2013 9:48:06 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Paramsters: S13K066-CCV2

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

Mean Data: S13K066-CCV2

Analyte	Mean Corrected Intensity	Conc.	Calib Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Y Radial	228168.8	103.2	%	1.13				1.10%
Y Axial	2612216.5	101.2	%	0.57				0.57%
Al 308.215†	3878.0	1.989	mg/L	0.0183	1.989	mg/L	0.0183	0.92%
Sb 206.836†	5437.6	2.086	mg/L	0.0140	2.086	mg/L	0.0140	0.67%
As 188.979†	3684.9	2.167	mg/L	0.0134	2.167	mg/L	0.0134	0.62%
Ba 233.527†	21914.7	2.022	mg/L	0.0151	2.022	mg/L	0.0151	0.75%
Be 313.107†	243801.9	1.999	mg/L	0.0157	1.999	mg/L	0.0157	0.78%
B 249.677†	5124.5	2.003	mg/L	0.0175	2.003	mg/L	0.0175	0.87%
Cd 226.502†	101260.0	1.999	mg/L	0.0052	1.999	mg/L	0.0052	0.26%
Ca 315.887†	16030.1	2.034	mg/L	0.0182	2.034	mg/L	0.0182	0.89%
Cr 205.560†	27184.3	2.044	mg/L	0.0096	2.044	mg/L	0.0096	0.47%
Co 228.616†	10009.7	1.974	mg/L	0.0107	1.974	mg/L	0.0107	0.54%
Cu 324.752†	42170.0	1.959	mg/L	0.0185	1.959	mg/L	0.0185	0.94%
Fe 273.955†	3769.1	2.151	mg/L	0.0050	2.151	mg/L	0.0050	0.23%
Pb 220.353†	15015.3	2.027	mg/L	0.0114	2.027	mg/L	0.0114	0.56%
Mg 279.077†	2125.4	2.012	mg/L	0.0138	2.012	mg/L	0.0138	0.69%
Mn 260.568†	84363.2	2.060	mg/L	0.0128	2.060	mg/L	0.0128	0.62%
Mo 202.031†	16599.3	2.043	mg/L	0.0095	2.043	mg/L	0.0095	0.46%
Ni 231.604†	61782.1	2.122	mg/L	0.0071	2.122	mg/L	0.0071	0.33%
K 766.490†	2054.7	10.37	mg/L	0.460	10.37	mg/L	0.460	4.44%
Se 196.026†	1566.2	2.067	mg/L	0.0191	2.067	mg/L	0.0191	0.92%
Si 251.611†	11113.5	8.932	mg/L	0.1246	8.932	mg/L	0.1246	1.40%
Ag 328.068†	80143.0	0.5140	mg/L	0.00153	0.5140	mg/L	0.00153	0.30%
Na 589.592†	4979.7	2.065	mg/L	0.0292	2.065	mg/L	0.0292	1.41%
Sr 421.552†	813486.8	2.080	mg/L	0.0066	2.080	mg/L	0.0066	0.32%
Tl 190.801†	3558.9	2.115	mg/L	0.0069	2.115	mg/L	0.0069	0.33%
Sn 189.927†	7100.8	5.043	mg/L	0.0299	5.043	mg/L	0.0299	0.59%
Ti 334.940†	101913.8	2.284	mg/L	0.0095	2.284	mg/L	0.0095	0.42%
V 292.402†	167614.7	1.980	mg/L	0.0042	1.980	mg/L	0.0042	0.21%
Zn 213.857†	18047.2	2.089	mg/L	0.0170	2.089	mg/L	0.0170	0.82%
As 193.696†	2746.7	2.172	mg/L	0.0158	2.172	mg/L	0.0158	0.73%

Full List Pan

Si, Sn Ti not needed

Sequence No.: 21
Sample ID: S13K066-CCB2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 143
Date Collected: 11/11/2013 5:18:27 PM
Data Type: Reprocessed on 11/12/2013 9:48:07 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCB2

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K066-CCB2

Analyte	Mean Corrected Inteneity	Calib Conc.	Calib Unite	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	227945.6	103.1	%	0.63				0.61%
Y Axial	2628110.2	101.8	%	0.34				0.34%
Al 308.215†	8.9	0.00468	mg/L	0.000938	0.00468	mg/L	0.000938	20.05%
Sb 206.836†	-4.1	-0.00155	mg/L	0.002268	-0.00155	mg/L	0.002268	146.47%
As 188.979†	-0.7	-0.00039	mg/L	0.002031	-0.00039	mg/L	0.002031	514.61%
Ba 233.527†	-1.4	-0.00012	mg/L	0.000218	-0.00012	mg/L	0.000218	174.48%
Be 313.107†	7.8	0.000064	mg/L	0.0000275	0.000064	mg/L	0.0000275	42.80%
B 249.677†	8.1	0.00319	mg/L	0.001513	0.00319	mg/L	0.001513	47.41%
Cd 226.502†	8.9	0.00018	mg/L	0.000101	0.00018	mg/L	0.000101	57.24%
Ca 315.887†	7.9	0.00101	mg/L	0.003356	0.00101	mg/L	0.003356	333.83%
Cr 205.560†	-9.5	-0.00071	mg/L	0.000269	-0.00071	mg/L	0.000269	37.78%
Co 228.616†	2.5	0.00050	mg/L	0.000386	0.00050	mg/L	0.000386	77.23%
Cu 324.752†	9.4	0.00043	mg/L	0.001329	0.00043	mg/L	0.001329	306.88%
Fe 273.955†	13.7	0.00784	mg/L	0.001016	0.00784	mg/L	0.001016	12.95%
Pb 220.353†	-0.4	-0.00006	mg/L	0.001502	-0.00006	mg/L	0.001502	>999.9%
Mg 279.077†	1.3	0.00119	mg/L	0.003386	0.00119	mg/L	0.003386	284.79%
Mn 260.568†	11.0	0.00027	mg/L	0.000087	0.00027	mg/L	0.000087	32.17%
Mo 202.031†	17.2	0.00211	mg/L	0.000741	0.00211	mg/L	0.000741	35.09%
Ni 231.604†	7.1	0.00025	mg/L	0.000310	0.00025	mg/L	0.000310	123.40%
K 766.490†	4.1	0.02074	mg/L	0.154868	0.02074	mg/L	0.154868	746.65%
Se 196.026†	0.9	0.00118	mg/L	0.002754	0.00118	mg/L	0.002754	232.94%
Si 251.611†	17.2	0.01386	mg/L	0.002835	0.01386	mg/L	0.002835	20.46%
Ag 328.068†	129.7	0.00081	mg/L	0.000415	0.00081	mg/L	0.000415	50.93%
Na 589.592†	-91.6	-0.03800	mg/L	0.004366	-0.03800	mg/L	0.004366	11.49%
Sr 421.552†	-36.0	-0.00009	mg/L	0.000046	-0.00009	mg/L	0.000046	49.55%
Tl 190.801†	-0.8	-0.00047	mg/L	0.004623	-0.00047	mg/L	0.004623	983.02%
Sn 189.927†	0.1	0.00010	mg/L	0.002765	0.00010	mg/L	0.002765	>999.9%
Ti 334.940†	-8.4	-0.00019	mg/L	0.000448	-0.00019	mg/L	0.000448	238.17%
V 292.402†	36.3	0.00046	mg/L	0.000692	0.00046	mg/L	0.000692	151.04%
Zn 213.857†	-7.3	-0.00085	mg/L	0.000266	-0.00085	mg/L	0.000266	31.40%
As 193.696†	-2.8	-0.00214	mg/L	0.003820	-0.00214	mg/L	0.003820	178.87%

Pass

Sequence No.: 31
Sample ID: S13K066-CCV3
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 138
Date Collected: 11/11/2013 6:18:23 PM
Data Type: Reprocessed on 11/12/2013 9:48:25 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCV3

Analyte	Back Pressure	Flow
All	140.0 kPa	0.56 L/min

Full List Pass

Mean Data: S13K066-CCV3

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	229401.7	103.7	%	0.84				0.81%
Y Axial	2623214.2	101.7	%	0.52				0.51%
Al 308.215†	3852.8	1.975	mg/L	0.0165	1.975	mg/L	0.0165	0.83%
Sb 206.836†	5446.8	2.089	mg/L	0.0180	2.089	mg/L	0.0180	0.86%
As 188.979†	3693.6	2.172	mg/L	0.0206	2.172	mg/L	0.0206	0.95%
Ba 233.527†	21638.6	1.996	mg/L	0.0085	1.996	mg/L	0.0085	0.43%
Be 313.107†	242465.0	1.988	mg/L	0.0151	1.988	mg/L	0.0151	0.76%
B 249.677†	5154.1	2.014	mg/L	0.0135	2.014	mg/L	0.0135	0.67%
Cd 226.502†	100849.9	1.991	mg/L	0.0027	1.991	mg/L	0.0027	0.14%
Ca 315.887†	15791.3	2.004	mg/L	0.0094	2.004	mg/L	0.0094	0.47%
Cr 205.560†	27531.3	2.070	mg/L	0.0218	2.070	mg/L	0.0218	1.05%
Co 228.616†	9997.2	1.972	mg/L	0.0114	1.972	mg/L	0.0114	0.58%
Cu 324.752†	41941.4	1.948	mg/L	0.0093	1.948	mg/L	0.0093	0.48%
Fe 273.955†	3845.3	2.194	mg/L	0.0132	2.194	mg/L	0.0132	0.60%
Pb 220.353†	15153.5	2.046	mg/L	0.0202	2.046	mg/L	0.0202	0.99%
Mg 279.077†	2118.8	2.006	mg/L	0.0106	2.006	mg/L	0.0106	0.53%
Mn 260.568†	84689.7	2.068	mg/L	0.0202	2.068	mg/L	0.0202	0.97%
Mo 202.031†	16758.1	2.062	mg/L	0.0210	2.062	mg/L	0.0210	1.02%
Ni 231.604†	62246.7	2.138	mg/L	0.0016	2.138	mg/L	0.0016	0.07%
K 766.490†	2035.7	10.27	mg/L	0.317	10.27	mg/L	0.317	3.09%
Se 196.026†	1552.7	2.049	mg/L	0.0211	2.049	mg/L	0.0211	1.03%
Si 251.611†	10859.4	8.727	mg/L	0.0477	8.727	mg/L	0.0477	0.55%
Ag 328.068†	80812.3	0.5183	mg/L	0.00118	0.5183	mg/L	0.00118	0.23%
Na 589.592†	5014.9	2.080	mg/L	0.0163	2.080	mg/L	0.0163	0.78%
Sr 421.552†	797601.3	2.039	mg/L	0.0341	2.039	mg/L	0.0341	1.67%
Tl 190.801†	3539.5	2.104	mg/L	0.0185	2.104	mg/L	0.0185	0.88%
Sn 189.927†	7130.0	5.064	mg/L	0.0508	5.064	mg/L	0.0508	1.00%
Ti 334.940†	101062.1	2.265	mg/L	0.0294	2.265	mg/L	0.0294	1.30%
V 292.402†	169483.2	2.002	mg/L	0.0038	2.002	mg/L	0.0038	0.19%
Zn 213.857†	18097.5	2.094	mg/L	0.0151	2.094	mg/L	0.0151	0.72%
As 193.696†	2729.1	2.159	mg/L	0.0128	2.159	mg/L	0.0128	0.59%

Sequence No.: 32
Sample ID: S13K066-CCB3
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 143
Date Collected: 11/11/2013 6:25:47 PM
Data Type: Reprocessed on 11/12/2013 9:48:27 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCB3

Analyte	Back Pressure	Flow
All	140.0 kPa	0.56 L/min

Pas)

Mean Data: S13K066-CCB3

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	226518.6	102.4	%	0.42				0.41%
Y Axial	2595937.3	100.6	%	0.81				0.81%
Al 308.215†	3.0	0.00156	mg/L	0.003310	0.00156	mg/L	0.003310	211.73%
Sb 206.836†	4.8	0.00188	mg/L	0.001878	0.00188	mg/L	0.001878	99.85%
As 188.979†	-1.1	-0.00063	mg/L	0.002043	-0.00063	mg/L	0.002043	326.27%
Ba 233.527†	-1.9	-0.00017	mg/L	0.000384	-0.00017	mg/L	0.000384	224.54%
Be 313.107†	6.3	0.000052	mg/L	0.0000641	0.000052	mg/L	0.0000641	123.78%
B 249.677†	21.2	0.00834	mg/L	0.000376	0.00834	mg/L	0.000376	4.51%
Cd 226.502†	20.0	0.00039	mg/L	0.000057	0.00039	mg/L	0.000057	14.40%
Ca 315.887†	32.3	0.00410	mg/L	0.000993	0.00410	mg/L	0.000993	24.22%
Cr 205.560†	-13.6	-0.00102	mg/L	0.000089	-0.00102	mg/L	0.000089	8.74%
Co 228.616†	1.1	0.00022	mg/L	0.001336	0.00022	mg/L	0.001336	598.36%
Cu 324.752†	160.0	0.00742	mg/L	0.001518	0.00742	mg/L	0.001518	20.47%
Fe 273.955†	25.7	0.01466	mg/L	0.000625	0.01466	mg/L	0.000625	4.27%
Pb 220.353†	-5.0	-0.00068	mg/L	0.000748	-0.00068	mg/L	0.000748	109.70%
Mg 279.077†	-1.6	-0.00153	mg/L	0.004390	-0.00153	mg/L	0.004390	287.42%
Mn 260.568†	17.8	0.00043	mg/L	0.000143	0.00043	mg/L	0.000143	32.80%
Mo 202.031†	6.9	0.00085	mg/L	0.000116	0.00085	mg/L	0.000116	13.55%
Ni 231.604†	2.7	0.00009	mg/L	0.000060	0.00009	mg/L	0.000060	63.02%
K 766.490†	-3.1	-0.01576	mg/L	0.157948	-0.01576	mg/L	0.157948	>999.9%
Se 196.026†	1.3	0.00177	mg/L	0.003084	0.00177	mg/L	0.003084	174.64%
Si 251.611†	25.5	0.02052	mg/L	0.004033	0.02052	mg/L	0.004033	19.66%
Ag 328.068†	166.9	0.00104	mg/L	0.000568	0.00104	mg/L	0.000568	54.40%
Na 589.592†	-91.8	-0.03809	mg/L	0.006237	-0.03809	mg/L	0.006237	16.37%
Sr 421.552†	-2.4	-0.00001	mg/L	0.000055	-0.00001	mg/L	0.000055	897.65%
Tl 190.801†	2.7	0.00161	mg/L	0.004113	0.00161	mg/L	0.004113	256.22%
Sn 189.927†	3.1	0.00221	mg/L	0.001031	0.00221	mg/L	0.001031	46.66%
Ti 334.940†	-2.9	-0.00006	mg/L	0.000373	-0.00006	mg/L	0.000373	577.89%
V 292.402†	-6.5	-0.00006	mg/L	0.000316	-0.00006	mg/L	0.000316	512.97%
Zn 213.857†	-4.8	-0.00055	mg/L	0.000516	-0.00055	mg/L	0.000516	93.03%
As 193.696†	1.7	0.00129	mg/L	0.002744	0.00129	mg/L	0.002744	212.62%

Sequence No.: 42
Sample ID: S13K066-CCV4
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 138
Date Collected: 11/11/2013 7:25:09 PM
Data Type: Reprocessed on 11/12/2013 9:48:46 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCV4

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

Fe out
All other Full List Pages

Mean Data: S13K066-CCV4

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	225916.6	102.1	%	1.35				1.32%
Y Axial	2625166.4	101.7	%	0.86				0.85%
Al 308.215†	3922.6	2.011	mg/L	0.0375	2.011	mg/L	0.0375	1.87%
Sb 206.836†	5466.0	2.097	mg/L	0.0256	2.097	mg/L	0.0256	1.22%
As 188.979†	3702.2	2.177	mg/L	0.0233	2.177	mg/L	0.0233	1.07%
Ba 233.527†	21797.1	2.011	mg/L	0.0250	2.011	mg/L	0.0250	1.24%
Be 313.107†	242019.2	1.985	mg/L	0.0563	1.985	mg/L	0.0563	2.84%
B 249.677†	5146.6	2.011	mg/L	0.0234	2.011	mg/L	0.0234	1.16%
Cd 226.502†	100397.8	1.982	mg/L	0.0219	1.982	mg/L	0.0219	1.10%
Ca 315.887†	15830.3	2.009	mg/L	0.0284	2.009	mg/L	0.0284	1.41%
Cr 205.560†	27722.6	2.085	mg/L	0.0236	2.085	mg/L	0.0236	1.13%
Co 228.616†	10093.7	1.991	mg/L	0.0306	1.991	mg/L	0.0306	1.54%
Cu 324.752†	42168.2	1.959	mg/L	0.0346	1.959	mg/L	0.0346	1.77%
Fe 273.955†	3942.6	2.250	mg/L	0.0439	2.250	mg/L	0.0439	1.95%
Pb 220.353†	15281.0	2.063	mg/L	0.0232	2.063	mg/L	0.0232	1.12%
Mg 279.077†	2156.5	2.041	mg/L	0.0424	2.041	mg/L	0.0424	2.08%
Mn 260.568†	85538.2	2.089	mg/L	0.0546	2.089	mg/L	0.0546	2.61%
Mo 202.031†	16867.0	2.076	mg/L	0.0257	2.076	mg/L	0.0257	1.24%
Ni 231.604†	62345.5	2.141	mg/L	0.0267	2.141	mg/L	0.0267	1.25%
K 766.490†	2003.7	10.11	mg/L	0.406	10.11	mg/L	0.406	4.02%
Se 196.026†	1545.0	2.039	mg/L	0.0190	2.039	mg/L	0.0190	0.93%
Si 251.611†	10793.8	8.674	mg/L	0.0941	8.674	mg/L	0.0941	1.08%
Ag 328.068†	80932.0	0.5191	mg/L	0.00607	0.5191	mg/L	0.00607	1.17%
Na 589.592†	5047.8	2.094	mg/L	0.0346	2.094	mg/L	0.0346	1.65%
Sr 421.552†	810218.5	2.072	mg/L	0.0468	2.072	mg/L	0.0468	2.26%
Tl 190.801†	3507.1	2.085	mg/L	0.0264	2.085	mg/L	0.0264	1.26%
Sn 189.927†	7161.5	5.087	mg/L	0.0554	5.087	mg/L	0.0554	1.09%
Ti 334.940†	100704.2	2.257	mg/L	0.0653	2.257	mg/L	0.0653	2.89%
V 292.402†	169707.3	2.004	mg/L	0.0224	2.004	mg/L	0.0224	1.12%
Zn 213.857†	18405.9	2.130	mg/L	0.0336	2.130	mg/L	0.0336	1.58%
As 193.696†	2735.3	2.164	mg/L	0.0261	2.164	mg/L	0.0261	1.20%

Si and Ti not needed

Sequence No.: 43
Sample ID: S13K066-CCB4
Analyet:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 143
Date Collectsd: 11/11/2013 7:32:33 PM
Data Type: Reprocessed on 11/12/2013 9:48:47 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCB4

Analyte	Back Pressure	Flow
All	142.0 kPa	0.56 L/min

fac

Mean Data: S13K066-CCB4

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	223032.7	100.8	%	0.83				0.82%
Y Axial	2611755.3	101.2	%	1.19				1.17%
Al 308.215†	1.4	0.00073	mg/L	0.002557	0.00073	mg/L	0.002557	349.68%
Sb 206.836†	-3.1	-0.00118	mg/L	0.000809	-0.00118	mg/L	0.000809	68.50%
As 188.979†	0.4	0.00026	mg/L	0.002372	0.00026	mg/L	0.002372	919.92%
Ba 233.527†	-0.1	-0.00001	mg/L	0.000186	-0.00001	mg/L	0.000186	>999.9%
Be 313.107†	4.8	0.000039	mg/L	0.0000164	0.000039	mg/L	0.0000164	41.92%
B 249.677†	20.3	0.00800	mg/L	0.001013	0.00800	mg/L	0.001013	12.66%
Cd 226.502†	12.0	0.00024	mg/L	0.000060	0.00024	mg/L	0.000060	25.32%
Ca 315.887†	35.9	0.00455	mg/L	0.002365	0.00455	mg/L	0.002365	51.97%
Cr 205.560†	-3.7	-0.00028	mg/L	0.000256	-0.00028	mg/L	0.000256	90.84%
Co 228.616†	-3.4	-0.00068	mg/L	0.000768	-0.00068	mg/L	0.000768	112.85%
Cu 324.752†	75.8	0.00352	mg/L	0.000784	0.00352	mg/L	0.000784	22.31%
Fe 273.955†	28.9	0.01649	mg/L	0.003850	0.01649	mg/L	0.003850	23.34%
Pb 220.353†	-9.8	-0.00133	mg/L	0.001060	-0.00133	mg/L	0.001060	79.66%
Mg 279.077†	-1.2	-0.00114	mg/L	0.003073	-0.00114	mg/L	0.003073	270.20%
Mn 260.568†	38.0	0.00093	mg/L	0.000025	0.00093	mg/L	0.000025	2.72%
Mo 202.031†	5.0	0.00062	mg/L	0.000451	0.00062	mg/L	0.000451	73.27%
Ni 231.604†	3.5	0.00012	mg/L	0.000249	0.00012	mg/L	0.000249	203.78%
K 766.490†	8.8	0.04422	mg/L	0.219703	0.04422	mg/L	0.219703	496.79%
Se 196.026†	0.9	0.00124	mg/L	0.006497	0.00124	mg/L	0.006497	523.23%
Si 251.611†	27.4	0.02207	mg/L	0.002005	0.02207	mg/L	0.002005	9.08%
Ag 328.068†	176.5	0.00111	mg/L	0.000473	0.00111	mg/L	0.000473	42.74%
Na 589.592†	-84.9	-0.03519	mg/L	0.006159	-0.03519	mg/L	0.006159	17.50%
Sr 421.552†	13.8	0.00004	mg/L	0.000059	0.00004	mg/L	0.000059	165.54%
Tl 190.801†	2.1	0.00124	mg/L	0.001352	0.00124	mg/L	0.001352	109.39%
Sn 189.927†	-1.0	-0.00068	mg/L	0.000989	-0.00068	mg/L	0.000989	145.27%
Ti 334.940†	-0.8	-0.00002	mg/L	0.000077	-0.00002	mg/L	0.000077	449.60%
V 292.402†	41.3	0.00049	mg/L	0.000513	0.00049	mg/L	0.000513	104.85%
Zn 213.857†	-5.4	-0.00063	mg/L	0.000366	-0.00063	mg/L	0.000366	58.36%
As 193.696†	0.9	0.00067	mg/L	0.004248	0.00067	mg/L	0.004248	633.41%

Sequence No.: 44
Sample ID: S13K066-CRL2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 5
Date Collected: 11/11/2013 7:38:49 PM
Data Type: Reprocessed on 11/12/2013 9:48:50 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CRL2

Analyte	Back Pressure	Flow
All	141.0 kPa	0.56 L/min

P=51

Mean Data: S13K066-CRL2

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Calib Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Y Radial	224972.2	101.7	%	0.16				0.16%
Y Axial	2616634.8	101.4	%	1.00				0.99%
Al 308.215†	1855.1	0.9821	mg/L	0.00334	0.9821	mg/L	0.00334	0.34%
Sb 206.836†	51.7	0.02040	mg/L	0.001693	0.02040	mg/L	0.001693	8.30%
As 188.979†	33.1	0.01941	mg/L	0.000722	0.01941	mg/L	0.000722	3.72%
Ba 233.527†	532.9	0.04913	mg/L	0.000178	0.04913	mg/L	0.000178	0.36%
Be 313.107†	118.9	0.000979	mg/L	0.0000522	0.000979	mg/L	0.0000522	5.33%
B 249.677†	248.1	0.09778	mg/L	0.000934	0.09778	mg/L	0.000934	0.96%
Cd 226.502†	271.2	0.00527	mg/L	0.000061	0.00527	mg/L	0.000061	1.16%
Ca 315.887†	7666.9	0.9729	mg/L	0.00253	0.9729	mg/L	0.00253	0.26%
Cr 205.560†	128.9	0.00968	mg/L	0.000331	0.00968	mg/L	0.000331	3.42%
Co 228.616†	91.7	0.01810	mg/L	0.000460	0.01810	mg/L	0.000460	2.54%
Cu 324.752†	847.0	0.03928	mg/L	0.000735	0.03928	mg/L	0.000735	1.87%
Fe 273.955†	1908.1	1.089	mg/L	0.0074	1.089	mg/L	0.0074	0.68%
Pb 220.353†	216.8	0.02888	mg/L	0.002080	0.02888	mg/L	0.002080	7.20%
Mg 279.077†	528.0	0.4998	mg/L	0.00584	0.4998	mg/L	0.00584	1.17%
Mn 260.568†	2139.0	0.05226	mg/L	0.000402	0.05226	mg/L	0.000402	0.77%
Mo 202.031†	424.4	0.05223	mg/L	0.000915	0.05223	mg/L	0.000915	1.75%
Ni 231.604†	1483.6	0.05097	mg/L	0.000936	0.05097	mg/L	0.000936	1.84%
K 766.490†	999.5	5.042	mg/L	0.0609	5.042	mg/L	0.0609	1.21%
Se 196.026†	16.4	0.02197	mg/L	0.001768	0.02197	mg/L	0.001768	8.05%
Si 251.611†	15.7	0.01187	mg/L	0.001628	0.01187	mg/L	0.001628	13.72%
Ag 328.068†	1710.8	0.01083	mg/L	0.000138	0.01083	mg/L	0.000138	1.28%
Na 589.592†	1147.0	0.4757	mg/L	0.00726	0.4757	mg/L	0.00726	1.53%
Sr 421.552†	1983.8	0.00507	mg/L	0.000060	0.00507	mg/L	0.000060	1.19%
Tl 190.801†	80.3	0.04776	mg/L	0.002341	0.04776	mg/L	0.002341	4.90%
Sn 189.927†	1.7	0.00123	mg/L	0.002717	0.00123	mg/L	0.002717	220.12%
Ti 334.940†	463.8	0.01040	mg/L	0.000085	0.01040	mg/L	0.000085	0.82%
V 292.402†	1640.9	0.01988	mg/L	0.000746	0.01988	mg/L	0.000746	3.75%
Zn 213.857†	723.2	0.08385	mg/L	0.001025	0.08385	mg/L	0.001025	1.22%
As 193.696†	22.3	0.01810	mg/L	0.001743	0.01810	mg/L	0.001743	9.63%

Sequence No.: 54
Sample ID: S13K066-CCV5
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 138
Date Collected: 11/11/2013 8:41:09 PM
Data Type: Reprocessed on 11/12/2013 9:49:07 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCV5 Fe out

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

Mean Data: S13K066-CCV5

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	226174.0	102.3	%	1.06				1.04%
Y Axial	2606447.4	101.0	%	0.64				0.63%
Al 308.215†	3893.0	1.995	mg/L	0.0146	1.995	mg/L	0.0146	0.73%
Sb 206.836†	5485.6	2.104	mg/L	0.0099	2.104	mg/L	0.0099	0.47%
As 188.979†	3699.7	2.176	mg/L	0.0196	2.176	mg/L	0.0196	0.90%
Ba 233.527†	21601.0	1.993	mg/L	0.0206	1.993	mg/L	0.0206	1.03%
Be 313.107†	240557.3	1.973	mg/L	0.0014	1.973	mg/L	0.0014	0.07%
B 249.677†	5082.7	1.986	mg/L	0.0311	1.986	mg/L	0.0311	1.56%
Cd 226.502†	101088.2	1.996	mg/L	0.0041	1.996	mg/L	0.0041	0.21%
Ca 315.887†	15732.4	1.996	mg/L	0.0186	1.996	mg/L	0.0186	0.93%
Cr 205.560†	27861.7	2.095	mg/L	0.0195	2.095	mg/L	0.0195	0.93%
Co 228.616†	9993.2	1.971	mg/L	0.0205	1.971	mg/L	0.0205	1.04%
Cu 324.752†	41878.7	1.945	mg/L	0.0212	1.945	mg/L	0.0212	1.09%
Fe 273.955†	3922.2	2.238	mg/L	0.0310	2.238	mg/L	0.0310	1.38%
Pb 220.353†	15345.8	2.072	mg/L	0.0185	2.072	mg/L	0.0185	0.89%
Mg 279.077†	2140.7	2.026	mg/L	0.0264	2.026	mg/L	0.0264	1.31%
Mn 260.568†	84062.0	2.053	mg/L	0.0213	2.053	mg/L	0.0213	1.04%
Mo 202.031†	16936.9	2.084	mg/L	0.0170	2.084	mg/L	0.0170	0.82%
Ni 231.604†	62702.0	2.153	mg/L	0.0010	2.153	mg/L	0.0010	0.05%
K 766.490†	2009.2	10.14	mg/L	0.155	10.14	mg/L	0.155	1.53%
Se 196.026†	1535.3	2.026	mg/L	0.0238	2.026	mg/L	0.0238	1.17%
Si 251.611†	10693.9	8.594	mg/L	0.1040	8.594	mg/L	0.1040	1.21%
Ag 328.068†	81489.0	0.5227	mg/L	0.00143	0.5227	mg/L	0.00143	0.27%
Na 589.592†	5057.3	2.098	mg/L	0.0212	2.098	mg/L	0.0212	1.01%
Sr 421.552†	799746.0	2.045	mg/L	0.0091	2.045	mg/L	0.0091	0.45%
Tl 190.801†	3515.0	2.089	mg/L	0.0196	2.089	mg/L	0.0196	0.94%
Sn 189.927†	7178.4	5.099	mg/L	0.0422	5.099	mg/L	0.0422	0.83%
Ti 334.940†	100182.2	2.246	mg/L	0.0044	2.246	mg/L	0.0044	0.20%
V 292.402†	170906.7	2.019	mg/L	0.0038	2.019	mg/L	0.0038	0.19%
Zn 213.857†	18305.6	2.118	mg/L	0.0210	2.118	mg/L	0.0210	0.99%
As 193.696†	2729.3	2.160	mg/L	0.0170	2.160	mg/L	0.0170	0.79%

S. Sn Ti not needed

Sequence No.: 55
Sample ID: S13K066-CCB5
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 143
Date Collected: 11/11/2013 8:48:35 PM
Data Type: Reprocessed on 11/12/2013 9:49:09 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCB5

Analyte	Back Pressure	Flow
All	142.0 kPa	0.56 L/min

Pass

Mean Data: S13K066-CCB5

Analyte	Mean Corrected Intensity	Conc.	Calib Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Y Radial	223716.3	101.2	%	0.34				0.33%
Y Axial	2619264.6	101.5	%	0.78				0.77%
Al 308.215†	2.4	0.00130	mg/L	0.008480	0.00130	mg/L	0.008480	651.67%
Sb 206.836†	-3.2	-0.00122	mg/L	0.000410	-0.00122	mg/L	0.000410	33.67%
As 188.979†	-4.4	-0.00258	mg/L	0.001732	-0.00258	mg/L	0.001732	67.05%
Ba 233.527†	1.4	0.00013	mg/L	0.000219	0.00013	mg/L	0.000219	171.86%
Be 313.107†	3.3	0.000027	mg/L	0.0001035	0.000027	mg/L	0.0001035	384.84%
B 249.677†	16.0	0.00631	mg/L	0.001670	0.00631	mg/L	0.001670	26.45%
Cd 226.502†	10.2	0.00020	mg/L	0.000188	0.00020	mg/L	0.000188	94.28%
Ca 315.887†	18.0	0.00228	mg/L	0.002571	0.00228	mg/L	0.002571	112.55%
Cr 205.560†	-12.6	-0.00095	mg/L	0.000192	-0.00095	mg/L	0.000192	20.34%
Co 228.616†	-0.1	-0.00003	mg/L	0.000888	-0.00003	mg/L	0.000888	>999.9%
Cu 324.752†	35.7	0.00166	mg/L	0.001780	0.00166	mg/L	0.001780	107.47%
Fe 273.955†	41.2	0.02350	mg/L	0.003522	0.02350	mg/L	0.003522	14.98%
Pb 220.353†	2.5	0.00033	mg/L	0.000920	0.00033	mg/L	0.000920	277.65%
Mg 279.077†	0.1	0.00012	mg/L	0.008977	0.00012	mg/L	0.008977	>999.9%
Mn 260.568†	100.6	0.00246	mg/L	0.000144	0.00246	mg/L	0.000144	5.86%
Mo 202.031†	1.1	0.00013	mg/L	0.000266	0.00013	mg/L	0.000266	199.99%
Ni 231.604†	-2.7	-0.00009	mg/L	0.000221	-0.00009	mg/L	0.000221	243.42%
K 766.490†	24.4	0.1231	mg/L	0.07763	0.1231	mg/L	0.07763	63.08%
Se 196.026†	1.1	0.00149	mg/L	0.000735	0.00149	mg/L	0.000735	49.28%
Si 251.611†	27.3	0.02200	mg/L	0.000267	0.02200	mg/L	0.000267	1.21%
Ag 328.068†	143.0	0.00090	mg/L	0.000387	0.00090	mg/L	0.000387	43.20%
Na 589.592†	-65.8	-0.02728	mg/L	0.005298	-0.02728	mg/L	0.005298	19.42%
Sr 421.552†	8.9	0.00002	mg/L	0.000046	0.00002	mg/L	0.000046	205.19%
Tl 190.801†	-1.6	-0.00091	mg/L	0.001690	-0.00091	mg/L	0.001690	185.20%
Sn 189.927†	-1.2	-0.00086	mg/L	0.001930	-0.00086	mg/L	0.001930	224.72%
Ti 334.940†	-12.2	-0.00027	mg/L	0.000195	-0.00027	mg/L	0.000195	71.17%
V 292.402†	7.0	0.00008	mg/L	0.000531	0.00008	mg/L	0.000531	644.54%
Zn 213.857†	-0.8	-0.00009	mg/L	0.000820	-0.00009	mg/L	0.000820	940.03%
As 193.696†	2.4	0.00181	mg/L	0.000218	0.00181	mg/L	0.000218	12.05%

Sequence No.: 66
Sample ID: S13K066-CCV6
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 138
Date Collected: 11/11/2013 10:04:54 PM
Data Type: Reprocessed on 11/12/2013 9:49:30 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCV6

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

Fe آهن

Mean Data: S13K066-CCV6

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	227741.5	103.0	%	0.94				0.91%
Y Axial	2621205.3	101.6	%	0.63				0.62%
Al 308.215†	3918.8	2.009	mg/L	0.0148	2.009	mg/L	0.0148	0.74%
Sb 206.836†	5462.4	2.095	mg/L	0.0194	2.095	mg/L	0.0194	0.93%
As 188.979†	3700.7	2.177	mg/L	0.0250	2.177	mg/L	0.0250	1.15%
Ba 233.527†	21668.7	1.999	mg/L	0.0164	1.999	mg/L	0.0164	0.82%
Be 313.107†	240094.9	1.969	mg/L	0.0011	1.969	mg/L	0.0011	0.06%
B 249.677†	5071.3	1.982	mg/L	0.0191	1.982	mg/L	0.0191	0.96%
Cd 226.502†	101247.0	1.999	mg/L	0.0066	1.999	mg/L	0.0066	0.33%
Ca 315.887†	15841.1	2.010	mg/L	0.0137	2.010	mg/L	0.0137	0.68%
Cr 205.560†	27846.3	2.094	mg/L	0.0216	2.094	mg/L	0.0216	1.03%
Co 228.616†	10065.9	1.985	mg/L	0.0193	1.985	mg/L	0.0193	0.97%
Cu 324.752†	41944.7	1.948	mg/L	0.0187	1.948	mg/L	0.0187	0.96%
Fe 273.955†	3956.3	2.258	mg/L	0.0297	2.258	mg/L	0.0297	1.32%
Pb 220.353†	15418.1	2.082	mg/L	0.0223	2.082	mg/L	0.0223	1.07%
Mg 279.077†	2148.7	2.034	mg/L	0.0279	2.034	mg/L	0.0279	1.37%
Mn 260.568†	85215.4	2.081	mg/L	0.0082	2.081	mg/L	0.0082	0.39%
Mo 202.031†	16906.5	2.080	mg/L	0.0204	2.080	mg/L	0.0204	0.98%
Ni 231.604†	62831.9	2.158	mg/L	0.0055	2.158	mg/L	0.0055	0.26%
K 766.490†	2026.4	10.22	mg/L	0.094	10.22	mg/L	0.094	0.92%
Se 196.026†	1533.0	2.023	mg/L	0.0204	2.023	mg/L	0.0204	1.01%
Si 251.611†	10760.7	8.647	mg/L	0.0644	8.647	mg/L	0.0644	0.74%
Ag 328.068†	81376.3	0.5220	mg/L	0.00127	0.5220	mg/L	0.00127	0.24%
Na 589.592†	5045.5	2.093	mg/L	0.0243	2.093	mg/L	0.0243	1.16%
Sr 421.552†	794306.4	2.031	mg/L	0.0122	2.031	mg/L	0.0122	0.60%
Tl 190.801†	3513.6	2.089	mg/L	0.0214	2.089	mg/L	0.0214	1.02%
Sn 189.927†	7172.9	5.095	mg/L	0.0593	5.095	mg/L	0.0593	1.16%
Ti 334.940†	100143.4	2.245	mg/L	0.0097	2.245	mg/L	0.0097	0.43%
V 292.402†	170923.4	2.019	mg/L	0.0020	2.019	mg/L	0.0020	0.10%
Zn 213.857†	18445.1	2.135	mg/L	0.0170	2.135	mg/L	0.0170	0.79%
As 193.696†	2731.1	2.161	mg/L	0.0272	2.161	mg/L	0.0272	1.26%

Sequence No.: 67
Sample ID: S13K066-CCB6
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 143
Date Collected: 11/11/2013 10:12:17 PM
Data Type: Reprocessed on 11/12/2013 9:49:32 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCB6

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

Mean Data: S13K066-CCB6

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	225836.2	102.1	%	0.27				0.26%
Y Axial	2614101.1	101.3	%	0.38				0.38%
Al 308.215†	3.9	0.00205	mg/L	0.005011	0.00205	mg/L	0.005011	244.17%
Sb 206.836†	-2.6	-0.00099	mg/L	0.002582	-0.00099	mg/L	0.002582	260.43%
As 188.979†	-2.6	-0.00155	mg/L	0.002239	-0.00155	mg/L	0.002239	144.85%
Ba 233.527†	0.7	0.00006	mg/L	0.000158	0.00006	mg/L	0.000158	257.23%
Be 313.107†	2.4	0.000020	mg/L	0.0000865	0.000020	mg/L	0.0000865	434.95%
B 249.677†	19.2	0.00756	mg/L	0.001938	0.00756	mg/L	0.001938	25.63%
Cd 226.502†	17.4	0.00034	mg/L	0.000174	0.00034	mg/L	0.000174	50.93%
Ca 315.887†	54.2	0.00688	mg/L	0.004220	0.00688	mg/L	0.004220	61.30%
Cr 205.560†	-11.5	-0.00086	mg/L	0.000121	-0.00086	mg/L	0.000121	13.95%
Co 228.616†	0.4	0.00009	mg/L	0.000640	0.00009	mg/L	0.000640	728.21%
Cu 324.752†	41.1	0.00191	mg/L	0.000492	0.00191	mg/L	0.000492	25.80%
Fe 273.955†	32.8	0.01874	mg/L	0.001842	0.01874	mg/L	0.001842	9.83%
Pb 220.353†	40.9	0.00552	mg/L	0.001715	0.00552	mg/L	0.001715	31.06%
Mg 279.077†	0.6	0.00060	mg/L	0.005397	0.00060	mg/L	0.005397	901.98%
Mn 260.568†	114.2	0.00279	mg/L	0.000206	0.00279	mg/L	0.000206	7.39%
Mo 202.031†	5.1	0.00063	mg/L	0.000092	0.00063	mg/L	0.000092	14.62%
Ni 231.604†	3.4	0.00012	mg/L	0.000157	0.00012	mg/L	0.000157	130.94%
K 766.490†	20.4	0.1027	mg/L	0.06526	0.1027	mg/L	0.06526	63.55%
Se 196.026†	1.4	0.00187	mg/L	0.007087	0.00187	mg/L	0.007087	378.99%
Si 251.611†	27.5	0.02214	mg/L	0.005663	0.02214	mg/L	0.005663	25.58%
Ag 328.068†	200.8	0.00126	mg/L	0.000358	0.00126	mg/L	0.000358	28.41%
Na 589.592†	-36.1	-0.01499	mg/L	0.007586	-0.01499	mg/L	0.007586	50.61%
Sr 421.552†	21.0	0.00005	mg/L	0.000077	0.00005	mg/L	0.000077	143.09%
Tl 190.801†	3.1	0.00186	mg/L	0.001056	0.00186	mg/L	0.001056	56.91%
Sn 189.927†	-0.7	-0.00047	mg/L	0.003543	-0.00047	mg/L	0.003543	757.59%
Ti 334.940†	-12.6	-0.00028	mg/L	0.000333	-0.00028	mg/L	0.000333	117.86%
V 292.402†	22.8	0.00027	mg/L	0.000442	0.00027	mg/L	0.000442	161.11%
Zn 213.857†	4.9	0.00057	mg/L	0.000296	0.00057	mg/L	0.000296	51.87%
As 193.696†	0.8	0.00066	mg/L	0.004096	0.00066	mg/L	0.004096	624.94%

Sequence No.: 78
Sample ID: S13K066-CCV7
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 138
Date Collected: 11/11/2013 11:28:16 PM
Data Type: Reprocessed on 11/12/2013 9:49:52 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCV7

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

Fe out

Mean Data: S13K066-CCV7

Analyte	Mean Corrected Inteneity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	225412.5	101.9	%	0.77				0.76%
Y Axial	2638767.6	102.3	%	0.21				0.20%
Al 308.215†	3924.9	2.013	mg/L	0.0098	2.013	mg/L	0.0098	0.49%
Sb 206.836†	5461.6	2.095	mg/L	0.0060	2.095	mg/L	0.0060	0.29%
As 188.979†	3696.9	2.174	mg/L	0.0102	2.174	mg/L	0.0102	0.47%
Ba 233.527†	21783.1	2.010	mg/L	0.0190	2.010	mg/L	0.0190	0.94%
Be 313.107†	239984.2	1.968	mg/L	0.0052	1.968	mg/L	0.0052	0.26%
B 249.677†	5143.6	2.010	mg/L	0.0189	2.010	mg/L	0.0189	0.94%
Cd 226.502†	101425.1	2.003	mg/L	0.0015	2.003	mg/L	0.0015	0.08%
Ca 315.887†	15909.8	2.019	mg/L	0.0161	2.019	mg/L	0.0161	0.80%
Cr 205.560†	27778.8	2.089	mg/L	0.0028	2.089	mg/L	0.0028	0.13%
Co 228.616†	10164.1	2.005	mg/L	0.0232	2.005	mg/L	0.0232	1.16%
Cu 324.752†	42223.0	1.961	mg/L	0.0155	1.961	mg/L	0.0155	0.79%
Fe 273.955†	4003.2	2.284	mg/L	0.0221	2.284	mg/L	0.0221	0.97%
Pb 220.353†	15433.2	2.084	mg/L	0.0060	2.084	mg/L	0.0060	0.29%
Mg 279.077†	2169.3	2.053	mg/L	0.0221	2.053	mg/L	0.0221	1.08%
Mn 260.568†	85488.4	2.088	mg/L	0.0051	2.088	mg/L	0.0051	0.24%
Mo 202.031†	16878.0	2.077	mg/L	0.0059	2.077	mg/L	0.0059	0.28%
Ni 231.604†	62934.5	2.161	mg/L	0.0025	2.161	mg/L	0.0025	0.11%
K 766.490†	2031.0	10.25	mg/L	0.269	10.25	mg/L	0.269	2.63%
Se 196.026†	1523.5	2.011	mg/L	0.0117	2.011	mg/L	0.0117	0.58%
Si 251.611†	10738.2	8.629	mg/L	0.0685	8.629	mg/L	0.0685	0.79%
Ag 328.068†	81209.2	0.5209	mg/L	0.00054	0.5209	mg/L	0.00054	0.10%
Na 589.592†	5031.6	2.087	mg/L	0.0192	2.087	mg/L	0.0192	0.92%
Sr 421.552†	798764.9	2.042	mg/L	0.0125	2.042	mg/L	0.0125	0.61%
Tl 190.801†	3488.7	2.074	mg/L	0.0091	2.074	mg/L	0.0091	0.44%
Sn 189.927†	7170.7	5.093	mg/L	0.0138	5.093	mg/L	0.0138	0.27%
Ti 334.940†	99873.7	2.239	mg/L	0.0109	2.239	mg/L	0.0109	0.49%
V 292.402†	170979.5	2.019	mg/L	0.0031	2.019	mg/L	0.0031	0.15%
Zn 213.857†	18691.9	2.163	mg/L	0.0179	2.163	mg/L	0.0179	0.83%
As 193.696†	2729.1	2.159	mg/L	0.0087	2.159	mg/L	0.0087	0.40%

Sequence No.: 79
Sample ID: S13K066-CCB7
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 143
Date Collected: 11/11/2013 11:35:39 PM
Data Type: Reprocessed on 11/12/2013 9:49:54 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCB7

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

Pg 1

Mean Data: S13K066-CCB7

Analyte	Mean Corrected Inteneity	Conc.	Calib Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Y Radial	223986.0	101.3	%	1.65				1.63%
Y Axial	2639621.3	102.3	%	0.12				0.11%
Al 308.215†	3.9	0.00208	mg/L	0.001083	0.00208	mg/L	0.001083	52.10%
Sb 206.836†	-9.5	-0.00366	mg/L	0.003648	-0.00366	mg/L	0.003648	99.72%
As 188.979†	-2.0	-0.00117	mg/L	0.002319	-0.00117	mg/L	0.002319	198.60%
Ba 233.527†	-1.7	-0.00016	mg/L	0.000188	-0.00016	mg/L	0.000188	119.13%
Be 313.107†	5.7	0.000047	mg/L	0.0000980	0.000047	mg/L	0.0000980	208.82%
B 249.677†	27.6	0.01088	mg/L	0.002967	0.01088	mg/L	0.002967	27.27%
Cd 226.502†	11.5	0.00023	mg/L	0.000041	0.00023	mg/L	0.000041	18.26%
Ca 315.887†	58.4	0.00741	mg/L	0.001710	0.00741	mg/L	0.001710	23.08%
Cr 205.560†	-14.0	-0.00105	mg/L	0.000338	-0.00105	mg/L	0.000338	32.12%
Co 228.616†	0.2	0.00005	mg/L	0.000252	0.00005	mg/L	0.000252	534.79%
Cu 324.752†	42.7	0.00198	mg/L	0.001203	0.00198	mg/L	0.001203	60.76%
Fe 273.955†	36.0	0.02056	mg/L	0.001755	0.02056	mg/L	0.001755	8.54%
Pb 220.353†	53.3	0.00720	mg/L	0.001006	0.00720	mg/L	0.001006	13.98%
Mg 279.077†	0.5	0.00051	mg/L	0.008258	0.00051	mg/L	0.008258	>999.9%
Mn 260.568†	103.9	0.00254	mg/L	0.000179	0.00254	mg/L	0.000179	7.05%
Mo 202.031†	2.9	0.00036	mg/L	0.000182	0.00036	mg/L	0.000182	50.74%
Ni 231.604†	4.4	0.00015	mg/L	0.000243	0.00015	mg/L	0.000243	158.92%
K 766.490†	27.5	0.1388	mg/L	0.09443	0.1388	mg/L	0.09443	68.01%
Se 196.026†	3.2	0.00423	mg/L	0.001474	0.00423	mg/L	0.001474	34.82%
Si 251.611†	29.1	0.02344	mg/L	0.001551	0.02344	mg/L	0.001551	6.62%
Ag 328.068†	200.4	0.00125	mg/L	0.000405	0.00125	mg/L	0.000405	32.38%
Na 589.592†	-46.3	-0.01919	mg/L	0.000764	-0.01919	mg/L	0.000764	3.98%
Sr 421.552†	36.8	0.00009	mg/L	0.000014	0.00009	mg/L	0.000014	14.74%
Tl 190.801†	-4.0	-0.00232	mg/L	0.001378	-0.00232	mg/L	0.001378	59.52%
Sn 189.927†	0.9	0.00062	mg/L	0.002919	0.00062	mg/L	0.002919	473.97%
Ti 334.940†	19.2	0.00043	mg/L	0.000064	0.00043	mg/L	0.000064	14.78%
V 292.402†	-25.9	-0.00030	mg/L	0.000376	-0.00030	mg/L	0.000376	127.20%
Zn 213.857†	7.1	0.00083	mg/L	0.000368	0.00083	mg/L	0.000368	44.34%
As 193.696†	1.5	0.00114	mg/L	0.004684	0.00114	mg/L	0.004684	410.45%

Sequence No.: 89
Sample ID: S13K066-CCV8
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 138
Date Collected: 11/12/2013 12:43:19 AM
Data Type: Reproceesed on 11/12/2013 9:50:12 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCV8

Analyte	Back Pressure	Flow
All	145.0 kPa	0.56 L/min

Fe out

Mean Data: S13K066-CCV8

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	228426.0	103.3	%	0.39				0.38%
Y Axial	2619284.7	101.5	%	0.38				0.38%
Al 308.215†	3937.2	2.018	mg/L	0.0117	2.018	mg/L	0.0117	0.58%
Sb 206.836†	5514.2	2.115	mg/L	0.0073	2.115	mg/L	0.0073	0.35%
As 188.979†	3733.2	2.196	mg/L	0.0062	2.196	mg/L	0.0062	0.28%
Ba 233.527†	21824.9	2.013	mg/L	0.0044	2.013	mg/L	0.0044	0.22%
Be 313.107†	241025.6	1.976	mg/L	0.0037	1.976	mg/L	0.0037	0.19%
B 249.677†	5091.5	1.989	mg/L	0.0112	1.989	mg/L	0.0112	0.56%
Cd 226.502†	101845.6	2.011	mg/L	0.0021	2.011	mg/L	0.0021	0.11%
Ca 315.887†	16018.8	2.033	mg/L	0.0037	2.033	mg/L	0.0037	0.18%
Cr 205.560†	28170.5	2.118	mg/L	0.0053	2.118	mg/L	0.0053	0.25%
Co 228.616†	10162.9	2.004	mg/L	0.0029	2.004	mg/L	0.0029	0.15%
Cu 324.752†	42127.6	1.957	mg/L	0.0024	1.957	mg/L	0.0024	0.12%
Fe 273.955†	4003.4	2.285	mg/L	0.0162	2.285	mg/L	0.0162	0.71%
Pb 220.353†	15602.5	2.107	mg/L	0.0062	2.107	mg/L	0.0062	0.30%
Mg 279.077†	2181.5	2.065	mg/L	0.0044	2.065	mg/L	0.0044	0.21%
Mn 260.568†	86063.3	2.102	mg/L	0.0080	2.102	mg/L	0.0080	0.38%
Mo 202.031†	17082.3	2.102	mg/L	0.0071	2.102	mg/L	0.0071	0.34%
Ni 231.604†	63287.5	2.173	mg/L	0.0066	2.173	mg/L	0.0066	0.30%
K 766.490†	1989.3	10.04	mg/L	0.170	10.04	mg/L	0.170	1.69%
Se 196.026†	1550.5	2.046	mg/L	0.0064	2.046	mg/L	0.0064	0.31%
Si 251.611†	10784.4	8.666	mg/L	0.0307	8.666	mg/L	0.0307	0.35%
Ag 328.068†	81816.1	0.5248	mg/L	0.00119	0.5248	mg/L	0.00119	0.23%
Na 589.592†	4961.8	2.058	mg/L	0.0157	2.058	mg/L	0.0157	0.76%
Sr 421.552†	799730.5	2.045	mg/L	0.0095	2.045	mg/L	0.0095	0.46%
Tl 190.801†	3538.5	2.104	mg/L	0.0063	2.104	mg/L	0.0063	0.30%
Sn 189.927†	7263.3	5.159	mg/L	0.0166	5.159	mg/L	0.0166	0.32%
Ti 334.940†	100799.0	2.259	mg/L	0.0093	2.259	mg/L	0.0093	0.41%
V 292.402†	172346.1	2.036	mg/L	0.0051	2.036	mg/L	0.0051	0.25%
Zn 213.857†	18628.3	2.156	mg/L	0.0081	2.156	mg/L	0.0081	0.37%
As 193.696†	2751.9	2.178	mg/L	0.0099	2.178	mg/L	0.0099	0.46%

Sequence No.: 90
Sample ID: S13K066-CCB8
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 143
Date Collected: 11/12/2013 12:50:42 AM
Data Type: Reprocessed on 11/12/2013 9:50:14 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCB8

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

Mean Data: S13K066-CCB8

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	226793.3	102.5	%	1.43				1.39%
Y Axial	2619242.9	101.5	%	0.24				0.23%
Al 308.215†	-0.8	-0.00045	mg/L	0.007733	-0.00045	mg/L	0.007733	>999.9%
Sb 206.836†	-6.7	-0.00256	mg/L	0.001939	-0.00256	mg/L	0.001939	75.62%
As 188.979†	-2.4	-0.00140	mg/L	0.001558	-0.00140	mg/L	0.001558	111.09%
Ba 233.527†	1.0	0.00009	mg/L	0.000110	0.00009	mg/L	0.000110	122.34%
Be 313.107†	6.3	0.000051	mg/L	0.0000229	0.000051	mg/L	0.0000229	44.65%
B 249.677†	27.6	0.01085	mg/L	0.003966	0.01085	mg/L	0.003966	36.57%
Cd 226.502†	12.1	0.00024	mg/L	0.000144	0.00024	mg/L	0.000144	60.44%
Ca 315.887†	64.9	0.00823	mg/L	0.003235	0.00823	mg/L	0.003235	39.29%
Cr 205.560†	-12.8	-0.00096	mg/L	0.000203	-0.00096	mg/L	0.000203	21.04%
Co 228.616†	2.0	0.00039	mg/L	0.000432	0.00039	mg/L	0.000432	109.53%
Cu 324.752†	41.9	0.00194	mg/L	0.000838	0.00194	mg/L	0.000838	43.14%
Fe 273.955†	37.1	0.02114	mg/L	0.000718	0.02114	mg/L	0.000718	3.40%
Pb 220.353†	45.6	0.00616	mg/L	0.002236	0.00616	mg/L	0.002236	36.28%
Mg 279.077†	4.6	0.00438	mg/L	0.001973	0.00438	mg/L	0.001973	45.02%
Mn 260.568†	119.5	0.00292	mg/L	0.000101	0.00292	mg/L	0.000101	3.45%
Mo 202.031†	2.9	0.00035	mg/L	0.000744	0.00035	mg/L	0.000744	209.87%
Ni 231.604†	12.2	0.00042	mg/L	0.000363	0.00042	mg/L	0.000363	86.37%
K 766.490†	-1.4	-0.00700	mg/L	0.047339	-0.00700	mg/L	0.047339	675.88%
Se 196.026†	-0.1	-0.00016	mg/L	0.002056	-0.00016	mg/L	0.002056	>999.9%
Si 251.611†	25.9	0.02089	mg/L	0.000488	0.02089	mg/L	0.000488	2.34%
Ag 328.068†	196.2	0.00123	mg/L	0.000349	0.00123	mg/L	0.000349	28.46%
Na 589.592†	-45.5	-0.01887	mg/L	0.009244	-0.01887	mg/L	0.009244	48.99%
Sr 421.552†	10.3	0.00003	mg/L	0.000017	0.00003	mg/L	0.000017	62.90%
Tl 190.801†	-0.6	-0.00032	mg/L	0.001731	-0.00032	mg/L	0.001731	533.86%
Sn 189.927†	-1.6	-0.00116	mg/L	0.001699	-0.00116	mg/L	0.001699	146.51%
Ti 334.940†	-3.8	-0.00009	mg/L	0.000351	-0.00009	mg/L	0.000351	411.05%
V 292.402†	-1.0	-0.00001	mg/L	0.000217	-0.00001	mg/L	0.000217	>999.9%
Zn 213.857†	1.0	0.00011	mg/L	0.000187	0.00011	mg/L	0.000187	171.57%
As 193.696†	1.5	0.00115	mg/L	0.002432	0.00115	mg/L	0.002432	211.69%

Sequence No.: 91
Sample ID: S13K066-CRL3
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 5
Date Collected: 11/12/2013 12:56:58 AM
Data Type: Reprocessed on 11/12/2013 9:50:16 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CRL3

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

Mean Data: S13K066-CRL3

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	225460.2	101.9	%	1.35				1.32%
Y Axial	2622164.8	101.6	%	0.40				0.40%
Al 308.215†	1858.1	0.9837	mg/L	0.01452	0.9837	mg/L	0.01452	1.48%
Sb 206.836†	54.9	0.02162	mg/L	0.002272	0.02162	mg/L	0.002272	10.51%
As 188.979†	33.7	0.01976	mg/L	0.003404	0.01976	mg/L	0.003404	17.23%
Ba 233.527†	532.3	0.04908	mg/L	0.000498	0.04908	mg/L	0.000498	1.02%
Be 313.107†	117.0	0.000963	mg/L	0.0000642	0.000963	mg/L	0.0000642	6.67%
B 249.677†	254.0	0.1001	mg/L	0.00273	0.1001	mg/L	0.00273	2.72%
Cd 226.502†	271.1	0.00527	mg/L	0.000144	0.00527	mg/L	0.000144	2.73%
Ca 315.887†	7704.2	0.9777	mg/L	0.00165	0.9777	mg/L	0.00165	0.17%
Cr 205.560†	128.3	0.00962	mg/L	0.000238	0.00962	mg/L	0.000238	2.48%
Co 228.616†	99.4	0.01962	mg/L	0.001488	0.01962	mg/L	0.001488	7.58%
Cu 324.752†	820.1	0.03803	mg/L	0.000233	0.03803	mg/L	0.000233	0.61%
Fe 273.955†	1933.3	1.103	mg/L	0.0154	1.103	mg/L	0.0154	1.40%
Pb 220.353†	258.6	0.03453	mg/L	0.001704	0.03453	mg/L	0.001704	4.94%
Mg 279.077†	530.3	0.5019	mg/L	0.00058	0.5019	mg/L	0.00058	0.12%
Mn 260.568†	2212.5	0.05406	mg/L	0.000612	0.05406	mg/L	0.000612	1.13%
Mo 202.031†	421.0	0.05181	mg/L	0.000625	0.05181	mg/L	0.000625	1.21%
Ni 231.604†	1493.8	0.05132	mg/L	0.000489	0.05132	mg/L	0.000489	0.95%
K 766.490†	1002.3	5.056	mg/L	0.1449	5.056	mg/L	0.1449	2.87%
Se 196.026†	16.0	0.02140	mg/L	0.004823	0.02140	mg/L	0.004823	22.54%
Si 251.611†	21.6	0.01663	mg/L	0.006829	0.01663	mg/L	0.006829	41.06%
Ag 328.068†	1724.7	0.01092	mg/L	0.000051	0.01092	mg/L	0.000051	0.47%
Na 589.592†	1165.2	0.4833	mg/L	0.00597	0.4833	mg/L	0.00597	1.24%
Sr 421.552†	1974.9	0.00505	mg/L	0.000016	0.00505	mg/L	0.000016	0.32%
Tl 190.801†	81.3	0.04837	mg/L	0.000786	0.04837	mg/L	0.000786	1.63%
Sn 189.927†	3.2	0.00224	mg/L	0.003255	0.00224	mg/L	0.003255	145.24%
Ti 334.940†	470.3	0.01054	mg/L	0.000024	0.01054	mg/L	0.000024	0.23%
V 292.402†	1650.9	0.01999	mg/L	0.000397	0.01999	mg/L	0.000397	1.99%
Zn 213.857†	733.3	0.08503	mg/L	0.001906	0.08503	mg/L	0.001906	2.24%
As 193.696†	21.5	0.01748	mg/L	0.001736	0.01748	mg/L	0.001736	9.93%

Sequence No.: 92
Sample ID: B13K007-BLK1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 94
Date Collected: 11/12/2013 1:03:15 AM
Data Type: Reprocessed on 11/12/2013 9:50:18 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: B13K007-BLK1

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

Full Light + 2 Grd + Snd

Mean Data: B13K007-BLK1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	225685.4	102.0	%	0.86				0.85%
Y Axial	2625983.2	101.8	%	0.61				0.60%
Al 308.215†	-9.6	-0.00508	mg/L	0.004144	-0.00508	mg/L	0.004144	81.63%
Sb 206.836†	-5.0	-0.00192	mg/L	0.003206	-0.00192	mg/L	0.003206	166.64%
As 188.979†	0.0	0.00000	mg/L	0.000634	0.00000	mg/L	0.000634	>999.9%
Ba 233.527†	0.0	0.00000	mg/L	0.000148	0.00000	mg/L	0.000148	>999.9%
Be 313.107†	-4.2	-0.000034	mg/L	0.0000218	-0.000034	mg/L	0.0000218	63.47%
B 249.677†	5.4	0.00212	mg/L	0.000599	0.00212	mg/L	0.000599	28.30%
Cd 226.502†	7.9	0.00016	mg/L	0.000188	0.00016	mg/L	0.000188	121.01%
Ca 315.887†	301.8	0.03829	mg/L	0.002381	0.03829	mg/L	0.002381	6.22%
Cr 205.560†	-13.1	-0.00099	mg/L	0.000189	-0.00099	mg/L	0.000189	19.14%
Co 228.616†	-2.9	-0.00057	mg/L	0.001461	-0.00057	mg/L	0.001461	258.20%
Cu 324.752†	17.2	0.00080	mg/L	0.001104	0.00080	mg/L	0.001104	138.49%
~~Fe 273.955†~~	~~20.9~~	~~0.01193~~	~~mg/L~~	0.001359	0.01193	mg/L	0.001359	11.39%
Pb 220.353†	23.8	0.00322	mg/L	0.000756	0.00322	mg/L	0.000756	23.50%
Mg 279.077†	-1.0	-0.00098	mg/L	0.006471	-0.00098	mg/L	0.006471	658.20%
Mn 260.568†	102.6	0.00251	mg/L	0.000212	0.00251	mg/L	0.000212	8.45%
Mo 202.031†	-3.8	-0.00047	mg/L	0.000688	-0.00047	mg/L	0.000688	145.28%
Ni 231.604†	12.4	0.00043	mg/L	0.000176	0.00043	mg/L	0.000176	41.36%
K 766.490†	11.1	0.05575	mg/L	0.082387	0.05575	mg/L	0.082387	147.77%
Se 196.026†	2.7	0.00361	mg/L	0.002162	0.00361	mg/L	0.002162	59.92%
Si 251.611†	40.4	0.03258	mg/L	0.003185	0.03258	mg/L	0.003185	9.78%
Ag 328.068†	145.6	0.00091	mg/L	0.000425	0.00091	mg/L	0.000425	46.60%
Na 589.592†	-4.4	-0.00183	mg/L	0.002639	-0.00183	mg/L	0.002639	144.00%
Sr 421.552†	44.2	0.00011	mg/L	0.000091	0.00011	mg/L	0.000091	80.78%
Tl 190.801†	3.4	0.00200	mg/L	0.002187	0.00200	mg/L	0.002187	109.33%
Sn 189.927†	76.0	0.05397	mg/L	0.002724	0.05397	mg/L	0.002724	5.05%
Ti 334.940†	21.6	0.00049	mg/L	0.000398	0.00049	mg/L	0.000398	82.01%
V 292.402†	6.1	0.00006	mg/L	0.000127	0.00006	mg/L	0.000127	208.49%
Zn 213.857†	4.2	0.00048	mg/L	0.000100	0.00048	mg/L	0.000100	20.70%
As 193.696†	-2.8	-0.00212	mg/L	0.000501	-0.00212	mg/L	0.000501	23.66%

Sequence No.: 93
Sample ID: B13K007-SRM1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 95
Date Collected: 11/12/2013 1:09:29 AM
Data Type: Reprocessed on 11/12/2013 9:50:19 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: B13K007-SRM1

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

x2
5ml + 5ml

Mean Data: B13K007-SRM1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	209048.2	94.52	%	0.730				0.77%
Y Axial	2393612.6	92.75	%	0.047				0.05%
Al 308.215†	2747.4	1.454	mg/L	0.0211	1.454	mg/L	0.0211	1.45%
Sb 206.836†	1584.6	0.6076	mg/L	0.00678	0.6076	mg/L	0.00678	1.12%
As 188.979†	4857.4	2.854	mg/L	0.0253	2.854	mg/L	0.0253	0.89%
Ba 233.527†	178.4	0.01665	mg/L	0.000460	0.01665	mg/L	0.000460	2.76%
Be 313.107†	6197.9	0.05108	mg/L	0.001006	0.05108	mg/L	0.001006	1.97%
B 249.677†	-14.9	0.01593	mg/L	0.000416	0.01593	mg/L	0.000416	2.61%
Cd 226.502†	5733.3	0.1060	mg/L	0.00082	0.1060	mg/L	0.00082	0.78%
Ca 315.887†	3894137.8	494.2	mg/L	6.28	494.2	mg/L	6.28	1.27%
Cr 205.560†	3960.9	0.2979	mg/L	0.00226	0.2979	mg/L	0.00226	0.76%
Co 228.616†	1941.9	0.3836	mg/L	0.00758	0.3836	mg/L	0.00758	1.98%
Cu 324.752†	347474.6	16.12	mg/L	0.168	16.12	mg/L	0.168	1.04%
~~Fe 273.955†~~	~~139096.2~~	~~79.38~~	~~mg/L~~	0.682	79.38	mg/L	0.682	0.86%
Pb 220.353†	4229.3	0.5707	mg/L	0.00682	0.5707	mg/L	0.00682	1.19%
Mg 279.077†	310783.4	294.2	mg/L	3.19	294.2	mg/L	3.19	1.08%
Mn 260.568†	27730.7	0.6774	mg/L	0.01256	0.6774	mg/L	0.01256	1.85%
Mo 202.031†	1205.5	0.1483	mg/L	0.00147	0.1483	mg/L	0.00147	0.99%
Ni 231.604†	4784.3	0.1641	mg/L	0.00111	0.1641	mg/L	0.00111	0.68%
K 766.490†	107.0	0.5396	mg/L	0.04879	0.5396	mg/L	0.04879	9.04%
Se 196.026†	19.3	0.05207	mg/L	0.012436	0.05207	mg/L	0.012436	23.88%
Si 251.611†	3781.3	3.047	mg/L	0.0556	3.047	mg/L	0.0556	1.82%
Ag 328.068†	11099.0	0.07056	mg/L	0.000367	0.07056	mg/L	0.000367	0.52%
Na 589.592†	453.3	0.1880	mg/L	0.00588	0.1880	mg/L	0.00588	3.13%
Sr 421.552†	61445.2	0.1571	mg/L	0.00300	0.1571	mg/L	0.00300	1.91%
Tl 190.801†	92.8	0.06014	mg/L	0.001864	0.06014	mg/L	0.001864	3.10%
Sn 189.927†	-627.0	-0.4453	mg/L	0.00933	-0.4453	mg/L	0.00933	2.10%
Ti 334.940†	3331.1	0.07463	mg/L	0.001489	0.07463	mg/L	0.001489	1.99%
V 292.402†	15781.4	0.1808	mg/L	0.00137	0.1808	mg/L	0.00137	0.76%
Zn 213.857†	4649.3	0.5399	mg/L	0.00993	0.5399	mg/L	0.00993	1.84%
As 193.696†	3630.0	2.791	mg/L	0.0273	2.791	mg/L	0.0273	0.98%

Sequence No.: 94
Sample ID: B13K007-SRM2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 96
Date Collected: 11/12/2013 1:15:48 AM
Data Type: Reprocessed on 11/12/2013 9:50:21 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: B13K007-SRM2

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

x2

5ml + 5ul

Mean Data: B13K007-SRM2

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	210089.5	94.99	%	0.901				0.95%
Y Axial	2406567.5	93.26	%	0.390				0.42%
Al 308.215†	2657.7	1.406	mg/L	0.0136	1.406	mg/L	0.0136	0.97%
Sb 206.836†	1541.3	0.5910	mg/L	0.00290	0.5910	mg/L	0.00290	0.49%
As 188.979†	4714.0	2.769	mg/L	0.0223	2.769	mg/L	0.0223	0.80%
Ba 233.527†	168.5	0.01573	mg/L	0.000525	0.01573	mg/L	0.000525	3.33%
Be 313.107†	6037.7	0.04976	mg/L	0.000608	0.04976	mg/L	0.000608	1.22%
B 249.677†	-15.1	0.01474	mg/L	0.003943	0.01474	mg/L	0.003943	26.75%
Cd 226.502†	5603.8	0.1038	mg/L	0.00095	0.1038	mg/L	0.00095	0.92%
Ca 315.887†	3708552.6	470.6	mg/L	5.37	470.6	mg/L	5.37	1.14%
Cr 205.560†	3816.5	0.2871	mg/L	0.00339	0.2871	mg/L	0.00339	1.18%
Co 228.616†	1916.5	0.3786	mg/L	0.00324	0.3786	mg/L	0.00324	0.86%
Cu 324.752†	341617.5	15.85	mg/L	0.151	15.85	mg/L	0.151	0.96%
~~Fe 273.955†~~	~~132337.9~~	~~75.52~~	~~mg/L~~	0.776	75.52	mg/L	0.776	1.03%
Pb 220.353†	4197.7	0.5665	mg/L	0.00770	0.5665	mg/L	0.00770	1.36%
Mg 279.077†	303039.3	286.9	mg/L	2.84	286.9	mg/L	2.84	0.99%
Mn 260.568†	26262.8	0.6415	mg/L	0.00650	0.6415	mg/L	0.00650	1.01%
Mo 202.031†	1179.6	0.1452	mg/L	0.00199	0.1452	mg/L	0.00199	1.37%
Ni 231.604†	4625.8	0.1587	mg/L	0.00154	0.1587	mg/L	0.00154	0.97%
K 766.490†	100.9	0.5092	mg/L	0.02198	0.5092	mg/L	0.02198	4.32%
Se 196.026†	18.9	0.05033	mg/L	0.001407	0.05033	mg/L	0.001407	2.80%
Si 251.611†	3489.4	2.812	mg/L	0.0312	2.812	mg/L	0.0312	1.11%
Ag 328.068†	9194.9	0.05862	mg/L	0.000828	0.05862	mg/L	0.000828	1.41%
Na 589.592†	439.0	0.1821	mg/L	0.00310	0.1821	mg/L	0.00310	1.70%
Sr 421.552†	59243.8	0.1515	mg/L	0.00071	0.1515	mg/L	0.00071	0.47%
Tl 190.801†	88.6	0.05734	mg/L	0.005816	0.05734	mg/L	0.005816	10.14%
Sn 189.927†	-601.5	-0.4272	mg/L	0.00819	-0.4272	mg/L	0.00819	1.92%
Ti 334.940†	3229.4	0.07235	mg/L	0.000889	0.07235	mg/L	0.000889	1.23%
V 292.402†	15517.9	0.1779	mg/L	0.00156	0.1779	mg/L	0.00156	0.88%
Zn 213.857†	4589.9	0.5330	mg/L	0.00451	0.5330	mg/L	0.00451	0.85%
As 193.696†	3519.2	2.706	mg/L	0.0203	2.706	mg/L	0.0203	0.75%

not reported
✓ of SRM
due to old on
failing for Se

Sequence No.: 95
Sample ID: 1310054-01
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 97
Date Collected: 11/12/2013 1:22:07 AM
Data Type: Reprocessed on 11/12/2013 9:50:23 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-01

Analyte	Back Pressure	Flow
All	142.0 kPa	0.56 L/min

x2
5 and 5d

Mean Data: 1310054-01

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Calib Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Y Radial	232661.1	105.2	%	0.16				0.15%
Y Axial	2600778.6	100.8	%	0.63				0.62%
Al 308.215†	590451.4	313.0	mg/L	1.06	313.0	mg/L	1.06	0.34%
Sb 206.836†	3.9	-0.00796	mg/L	0.003272	-0.00796	mg/L	0.003272	41.10%
As 188.979†	116.8	0.1053	mg/L	0.00221	0.1053	mg/L	0.00221	2.10%
Ba 233.527†	19295.0	1.779	mg/L	0.0009	1.779	mg/L	0.0009	0.05%
Be 313.107†	2457.6	0.02069	mg/L	0.000073	0.02069	mg/L	0.000073	0.36%
B 249.677†	247.2	0.1825	mg/L	0.00050	0.1825	mg/L	0.00050	0.27%
Cd 226.502†	2342.0	0.01709	mg/L	0.000827	0.01709	mg/L	0.000827	4.84%
Ca 315.887†	1090861.8	138.4	mg/L	0.53	138.4	mg/L	0.53	0.38%
Cr 205.560†	2765.7	0.2080	mg/L	0.00245	0.2080	mg/L	0.00245	1.18%
Co 228.616†	678.4	0.1152	mg/L	0.00116	0.1152	mg/L	0.00116	1.01%
Cu 324.752†	12244.2	0.5830	mg/L	0.00168	0.5830	mg/L	0.00168	0.29%
~~Fe 273.955†~~	~~518854.9~~	296.1	mg/L	2.35	296.1	mg/L	2.35	0.79%
Pb 220.353†	13625.2	1.710	mg/L	0.0222	1.710	mg/L	0.0222	1.30%
Mg 279.077†	117174.1	110.9	mg/L	0.64	110.9	mg/L	0.64	0.58%
Mn 260.568†	401666.6	9.817	mg/L	0.0387	9.817	mg/L	0.0387	0.39%
Mo 202.031†	146.2	0.01799	mg/L	0.000392	0.01799	mg/L	0.000392	2.18%
Ni 231.604†	7183.8	0.2461	mg/L	0.00300	0.2461	mg/L	0.00300	1.22%
K 766.490†	12720.0	64.17	mg/L	0.750	64.17	mg/L	0.750	1.17%
Se 196.026†	-102.9	-0.05630	mg/L	0.007868	-0.05630	mg/L	0.007868	13.97%
Si 251.611†	16228.0	13.09	mg/L	0.035	13.09	mg/L	0.035	0.27%
Ag 328.068†	523.9	0.00479	mg/L	0.000224	0.00479	mg/L	0.000224	4.68%
Na 589.592†	6218.8	2.579	mg/L	0.0132	2.579	mg/L	0.0132	0.51%
Sr 421.552†	360165.9	0.9209	mg/L	0.01004	0.9209	mg/L	0.01004	1.09%
Tl 190.801†	-234.2	-0.02451	mg/L	0.005383	-0.02451	mg/L	0.005383	21.96%
Sn 189.927†	-413.8	-0.2939	mg/L	0.00298	-0.2939	mg/L	0.00298	1.01%
Ti 334.940†	514113.0	11.53	mg/L	0.045	11.53	mg/L	0.045	0.39%
V 292.402†	40375.1	0.4411	mg/L	0.00184	0.4411	mg/L	0.00184	0.42%
Zn 213.857†	29387.1	3.416	mg/L	0.0049	3.416	mg/L	0.0049	0.14%
As 193.696†	-102.9	0.02538	mg/L	0.006457	0.02538	mg/L	0.006457	25.44%

Sequence No.: 96
Sample ID: 1310054-02
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 14
Date Collected: 11/12/2013 1:28:15 AM
Data Type: Reprocessed on 11/12/2013 9:50:25 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-02

Analyte	Back Pressure	Flow
All	142.0 kPa	0.56 L/min

x2
5 ml + 5 ml

Mean Data: 1310054-02

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	233804.0	105.7	%	0.23				0.22%
Y Axial	2635175.1	102.1	%	1.02				1.00%
Al 308.215†	583557.5	309.4	mg/L	4.49	309.4	mg/L	4.49	1.45%
Sb 206.836†	-3.9	-0.01076	mg/L	0.003967	-0.01076	mg/L	0.003967	36.89%
As 188.979†	116.9	0.1053	mg/L	0.00170	0.1053	mg/L	0.00170	1.61%
Ba 233.527†	17934.4	1.653	mg/L	0.0226	1.653	mg/L	0.0226	1.37%
Be 313.107†	2584.3	0.02173	mg/L	0.000317	0.02173	mg/L	0.000317	1.46%
B 249.677†	223.3	0.1733	mg/L	0.00061	0.1733	mg/L	0.00061	0.35%
Cd 226.502†	2389.6	0.01801	mg/L	0.000435	0.01801	mg/L	0.000435	2.41%
Ca 315.887†	1003033.6	127.3	mg/L	2.00	127.3	mg/L	2.00	1.57%
Cr 205.560†	2614.6	0.1966	mg/L	0.00355	0.1966	mg/L	0.00355	1.81%
Co 228.616†	678.8	0.1154	mg/L	0.00203	0.1154	mg/L	0.00203	1.76%
Cu 324.752†	12067.5	0.5747	mg/L	0.00874	0.5747	mg/L	0.00874	1.52%
~~Fe 273.955†~~	~~519486.0~~	~~296.5~~	~~mg/L~~	4.05	296.5	mg/L	4.05	1.36%
Pb 220.353†	14090.2	1.774	mg/L	0.0278	1.774	mg/L	0.0278	1.56%
Mg 279.077†	115374.0	109.2	mg/L	1.86	109.2	mg/L	1.86	1.70%
Mn 260.568†	423031.7	10.34	mg/L	0.147	10.34	mg/L	0.147	1.43%
Mo 202.031†	142.6	0.01755	mg/L	0.000120	0.01755	mg/L	0.000120	0.68%
Ni 231.604†	6669.6	0.2285	mg/L	0.00366	0.2285	mg/L	0.00366	1.60%
K 766.490†	12529.8	63.21	mg/L	1.481	63.21	mg/L	1.481	2.34%
Se 196.026†	-93.4	-0.04357	mg/L	0.005517	-0.04357	mg/L	0.005517	12.66%
Si 251.611†	13149.8	10.60	mg/L	0.151	10.60	mg/L	0.151	1.43%
Ag 328.068†	571.7	0.00491	mg/L	0.000292	0.00491	mg/L	0.000292	5.95%
Na 589.592†	5020.9	2.082	mg/L	0.0321	2.082	mg/L	0.0321	1.54%
Sr 421.552†	337924.9	0.8640	mg/L	0.01660	0.8640	mg/L	0.01660	1.92%
Tl 190.801†	-224.2	-0.01416	mg/L	0.003267	-0.01416	mg/L	0.003267	23.07%
Sn 189.927†	-396.0	-0.2813	mg/L	0.00998	-0.2813	mg/L	0.00998	3.55%
Ti 334.940†	509779.7	11.43	mg/L	0.178	11.43	mg/L	0.178	1.56%
V 292.402†	39013.9	0.4254	mg/L	0.00600	0.4254	mg/L	0.00600	1.41%
Zn 213.857†	34623.4	4.026	mg/L	0.0543	4.026	mg/L	0.0543	1.35%
As 193.696†	-85.1	0.03804	mg/L	0.004184	0.03804	mg/L	0.004184	11.00%

Sequence No.: 97
Sample ID: 1310054-03
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 15
Date Collected: 11/12/2013 1:34:16 AM
Data Type: Reprocessed on 11/12/2013 9:50:27 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-03

Analyte	Back Pressure	Flow
All	142.0 kPa	0.56 L/min

Mean Data: 1310054-03

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	229850.4	103.9	%	0.37				0.35%
Y Axial	2615047.0	101.3	%	0.85				0.84%
Al 308.215†	258605.5	137.1	mg/L	0.69	137.1	mg/L	0.69	0.50%
Sb 206.836†	65.4	0.00394	mg/L	0.002538	0.00394	mg/L	0.002538	64.45%
As 188.979†	11.4	0.05995	mg/L	0.003118	0.05995	mg/L	0.003118	5.20%
Ba 233.527†	13735.8	1.267	mg/L	0.0055	1.267	mg/L	0.0055	0.44%
Be 313.107†	943.4	0.008406	mg/L	0.0000189	0.008406	mg/L	0.0000189	0.22%
B 249.677†	-168.8	0.04719	mg/L	0.001777	0.04719	mg/L	0.001777	3.77%
Cd 226.502†	2051.7	0.00041	mg/L	0.000232	0.00041	mg/L	0.000232	56.74%
Ca 315.887†	627245.1	79.60	mg/L	0.439	79.60	mg/L	0.439	0.55%
Cr 205.560†	8855.5	0.6662	mg/L	0.00612	0.6662	mg/L	0.00612	0.92%
Co 228.616†	735.5	0.1144	mg/L	0.00118	0.1144	mg/L	0.00118	1.03%
Cu 324.752†	5273.5	0.2695	mg/L	0.00082	0.2695	mg/L	0.00082	0.30%
Fe 273.955†	702265.9	400.8	mg/L	2.31	400.8	mg/L	2.31	0.58%
Pb 220.353†	2051.6	0.2200	mg/L	0.00345	0.2200	mg/L	0.00345	1.57%
Mg 279.077†	61331.8	58.06	mg/L	0.294	58.06	mg/L	0.294	0.51%
Mn 260.568†	257742.8	6.299	mg/L	0.0224	6.299	mg/L	0.0224	0.36%
Mo 202.031†	50.5	0.00621	mg/L	0.000436	0.00621	mg/L	0.000436	7.02%
Ni 231.604†	9261.0	0.3172	mg/L	0.00344	0.3172	mg/L	0.00344	1.09%
K 766.490†	4043.4	20.40	mg/L	0.083	20.40	mg/L	0.083	0.41%
Se 196.026†	-126.4	-0.03672	mg/L	0.013261	-0.03672	mg/L	0.013261	36.11%
Si 251.611†	9767.8	7.877	mg/L	0.0408	7.877	mg/L	0.0408	0.52%
Ag 328.068†	-351.9	0.00359	mg/L	0.000316	0.00359	mg/L	0.000316	8.79%
Na 589.592†	4348.3	1.803	mg/L	0.0028	1.803	mg/L	0.0028	0.16%
Sr 421.552†	307425.3	0.7860	mg/L	0.01021	0.7860	mg/L	0.01021	1.30%
Tl 190.801†	-210.7	-0.02579	mg/L	0.006255	-0.02579	mg/L	0.006255	24.25%
Sn 189.927†	-309.6	-0.2199	mg/L	0.00576	-0.2199	mg/L	0.00576	2.62%
Ti 334.940†	842771.9	18.89	mg/L	0.114	18.89	mg/L	0.114	0.60%
V 292.402†	92579.1	1.034	mg/L	0.0081	1.034	mg/L	0.0081	0.78%
Zn 213.857†	6651.7	0.7720	mg/L	0.00536	0.7720	mg/L	0.00536	0.69%
As 193.696†	-122.6	0.00115	mg/L	0.005666	0.00115	mg/L	0.005666	494.85%

Sequence No.: 98
Sample ID: 1310054-04
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 16
Date Collected: 11/12/2013 1:40:16 AM
Data Type: Reprocessed on 11/12/2013 9:50:29 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-04 x2

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

5ml + 5ml

Mean Data: 1310054-04

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	228537.7	103.3	%	0.44				0.42%
Y Axial	2587162.1	100.3	%	0.64				0.64%
Al 308.215†	245846.2	130.3	mg/L	0.82	130.3	mg/L	0.82	0.63%
Sb 206.836†	50.4	0.00215	mg/L	0.001206	0.00215	mg/L	0.001206	56.07%
As 188.979†	14.9	0.05552	mg/L	0.002437	0.05552	mg/L	0.002437	4.39%
Ba 233.527†	13721.2	1.266	mg/L	0.0187	1.266	mg/L	0.0187	1.48%
Be 313.107†	921.7	0.008192	mg/L	0.0001017	0.008192	mg/L	0.0001017	1.24%
B 249.677†	-149.7	0.04165	mg/L	0.003983	0.04165	mg/L	0.003983	9.56%
Cd 226.502†	1821.6	0.00081	mg/L	0.000676	0.00081	mg/L	0.000676	83.30%
Ca 315.887†	643179.5	81.62	mg/L	0.663	81.62	mg/L	0.663	0.81%
Cr 205.560†	7382.9	0.5554	mg/L	0.00389	0.5554	mg/L	0.00389	0.70%
Co 228.616†	684.8	0.1105	mg/L	0.00170	0.1105	mg/L	0.00170	1.54%
Cu 324.752†	5357.5	0.2685	mg/L	0.00420	0.2685	mg/L	0.00420	1.56%
Fe 273.955†	621018.1	354.4	mg/L	2.10	354.4	mg/L	2.10	0.59%
Pb 220.353†	1991.8	0.2147	mg/L	0.00234	0.2147	mg/L	0.00234	1.09%
Mg 279.077†	60672.3	57.43	mg/L	0.449	57.43	mg/L	0.449	0.78%
Mn 260.568†	231110.6	5.648	mg/L	0.0409	5.648	mg/L	0.0409	0.72%
Mo 202.031†	49.2	0.00605	mg/L	0.001488	0.00605	mg/L	0.001488	24.60%
Ni 231.604†	8914.0	0.3053	mg/L	0.00301	0.3053	mg/L	0.00301	0.99%
K 766.490†	3881.1	19.58	mg/L	0.123	19.58	mg/L	0.123	0.63%
Se 196.026†	-120.4	-0.04490	mg/L	0.004237	-0.04490	mg/L	0.004237	9.44%
Si 251.611†	10053.2	8.107	mg/L	0.1499	8.107	mg/L	0.1499	1.85%
Ag 328.068†	-330.8	0.00291	mg/L	0.000069	0.00291	mg/L	0.000069	2.39%
Na 589.592†	3975.2	1.649	mg/L	0.0189	1.649	mg/L	0.0189	1.14%
Sr 421.552†	302690.9	0.7739	mg/L	0.01409	0.7739	mg/L	0.01409	1.82%
Tl 190.801†	-194.4	-0.03036	mg/L	0.004042	-0.03036	mg/L	0.004042	13.31%
Sn 189.927†	-304.0	-0.2159	mg/L	0.00246	-0.2159	mg/L	0.00246	1.14%
Ti 334.940†	677109.9	15.18	mg/L	0.104	15.18	mg/L	0.104	0.68%
V 292.402†	80001.6	0.8943	mg/L	0.00186	0.8943	mg/L	0.00186	0.21%
Zn 213.857†	6301.5	0.7314	mg/L	0.00900	0.7314	mg/L	0.00900	1.23%
As 193.696†	-97.7	0.01036	mg/L	0.005305	0.01036	mg/L	0.005305	51.23%

Sequence No.: 99
Sample ID: 1310054-05
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 17
Date Collected: 11/12/2013 1:46:16 AM
Data Type: Reprocessed on 11/12/2013 9:50:31 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-05

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

x2
5ml + 5ml

Mean Data: 1310054-05

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Calib Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Y Radial	228882.2	103.5	%	0.75				0.72%
Y Axial	2616248.8	101.4	%	0.56				0.55%
Al 308.215†	348730.6	184.9	mg/L	0.71	184.9	mg/L	0.71	0.38%
Sb 206.836†	15.3	-0.00275	mg/L	0.002935	-0.00275	mg/L	0.002935	106.69%
As 188.979†	77.4	0.07720	mg/L	0.000830	0.07720	mg/L	0.000830	1.08%
Ba 233.527†	14256.6	1.314	mg/L	0.0076	1.314	mg/L	0.0076	0.58%
Be 313.107†	1632.2	0.01385	mg/L	0.000227	0.01385	mg/L	0.000227	1.64%
B 249.677†	73.3	0.1012	mg/L	0.00239	0.1012	mg/L	0.00239	2.36%
Cd 226.502†	1936.8	0.01338	mg/L	0.000359	0.01338	mg/L	0.000359	2.68%
Ca 315.887†	729697.8	92.60	mg/L	0.414	92.60	mg/L	0.414	0.45%
Cr 205.560†	2899.5	0.2181	mg/L	0.00227	0.2181	mg/L	0.00227	1.04%
Co 228.616†	536.7	0.09014	mg/L	0.001036	0.09014	mg/L	0.001036	1.15%
Cu 324.752†	9063.0	0.4332	mg/L	0.00287	0.4332	mg/L	0.00287	0.66%
~~Fe 273.955†~~	~~442866.7~~	~~252.7~~	~~mg/L~~	0.37	252.7	mg/L	0.37	0.15%
Pb 220.353†	11348.8	1.456	mg/L	0.0141	1.456	mg/L	0.0141	0.97%
Mg 279.077†	78735.8	74.53	mg/L	0.502	74.53	mg/L	0.502	0.67%
Mn 260.568†	300000.2	7.332	mg/L	0.0253	7.332	mg/L	0.0253	0.35%
Mo 202.031†	123.4	0.01519	mg/L	0.000344	0.01519	mg/L	0.000344	2.26%
Ni 231.604†	5936.9	0.2034	mg/L	0.00222	0.2034	mg/L	0.00222	1.09%
K 766.490†	7595.5	38.32	mg/L	0.646	38.32	mg/L	0.646	1.69%
Se 196.026†	-86.9	-0.04097	mg/L	0.000615	-0.04097	mg/L	0.000615	1.50%
Si 251.611†	13345.5	10.76	mg/L	0.047	10.76	mg/L	0.047	0.44%
Ag 328.068†	314.8	0.00397	mg/L	0.000198	0.00397	mg/L	0.000198	4.99%
Na 589.592†	4129.1	1.713	mg/L	0.0157	1.713	mg/L	0.0157	0.92%
Sr 421.552†	276313.3	0.7065	mg/L	0.00978	0.7065	mg/L	0.00978	1.38%
Tl 190.801†	-181.6	-0.01984	mg/L	0.004063	-0.01984	mg/L	0.004063	20.48%
Sn 189.927†	-349.7	-0.2484	mg/L	0.00743	-0.2484	mg/L	0.00743	2.99%
Ti 334.940†	433730.8	9.724	mg/L	0.0659	9.724	mg/L	0.0659	0.68%
V 292.402†	42267.5	0.4672	mg/L	0.00424	0.4672	mg/L	0.00424	0.91%
Zn 213.857†	24366.7	2.833	mg/L	0.0141	2.833	mg/L	0.0141	0.50%
As 193.696†	-69.8	0.02158	mg/L	0.005238	0.02158	mg/L	0.005238	24.27%

Sequence No.: 100
Sample ID: S13K066-CCV9
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 138
Date Collectsd: 11/12/2013 1:52:18 AM
Data Type: Reprocessed on 11/12/2013 9:50:32 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCV9

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

Fe out

Mean Data: S13K066-CCV9

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	227761.6	103.0	%	0.43				0.41%
Y Axial	2618132.4	101.5	%	0.72				0.71%
Al 308.215†	3902.4	2.000	mg/L	0.0463	2.000	mg/L	0.0463	2.31%
Sb 206.836†	5507.0	2.112	mg/L	0.0121	2.112	mg/L	0.0121	0.57%
As 188.979†	3731.1	2.195	mg/L	0.0175	2.195	mg/L	0.0175	0.80%
Ba 233.527†	21612.8	1.994	mg/L	0.0346	1.994	mg/L	0.0346	1.74%
Be 313.107†	239401.1	1.963	mg/L	0.0059	1.963	mg/L	0.0059	0.30%
B 249.677†	5082.1	1.986	mg/L	0.0320	1.986	mg/L	0.0320	1.61%
Cd 226.502†	101406.9	2.002	mg/L	0.0071	2.002	mg/L	0.0071	0.35%
Ca 315.887†	15754.9	1.999	mg/L	0.0406	1.999	mg/L	0.0406	2.03%
Cr 205.560†	28168.8	2.118	mg/L	0.0152	2.118	mg/L	0.0152	0.72%
Co 228.616†	10136.8	1.999	mg/L	0.0324	1.999	mg/L	0.0324	1.62%
Cu 324.752†	41880.5	1.945	mg/L	0.0276	1.945	mg/L	0.0276	1.42%
Fe 273.955†	4022.2	2.295	mg/L	0.0289	2.295	mg/L	0.0289	1.26%
Pb 220.353†	15551.3	2.100	mg/L	0.0168	2.100	mg/L	0.0168	0.80%
Mg 279.077†	2155.1	2.040	mg/L	0.0272	2.040	mg/L	0.0272	1.34%
Mn 260.568†	85584.8	2.090	mg/L	0.0071	2.090	mg/L	0.0071	0.34%
Mo 202.031†	17088.5	2.103	mg/L	0.0151	2.103	mg/L	0.0151	0.72%
Ni 231.604†	63296.2	2.174	mg/L	0.0094	2.174	mg/L	0.0094	0.43%
K 766.490†	1989.7	10.04	mg/L	0.239	10.04	mg/L	0.239	2.38%
Se 196.026†	1532.7	2.023	mg/L	0.0151	2.023	mg/L	0.0151	0.74%
Si 251.611†	10612.6	8.528	mg/L	0.1707	8.528	mg/L	0.1707	2.00%
Ag 328.068†	81880.9	0.5252	mg/L	0.00218	0.5252	mg/L	0.00218	0.41%
Na 589.592†	4912.2	2.037	mg/L	0.0375	2.037	mg/L	0.0375	1.84%
Sr 421.552†	792739.4	2.027	mg/L	0.0181	2.027	mg/L	0.0181	0.89%
Tl 190.801†	3493.7	2.077	mg/L	0.0169	2.077	mg/L	0.0169	0.81%
Sn 189.927†	7252.9	5.151	mg/L	0.0378	5.151	mg/L	0.0378	0.73%
Ti 334.940†	99351.0	2.227	mg/L	0.0020	2.227	mg/L	0.0020	0.09%
V 292.402†	172558.8	2.038	mg/L	0.0095	2.038	mg/L	0.0095	0.47%
Zn 213.857†	18589.6	2.151	mg/L	0.0311	2.151	mg/L	0.0311	1.44%
As 193.696†	2745.8	2.173	mg/L	0.0125	2.173	mg/L	0.0125	0.58%

Sequence No.: 101
Sample ID: S13K066-CCB9
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 143
Date Collected: 11/12/2013 1:59:44 AM
Data Type: Reprocessed on 11/12/2013 9:50:34 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CCB9

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

Mean Data: S13K066-CCB9

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	226328.4	102.3	%	0.35				0.34%
Y Axial	2630555.7	101.9	%	0.33				0.33%
Al 308.215†	8.3	0.00437	mg/L	0.002467	0.00437	mg/L	0.002467	56.42%
Sb 206.836†	-1.6	-0.00061	mg/L	0.001061	-0.00061	mg/L	0.001061	174.74%
As 188.979†	-0.9	-0.00054	mg/L	0.000937	-0.00054	mg/L	0.000937	174.95%
Ba 233.527†	-1.3	-0.00012	mg/L	0.000152	-0.00012	mg/L	0.000152	122.75%
Be 313.107†	3.0	0.000024	mg/L	0.0000412	0.000024	mg/L	0.0000412	169.00%
B 249.677†	18.9	0.00745	mg/L	0.002560	0.00745	mg/L	0.002560	34.37%
Cd 226.502†	17.4	0.00034	mg/L	0.000032	0.00034	mg/L	0.000032	9.42%
Ca 315.887†	37.1	0.00470	mg/L	0.001201	0.00470	mg/L	0.001201	25.53%
Cr 205.560†	-6.9	-0.00052	mg/L	0.000166	-0.00052	mg/L	0.000166	31.99%
Co 228.616†	0.6	0.00011	mg/L	0.000674	0.00011	mg/L	0.000674	606.54%
Cu 324.752†	109.3	0.00507	mg/L	0.000885	0.00507	mg/L	0.000885	17.44%
Fe 273.955†	43.6	0.02488	mg/L	0.001737	0.02488	mg/L	0.001737	6.98%
Pb 220.353†	8.3	0.00112	mg/L	0.000525	0.00112	mg/L	0.000525	46.95%
Mg 279.077†	1.0	0.00098	mg/L	0.001218	0.00098	mg/L	0.001218	124.08%
Mn 260.568†	104.1	0.00254	mg/L	0.000161	0.00254	mg/L	0.000161	6.32%
Mo 202.031†	6.8	0.00084	mg/L	0.000275	0.00084	mg/L	0.000275	32.73%
Ni 231.604†	10.8	0.00037	mg/L	0.000431	0.00037	mg/L	0.000431	115.75%
K 766.490†	-0.1	-0.00055	mg/L	0.109159	-0.00055	mg/L	0.109159	>999.9%
Se 196.026†	1.3	0.00168	mg/L	0.005184	0.00168	mg/L	0.005184	309.14%
Si 251.611†	30.1	0.02424	mg/L	0.002081	0.02424	mg/L	0.002081	8.58%
Ag 328.068†	255.4	0.00160	mg/L	0.000403	0.00160	mg/L	0.000403	25.19%
Na 589.592†	-88.1	-0.03653	mg/L	0.009550	-0.03653	mg/L	0.009550	26.14%
Sr 421.552†	30.6	0.00008	mg/L	0.000012	0.00008	mg/L	0.000012	15.26%
Tl 190.801†	0.3	0.00022	mg/L	0.001678	0.00022	mg/L	0.001678	750.61%
Sn 189.927†	2.4	0.00170	mg/L	0.001646	0.00170	mg/L	0.001646	96.98%
Ti 334.940†	7.5	0.00017	mg/L	0.000439	0.00017	mg/L	0.000439	261.95%
V 292.402†	16.0	0.00020	mg/L	0.000370	0.00020	mg/L	0.000370	186.52%
Zn 213.857†	-2.3	-0.00027	mg/L	0.000355	-0.00027	mg/L	0.000355	132.18%
As 193.696†	-1.4	-0.00109	mg/L	0.000552	-0.00109	mg/L	0.000552	50.48%

Sequence No.: 102
Sample ID: 1310054-06
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 18
Date Collected: 11/12/2013 2:06:02 AM
Data Type: Reprocessed on 11/12/2013 9:50:36 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-06 x2

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

5ml + 5l

Mean Data: 1310054-06

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	225553.0	102.0	%	1.56				1.53%
Y Axial	2617086.1	101.4	%	0.66				0.65%
Al 308.215†	131086.1	69.64	mg/L	1.547	69.64	mg/L	1.547	2.22%
Sb 206.836†	82.5	0.03555	mg/L	0.001685	0.03555	mg/L	0.001685	4.74%
As 188.979†	1605.8	0.9892	mg/L	0.00757	0.9892	mg/L	0.00757	0.77%
Ba 233.527†	1924.8	0.1775	mg/L	0.00410	0.1775	mg/L	0.00410	2.31%
Be 313.107†	2577.9	0.02232	mg/L	0.000443	0.02232	mg/L	0.000443	1.98%
B 249.677†	2910.1	1.269	mg/L	0.0190	1.269	mg/L	0.0190	1.50%
Cd 226.502†	14758.0	0.2523	mg/L	0.00270	0.2523	mg/L	0.00270	1.07%
Ca 315.887†	1674612.8	212.5	mg/L	5.02	212.5	mg/L	5.02	2.36%
Cr 205.560†	1602.5	0.1204	mg/L	0.00032	0.1204	mg/L	0.00032	0.26%
Co 228.616†	579.5	0.1109	mg/L	0.00193	0.1109	mg/L	0.00193	1.74%
Cu 324.752†	520649.0	24.15	mg/L	0.526	24.15	mg/L	0.526	2.18%
Fe 273.955†	742965.2	424.0	mg/L	8.95	424.0	mg/L	8.95	2.11%
Pb 220.353†	277484.2	37.45	mg/L	0.052	37.45	mg/L	0.052	0.14%
Mg 279.077†	8402.1	7.953	mg/L	0.1733	7.953	mg/L	0.1733	2.18%
Mn 260.568†	2583422.9	63.14	mg/L	1.432	63.14	mg/L	1.432	2.27%
Mo 202.031†	5388.4	0.6631	mg/L	0.00242	0.6631	mg/L	0.00242	0.36%
Ni 231.604†	3883.6	0.1350	mg/L	0.00126	0.1350	mg/L	0.00126	0.94%
K 766.490†	4666.0	23.54	mg/L	0.539	23.54	mg/L	0.539	2.29%
Se 196.026†	-8.8	0.1026	mg/L	0.00523	0.1026	mg/L	0.00523	5.10%
Si 251.611†	18655.9	15.04	mg/L	0.300	15.04	mg/L	0.300	2.00%
Ag 328.068†	8734.8	0.04642	mg/L	0.000584	0.04642	mg/L	0.000584	1.26%
Na 589.592†	272.6	0.1131	mg/L	0.00193	0.1131	mg/L	0.00193	1.70%
Sr 421.552†	184171.1	0.4709	mg/L	0.01031	0.4709	mg/L	0.01031	2.19%
Tl 190.801†	-856.1	0.06432	mg/L	0.014252	0.06432	mg/L	0.014252	22.16%
Sn 189.927†	-71.4	-0.05068	mg/L	0.002660	-0.05068	mg/L	0.002660	5.25%
Ti 334.940†	97252.4	2.180	mg/L	0.0500	2.180	mg/L	0.0500	2.29%
V 292.402†	10275.9	0.1027	mg/L	0.00128	0.1027	mg/L	0.00128	1.24%
Zn 213.857†	648236.1	75.39	mg/L	1.604	75.39	mg/L	1.604	2.13%
As 193.696†	1130.1	0.9457	mg/L	0.00359	0.9457	mg/L	0.00359	0.38%

Sequence No.: 103
Sample ID: B13K007-MS1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 19
Date Collected: 11/12/2013 2:12:07 AM
Data Type: Reprocessed on 11/12/2013 9:50:38 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: B13K007-MS1

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

Mean Data: B13K007-MS1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	226562.9	102.4	%	0.18				0.18%
Y Axial	2580903.3	100.0	%	0.39				0.39%
Al 308.215†	139861.8	74.26	mg/L	0.416	74.26	mg/L	0.416	0.56%
Sb 206.836†	1296.2	0.5089	mg/L	0.00200	0.5089	mg/L	0.00200	0.39%
As 188.979†	8591.6	5.080	mg/L	0.0673	5.080	mg/L	0.0673	1.32%
Ba 233.527†	41080.5	3.787	mg/L	0.0321	3.787	mg/L	0.0321	0.85%
Be 313.107†	13896.3	0.1152	mg/L	0.00064	0.1152	mg/L	0.00064	0.56%
B 249.677†	12114.8	4.889	mg/L	0.0240	4.889	mg/L	0.0240	0.49%
Cd 226.502†	19815.0	0.3507	mg/L	0.00476	0.3507	mg/L	0.00476	1.36%
Ca 315.887†	1776238.8	225.4	mg/L	1.56	225.4	mg/L	1.56	0.69%
Cr 205.560†	6846.8	0.5145	mg/L	0.00522	0.5145	mg/L	0.00522	1.01%
Co 228.616†	5141.8	1.012	mg/L	0.0105	1.012	mg/L	0.0105	1.04%
Cu 324.752†	520670.3	24.15	mg/L	0.144	24.15	mg/L	0.144	0.59%
Fe 273.955†	777380.3	443.6	mg/L	1.91	443.6	mg/L	1.91	0.43%
Pb 220.353†	283054.7	38.21	mg/L	0.139	38.21	mg/L	0.139	0.37%
Mg 279.077†	27187.7	25.74	mg/L	0.215	25.74	mg/L	0.215	0.84%
Mn 260.568†	2585227.8	63.18	mg/L	0.351	63.18	mg/L	0.351	0.56%
Mo 202.031†	13122.7	1.615	mg/L	0.0168	1.615	mg/L	0.0168	1.04%
Ni 231.604†	31832.4	1.095	mg/L	0.0144	1.095	mg/L	0.0144	1.31%
K 766.490†	7946.7	40.09	mg/L	0.740	40.09	mg/L	0.740	1.85%
Se 196.026†	2755.0	3.760	mg/L	0.0336	3.760	mg/L	0.0336	0.89%
Si 251.611†	20608.7	16.60	mg/L	0.106	16.60	mg/L	0.106	0.64%
Ag 328.068†	23843.5	0.1471	mg/L	0.00099	0.1471	mg/L	0.00099	0.67%
Na 589.592†	46932.2	19.47	mg/L	0.078	19.47	mg/L	0.078	0.40%
Sr 421.552†	184809.6	0.4725	mg/L	0.00350	0.4725	mg/L	0.00350	0.74%
Tl 190.801†	5088.5	3.564	mg/L	0.0298	3.564	mg/L	0.0298	0.84%
Sn 189.927†	2789.1	1.981	mg/L	0.0291	1.981	mg/L	0.0291	1.47%
Ti 334.940†	96713.9	2.168	mg/L	0.0131	2.168	mg/L	0.0131	0.60%
V 292.402†	91377.5	1.060	mg/L	0.0038	1.060	mg/L	0.0038	0.36%
Zn 213.857†	657665.7	76.48	mg/L	0.414	76.48	mg/L	0.414	0.54%
As 193.696†	6389.2	5.006	mg/L	0.0712	5.006	mg/L	0.0712	1.42%

Sequence No.: 104
Sample ID: B13K007-MSD1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 20
Date Collected: 11/12/2013 2:18:47 AM
Data Type: Reprocessed on 11/12/2013 9:50:39 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: B13K007-MSD1

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

Mean Data: B13K007-MSD1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	227217.6	102.7	%	0.79				0.77%
Y Axial	2583918.3	100.1	%	0.66				0.65%
Al 308.215†	143341.5	76.11	mg/L	0.413	76.11	mg/L	0.413	0.54%
Sb 206.836†	1307.3	0.5135	mg/L	0.00489	0.5135	mg/L	0.00489	0.95%
As 188.979†	8692.5	5.141	mg/L	0.0243	5.141	mg/L	0.0243	0.47%
Ba 233.527†	42147.9	3.885	mg/L	0.0076	3.885	mg/L	0.0076	0.20%
Be 313.107†	14218.4	0.1179	mg/L	0.00071	0.1179	mg/L	0.00071	0.60%
B 249.677†	12437.7	5.021	mg/L	0.0208	5.021	mg/L	0.0208	0.41%
Cd 226.502†	19846.0	0.3496	mg/L	0.00167	0.3496	mg/L	0.00167	0.48%
Ca 315.887†	1780442.9	225.9	mg/L	1.42	225.9	mg/L	1.42	0.63%
Cr 205.560†	6883.9	0.5173	mg/L	0.00188	0.5173	mg/L	0.00188	0.36%
Co 228.616†	5276.8	1.039	mg/L	0.0071	1.039	mg/L	0.0071	0.69%
Cu 324.752†	538719.0	24.99	mg/L	0.127	24.99	mg/L	0.127	0.51%
Fe 273.955†	810062.0	462.3	mg/L	3.26	462.3	mg/L	3.26	0.70%
Pb 220.353†	289322.0	39.05	mg/L	0.117	39.05	mg/L	0.117	0.30%
Mg 279.077†	27825.3	26.34	mg/L	0.106	26.34	mg/L	0.106	0.40%
Mn 260.568†	2590305.7	63.31	mg/L	0.334	63.31	mg/L	0.334	0.53%
Mo 202.031†	13423.3	1.652	mg/L	0.0128	1.652	mg/L	0.0128	0.77%
Ni 231.604†	32341.7	1.112	mg/L	0.0059	1.112	mg/L	0.0059	0.53%
K 766.490†	8055.1	40.64	mg/L	0.522	40.64	mg/L	0.522	1.29%
Se 196.026†	2798.2	3.823	mg/L	0.0334	3.823	mg/L	0.0334	0.87%
Si 251.611†	21190.1	17.06	mg/L	0.060	17.06	mg/L	0.060	0.35%
Ag 328.068†	23964.7	0.1480	mg/L	0.00018	0.1480	mg/L	0.00018	0.12%
Na 589.592†	47766.2	19.81	mg/L	0.084	19.81	mg/L	0.084	0.42%
Sr 421.552†	188196.4	0.4812	mg/L	0.00413	0.4812	mg/L	0.00413	0.86%
Tl 190.801†	5166.8	3.612	mg/L	0.0090	3.612	mg/L	0.0090	0.25%
Sn 189.927†	2807.1	1.994	mg/L	0.0191	1.994	mg/L	0.0191	0.96%
Ti 334.940†	99956.4	2.241	mg/L	0.0162	2.241	mg/L	0.0162	0.72%
V 292.402†	93578.8	1.085	mg/L	0.0016	1.085	mg/L	0.0016	0.15%
Zn 213.857†	662116.9	77.00	mg/L	0.387	77.00	mg/L	0.387	0.50%
As 193.696†	6485.7	5.083	mg/L	0.0354	5.083	mg/L	0.0354	0.70%

Sequence No.: 105
Sample ID: 1310054-07
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 21
Date Collected: 11/12/2013 2:25:23 AM
Data Type: Reprocesssd on 11/12/2013 9:50:41 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-07

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

x2
5ml + 5u

Mean Data: 1310054-07

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	228077.9	103.1	%	0.49				0.48%
Y Axial	2599608.9	100.7	%	0.46				0.46%
Al 308.215†	223666.5	118.7	mg/L	2.85	118.7	mg/L	2.85	2.40%
Sb 206.836†	-4.5	-0.00050	mg/L	0.003264	-0.00050	mg/L	0.003264	653.23%
As 188.979†	1242.8	0.7671	mg/L	0.00278	0.7671	mg/L	0.00278	0.36%
Ba 233.527†	5012.5	0.4621	mg/L	0.01078	0.4621	mg/L	0.01078	2.33%
Be 313.107†	2759.4	0.02352	mg/L	0.000754	0.02352	mg/L	0.000754	3.20%
B 249.677†	4159.0	1.735	mg/L	0.0365	1.735	mg/L	0.0365	2.10%
Cd 226.502†	12442.9	0.2142	mg/L	0.00229	0.2142	mg/L	0.00229	1.07%
Ca 315.887†	1386927.9	176.0	mg/L	4.07	176.0	mg/L	4.07	2.31%
Cr 205.560†	2071.2	0.1557	mg/L	0.00131	0.1557	mg/L	0.00131	0.84%
Co 228.616†	451.2	0.08320	mg/L	0.002433	0.08320	mg/L	0.002433	2.92%
Cu 324.752†	500351.5	23.21	mg/L	0.516	23.21	mg/L	0.516	2.22%
Fe 273.955†	592094.1	337.9	mg/L	8.42	337.9	mg/L	8.42	2.49%
Pb 220.353†	627282.4	84.69	mg/L	0.171	84.69	mg/L	0.171	0.20%
Mg 279.077†	15883.9	15.04	mg/L	0.378	15.04	mg/L	0.378	2.52%
Mn 260.568†	1627708.5	39.78	mg/L	0.910	39.78	mg/L	0.910	2.29%
Mo 202.031†	4587.0	0.5645	mg/L	0.00217	0.5645	mg/L	0.00217	0.38%
Ni 231.604†	2906.3	0.1012	mg/L	0.00020	0.1012	mg/L	0.00020	0.20%
K 766.490†	6541.9	33.00	mg/L	1.080	33.00	mg/L	1.080	3.27%
Se 196.026†	55.2	0.1648	mg/L	0.00662	0.1648	mg/L	0.00662	4.01%
Si 251.611†	17795.1	14.34	mg/L	0.299	14.34	mg/L	0.299	2.09%
Ag 328.068†	10054.8	0.05829	mg/L	0.000127	0.05829	mg/L	0.000127	0.22%
Na 589.592†	734.2	0.3045	mg/L	0.01090	0.3045	mg/L	0.01090	3.58%
Sr 421.552†	164392.5	0.4203	mg/L	0.00884	0.4203	mg/L	0.00884	2.10%
Tl 190.801†	-552.8	0.03768	mg/L	0.012839	0.03768	mg/L	0.012839	34.07%
Sn 189.927†	-105.8	-0.07514	mg/L	0.006634	-0.07514	mg/L	0.006634	8.83%
Ti 334.940†	162152.0	3.635	mg/L	0.0859	3.635	mg/L	0.0859	2.36%
V 292.402†	13652.0	0.1443	mg/L	0.00089	0.1443	mg/L	0.00089	0.61%
Zn 213.857†	856450.9	99.60	mg/L	1.966	99.60	mg/L	1.966	1.97%
As 193.696†	835.7	0.7133	mg/L	0.00195	0.7133	mg/L	0.00195	0.27%

Sequence No.: 106
Sample ID: 1310054-08
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 22
Date Collected: 11/12/2013 2:31:32 AM
Data Type: Reprocessed on 11/12/2013 9:50:43 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-08

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

x 2
Fwd + Sd

Mean Data: 1310054-08

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	229310.7	103.7	%	0.47				0.46%
Y Axial	2621958.1	101.6	%	0.28				0.28%
Al 308.215†	459251.4	243.5	mg/L	3.18	243.5	mg/L	3.18	1.31%
Sb 206.836†	4.3	-0.00552	mg/L	0.003227	-0.00552	mg/L	0.003227	58.41%
As 188.979†	315.3	0.2180	mg/L	0.00445	0.2180	mg/L	0.00445	2.04%
Ba 233.527†	15658.6	1.443	mg/L	0.0254	1.443	mg/L	0.0254	1.76%
Be 313.107†	2135.0	0.01802	mg/L	0.000415	0.01802	mg/L	0.000415	2.30%
B 249.677†	268.7	0.1840	mg/L	0.00271	0.1840	mg/L	0.00271	1.47%
Cd 226.502†	2361.5	0.02006	mg/L	0.000369	0.02006	mg/L	0.000369	1.84%
Ca 315.887†	1064310.9	135.1	mg/L	1.80	135.1	mg/L	1.80	1.33%
Cr 205.560†	2136.8	0.1607	mg/L	0.00129	0.1607	mg/L	0.00129	0.80%
Co 228.616†	576.6	0.09828	mg/L	0.001174	0.09828	mg/L	0.001174	1.19%
Cu 324.752†	16839.0	0.7936	mg/L	0.01434	0.7936	mg/L	0.01434	1.81%
Fe 273.955†	475978.4	271.6	mg/L	4.00	271.6	mg/L	4.00	1.47%
Pb 220.353†	45853.6	6.093	mg/L	0.0550	6.093	mg/L	0.0550	0.90%
Mg 279.077†	96486.5	91.33	mg/L	1.140	91.33	mg/L	1.140	1.25%
Mn 260.568†	412851.3	10.09	mg/L	0.129	10.09	mg/L	0.129	1.28%
Mo 202.031†	516.1	0.06351	mg/L	0.000288	0.06351	mg/L	0.000288	0.45%
Ni 231.604†	5344.1	0.1832	mg/L	0.00056	0.1832	mg/L	0.00056	0.31%
K 766.490†	9719.3	49.03	mg/L	0.586	49.03	mg/L	0.586	1.20%
Se 196.026†	-95.0	-0.05028	mg/L	0.008291	-0.05028	mg/L	0.008291	16.49%
Si 251.611†	13854.8	11.17	mg/L	0.158	11.17	mg/L	0.158	1.42%
Ag 328.068†	916.7	0.00683	mg/L	0.000353	0.00683	mg/L	0.000353	5.16%
Na 589.592†	4276.6	1.774	mg/L	0.0292	1.774	mg/L	0.0292	1.65%
Sr 421.552†	319388.0	0.8166	mg/L	0.01124	0.8166	mg/L	0.01124	1.38%
Tl 190.801†	-214.2	-0.01470	mg/L	0.008873	-0.01470	mg/L	0.008873	60.35%
Sn 189.927†	-381.0	-0.2706	mg/L	0.00244	-0.2706	mg/L	0.00244	0.90%
Ti 334.940†	426613.4	9.564	mg/L	0.1293	9.564	mg/L	0.1293	1.35%
V 292.402†	35067.5	0.3834	mg/L	0.00368	0.3834	mg/L	0.00368	0.96%
Zn 213.857†	241521.9	28.09	mg/L	0.301	28.09	mg/L	0.301	1.07%
As 193.696†	93.4	0.1582	mg/L	0.00514	0.1582	mg/L	0.00514	3.25%

Sequence No.: 107
Sample ID: 1310054-09
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 23
Date Collected: 11/12/2013 2:37:40 AM
Data Type: Reprocessed on 11/12/2013 9:50:45 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-09

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

x2

5ml +5ml

Mean Data: 1310054-09

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	228436.9	103.3	%	0.48				0.47%
Y Axial	2591939.1	100.4	%	0.30				0.30%
Al 308.215†	188353.7	99.84	mg/L	0.842	99.84	mg/L	0.842	0.84%
Sb 206.836†	28.1	0.00014	mg/L	0.005119	0.00014	mg/L	0.005119	>999.9%
As 188.979†	22.5	0.04419	mg/L	0.005822	0.04419	mg/L	0.005822	13.18%
Ba 233.527†	12981.5	1.197	mg/L	0.0133	1.197	mg/L	0.0133	1.11%
Be 313.107†	743.2	0.006483	mg/L	0.0000552	0.006483	mg/L	0.0000552	0.85%
B 249.677†	-62.2	0.04418	mg/L	0.002347	0.04418	mg/L	0.002347	5.31%
Cd 226.502†	1221.4	0.00000	mg/L	0.000415	0.00000	mg/L	0.000415	>999.9%
Ca 315.887†	511938.4	64.97	mg/L	0.617	64.97	mg/L	0.617	0.95%
Cr 205.560†	3725.0	0.2802	mg/L	0.00147	0.2802	mg/L	0.00147	0.52%
Co 228.616†	456.8	0.07167	mg/L	0.001144	0.07167	mg/L	0.001144	1.60%
Cu 324.752†	4216.9	0.2105	mg/L	0.00168	0.2105	mg/L	0.00168	0.80%
Fe 273.955†	422486.6	241.1	mg/L	3.19	241.1	mg/L	3.19	1.32%
Pb 220.353†	2374.7	0.2791	mg/L	0.00250	0.2791	mg/L	0.00250	0.90%
Mg 279.077†	50627.9	47.92	mg/L	0.500	47.92	mg/L	0.500	1.04%
Mn 260.568†	170357.2	4.163	mg/L	0.0398	4.163	mg/L	0.0398	0.96%
Mo 202.031†	58.5	0.00719	mg/L	0.000622	0.00719	mg/L	0.000622	8.64%
Ni 231.604†	6057.7	0.2075	mg/L	0.00075	0.2075	mg/L	0.00075	0.36%
K 766.490†	3240.4	16.35	mg/L	0.140	16.35	mg/L	0.140	0.86%
Se 196.026†	-85.1	-0.03536	mg/L	0.002491	-0.03536	mg/L	0.002491	7.04%
Si 251.611†	11210.1	9.040	mg/L	0.0705	9.040	mg/L	0.0705	0.78%
Ag 328.068†	26.1	0.00316	mg/L	0.000189	0.00316	mg/L	0.000189	5.99%
Na 589.592†	4208.6	1.746	mg/L	0.0074	1.746	mg/L	0.0074	0.42%
Sr 421.552†	276608.1	0.7072	mg/L	0.00645	0.7072	mg/L	0.00645	0.91%
Tl 190.801†	-145.7	-0.02324	mg/L	0.001092	-0.02324	mg/L	0.001092	4.70%
Sn 189.927†	-276.3	-0.1962	mg/L	0.00246	-0.1962	mg/L	0.00246	1.25%
Ti 334.940†	507108.9	11.37	mg/L	0.114	11.37	mg/L	0.114	1.00%
V 292.402†	49705.8	0.5528	mg/L	0.00285	0.5528	mg/L	0.00285	0.52%
Zn 213.857†	7107.7	0.8256	mg/L	0.00544	0.8256	mg/L	0.00544	0.66%
As 193.696†	-72.2	0.00325	mg/L	0.004029	0.00325	mg/L	0.004029	123.77%

Sequence No.: 108
Sample ID: 1310054-10
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 24
Date Collected: 11/12/2013 2:43:44 AM
Data Type: Reprocessed on 11/12/2013 9:50:47 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-10 x2

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

5ml + 5ml

Mean Data: 1310054-10

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	234536.9	106.0	%	0.46				0.43%
Y Axial	2688296.8	104.2	%	0.62				0.60%
Al 308.215†	229506.4	121.7	mg/L	1.22	121.7	mg/L	1.22	1.00%
Sb 206.836†	25.8	0.00302	mg/L	0.000254	0.00302	mg/L	0.000254	8.42%
As 188.979†	56.6	0.06182	mg/L	0.003254	0.06182	mg/L	0.003254	5.26%
Ba 233.527†	6827.4	0.6296	mg/L	0.00414	0.6296	mg/L	0.00414	0.66%
Be 313.107†	1891.4	0.01592	mg/L	0.000116	0.01592	mg/L	0.000116	0.73%
B 249.677†	-60.0	0.04341	mg/L	0.001326	0.04341	mg/L	0.001326	3.05%
Cd 226.502†	1548.2	0.00764	mg/L	0.000111	0.00764	mg/L	0.000111	1.45%
Ca 315.887†	283108.8	35.93	mg/L	0.440	35.93	mg/L	0.440	1.23%
Cr 205.560†	1699.1	0.1278	mg/L	0.00137	0.1278	mg/L	0.00137	1.07%
Co 228.616†	377.1	0.05954	mg/L	0.000116	0.05954	mg/L	0.000116	0.20%
Cu 324.752†	6695.9	0.3226	mg/L	0.00385	0.3226	mg/L	0.00385	1.19%
Fe 273.955†	407129.3	232.3	mg/L	2.50	232.3	mg/L	2.50	1.08%
Pb 220.353†	13519.5	1.776	mg/L	0.0175	1.776	mg/L	0.0175	0.99%
Mg 279.077†	36878.9	34.91	mg/L	0.339	34.91	mg/L	0.339	0.97%
Mn 260.568†	288847.7	7.059	mg/L	0.0706	7.059	mg/L	0.0706	1.00%
Mo 202.031†	225.1	0.02770	mg/L	0.000209	0.02770	mg/L	0.000209	0.76%
Ni 231.604†	2751.2	0.09429	mg/L	0.000337	0.09429	mg/L	0.000337	0.36%
K 766.490†	4475.5	22.58	mg/L	0.185	22.58	mg/L	0.185	0.82%
Se 196.026†	-69.7	-0.02103	mg/L	0.003111	-0.02103	mg/L	0.003111	14.79%
Si 251.611†	11567.4	9.328	mg/L	0.1239	9.328	mg/L	0.1239	1.33%
Ag 328.068†	395.4	0.00374	mg/L	0.000128	0.00374	mg/L	0.000128	3.41%
Na 589.592†	1844.0	0.7648	mg/L	0.01931	0.7648	mg/L	0.01931	2.52%
Sr 421.552†	83115.9	0.2125	mg/L	0.00225	0.2125	mg/L	0.00225	1.06%
Tl 190.801†	-163.6	-0.01280	mg/L	0.001206	-0.01280	mg/L	0.001206	9.43%
Sn 189.927†	-165.6	-0.1176	mg/L	0.00544	-0.1176	mg/L	0.00544	4.63%
Ti 334.940†	408136.3	9.150	mg/L	0.0931	9.150	mg/L	0.0931	1.02%
V 292.402†	31554.4	0.3448	mg/L	0.00382	0.3448	mg/L	0.00382	1.11%
Zn 213.857†	14739.4	1.714	mg/L	0.0082	1.714	mg/L	0.0082	0.48%
As 193.696†	-41.5	0.02488	mg/L	0.002387	0.02488	mg/L	0.002387	9.59%

Sequence No.: 109
Sample ID: 1310054-11
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 25
Date Collected: 11/12/2013 2:50:01 AM
Data Type: Reprocessed on 11/12/2013 9:50:49 AM

Initial Sample Vol:
Sample Prep Vol:

X 1

Nebulizer Parameters: 1310054-11

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

5 µl + 5 µl

Mean Data: 1310054-11

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	235475.8	106.5	%	0.23				0.22%
Y Axial	2696540.0	104.5	%	1.28				1.23%
Al 308.215†	244635.2	129.7	mg/L	0.68	129.7	mg/L	0.68	0.52%
Sb 206.836†	24.5	0.00202	mg/L	0.002071	0.00202	mg/L	0.002071	102.38%
As 188.979†	74.0	0.07336	mg/L	0.002267	0.07336	mg/L	0.002267	3.09%
Ba 233.527†	6975.4	0.6433	mg/L	0.00344	0.6433	mg/L	0.00344	0.53%
Be 313.107†	2065.8	0.01736	mg/L	0.000012	0.01736	mg/L	0.000012	0.07%
B 249.677†	-69.5	0.04282	mg/L	0.002985	0.04282	mg/L	0.002985	6.97%
Cd 226.502†	1630.1	0.00813	mg/L	0.001008	0.00813	mg/L	0.001008	12.40%
Ca 315.887†	307091.1	38.97	mg/L	0.307	38.97	mg/L	0.307	0.79%
Cr 205.560†	1816.0	0.1366	mg/L	0.00376	0.1366	mg/L	0.00376	2.75%
Co 228.616†	399.9	0.06301	mg/L	0.000727	0.06301	mg/L	0.000727	1.15%
Cu 324.752†	7101.0	0.3422	mg/L	0.00141	0.3422	mg/L	0.00141	0.41%
Fe 273.955†	426411.4	243.3	mg/L	1.17	243.3	mg/L	1.17	0.48%
Pb 220.353†	13761.4	1.805	mg/L	0.0577	1.805	mg/L	0.0577	3.20%
Mg 279.077†	38834.9	36.76	mg/L	0.156	36.76	mg/L	0.156	0.42%
Mn 260.568†	303777.2	7.424	mg/L	0.0430	7.424	mg/L	0.0430	0.58%
Mo 202.031†	222.9	0.02743	mg/L	0.000773	0.02743	mg/L	0.000773	2.82%
Ni 231.604†	2909.1	0.09970	mg/L	0.002412	0.09970	mg/L	0.002412	2.42%
K 766.490†	4785.9	24.14	mg/L	0.124	24.14	mg/L	0.124	0.51%
Se 196.026†	-74.5	-0.02412	mg/L	0.005651	-0.02412	mg/L	0.005651	23.43%
Si 251.611†	11526.2	9.295	mg/L	0.0910	9.295	mg/L	0.0910	0.98%
Ag 328.068†	380.8	0.00377	mg/L	0.000268	0.00377	mg/L	0.000268	7.11%
Na 589.592†	1994.2	0.8271	mg/L	0.00810	0.8271	mg/L	0.00810	0.98%
Sr 421.552†	89472.9	0.2288	mg/L	0.00140	0.2288	mg/L	0.00140	0.61%
Tl 190.801†	-173.7	-0.01402	mg/L	0.003081	-0.01402	mg/L	0.003081	21.97%
Sn 189.927†	-183.1	-0.1300	mg/L	0.00494	-0.1300	mg/L	0.00494	3.80%
Ti 334.940†	436757.0	9.792	mg/L	0.0570	9.792	mg/L	0.0570	0.58%
V 292.402†	33916.3	0.3710	mg/L	0.01220	0.3710	mg/L	0.01220	3.29%
Zn 213.857†	15788.6	1.836	mg/L	0.0040	1.836	mg/L	0.0040	0.22%
As 193.696†	-37.3	0.03164	mg/L	0.001583	0.03164	mg/L	0.001583	5.00%

Sequence No.: 110
Sample ID: 1310054-12
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 27
Date Collected: 11/12/2013 2:56:18 AM
Data Type: Reprocessed on 11/12/2013 9:50:51 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-12

Analyte	Back Pressure	Flow
All	143.0 kPa	0.56 L/min

Mean Data: 1310054-12

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	226233.7	102.3	%	0.37				0.36%
Y Axial	2609097.7	101.1	%	1.17				1.16%
Al 308.215†	178044.5	94.37	mg/L	0.423	94.37	mg/L	0.423	0.45%
Sb 206.836†	31.5	-0.00144	mg/L	0.000827	-0.00144	mg/L	0.000827	57.56%
As 188.979†	22.9	0.04812	mg/L	0.000857	0.04812	mg/L	0.000857	1.78%
Ba 233.527†	14148.6	1.305	mg/L	0.0053	1.305	mg/L	0.0053	0.41%
Be 313.107†	726.2	0.006385	mg/L	0.0000822	0.006385	mg/L	0.0000822	1.29%
B 249.677†	-105.0	0.03326	mg/L	0.000026	0.03326	mg/L	0.000026	0.08%
Cd 226.502†	1339.4	0.00011	mg/L	0.000225	0.00011	mg/L	0.000225	199.10%
Ca 315.887†	536558.3	68.09	mg/L	0.402	68.09	mg/L	0.402	0.59%
Cr 205.560†	5460.8	0.4108	mg/L	0.00506	0.4108	mg/L	0.00506	1.23%
Co 228.616†	581.5	0.09429	mg/L	0.001057	0.09429	mg/L	0.001057	1.12%
Cu 324.752†	3866.1	0.1959	mg/L	0.00054	0.1959	mg/L	0.00054	0.27%
Fe 273.955†	460612.5	262.9	mg/L	0.94	262.9	mg/L	0.94	0.36%
Pb 220.353†	1462.3	0.1582	mg/L	0.00176	0.1582	mg/L	0.00176	1.11%
Mg 279.077†	48818.3	46.21	mg/L	0.128	46.21	mg/L	0.128	0.28%
Mn 260.568†	216325.0	5.287	mg/L	0.0230	5.287	mg/L	0.0230	0.44%
Mo 202.031†	59.7	0.00735	mg/L	0.000153	0.00735	mg/L	0.000153	2.08%
Ni 231.604†	6831.6	0.2340	mg/L	0.00243	0.2340	mg/L	0.00243	1.04%
K 766.490†	3059.0	15.43	mg/L	0.093	15.43	mg/L	0.093	0.61%
Se 196.026†	-88.8	-0.03265	mg/L	0.005340	-0.03265	mg/L	0.005340	16.35%
Si 251.611†	11161.0	9.001	mg/L	0.0854	9.001	mg/L	0.0854	0.95%
Ag 328.068†	-96.6	0.00287	mg/L	0.000280	0.00287	mg/L	0.000280	9.74%
Na 589.592†	3860.3	1.601	mg/L	0.0019	1.601	mg/L	0.0019	0.12%
Sr 421.552†	263759.0	0.6744	mg/L	0.00840	0.6744	mg/L	0.00840	1.25%
Tl 190.801†	-165.8	-0.02240	mg/L	0.002633	-0.02240	mg/L	0.002633	11.76%
Sn 189.927†	-272.6	-0.1936	mg/L	0.00594	-0.1936	mg/L	0.00594	3.07%
Ti 334.940†	562030.8	12.60	mg/L	0.064	12.60	mg/L	0.064	0.50%
V 292.402†	58569.4	0.6533	mg/L	0.00522	0.6533	mg/L	0.00522	0.80%
Zn 213.857†	4877.9	0.5661	mg/L	0.00261	0.5661	mg/L	0.00261	0.46%
As 193.696†	-79.9	0.00179	mg/L	0.003276	0.00179	mg/L	0.003276	182.89%

Sequence No.: 111
Sample ID: S13K066-CCVA
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 138
Date Collected: 11/12/2013 3:02:23 AM
Data Type: Reprocessed on 11/12/2013 9:50:53 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parametere: S13K066-CCVA

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

Fe out

Mean Data: S13K066-CCVA

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	228589.1	103.4	%	0.56				0.55%
Y Axial	2616930.1	101.4	%	0.88				0.87%
Al 308.215†	3886.7	1.991	mg/L	0.0265	1.991	mg/L	0.0265	1.33%
Sb 206.836†	5513.1	2.114	mg/L	0.0279	2.114	mg/L	0.0279	1.32%
As 188.979†	3729.2	2.193	mg/L	0.0305	2.193	mg/L	0.0305	1.39%
Ba 233.527†	21473.7	1.981	mg/L	0.0270	1.981	mg/L	0.0270	1.36%
Be 313.107†	240251.6	1.970	mg/L	0.0026	1.970	mg/L	0.0026	0.13%
B 249.677†	5047.4	1.972	mg/L	0.0183	1.972	mg/L	0.0183	0.93%
Cd 226.502†	101668.1	2.007	mg/L	0.0034	2.007	mg/L	0.0034	0.17%
Ca 315.887†	15653.7	1.986	mg/L	0.0225	1.986	mg/L	0.0225	1.13%
Cr 205.560†	28166.3	2.118	mg/L	0.0295	2.118	mg/L	0.0295	1.39%
Co 228.616†	10025.0	1.977	mg/L	0.0243	1.977	mg/L	0.0243	1.23%
Cu 324.752†	41582.8	1.931	mg/L	0.0203	1.931	mg/L	0.0203	1.05%
Fe 273.955†	3969.3	2.265	mg/L	0.0178	2.265	mg/L	0.0178	0.79%
Pb 220.353†	15543.4	2.099	mg/L	0.0296	2.099	mg/L	0.0296	1.41%
Mg 279.077†	2135.7	2.022	mg/L	0.0288	2.022	mg/L	0.0288	1.43%
Mn 260.568†	85532.8	2.089	mg/L	0.0114	2.089	mg/L	0.0114	0.55%
Mo 202.031†	17091.9	2.103	mg/L	0.0264	2.103	mg/L	0.0264	1.26%
Ni 231.604†	63250.7	2.172	mg/L	0.0035	2.172	mg/L	0.0035	0.16%
K 766.490†	1981.5	9.996	mg/L	0.2301	9.996	mg/L	0.2301	2.30%
Se 196.026†	1537.6	2.029	mg/L	0.0209	2.029	mg/L	0.0209	1.03%
Si 251.611†	10587.9	8.508	mg/L	0.1471	8.508	mg/L	0.1471	1.73%
Ag 328.068†	81653.9	0.5238	mg/L	0.00174	0.5238	mg/L	0.00174	0.33%
Na 589.592†	4890.2	2.028	mg/L	0.0190	2.028	mg/L	0.0190	0.94%
Sr 421.552†	793371.5	2.028	mg/L	0.0199	2.028	mg/L	0.0199	0.98%
Tl 190.801†	3514.0	2.089	mg/L	0.0197	2.089	mg/L	0.0197	0.94%
Sn 189.927†	7256.2	5.154	mg/L	0.0726	5.154	mg/L	0.0726	1.41%
Ti 334.940†	99535.9	2.231	mg/L	0.0070	2.231	mg/L	0.0070	0.32%
V 292.402†	172060.6	2.032	mg/L	0.0047	2.032	mg/L	0.0047	0.23%
Zn 213.857†	18416.7	2.131	mg/L	0.0249	2.131	mg/L	0.0249	1.17%
As 193.696†	2744.6	2.172	mg/L	0.0287	2.172	mg/L	0.0287	1.32%

Sequence No.: 112
Sample ID: S13K066-CCBA
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 143
Date Collected: 11/12/2013 3:09:46 AM
Data Type: Reprocessed on 11/12/2013 9:50:55 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parametere: S13K066-CCBA

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

Mean Data: S13K066-CCBA

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Calib Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Y Radial	224926.5	101.7	%	0.89				0.87%
Y Axial	2606679.6	101.0	%	0.40				0.40%
Al 308.215†	3.8	0.00204	mg/L	0.001085	0.00204	mg/L	0.001085	53.18%
Sb 206.836†	-5.9	-0.00226	mg/L	0.002372	-0.00226	mg/L	0.002372	104.85%
As 188.979†	-1.0	-0.00059	mg/L	0.002150	-0.00059	mg/L	0.002150	362.62%
Ba 233.527†	-1.7	-0.00015	mg/L	0.000293	-0.00015	mg/L	0.000293	190.50%
Be 313.107†	-2.8	-0.000023	mg/L	0.0001008	-0.000023	mg/L	0.0001008	439.99%
B 249.677†	28.8	0.01134	mg/L	0.001885	0.01134	mg/L	0.001885	16.61%
Cd 226.502†	9.4	0.00018	mg/L	0.000083	0.00018	mg/L	0.000083	45.20%
Ca 315.887†	56.4	0.00716	mg/L	0.003390	0.00716	mg/L	0.003390	47.36%
Cr 205.560†	-16.6	-0.00125	mg/L	0.000296	-0.00125	mg/L	0.000296	23.72%
Co 228.616†	-0.7	-0.00015	mg/L	0.000353	-0.00015	mg/L	0.000353	241.82%
Cu 324.752†	87.8	0.00407	mg/L	0.000922	0.00407	mg/L	0.000922	22.64%
Fe 273.955†	52.4	0.02989	mg/L	0.002209	0.02989	mg/L	0.002209	7.39%
Pb 220.353†	21.7	0.00294	mg/L	0.000929	0.00294	mg/L	0.000929	31.63%
Mg 279.077†	2.0	0.00192	mg/L	0.002797	0.00192	mg/L	0.002797	145.94%
Mn 260.568†	151.0	0.00369	mg/L	0.000133	0.00369	mg/L	0.000133	3.61%
Mo 202.031†	2.3	0.00028	mg/L	0.000274	0.00028	mg/L	0.000274	96.87%
Ni 231.604†	4.9	0.00017	mg/L	0.000193	0.00017	mg/L	0.000193	113.49%
K 766.490†	7.4	0.03758	mg/L	0.105965	0.03758	mg/L	0.105965	281.98%
Se 196.026†	-0.7	-0.00089	mg/L	0.004517	-0.00089	mg/L	0.004517	509.70%
Si 251.611†	26.4	0.02128	mg/L	0.008597	0.02128	mg/L	0.008597	40.41%
Ag 328.068†	170.5	0.00107	mg/L	0.000502	0.00107	mg/L	0.000502	47.11%
Na 589.592†	-97.9	-0.04059	mg/L	0.008425	-0.04059	mg/L	0.008425	20.76%
Sr 421.552†	40.2	0.00010	mg/L	0.000060	0.00010	mg/L	0.000060	58.16%
Tl 190.801†	-5.7	-0.00330	mg/L	0.001283	-0.00330	mg/L	0.001283	38.90%
Sn 189.927†	0.1	0.00007	mg/L	0.003108	0.00007	mg/L	0.003108	>999.9%
Ti 334.940†	-8.1	-0.00018	mg/L	0.000043	-0.00018	mg/L	0.000043	23.94%
V 292.402†	-10.5	-0.00012	mg/L	0.000250	-0.00012	mg/L	0.000250	209.84%
Zn 213.857†	20.5	0.00238	mg/L	0.000346	0.00238	mg/L	0.000346	14.55%
As 193.696†	-1.7	-0.00128	mg/L	0.002788	-0.00128	mg/L	0.002788	217.76%

Sequence No.: 113
Sample ID: S13K066-CRL4
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 5
Date Collected: 11/12/2013 3:16:01 AM
Data Type: Reprocessed on 11/12/2013 9:50:56 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K066-CRL4

Analyte	Back Pressure	Flow
All	144.0 kPa	0.56 L/min

Page

Mean Data: S13K066-CRL4

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	225752.9	102.1	%	0.23				0.22%
Y Axial	2619287.7	101.5	%	1.39				1.37%
Al 308.215†	1860.3	0.9849	mg/L	0.00779	0.9849	mg/L	0.00779	0.79%
Sb 206.836†	51.2	0.02022	mg/L	0.001242	0.02022	mg/L	0.001242	6.14%
As 188.979†	37.1	0.02177	mg/L	0.003130	0.02177	mg/L	0.003130	14.38%
Ba 233.527†	531.9	0.04904	mg/L	0.000701	0.04904	mg/L	0.000701	1.43%
Be 313.107†	125.3	0.001031	mg/L	0.0000409	0.001031	mg/L	0.0000409	3.97%
B 249.677†	257.5	0.1015	mg/L	0.00131	0.1015	mg/L	0.00131	1.29%
Cd 226.502†	264.0	0.00512	mg/L	0.000104	0.00512	mg/L	0.000104	2.02%
Ca 315.887†	7708.5	0.9782	mg/L	0.00021	0.9782	mg/L	0.00021	0.02%
Cr 205.560†	130.5	0.00979	mg/L	0.000388	0.00979	mg/L	0.000388	3.96%
Co 228.616†	96.4	0.01902	mg/L	0.000613	0.01902	mg/L	0.000613	3.22%
Cu 324.752†	860.3	0.03990	mg/L	0.000120	0.03990	mg/L	0.000120	0.30%
Fe 273.955†	1949.7	1.113	mg/L	0.0080	1.113	mg/L	0.0080	0.72%
Pb 220.353†	237.0	0.03160	mg/L	0.000831	0.03160	mg/L	0.000831	2.63%
Mg 279.077†	533.9	0.5054	mg/L	0.00197	0.5054	mg/L	0.00197	0.39%
Mn 260.568†	2234.6	0.05460	mg/L	0.000556	0.05460	mg/L	0.000556	1.02%
Mo 202.031†	421.3	0.05184	mg/L	0.001064	0.05184	mg/L	0.001064	2.05%
Ni 231.604†	1511.6	0.05193	mg/L	0.000984	0.05193	mg/L	0.000984	1.90%
K 766.490†	991.5	5.002	mg/L	0.1016	5.002	mg/L	0.1016	2.03%
Se 196.026†	16.7	0.02239	mg/L	0.003992	0.02239	mg/L	0.003992	17.83%
Si 251.611†	20.8	0.01602	mg/L	0.005792	0.01602	mg/L	0.005792	36.15%
Ag 328.068†	1776.0	0.01124	mg/L	0.000397	0.01124	mg/L	0.000397	3.53%
Na 589.592†	1103.4	0.4576	mg/L	0.00308	0.4576	mg/L	0.00308	0.67%
Sr 421.552†	2009.3	0.00514	mg/L	0.000080	0.00514	mg/L	0.000080	1.55%
Tl 190.801†	83.1	0.04940	mg/L	0.001243	0.04940	mg/L	0.001243	2.52%
Sn 189.927†	1.4	0.00102	mg/L	0.000141	0.00102	mg/L	0.000141	13.92%
Ti 334.940†	460.6	0.01032	mg/L	0.000393	0.01032	mg/L	0.000393	3.81%
V 292.402†	1640.2	0.01987	mg/L	0.000243	0.01987	mg/L	0.000243	1.22%
Zn 213.857†	749.9	0.08696	mg/L	0.000731	0.08696	mg/L	0.000731	0.84%
As 193.696†	24.3	0.01968	mg/L	0.002111	0.01968	mg/L	0.002111	10.73%

Method Name: 6010C_131109

Inst: Symbol, Wavelength, Name, and Function

Description :

Element	Wavelength nm	Name	Function
Al	308.221	Al 308.215	Analyte
Sb	206.839	Sb 206.836	Analyte
As	188.986	As 188.979	Analyte
Ba	233.527	Ba 233.527	Analyte
Be	313.109	Be 313.107	Analyte
B	249.683	B 249.677	Analyte
Cd	226.506	Cd 226.502	Analyte
Ca	315.891	Ca 315.887	Analyte
Cr	205.559	Cr 205.560	Analyte
Co	228.623	Co 228.616	Analyte
Cu	324.762	Cu 324.752	Analyte
Fe	273.961	Fe 273.955	Analyte
Pb	220.355	Pb 220.353	Analyte
Mg	279.078	Mg 279.077	Analyte
Mn	260.566	Mn 260.568	Analyte
Mo	202.032	Mo 202.031	Analyte
Ni	231.605	Ni 231.604	Analyte
K	766.500	K 766.490	Analyte
Se	196.028	Se 196.026	Analyte
Si	251.616	Si 251.611	Analyte
Ag	328.067	Ag 328.068	Analyte
Na	589.601	Na 589.592	Analyte
Sr	421.555	Sr 421.552	Analyte
Tl	190.796	Tl 190.801	Analyte
Sn	189.934	Sn 189.927	Analyte
Ti	334.944	Ti 334.940	Analyte
V	292.401	V 292.402	Analyte
Zn	213.856	Zn 213.857	Analyte
Y	371.028	Y Radial	Internal Standard
Y	371.029	Y Axial	Internal Standard
As	193.696	As 193.696	Analyte

Inst: Spectrometer, Read Time, Replicates

Spectral Profiling: No Resolution: Normal
Purge Gas Flow : Normal

Read Delay Time (sec) : 65

Replicates : 3
Read Time : Auto Min Time : 5.000 sec Max Time: 20.000 sec

Survey and Auto Integration Spectral Windows

Element	Wavelength (nm)	Survey Lower	Survey Upper	Auto Lower	Auto Upper
Al	308.221	308.122	308.320	308.122	308.320
Sb	206.839	206.775	206.908	206.775	206.908
As	188.986	188.921	189.042	188.921	189.042
Ba	233.527	233.402	233.609	233.402	233.609
Be	313.109	312.950	313.228	312.950	313.228
B	249.683	249.563	249.870	249.563	249.870

Method Name: 6010C_131109

Cd	226.506	226.432	226.633	226.432	226.633
Ca	315.891	315.790	315.993	315.790	315.993
Cr	205.559	205.489	205.621	205.489	205.621
Co	228.623	228.546	228.693	228.546	228.693
Cu	324.762	324.654	324.863	324.654	324.863
Fe	273.961	273.871	274.047	273.871	274.047
Pb	220.355	220.284	220.425	220.284	220.425
Mg	279.078	278.994	279.173	278.994	279.173
Mn	260.566	260.489	260.657	260.489	260.657
Mo	202.032	201.968	202.098	201.968	202.098
Ni	231.605	231.533	231.682	231.533	231.682
K	766.500	766.173	766.855	766.173	766.855
Se	196.028	195.966	196.092	195.966	196.092
Si	251.616	251.535	251.697	251.535	251.697
Ag	328.067	327.967	328.179	327.967	328.179
Na	589.601	589.300	589.925	589.300	589.925
Sr	421.555	421.351	421.782	421.351	421.782
Tl	190.796	190.743	190.865	190.743	190.865
Sn	189.934	189.864	190.032	189.864	190.032
Ti	334.944	334.809	335.189	334.809	335.189
V	292.401	292.313	292.502	292.313	292.502
Zn	213.856	213.791	213.928	213.791	213.928
Y	371.028	370.915	371.154	370.915	371.154
Y	371.029	370.915	371.154	370.915	371.154
As	193.696	193.646	193.770	193.646	193.770

Sampler: Plasma Parameters

Source Equilibration Delay : 15 sec
Plasma Aerosol Type : Wet
Nebulizer Start-up Conditions: Instant

Plasma Params: Variable

F'n	Analyte	Plas L/min	Aux L/min	Neb L/min	Power Watts	View Dist	Plasma View
A	Al 308.215	15	0.2	0.6	1500	15.0	Radial
A	Sb 206.836	15	0.2	0.6	1500	15.0	Axial
A	As 188.979	15	0.2	0.6	1500	15.0	Axial
A	Ba 233.527	15	0.2	0.6	1500	15.0	Radial
A	Be 313.107	15	0.2	0.6	1500	15.0	Radial
A	B 249.677	15	0.2	0.6	1500	15.0	Radial
A	Cd 226.502	15	0.2	0.6	1500	15.0	Axial
A	Ca 315.887	15	0.2	0.6	1500	15.0	Radial
A	Cr 205.560	15	0.2	0.6	1500	15.0	Axial
A	Co 228.616	15	0.2	0.6	1500	15.0	Radial
A	Cu 324.752	15	0.2	0.6	1500	15.0	Radial
A	Fe 273.955	15	0.2	0.6	1500	15.0	Radial
A	Pb 220.353	15	0.2	0.6	1500	15.0	Axial
A	Mg 279.077	15	0.2	0.6	1500	15.0	Radial
A	Mn 260.568	15	0.2	0.6	1500	15.0	Radial
A	Mo 202.031	15	0.2	0.6	1500	15.0	Axial
A	Ni 231.604	15	0.2	0.6	1500	15.0	Axial
A	K 766.490	15	0.2	0.6	1500	15.0	Radial
A	Se 196.026	15	0.2	0.6	1500	15.0	Axial
A	Si 251.611	15	0.2	0.6	1500	15.0	Radial
A	Ag 328.068	15	0.2	0.6	1500	15.0	Axial
A	Na 589.592	15	0.2	0.6	1500	15.0	Radial
A	Sr 421.552	15	0.2	0.6	1500	15.0	Radial
A	Tl 190.801	15	0.2	0.6	1500	15.0	Axial

Method Name: 6010C_131109

A	Sn 189.927	15	0.2	0.6	1500	15.0	Axial
A	Ti 334.940	15	0.2	0.6	1500	15.0	Radial
A	V 292.402	15	0.2	0.6	1500	15.0	Axial
A	Zn 213.857	15	0.2	0.6	1500	15.0	Radial
IS	Y Radial	15	0.2	0.6	1500	15.0	Radial
IS	Y Axial	15	0.2	0.6	1500	15.0	Axial
A	As 193.696	15	0.2	0.6	1500	15.0	Axial

Sampler: Peristatic Pump Parameters

Sample Flow Rate : 1.60 mL/min
Sample Flush Time(sec) : 0

Sampler: Wash Parameters

Wash Frequency : After every sample + extra time if sample concentrations exceed limits.
Wash Location : 0
Wash Rate(mL/min) : 2.00
Wash Time (sec) : 120

Analyte	Calibration Units	Concentration
Al 308.215	mg/L	
Sb 206.836	mg/L	
As 188.979	mg/L	5
Ba 233.527	mg/L	
Be 313.107	mg/L	1.5
B 249.677	mg/L	
Cd 226.502	mg/L	
Ca 315.887	mg/L	
Cr 205.560	mg/L	
Co 228.616	mg/L	
Cu 324.752	mg/L	
Fe 273.955	mg/L	
Pb 220.353	mg/L	
Mg 279.077	mg/L	
Mn 260.568	mg/L	
Mo 202.031	mg/L	
Ni 231.604	mg/L	
K 766.490	mg/L	
Se 196.026	mg/L	
Si 251.611	mg/L	
Ag 328.068	mg/L	
Na 589.592	mg/L	
Sr 421.552	mg/L	
Tl 190.801	mg/L	
Sn 189.927	mg/L	
Ti 334.940	mg/L	
V 292.402	mg/L	
Zn 213.857	mg/L	
As 193.696	mg/L	

Additional Wash Time (sec) : 120

Process: Peak Algorithms and Points/Peak

Method Name: 6010C_131109

F'n	Analyte	Peak Algorithm	Pts/Peak
A	Al 308.215	Peak Area	2
A	Sb 206.836	Peak Area	2
A	As 188.979	Peak Area	2
A	Ba 233.527	Peak Area	1
A	Be 313.107	Peak Area	2
A	B 249.677	Peak Area	2
A	Cd 226.502	Peak Area	2
A	Ca 315.887	Peak Area	2
A	Cr 205.560	Peak Area	2
A	Co 228.616	Peak Area	2
A	Cu 324.752	Peak Area	2
A	Fe 273.955	Peak Area	1
A	Pb 220.353	Peak Area	2
A	Mg 279.077	Peak Area	1
A	Mn 260.568	Peak Area	2
A	Mo 202.031	Peak Area	2
A	Ni 231.604	Peak Area	2
A	K 766.490	Peak Area	3
A	Se 196.026	Peak Area	2
A	Si 251.611	Peak Area	2
A	Ag 328.068	Peak Area	2
A	Na 589.592	Peak Area	2
A	Sr 421.552	Peak Area	1
A	Tl 190.801	Peak Area	2
A	Sn 189.927	Peak Area	2
A	Ti 334.940	Peak Area	1
A	V 292.402	Peak Area	2
A	Zn 213.857	Peak Area	2
IS	Y Radial	Peak Area	2
IS	Y Axial	Peak Area	2
A	As 193.696	Peak Area	2

Process: Spectral Overlap and Background Correction

F'n	Analyte	Overlap Correction	Background Correction	BGC1	BGC2
A	Al 308.215	IEC	1-Point	0.057	
A	Sb 206.836	IEC	1-Point	0.032	
A	As 188.979	IEC	2-Point	-0.017	0.015
A	Ba 233.527	IEC	2-Point	-0.021	0.021
A	Be 313.107	IEC	1-Point	0.059	
A	B 249.677	IEC	1-Point	0.032	
A	Cd 226.502	IEC	1-Point	0.028	
A	Ca 315.887	None	1-Point	0.029	
A	Cr 205.560	IEC	1-Point	0.023	
A	Co 228.616	IEC	1-Point	-0.021	
A	Cu 324.752	IEC	1-Point	0.040	
A	Fe 273.955	None	2-Point	-0.025	0.036
A	Pb 220.353	IEC	1-Point	-0.035	
A	Mg 279.077	None	1-Point	0.026	
A	Mn 260.568	IEC	1-Point	0.053	
A	Mo 202.031	None	1-Point	-0.019	
A	Ni 231.604	IEC	1-Point	0.034	
A	K 766.490	None	2-Point	-0.102	0.096
A	Se 196.026	IEC	2-Point	-0.018	0.019
A	Si 251.611	IEC	2-Point	-0.023	0.023
A	Ag 328.068	IEC	1-Point	0.028	
A	Na 589.592	None	2-Point	-0.125	0.123

Method Name: 6010C_131109

A	Sr 421.552	None	2-Point	-0.086	0.086
A	Tl 190.801	IEC	1-Point	0.034	
A	Sn 189.927	None	1-Point	-0.017	
A	Ti 334.940	IEC	1-Point	-0.081	
A	V 292.402	IEC	1-Point	0.030	
A	Zn 213.857	IEC	1-Point	0.028	
IS	Y Radial	IEC	2-Point	-0.034	0.034
IS	Y Axial	IEC	2-Point	-0.034	0.034
A	As 193.696	IEC	2-Point	-0.018	0.018

IEC Table : 6010IEC110913A.iec MSF Table : None

Process: Assign Internal Standards

Do Calib Blanks contain internal standards: Yes
Report apparent concentrations for internal standards: As a Percent

Analyte	Internal Standard	Conc	Units
Al 308.215	Y Radial		
Sb 206.836	Y Axial		
As 188.979	Y Axial		
Ba 233.527	Y Radial		
Be 313.107	Y Radial		
B 249.677	Y Radial		
Cd 226.502	Y Axial		
Ca 315.887	Y Radial		
Cr 205.560	Y Axial		
Co 228.616	Y Radial		
Cu 324.752	Y Radial		
Fe 273.955	Y Radial		
Pb 220.353	Y Axial		
Mg 279.077	Y Radial		
Mn 260.568	Y Radial		
Mo 202.031	Y Axial		
Ni 231.604	Y Axial		
K 766.490	Y Radial		
Se 196.026	Y Axial		
Si 251.611	Y Radial		
Ag 328.068	Y Axial		
Na 589.592	Y Radial		
Sr 421.552	Y Radial		
Tl 190.801	Y Axial		
Sn 189.927	Y Axial		
Ti 334.940	Y Radial		
V 292.402	Y Axial		
Zn 213.857	Y Radial		
As 193.696	Y Axial		

Process: Assign Internal Standards Check

Perform internal standards check: Yes

Analyte	Enabled/Disabled	Check Min(%)	Check Max(%)
Y Radial	Enabled	60	125
Y Axial	Enabled	60	125

Action for internal standards failure: Repeat 0 time(s), then Continue

Method Name: 6010C_131109

Calib: Blank and Standard IDs and Autosampler Locations

		ID	A/S Location
Calib Blank	1	S13K066-CAL1	2

		ID	A/S Location
Calib Std	1	S13K066-CAL2	9
Calib Std	2	S13K066-CAL3	10
Calib Std	3	S13K066-CAL4	11
Calib Std	4	S13K066-CAL5	12
Calib Std	5	S13K066-CAL6	13
Calib Std	6	S13K066-CAL7	14

Calib: Calibration Standard Units and Concentrations

Analyte	Calib Units	S13K066-CA L2	S13K066-CA L3	S13K066-CA L4	S13K066-CA L5
Al 308.215	mg/L		10.000		
Sb 206.836	mg/L				5.000
As 188.979	mg/L				10.000
Ba 233.527	mg/L				1.000
Be 313.107	mg/L	1.000			
B 249.677	mg/L				2.000
Cd 226.502	mg/L				2.000
Ca 315.887	mg/L				10.000
Cr 205.560	mg/L		5.000		
Co 228.616	mg/L			2.000	
Cu 324.752	mg/L				2.000
Fe 273.955	mg/L	10.000			
Pb 220.353	mg/L	10.000			
Mg 279.077	mg/L	10.000			
Mn 260.568	mg/L				2.000
Mo 202.031	mg/L				
Ni 231.604	mg/L	2.000			
K 766.490	mg/L				
Se 196.026	mg/L				5.000
Si 251.611	mg/L		10.000		
Ag 328.068	mg/L				0.500
Na 589.592	mg/L				
Sr 421.552	mg/L				
Tl 190.801	mg/L	5.000			
Sn 189.927	mg/L		4.000		
Ti 334.940	mg/L		10.000		
V 292.402	mg/L			2.000	
Zn 213.857	mg/L				
As 193.696	mg/L				10.000

Analyte	Calib Units	S13K066-CA L6	S13K066-CA L7
Al 308.215	mg/L		
Sb 206.836	mg/L		

Method Name: 6010C_131109

As 188.979	mg/L		
Ba 233.527	mg/L		
Be 313.107	mg/L		
B 249.677	mg/L		
Cd 226.502	mg/L		
Ca 315.887	mg/L		
Cr 205.560	mg/L		
Co 228.616	mg/L		
Cu 324.752	mg/L		
Fe 273.955	mg/L		
Pb 220.353	mg/L		
Mg 279.077	mg/L		
Mn 260.568	mg/L		
Mo 202.031	mg/L	10.000	
Ni 231.604	mg/L		
K 766.490	mg/L	20.000	
Se 196.026	mg/L		
Si 251.611	mg/L		
Ag 328.068	mg/L		
Na 589.592	mg/L	10.000	
Sr 421.552	mg/L	1.000	
Tl 190.801	mg/L		
Sn 189.927	mg/L		
Ti 334.940	mg/L		
V 292.402	mg/L		
Zn 213.857	mg/L		5.000
As 193.696	mg/L		

Calib: Calibration and Reagent Blank Usage

F'n	Element	Use Calib Blank	Subtract Reagent
A	Al 308.215	S13K066-CAL1	n/a
A	Sb 206.836	S13K066-CAL1	n/a
A	As 188.979	S13K066-CAL1	n/a
A	Ba 233.527	S13K066-CAL1	n/a
A	Be 313.107	S13K066-CAL1	n/a
A	B 249.677	S13K066-CAL1	n/a
A	Cd 226.502	S13K066-CAL1	n/a
A	Ca 315.887	S13K066-CAL1	n/a
A	Cr 205.560	S13K066-CAL1	n/a
A	Co 228.616	S13K066-CAL1	n/a
A	Cu 324.752	S13K066-CAL1	n/a
A	Fe 273.955	S13K066-CAL1	n/a
A	Pb 220.353	S13K066-CAL1	n/a
A	Mg 279.077	S13K066-CAL1	n/a
A	Mn 260.568	S13K066-CAL1	n/a
A	Mo 202.031	S13K066-CAL1	n/a
A	Ni 231.604	S13K066-CAL1	n/a
A	K 766.490	S13K066-CAL1	n/a
A	Se 196.026	S13K066-CAL1	n/a
A	Si 251.611	S13K066-CAL1	n/a
A	Ag 328.068	S13K066-CAL1	n/a
A	Na 589.592	S13K066-CAL1	n/a
A	Sr 421.552	S13K066-CAL1	n/a
A	Tl 190.801	S13K066-CAL1	n/a
A	Sn 189.927	S13K066-CAL1	n/a

Method Name: 6010C_131109

A	Ti 334.940	S13K066-CAL1	n/a
A	V 292.402	S13K066-CAL1	n/a
A	Zn 213.857	S13K066-CAL1	n/a
IS	Y Radial	None	n/a
IS	Y Axial	None	n/a
A	As 193.696	S13K066-CAL1	n/a

Calib: Calibration Equation and Sample Units

F'n	Element	Calibration Equation	Sample Units	Max Decimal Places	Max Signif. Figures
A	Al 308.215	Lin, Calc Int	mg/L	5	4
A	Sb 206.836	Lin, Calc Int	mg/L	5	4
A	As 188.979	Lin, Calc Int	mg/L	5	4
A	Ba 233.527	Lin, Calc Int	mg/L	5	4
A	Be 313.107	Lin, Calc Int	mg/L	6	4
A	B 249.677	Lin, Calc Int	mg/L	5	4
A	Cd 226.502	Lin, Calc Int	mg/L	5	4
A	Ca 315.887	Lin, Calc Int	mg/L	5	4
A	Cr 205.560	Lin, Calc Int	mg/L	5	4
A	Co 228.616	Lin, Calc Int	mg/L	5	4
A	Cu 324.752	Lin, Calc Int	mg/L	5	4
A	Fe 273.955	Lin, Calc Int	mg/L	5	4
A	Pb 220.353	Lin, Calc Int	mg/L	5	4
A	Mg 279.077	Lin, Calc Int	mg/L	5	4
A	Mn 260.568	Lin, Calc Int	mg/L	5	4
A	Mo 202.031	Lin, Calc Int	mg/L	5	4
A	Ni 231.604	Lin, Calc Int	mg/L	5	4
A	K 766.490	Lin, Calc Int	mg/L	5	4
A	Se 196.026	Lin, Calc Int	mg/L	5	4
A	Si 251.611	Lin, Calc Int	mg/L	5	4
A	Ag 328.068	Lin, Calc Int	mg/L	5	4
A	Na 589.592	Lin, Calc Int	mg/L	5	4
A	Sr 421.552	Lin, Calc Int	mg/L	5	4
A	Tl 190.801	Lin, Calc Int	mg/L	5	4
A	Sn 189.927	Lin, Calc Int	mg/L	5	4
A	Ti 334.940	Lin, Calc Int	mg/L	5	4
A	V 292.402	Lin, Calc Int	mg/L	5	4
A	Zn 213.857	Lin, Calc Int	mg/L	5	4
IS	Y Radial		mg/L	3	4
IS	Y Axial		mg/L	3	4
A	As 193.696	Lin, Calc Int	mg/L	5	4

Calib: Initial Calibration Options

When opening this method manually :
Clear calibration curve(s) and construct a new calib curve.

When using this method in a multimethod sequence:
Start by constructing new calibration curves.

Calib : Multi Line Calibration

Not Enabled

Method Name: 6010C_131109

Analyte Concentrations Added to Recovery Check Samples

Concentration Units : Sample

Analyte	Conc Units	Recovery Set1	Recovery Set2	Recovery Set3	Recovery Set4	Recovery Set5	Recovery Set6
Al 308.215	mg/L						
Sb 206.836	mg/L						
As 188.979	mg/L						
Ba 233.527	mg/L						
Be 313.107	mg/L						
B 249.677	mg/L						
Cd 226.502	mg/L						
Ca 315.887	mg/L						
Cr 205.560	mg/L						
Co 228.616	mg/L						
Cu 324.752	mg/L						
Fe 273.955	mg/L						
Pb 220.353	mg/L						
Mg 279.077	mg/L						
Mn 260.568	mg/L						
Mo 202.031	mg/L						
Ni 231.604	mg/L						
K 766.490	mg/L						
Se 196.026	mg/L						
Si 251.611	mg/L						
Ag 328.068	mg/L						
Na 589.592	mg/L						
Sr 421.552	mg/L						
Tl 190.801	mg/L						
Sn 189.927	mg/L						
Ti 334.940	mg/L						
V 292.402	mg/L						
Zn 213.857	mg/L						
As 193.696	mg/L						

QC Sample Definition

QC	Sample ID	A/S Loc	Count as Sample	Subtract Reagent Blank

QC Sample Concentrations and Limits

Schedule for QC Analyses

QC	Sample ID	After Init Cal	After Recal	Periodic	Freq	At End

Periodic Timing of Analyses
  Frequency ... Variable

Method Name: 6010C_131109

Failure Actions for After-Calibration QC's

QC	Sample ID	Times to Retry QC	When All Tries Fail	Additional Message

Failure Actions for Periodic QC's

QC	Sample ID	Times to Retry QC	When All Tries Fail	Additional Message

Failure Actions for At-End QC's

QC	Sample ID	Times to Retry QC	When All Tries Fail	Additional Message

Maximum Retries After QC Failure

After a group of standards or unknowns has been reanalyzed 1 times, then Continue

---

Options

Include in Results Display and Printed Log:

Headers:
 * Analytical Header
 * Method Header (Expanded)
 * Sample Header
 * Start each sample on a new page

Sample Data Items:
   Replicate Data
 * Means and Statistics
   Auto Integration Report

Summary Items:
 * Analysis List
   Matrix Test Reports
 * Calibration Summary

Save with Results:
 * Spectral Data

Remarks

IEC File Last Saved: 11/12/2013 9:46:04 AM
Printed On: 11/12/2013 12:09:16 PM

Results Data Set Name: 1131109-
Method Name: 6010C_13110
Results Library: C:\pe\ins_pe5300\Results\Results.md

	Analytes	Interfering Analytes			
		Al 308.215	Co 228.616	Cr 205.560	Fe 273.955
1	**Ag 328.068**	0	0	0	0
2	**Al 308.215**	n/a	-5.43629	0	0
3	**As 188.979**	0	0	-8.19106	-0.11929
4	**As 193.696**	-0.198408	0	0.555643	-0.072401
5	**B 249.677**	0	2.35065	0	-0.296145
6	**Ba 233.527**	0	0	0	0
7	**Be 313.107**	0	0	-0.117632	-0.00290739
9	**Cd 226.502**	0	0	0	0.0912067
10	**Co 228.616**	0	n/a	0	0
11	**Cr 205.560**	0	0	n/a	0
12	**Cu 324.752**	0	0	0	0
16	**Mn 260.568**	0	0.916832	0	0
19	**Ni 231.604**	0	0.554224	0	0
20	**Pb 220.353**	0.417139	0	0	0
21	**Sb 206.836**	0	0	17.2862	0
22	**Se 196.026**	0.0657948	0.296401	0	-0.344512
23	**Si 251.611**	0	0	0	0
26	**Tl 334.940**	0	0	0.170486	0
27	**Tl 190.801**	0	1.43358	0	0
28	**V 292.402**	0	0	0	0.0620743
29	**Y Axial**	508.775	2188.04	2057.17	508.106
30	**Y Radial**	513.445	2217.01	2094.17	519.903
31	**Zn 213.857**	0	0	0	0

IEC File Last Saved: 11/12/2013 9:46:04 AM
Printed On: 11/12/2013 12:09:16 PM

Results Data Set Name: 1131109-
Method Name: 6010C_13110
Results Library: C:\pe\ins_pe5300\Results\Results.md

Interfering Analytes

	Analytes	Mn 260.568	Mo 202.031	Ni 231.604	Ti 334.940
1	**Ag 328.068**	0.144983	-0.222503	0	0
2	**Al 308.215**	-2.66126	26.0545	0	1.9317
3	**As 188.979**	0	3.06093	0	0
4	**As 193.696**	-0.499201	-1.11548	-1.07905	0
5	**B 249.677**	0	0	0	0
6	**Ba 233.527**	0	0	0	0
7	**Be 313.107**	0	0	0	0.0303631
9	**Cd 226.502**	0	0.0583402	-0.364527	0.193913
10	**Co 228.616**	0	0	0	1.63514
11	**Cr 205.560**	0	0.162519	0.344787	0
12	**Cu 324.752**	0	0.528922	0	-1.29265
16	**Mn 260.568**	**n/a**	0	0	0
19	**Ni 231.604**	0	-3.03513	**n/a**	0
20	**Pb 220.353**	0	0	0	0
21	**Sb 206.836**	0	-10.2354	-1.96705	0.597234
22	**Se 196.026**	0.434826	0.399296	0	-0.268904
23	**Si 251.611**	0	14.7271	0	0
26	**Ti 334.940**	0	0	0	**n/a**
27	**Tl 190.801**	-8.93108	0	0	-2.29566
28	**V 292.402**	0	-17.4206	0	0.829027
29	**Y Axial**	2080.82	2165.99	2016.22	1849.18
30	**Y Radial**	2130.19	2152.19	2026.13	1886.31
31	**Zn 213.857**	0	0	4.88146	0

IEC File Last Saved: 11/12/2013 9:46:04 AM
Printed On: 11/12/2013 12:09:16 PM

Results Data Set Name: 1131109-
Method Name: 6010C_13110
Results Library: C:\pe\ins_pe5300\Results\Results.md

Interfering Analytes

	Analytes	V 292.402
1	**Ag 328.068**	-6.23993
2	**Al 308.215**	13.2944
3	**As 188.979**	0
4	**As 193.696**	-33.12
5	**B 249.677**	4.42556
6	**Ba 233.527**	-1.11563
7	**Be 313.107**	0
9	**Cd 226.502**	0
10	**Co 228.616**	0
11	**Cr 205.560**	0
12	**Cu 324.752**	-0.433873
16	**Mn 260.568**	0
19	**Ni 231.604**	0
20	**Pb 220.353**	0
21	**Sb 206.836**	-0.77058
22	**Se 196.026**	0.952299
23	**Si 251.611**	0
26	**Ti 334.940**	0
27	**Tl 190.801**	1.00282
28	**V 292.402**	**n/a**
29	**Y Axial**	2111.02
30	**Y Radial**	2133.09
31	**Zn 213.857**	0

SIC Acceptance Windows 1131109-1R

Analytes	Al SIC	Co SIC	Cr SIC	Fe SIC	Mn SIC	Mo SIC	Ni SIC	Ti SIC	V SIC
Ag 328.068	0	0	0	0	0	0	0	0	0.0312
Al 308.215	#VALUE!	0	0	0	0	0	0	0	0
As 188.979	0	0	0.040955	0.01	0	0.015305	0	0	0
As 193	0.01	0	0	0	0	0.01	0.01	0	0.1656
B 249.677	0	0	0	0	0	0	0	0	0
Ba 233.527	0	0	0	0	0	0	0	0	0
Be 313.107	0	0	0.000588	0	0	0	0	0	0
Ca 315.887	0	0	0	0	0	0	0	0	0
Cd 226.502	0	0	0	0.002736	0	0	0.0025	0	0
Co 228.616	0	#VALUE!	0	0	0	0	0	0.01	0
Cr 205.560	0	0	#VALUE!	0	0	0	0	0	0
Cu 324.752	0	0	0	0	0	0	0	0	0
Fe 273.955	0	0	0	#VALUE!	0	0	0	0	0
K 766.490	0	0	0	0	0	0	0	0	0
Mg 279.077	0	0	0	0	0	0	0	0	0
Mn 260.568	0	0	0	0	#VALUE!	0	0	0	0
Mo 202.031	0	0	0	0	0	#VALUE!	0	0	0
Na 589.592	0	0	0	0	0	0	0	0	0
Ni 231.604	0	0	0	0	0	0.025	#VALUE!	0	0
Pb 220.353	0.015	0	0	0	0	0	0	0	0
Sb 206.836	0	0	0.086431	0	0	0.051177	0.01	0	0
Se 196.026	0	0	0	0.010335	0	0	0	0	0
Si 251.611	0	0	0	0	0	0	0	0	0
Sn 189.927	0	0	0	0	0	0	0	0	0
Sr 421.552	0	0	0	0	0	0	0	0	0
Ti 334.940	0	0	0	0	0	0	0	0	0
Ti 190.801	0	0	0	0	0.044655	0	0	0	0
V 292.402	0	0	0	0	0	0.087103	0	0	#VALUE!
Zn 213.857	0	0	0	0	0	0	0.04	0	0

0998

ANALYSIS SEQUENCE

Instrument: PE5300

S13K076

Printed: 11/13/2013 11:03:51AM

Calibration ID: UNASSIGNED

Lab Number	Sample Name	Analysis	Container	Order	Position	STD ID	ISTD ID	Comments
S13K076-CAL1	Cal Standard	QC		1		1344049	1345077	
S13K076-CAL2	Cal Standard	QC		2		1329122	1345077	
S13K076-CCV1	Calibration Check	QC		3		1336101	1345077	
S13K076-CCB1	Calibration Blank	QC		4		1344049	1345077	
S13K076-CRL1	Instrument RL Check	QC		5		1333134	1345077	
1309090-01RE2	Bryant @ Stateline	Metals by 6010	A	6			1345077	Added 11/13/2013 by SC
1309090-02RE2	Bryant Stn 25	Metals by 6010	A	7			1345077	Added 11/13/2013 by SC
1309090-03RE2	Bryant at Doud	Metals by 6010	A	8			1345077	Added 11/13/2013 by SC
1309090-04RE2	Mountaineer Stn 24	Metals by 6010	A	9			1345077	Added 11/13/2013 by SC
1309090-05RE2	Leviathan Stn 23	Metals by 6010	A	10			1345077	Added 11/13/2013 by SC
B13J037-MS5	Matrix Spike	QC		11			1345077	
B13J037-MSD5	Matrix Spike Dup	QC		12			1345077	
1309090-06RE2	Aspen Stn 16	Metals by 6010	A	13			1345077	Added 11/13/2013 by SC
1309090-07RE2	Upper Mountaineer	Metals by 6010	A	14			1345077	Added 11/13/2013 by SC
S13K076-CCV2	Calibration Check	QC		15		1336101	1345077	
S13K076-CCB2	Calibration Blank	QC		16		1344049	1345077	
B13K007-BLK2	Blank	QC		17			1345077	
B13K007-SRM3	Reference	QC		18			1345077	
B13K007-SRM4	Reference	QC		19			1345077	
1310054-01RE1	AD-SP-NORTH	Metals by 6010	A	20			1345077	Added 11/13/2013 by SC
1310054-02RE1	AD-SP-WEST	Metals by 6010	A	21			1345077	Added 11/13/2013 by SC
1310054-03RE1	RFSP-COMP-01	Metals by 6010	A	22			1345077	Added 11/13/2013 by SC
1310054-04RE1	RFSP-COMP-02	Metals by 6010	A	23			1345077	Added 11/13/2013 by SC
1310054-05RE1	2:3-BLEND-SP-COMP-1	Metals by 6010	A	24			1345077	Added 11/13/2013 by SC
S13K076-CCV3	Calibration Check	QC		25		1336101	1345077	

6666

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

Instrument: PE5300

S13K076

Printed: 11/13/2013 11:03:51AM

Calibration ID: UNASSIGNED

Lab Number	Sample Name	Analysis	Container	Order	Position	STD ID	ISTD ID	Comments
S13K076-CCB3	Calibration Blank	QC		26		1344049	1345077	
S13K076-CRL2	Instrument RL Check	QC		27		1333134	1345077	

REVIEWED BY:
Name: dd
Date: 11-13-13

Samples Loaded By Date

Data Processed By Date

REVIEWED BY

Name: [illegible]

Date: 11-13-13

	1131110-2R	PE5300	SC
	Leviathan Mine	R13SB1	13269B
	Eureka Mine	R14512	13291B
Seq#	Sample ID	Date	Time
1	S13K076-CAL1	11/12/2013	4:07:47 PM 1344049
2	S13K076-CAL2	11/12/2013	4:10:27 PM 1329122
3	S13K076-CCV1	11/12/2013	4:14:03 PM 1336101
4	S13K076-CCB1	11/12/2013	4:17:51 PM 1344049
5	S13K076-CRL1	11/12/2013	4:22:26 PM 1331134
6	1309090-01RE2	11/12/2013	4:25:00 PM x2 4mL + 4mL
7	1309090-02RE2	11/12/2013	4:28:37 PM x2 4mL + 4mL
8	1309090-03RE2	11/12/2013	4:32:16 PM x2 4mL + 4mL
9	1309090-04RE2	11/12/2013	4:36:48 PM x2 4mL + 4mL
10	1309090-05RE2	11/12/2013	4:40:25 PM x2 4mL + 4mL
11	B13J037-MS~~2~~-5	11/12/2013	4:44:02 PM x2 4mL + 4mL
12	B13J037-MSD~~2~~-5	11/12/2013	4:47:39 PM x2 4mL + 4mL
13	1309090-06RE2	11/12/2013	4:51:16 PM x2 4mL + 4mL
14	1309090-07RE2	11/12/2013	4:54:55 PM x2 4mL + 4mL
15	S13K076-CCV2	11/12/2013	4:58:35 PM 1336101
16	S13K076-CCB2	11/12/2013	5:02:23 PM 1344049
17	B13K007-BLK2	11/12/2013	5:07:01 PM x2 4mL + 4mL
18	B13K007-SRM3	11/12/2013	5:11:41 PM x2 4mL + 4mL
19	B13K007-SRM4	11/12/2013	5:15:19 PM x2 4mL + 4mL
20	1310054-01RE1	11/12/2013	5:18:58 PM x2 4mL + 4mL
21	1310054-02RE1	11/12/2013	5:22:35 PM x2 4mL + 4mL
22	1310054-03RE1	11/12/2013	5:26:12 PM x2 4mL + 4mL
23	1310054-04RE1	11/12/2013	5:29:51 PM x2 4mL + 4mL
24	1310054-05RE1	11/12/2013	5:33:29 PM x2 4mL + 4mL
25	S13K076-CCV3	11/12/2013	5:37:06 PM 1336101
26	S13K076-CCB3	11/12/2013	5:40:55 PM 1344049
27	S13K076-CRL2	11/12/2013	5:45:31 PM 1331134

11/13/13 SC SC 11/13/13

==========

Reprocessing Begun
Logged In Analyst: ins_pe5300 Technique: ICP Continuous

Results Data Set (original): 1131110-2
Results Library (original): C:\pe\ins_pe5300\Results\Results.mdb
Results Data Set (reprocessed): 1131110-2R
Results Library (reprocessed): C:\pe\ins_pe5300\Rsults\Results.mdb

==========

Method Loaded
Method Name: 6010C_131112Fe Method Last Saved: 11/13/2013 10:38:59 AM
IEC File: MSF File:
Method Description:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Fe 273.955	Lin, Calc Int	Peak Area	Radial	Y Radial	No
Y Radial	Lin, Calc Int	Peak Area	Radial	n/a	n/a

==========

Sequence No.: 1 Autosampler Location: 2
Sample ID: S13K076-CAL1 Date Collected: 11/12/2013 4:07:47 PM
Analyst: Data Type: Reprocessed on 11/13/2013 10:39:08 AM
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:

Nebulizer Parameters: S13K076-CAL1

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K076-CAL1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y Radial	225395.1	1239.48	0.55%	100.00	%
Fe 273.955†	-14.3	5.03	35.09%	[0.00]	mg/L

Sequence No.: 2
Sample ID: S13K076-CAL2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 9
Date Collected: 11/12/2013 4:10:27 PM
Data Type: Reprocessed on 11/13/2013 10:39:09 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K076-CAL2

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K076-CAL2

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Y Radial	230893.7	3946.34	1.71%	102.4	%
Fe 273.955†	19164.6	398.93	2.08%	[10.000]	mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Fe 273.955	1	Lin, Calc Int	0.0	1916	0.00000	1.000000	

Sequence No.: 3
Sample ID: S13K076-CCV1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 1
Date Collected: 11/12/2013 4:14:03 PM
Data Type: Reprocessed on 11/13/2013 10:39:11 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K076-CCV1

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

P=51

Mean Data: S13K076-CCV1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	224851.9	99.76	%	1.024				1.03%
Fe 273.955†	4212.1	2.198	mg/L	0.0218	2.198	mg/L	0.0218	0.99%

Sequence No.: 4
Sample ID: S13K076-CCB1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 2
Date Collected: 11/12/2013 4:17:51 PM
Data Type: Reprocessed on 11/13/2013 10:39:12 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K076-CCB1

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K076-CCB1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Calib Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Y Radial	227908.1	101.1	%	0.62				0.61%
Fe 273.955†	1.5	0.00078	mg/L	0.001517	0.00078	mg/L	0.001517	194.18%

Sequence No.: 5
Sample ID: S13K076-CRL1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 5
Date Collected: 11/12/2013 4:22:26 PM
Data Type: Reprocessed on 11/13/2013 10:39:14 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K076-CRL1

Analyte	Back Pressure	Flow
All	138.0 kPa	0.56 L/min

Mean Data: S13K076-CRL1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	227853.6	101.1	%	0.43				0.43%
Fe 273.955†	1970.9	1.028	mg/L	0.0095	1.028	mg/L	0.0095	0.92%

Sequence No.: 15
Sample ID: S13K076-CCV2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 1
Date Collected: 11/12/2013 4:58:35 PM
Data Type: Reprocessed on 11/13/2013 10:39:27 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K076-CCV2

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

/ Pco

Mean Data: S13K076-CCV2

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	228073.7	101.2	%	0.85				0.84%
Fe 273.955†	4197.7	2.190	mg/L	0.0448	2.190	mg/L	0.0448	2.05%

Sequence No.: 16
Sample ID: S13K076-CCB2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 2
Date Collected: 11/12/2013 5:02:23 PM
Data Type: Reprocssed on 11/13/2013 10:39:29 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K076-CCB2

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

Mean Data: S13K076-CCB2

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Calib Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Y Radial	230924.0	102.5	%	1.19				1.16%
Fe 273.955†	3.4	0.00175	mg/L	0.001649	0.00175	mg/L	0.001649	94.03%

Sequence No.: 17
Sample ID: B13K007-BLK2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 47
Date Collected: 11/12/2013 5:07:01 PM
Data Type: Reprocessed on 11/13/2013 10:39:31 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: B13K007-BLK2

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

x2
4ml + 4ml

Mean Data: B13K007-BLK2

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	230354.7	102.2	%	1.33				1.31%
Fe 273.955†	16.6	0.00866	mg/L	0.001826	0.00866	mg/L	0.001826	21.08%

Ssquence No.: 18
Sample ID: B13K007-SRM3
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 48
Date Collected: 11/12/2013 5:11:41 PM
Data Type: Reprocessed on 11/13/2013 10:39:32 AM
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: B13K007-SRM3

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

Mean Data: B13K007-SRM3

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	213909.2	94.90	%	0.182				0.19%
Fe 273.955†	139673.5	72.88	mg/L	0.259	72.88	mg/L	0.259	0.35%

Sequence No.: 19
Sample ID: B13K007-SRM4
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 49
Date Collected: 11/12/2013 5:15:19 PM
Data Type: Reprocessed on 11/13/2013 10:39:35 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: B13K007-SRM4

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

x 2

4ul + 4ul

Mean Data: B13K007-SRM4

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	215673.0	95.69	%	0.557				0.58%
Fe 273.955†	132554.7	69.17	mg/L	+ 0.375	69.17	mg/L	0.375	0.54%

not needed / not reported
re-shot of SRM2 that was not
reported and analyzed only
for check

[illegible] 11-13-13

Sequence No.: 20
Sample ID: 1310054-01RE1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 50
Date Collected: 11/12/2013 5:18:58 PM
Data Type: Reprocessed on 11/13/2013 10:39:36 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-01RE1

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

>1

4ml +4ml

Mean Data: 1310054-01RE1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	236383.7	104.9	%	0.21				0.20%
Fe 273.955†	534289.3	278.8	mg/L	0.56	278.8	mg/L	0.56	0.20%

Sequence No.: 21
Sample ID: 1310054-02RE1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 51
Date Collected: 11/12/2013 5:22:35 PM
Data Type: Reprocessed on 11/13/2013 10:39:38 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-02RE1

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

x2
4ml + 4ml

Mean Data: 1310054-02RE1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	239183.4	106.1	%	0.26				0.25%
Fe 273.955†	523043.7	272.9	mg/L	1.07	272.9	mg/L	1.07	0.39%

Sequence No.: 22
Sample ID: 1310054-03RE1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 52
Date Collected: 11/12/2013 5:26:12 PM
Data Type: Reprocessed on 11/13/2013 10:39:40 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-03RE1

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

x2

4ml + 4ml

Mean Data: 1310054-03RE1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	234178.9	103.9	%	0.13				0.12%
Fe 273.955†	730421.3	381.1	mg/L	1.88	381.1	mg/L	1.88	0.49%

Sequence No.: 23
Sample ID: 1310054-04RE1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 53
Date Collected: 11/12/2013 5:29:51 PM
Data Type: Reprocessed on 11/13/2013 10:39:42 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-04RE1

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

Mean Data: 1310054-04RE1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	230902.8	102.4	%	0.44				0.43%
Fe 273.955†	644504.5	336.3	mg/L	0.31	336.3	mg/L	0.31	0.09%

Sequence No.: 24
Sample ID: 1310054-05RE1
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 54
Date Collected: 11/12/2013 5:33:29 PM
Data Type: Reprocessed on 11/13/2013 10:39:43 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 1310054-05RE1

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

x2
4ml + 4ml

Mean Data: 1310054-05RE1

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	231244.5	102.6	%	2.78				2.71%
Fe 273.955†	466255.5	243.3	mg/L	9.33	243.3	mg/L	9.33	3.83%

Sequence No.: 25
Sample ID: S13K076-CCV3
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 1
Date Collected: 11/12/2013 5:37:06 PM
Data Type: Reprocessed on 11/13/2013 10:39:46 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K076-CCV3

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

Pass

Mean Data: S13K076-CCV3

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	231354.7	102.6	%	0.38				0.37%
Fe 273.955†	4164.8	2.173	mg/L	0.0299	2.173	mg/L	0.0299	1.37%

Sequence No.: 26
Sample ID: S13K076-CCB3
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 2
Date Collected: 11/12/2013 5:40:55 PM
Data Type: Reprocessed on 11/13/2013 10:39:47 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K076-CCB3

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

Mean Data: S13K076-CCB3

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	231137.5	102.5	%	1.49				1.45%
Fe 273.955†	8.1	0.00421	mg/L	0.001066	0.00421	mg/L	0.001066	25.35%

Sequence No.: 27
Sample ID: S13K076-CRL2
Analyst:
Logged In Analyst (Original) : ins_pe5300
Initial Sample Wt:
Dilution:

Autosampler Location: 5
Date Collected: 11/12/2013 5:45:31 PM
Data Type: Reprocessed on 11/13/2013 10:39:49 AM

Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: S13K076-CRL2

Analyte	Back Pressure	Flow
All	139.0 kPa	0.56 L/min

pasi

Mean Data: S13K076-CRL2

Analyte	Mean Corrected Intensity	Calib Conc.	Calib Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Y Radial	230430.1	102.2	%	1.30				1.27%
Fe 273.955†	1996.1	1.042	mg/L	0.0259	1.042	mg/L	0.0259	2.48%

Method Name: 6010C_131112Fe

Inst: Symbol, Wavelength, Name, and Function

Description :

Element	Wavelength nm	Name	Function
Fe	273.961	Fe 273.955	Analyte
Y	371.028	Y Radial	Internal Standard

Inst: Spectrometer, Read Time, Replicates

Spectral Profiling: No Resolution: Normal
Purge Gas Flow : Normal

Read Delay Time (sec) : 65

Replicates : 3
Read Time : Auto Min Time : 5.000 sec Max Time: 20.000 sec

Survey and Auto Integration Spectral Windows

Element	Wavelength (nm)	Survey Lower	Survey Upper	Auto Lower	Auto Upper
Fe	273.961	273.871	274.047	273.871	274.047
Y	371.028	370.915	371.154	370.915	371.154

Sampler: Plasma Parameters

Source Equilibration Delay : 15 sec
Plasma Aerosol Type : Wet
Nebulizer Start-up Conditions: Instant

Plasma Params: Variable

F'n	Analyte	Plas L/min	Aux L/min	Neb L/min	Power Watts	View Dist	Plasma View
A	Fe 273.955	15	0.2	0.6	1500	15.0	Radial
IS	Y Radial	15	0.2	0.6	1500	15.0	Radial

Sampler: Peristatic Pump Parameters

Sample Flow Rate : 1.60 mL/min
Sample Flush Time(sec) : 0

Sampler: Wash Parameters

Wash Frequency : Between Samples
Wash Location : 0
Wash Rate(mL/min) : 2.00
Wash Time (sec) : 120

Method Name: 6010C_131112Fe

Process: Peak Algorithms and Points/Peak

F'n	Analyte	Peak Algorithm	Pts/Peak
A	Fe 273.955	Peak Area	1
IS	Y Radial	Peak Area	2

Process: Spectral Overlap and Background Correction

F'n	Analyte	Overlap Correction	Background Correction	BGC1	BGC2
A	Fe 273.955	None	2-Point	-0.025	0.036
IS	Y Radial	None	2-Point	-0.034	0.034

IEC Table : None MSF Table : None

Process: Assign Internal Standards

Do Calib Blanks contain internal standards: Yes
Report apparent concentrations for internal standards: As a Percent

Analyte	Internal Standard	Conc	Units
Fe 273.955	Y Radial		

Process: Assign Internal Standards Check

Perform internal standards check: Yes

Analyte	Enabled/Disabled	Check Min(%)	Check Max(%)
Y Radial	Enabled	60	125

Action for internal standards failure: Repeat 0 time(s), then Continue

---

Calib: Blank and Standard IDs and Autosampler Locations

		ID	A/S Location
Calib Blank	1	S13K076-CAL1	2

		ID	A/S Location
Calib Std	1	S13K076-CAL2	9

Calib: Calibration Standard Units and Concentrations

Analyte	Calib Units	S13K076-CA L2
Fe 273.955	mg/L	10.000

Method Name: 6010C_131112Fe

Calib: Calibration and Reagent Blank Usage

F'n	Element	Use Calib Blank	Subtract Reagent
A	Fe 273.955	S13K076-CAL1	n/a
IS	Y Radial	None	n/a

Calib: Calibration Equation and Sample Units

F'n	Element	Calibration Equation	Sample Units	Max Decimal Places	Max Signif. Figures
A	Fe 273.955	Lin, Calc Int	mg/L	5	4
IS	Y Radial		mg/L	3	4

Calib: Initial Calibration Options

When opening this method manually :
Clear calibration curve(s) and construct a new calib curve.

When using this method in a multimethod sequence:
Start by constructing new calibration curves.

Calib : Multi Line Calibration

Not Enabled

Analyte Concentrations Added to Recovery Check Samples

Concentration Units : Sample

Analyte	Conc Units	Recovery Set1	Recovery Set2	Recovery Set3	Recovery Set4	Recovery Set5	Recovery Set6
Fe 273.955	mg/L						

QC Sample Definition

QC	Sample ID	A/S Loc	Count as Sample	Subtract Reagent Blank

QC Sample Concentrations and Limits

Method Name: 6010C_131112Fe

Schedule for QC Analyses

QC	Sample ID	After Init Cal	After Recal	Periodic	Freq	At End

Periodic Timing of Analyses
Frequency ... Variable

Failure Actions for After-Calibration QC's

QC	Sample ID	Times to Retry QC	When All Tries Fail	Additional Message

Failure Actions for Periodic QC's

QC	Sample ID	Times to Retry QC	When All Tries Fail	Additional Message

Failure Actions for At-End QC's

QC	Sample ID	Times to Retry QC	When All Tries Fail	Additional Message

Maximum Retries After QC Failure

After a group of standards or unknowns has been
reanalyzed 1 times, then Continue

Options

Include in Results Display and Printed Log:

Headers:
* Analytical Header
* Method Header (Expanded)
* Sample Header
* Start each sample on a new page

Sample Data Items:	Summary Items:
Replicate Data	* Analysis List
* Means and Statistics	Matrix Test Reports
Auto Integration Report	* Calibration Summary

Save with Results:
* Spectral Data

Remarks

MERCURY

EPA Method 7473
EPA Region 9 Lab SOP 535

ANALYSIS SEQUENCE

S13D047

Instrument: Milestone2

Calibration ID: 1304014

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client
S13D047-CAL1	QC		1		2B03001		
S13D047-CAL2	QC		2		2B03001		
S13D047-CAL3	QC		3		2B03001		
S13D047-CAL4	QC		4		2B03001		
S13D047-CAL5	QC		5		2B03001		
S13D047-CAL6	QC		6		2B03001		
S13D047-CAL7	QC		7		2B03001		
S13D047-CAL8	QC		8		2B03001		
S13D047-CAL9	QC		9		1L01001		
S13D047-CALA	QC		10		1L01001		
S13D047-CALB	QC		11		1L01001		
S13D047-CALC	QC		12		1L01001		
S13D047-CALD	QC		13		1L01001		
S13D047-IBL1	QC		14				
S13D047-IBL2	QC		15				
S13D047-IBL3	QC		16				
S13D047-CALE	QC		17		2B03001		
S13D047-LCV1	QC		18		2B03001		
S13D047-CCV1	QC		19		1L01001		
S13D047-CCB1	QC		20				
S13D047-CRL1	QC		21		2B03001		
B13D043-SRM1	QC		22				
B13D043-BLK1	QC		23				
B13D043-SRM2	QC		24				
B13D043-SRM3	QC		25				
313D043-SRM4	QC		26				
S13D047-IBL4	QC		27				
S13D047-IBL5	QC		28				
S13D047-IBL6	QC		29				
313D043-SRM5	QC		30				
13D047-LCV2	QC		31		2B03001		
13D047-LCV3	QC		32		2B03001		
13D047-CCV2	QC		33		1L01001		

amples Loaded By _____ Date _____ Data Processed By _____ Date _____

ANALYSIS SEQUENCE

S13D047

Instrument: Milestone2

Calibration ID: 1304014

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client
S13D047-LCV4	QC		34		2B03001		
S13D047-CCB2	QC		35				

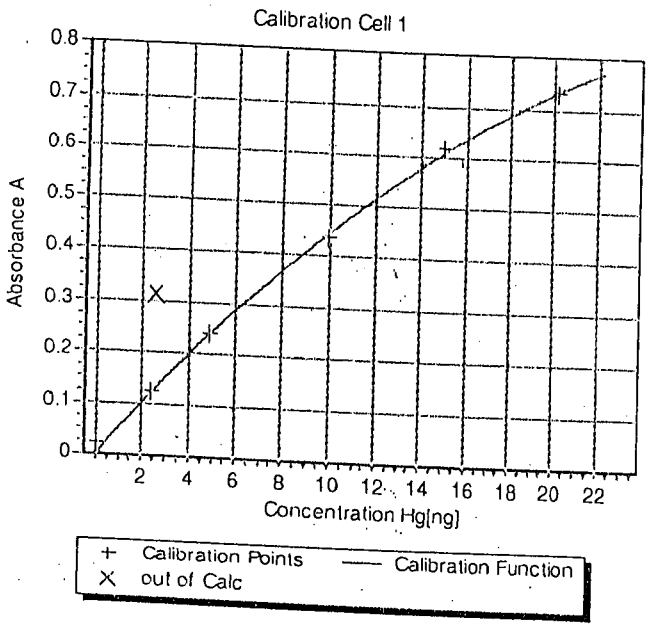
Samples Loaded By _____ Date _____

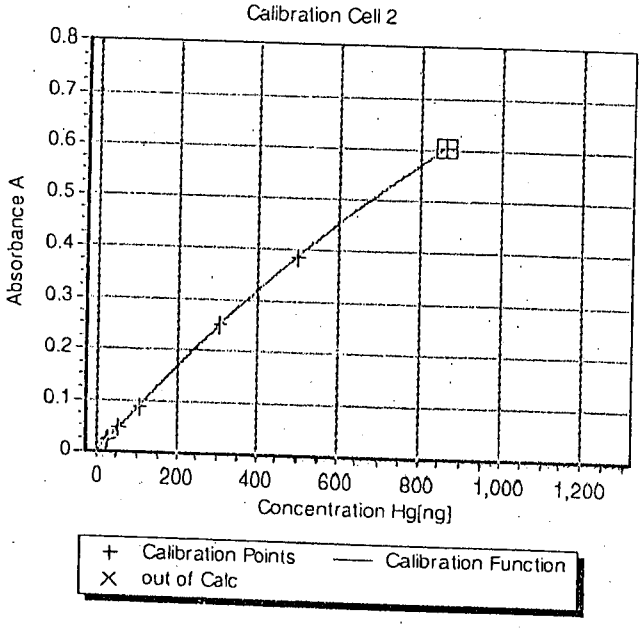
Data Processed By _____ Date _____

Calibration Data

E:\Calibration\130410CAL-2.c80

Administrator





A= 0.00000000

0.05261056 *Hg

-0.00080141 *Hg^2

0.00000000 *Hg^3

R^2= 0.9995

A= 0.00000000

0.00088413 *Hg

-0.00000021 *Hg^2

0.00000000 *Hg^3

R^3=0.9999

Date
4/10/2013
4/10/2013
4/10/2013
4/10/2013
4/10/2013
4/10/2013
4/10/2013
4/10/2013
4/10/2013
4/10/2013
4/10/2013
4/10/2013
4/10/2013
4/10/2013

HgAbsolut
0.00
2.41
2.55 - NOT used
4.92
9.97
15.02
20.16
24.85
30.44
50.60
103.01
303.21
499.77
858.31

AbsorbancePeak
0.02
0.12
0.31
0.24
0.44
0.62
0.73
0.02
0.03
0.05
0.09
0.25
0.39
0.60

Rerun Samples between 20.1597 ng → 24.8532 ng of Hg

REVIEWED BY:

Name: [illegible]

Date: 04-15-13

Pos Nr	Samplename Remak	Weight	U	Creation Date	State	Height	Hg [ng]	Concentr. [µg/kg]	Cal-Factor	Calibration file Date	Method file Date
1 1	S13D047-CAL1	0.0001	g	10.04.2013 08:35:28	✓	0.0221	0.0000	0.0001	1.0000	<data not saved> 10.04.2013 09:09:08	soil&tissue2.m80 03.04.2013
2 2	S13D047-CAL2 NOT used See rerun	0.0057	g	10.04.2013 08:42:20	✓	0.3128	2.5479	447.0000	1.0000	<data not saved> 10.04.2013 09:18:16	soil&tissue2.m80 03.04.2013
3 3	S13D047-CAL3	0.0110	g	10.04.2013 08:58:55	✓	0.2397	4.9170	447.0000	1.0000	<data not saved> 10.04.2013 09:27:24	soil&tissue2.m80 03.04.2013
4 4	S13D047-CAL4	0.0223	g	10.04.2013 09:02:04	✓	0.4370	9.9681	447.0000	1.0000	<data not saved> 10.04.2013 09:36:32	soil&tissue2.m80 03.04.2013
5 5	S13D047-CAL5	0.0336	g	10.04.2013 09:06:04	✓	0.6182	15.0192	447.0000	1.0000	<data not saved> 10.04.2013 09:45:40	soil&tissue2.m80 03.04.2013
6 6	S13D047-CAL6	0.0451	g	10.04.2013 09:08:25	✓	0.7319	20.1597	447.0000	1.0000	<data not saved> 10.04.2013 09:54:48	soil&tissue2.m80 03.04.2013
7 7	S13D047-CAL7	0.0556	g	10.04.2013 09:11:38	✓	0.0216	24.8532	447.0000	1.0000	<data not saved> 10.04.2013 10:03:57	soil&tissue2.m80 03.04.2013
8 8	S13D047-CAL8	0.0681	g	10.04.2013 09:14:44	✓	0.0262	30.4407	447.0000	1.0000	<data not saved> 10.04.2013 10:13:04	soil&tissue2.m80 03.04.2013
9 9	S13D047-CAL9 1L01001	0.0139	g	10.04.2013 09:32:34	✓	0.0493	50.5960	3,640.0000	1.0000	<data not saved> 10.04.2013 10:22:13	soil&tissue2.m80 03.04.2013
10 10	S13D047-CALA	0.0283	g	10.04.2013 09:35:06	✓	0.0901	103.0120	3,640.0000	1.0000	<data not saved> 10.04.2013 10:31:21	soil&tissue2.m80 03.04.2013
11 11	S13D047-CALB	0.0833	g	10.04.2013 09:39:29	✓	0.2508	303.2120	3,640.0000	1.0000	<data not saved> 10.04.2013 10:40:29	soil&tissue2.m80 03.04.2013
12 12	S13D047-CALC	0.1373	g	10.04.2013 09:44:11	✓	0.3853	499.7720	3,640.0000	1.0000	<data not saved> 10.04.2013 10:49:37	soil&tissue2.m80 03.04.2013
13 13	S13D047-CALD	0.2358	g	10.04.2013 09:49:22	✓	0.6038	858.3120	3,640.0000	1.0000	<data not saved> 10.04.2013 10:58:45	soil&tissue2.m80 03.04.2013
14 14	IB	1.0000	g	10.04.2013 11:22:41	✓	0.0044	0.0726	0.0726	1.0000	130410CAL-2.c80 10.04.2013 11:22:10	soil&tissue2.m80 03.04.2013
15 15	IB	1.0000	g	10.04.2013 11:22:49	✓	0.0015	0.0244	0.0244	1.0000	130410CAL-2.c80 10.04.2013 11:22:10	soil&tissue2.m80 03.04.2013
16 16	IB	1.0000	g	10.04.2013 11:22:51	✓	0.0017	0.0275	0.0275	1.0000	130410CAL-2.c80 10.04.2013 11:22:10	soil&tissue2.m80 03.04.2013
17 17	S13D047-CAL2 AKA CalE	0.0054	g	10.04.2013 11:50:38	✓	0.1241	2.4138	447.0000	1.0000	<data not saved> 10.04.2013 12:01:47	soil&tissue2.m80 03.04.2013
18 18	S13D047-LCV1 2B03001 101 %	0.0414	g	10.04.2013 12:11:11	✓	0.7014	18.6042	449.3769	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
19 19	S13D047-CCV1 1L01001 102 %	0.0543	g	10.04.2013 12:13:14	✓	0.1701	202.1836	3,723.4553	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
20 20	S13D047-CCB1 < 1/2 QL	0.2000	g	10.04.2013 12:14:47	✓	0.0263	0.5038	2.5188	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
21 21	S13D047-CRL1 2B03001 100 %	0.0112	g	10.04.2013 12:15:11	✓	0.2425	4.9893	445.4761	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
22 22	B13D043-SRM1 1J04001 for soil 111 %	0.1836	g	10.04.2013 12:17:22	✓	0.1871	223.5950	1,217.8380	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
23 B	S13D043-BLK1 N.D. 4/15/13 < 1/2QL 4I16025	0.2109	g	10.04.2013 12:19:37	✓	0.0252	0.4831	2.2905	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
24 B	S13D043-SRM2 N.D. 4/15/13 Fail 6K21002 for tissue See benchsheet	0.2117	g	10.04.2013 12:21:54	✓	0.1008	117.3066	554.1172	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013

Pos Nr	Samplename Remak	Weight	U	Creation Date	State	Height	Hg [ng]	Concentr. [µg/kg]	Cal-Factor	Calibration file Date	Method file Date
25 25	S13D043-SRM2 3 N.D. 4/15/13 Fail 6K21002for tissue See bench sheet	0.2034	g	10.04.2013 13:29:18	✓	0.1014	118.0258	580.2643	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
26 26	S13D043-SRM2 4 N.D. 4/15/13 6K21002 for tissue Fail See benchsheet	0.2013	g	10.04.2013 13:42:39	✓	0.0932	108.2197	537.6042	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
27 1	IB started on 4/11/13	1.0000	g	11.04.2013 07:31:29	✓	0.0118	0.2242	0.2242	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
28 2	IB	1.0000	g	11.04.2013 07:31:57	✓	0.0015	0.0278	0.0278	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
29 3	IB	1.0000	g	11.04.2013 07:32:01	✓	0.0018	0.0342	0.0342	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
30 4	S13D043-SRM2 5 N.D. 4/15/13 6K21002 unopened container O.K. See benchsheet	0.2459	g	11.04.2013 08:20:12	✓	0.0911	105.7162	429.9155	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
31 5	S13D047-LCV2 See rerun 2B03001 Fail	0.0405	g	11.04.2013 09:09:28	✓	0.7776	22.4770	554.9872	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
32 6	S13D047-CCV2 NOT RUN 1L01001	0.0551	g	11.04.2013 09:11:50	✗	0.0000	0.0000	0.0000	1.0000	130410CAL-2.c80 01.01.2000 00:00:00	soil&tissue2.m80 03.04.2013
33 5	S13D0047-LCV2 wrong STD 2B03001 See rerun	0.0418	g	11.04.2013 09:13:20	✓	0.0505	57.9221	1,385.6953	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
34 6	S13D0047-CCV2 100 % 1L01001	0.0559	g	11.04.2013 09:26:58	✓	0.1719	204.4392	3,657.2307	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
35 5	S13D0047-LCV2 105 % 2B03001	0.0398	g	11.04.2013 09:28:46	✓	0.7044	18.7385	470.8157	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013
36 7	S13D0047-CCB2 < 1/2 QL	0.2000	g	11.04.2013 10:06:15	✓	0.0226	-0.4324	2.1621	1.0000	130410CAL-2.c80 10.04.2013 12:02:36	soil&tissue2.m80 03.04.2013

00125

PREPARATION BENCH SHEET

B13K041

EPA Region 9 Laboratory

inted: 11/6/2013 11:46:54AM

Project: R14S10 - Klondyke Tailing 2013 XRF Confirmation

Matrix: Solid **Analysis:Mercury by 7473** **Prepared using: Metals - 7473 Hg Prep** **(No Surrogate)**

Lab Number	SampleName	Prepared	Initial (mg)	Final (mg)	Spike ID	Source ID	ul Spike	ul Surrogate	Prepared By	Extraction Comments
1310054-01 A	AD-SP-NORTH	11/06/13 07:52	219.7	219.7					WD	
1310054-02 A	AD-SP-WEST	11/06/13 07:52	244.7	244.7					WD	
1310054-03 A	RFSP-COMP-01	11/06/13 07:52	274.3	274.3					WD	
1310054-04 A	RFSP-COMP-02	11/06/13 07:52	235.4	235.4					WD	
1310054-05 A	2:3-BLEND-SP-COMP-1	11/06/13 07:52	234.7	234.7					WD	
B13K041-BLK1	Blank	11/06/13 07:52	212.2	212.2					WD	
B13K041-MS1	Matrix Spike	11/06/13 07:52	218.3	218.3	1J04001	1310054-02	91.5		WD	
B13K041-MSD1	Matrix Spike Dup	11/06/13 07:52	247.2	247.2	1J04001	1310054-02	95.1		WD	
B13K041-SRM1	Reference	11/06/13 07:52	182.2	182.2	1J04001		182.2		WD	

Hg analysis for Klondyke, SDG 13303E

Reagents

Reagent # **Description**

11-22-13

Preparation Reviewed By Date

ANALYSIS SEQUENCE

Instrument: Milestone2

Calibration ID: I304014

S13K032

Lab Number	Sample Name	Analysis	Container	Order	Position	STD ID	ISTD I
S13K032-IBL1	1	QC		1			
S13K032-IBL2	1	QC		2			
S13K032-IBL3	1	QC		3			
S13K032-LCV1	1	QC		4		2B03001	
S13K032-CCV1	1	QC		5		1L01001	
S13K032-CCB1	1	QC		6			
S13K032-CRL1	1	QC		7		2B03001	
B13K041-SRM1	Reference	QC		8			
B13K041-BLK1	Blank	QC		9			
1310054-01	AD-SP-NORTH	Mercury by 7473	A	10			
1310054-02	AD-SP-WEST	Mercury by 7473	A	11			
B13K041-MS1	Matrix Spike	QC		12			
B13K041-MSD1	Matrix Spike Dup	QC		13			
1310054-03	RFSP-COMP-01	Mercury by 7473	A	14			
1310054-04	RFSP-COMP-02	Mercury by 7473	A	15			
1310054-05	2:3-BLEND-SP-COMP-1	Mercury by 7473	A	16			
S13K032-LCV2	1	QC		17		2B03001	
S13K032-CCV2	1	QC		18		1L01001	
S13K032-CCB2	1	QC		19			

REVIEWED BY:

Name: DJ

Date: 11-06-13

W.D. 11/6/13

Samples Loaded By Date

W.D. 11/6/13

Data Processed By Date

Pos Nr	Samplename Remak	Weight	U	Creation Date	State	Height	Hg [ng]	Concentr. [µg/kg]	Cal-Factor	Calibration file Date	Method file Date
1 1	S13K032-IBL1 rerun sample as between 20.1597 & 24.8532 ng	1.0000	g	06.11.2013 07:40:48	✔	0.0828	1.6134	1.6134	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
2 2	S13K032-IBL2	1.0000	g	06.11.2013 07:50:12	✔	0.0031	0.0590	0.0590	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
3 3	S13K032-IBL3	1.0000	g	06.11.2013 07:50:17	✔	0.0041	0.0784	0.0784	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
4 4	S13K032-LCV1 107 % 2B03001	0.0383	g	06.11.2013 07:55:42	✔	0.6950	18.3262	478.4903	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
5 5	S13K032-CCV1 108 % 1L01001	0.0557	g	06.11.2013 07:58:05	✔	0.1836	219.1667	3,934.7710	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
6 6	S13K032-CCB1 < 1/2 QL	0.2000	g	06.11.2013 08:00:55	✔	0.0120	0.2289	1.1444	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
7 7	S13K032-CRL1 106 % 2B03001	0.0111	g	06.11.2013 08:01:11	✔	0.2545	5.2591	473.7953	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
8 8	B13K041-SRM1 109 % 1J04001	0.1822	g	06.11.2013 09:14:33	✔	0.1827	218.0297	1,196.6506	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
9 9	B13K041-BLK1 < 1/2 QL 1J28016	0.2122	g	06.11.2013 09:16:51	✔	0.0988	1.9342	9.1150	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
10 10	1310054-01	0.2197	g	06.11.2013 09:40:32	✔	0.2460	5.0670	23.0631	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
11 11	1310054-02	0.2447	g	06.11.2013 09:44:02	✔	0.2277	4.6592	19.0405	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
12 12	B13K041-MS1 1310054-02 91.5 mg of 1J04001	0.2183	g	06.11.2013 10:05:34	✔	0.0970	112.7579	516.5274	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
13 13	B13K041-MSD1 1310054-02 95.1 mg of 1J04001	0.2472	g	06.11.2013 10:09:07	✔	0.1031	120.0648	485.6992	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
14 14	1310054-03	0.2743	g	06.11.2013 10:12:42	✔	0.3310	7.0489	25.6977	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
15 15	1310054-04	0.2354	g	06.11.2013 10:17:11	✔	0.2777	5.7899	24.5959	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
16 16	1310054-05	0.2347	g	06.11.2013 10:19:21	✔	0.2328	4.7721	20.3328	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
17 17	S13K032-LCV2 106 % 2B03001	0.0389	g	06.11.2013 10:21:55	✔	0.6971	18.4154	473.4031	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
18 18	S13K032-CCV2 99 %	0.0549	g	06.11.2013 10:25:11	✔	0.1670	198.3054	3,612.1196	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012
19 19	S13K032-CCB2 < 1/2 QL	0.2000	g	06.11.2013 10:26:49	✔	0.0263	0.5033	2.5166	1.0000	130410CAL-2.c80 13.05.2013 15:52:12	soil&tissue2.m80 06.03.2012

REVIEWED BY:

Name: GL

Date: 11-06-13

: 90129

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street Building 201
Richmond, CA 94804

DRAFT

Date: 11/19/2013

Subject: Analytical Testing Results - Project R14S10
SDG: DRAFT 13303E

From: Brenda Bettencourt, Director
EPA Region 9 Laboratory
MTS-2

To: Martin Powell
Emergency Response Section
SFD-9-2

Attached are the results from the analysis of samples from the **Klondyke Talling 2013 XRF Confirmation** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region 9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Eugenia McNaughton at the Region 9 Quality Assurance Office.

If you have any questions, please ask for DRAFT REPORT, the Lab Project Manager at (510)412-2300.

Electronic CC: Kate Villars, Ecology and Environment, Inc.
Mindy Song, Ecology and Environment, Inc.

Analyses included in this report:

Mercury by EPA method 7473 Metals by ICP

United States Environmental Protection Agency
Region 9 Laboratory
1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

DRAFT

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** DRAFT 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/19/13 10:15
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
DRAFT: AD-SP-NORTH	1310054-01	Soil	10/10/13 11:05	10/29/13 15:05
DRAFT: AD-SP-WEST	1310054-02	Soil	10/10/13 11:11	10/29/13 15:05
DRAFT: RFSP-COMP-01	1310054-03	Soil	10/12/13 11:02	10/29/13 15:05
DRAFT: RFSP-COMP-02	1310054-04	Soil	10/12/13 11:05	10/29/13 15:05
DRAFT: 2:3-BLEND-SP-COMP-1	1310054-05	Soil	10/22/13 14:32	10/29/13 15:05
DRAFT: AA-03-00	1310054-06	Soil	10/14/13 14:03	10/29/13 15:05
DRAFT: AA-04-00	1310054-07	Soil	10/14/13 14:06	10/29/13 15:05
DRAFT: HS03-Y1-12	1310054-08	Soil	10/15/13 08:25	10/29/13 15:05
DRAFT: HS03-BF-SIDE	1310054-09	Soil	10/18/13 07:42	10/29/13 15:05
DRAFT: HS04-Y6-12	1310054-10	Soil	10/22/13 08:55	10/29/13 15:05
DRAFT: HS04-Y6-112	1310054-11	Soil	10/22/13 08:55	10/29/13 15:05
DRAFT: HS04-BF-BACK	1310054-12	Soil	10/22/13 14:43	10/29/13 15:05

SDG ID DRAFT 13303E

Work Order(s)

1310054

United States Environmental Protection Agency
Region 9 Laboratory
1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

DRAFT

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** DRAFT 13303E
Project Number: R14S10	**75 Hawtborne Street**	**Reported:** 11/19/13 10:15
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1310054-01									**Soil - Sampled: 10/10/13 11:05**
Sample ID: DRAFT: AD-SP-NORTH									**DRAFT: Metals by EPA 6000/7000 Series Methods**
Mercury		0.023	A2, C1, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		31,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		10		2	"	"	"	"	6010C/SOP503
Barium		180		5	"	"	"	"	6010C/SOP503
Beryllium		2.0		0.10	"	"	"	"	6010C/SOP503
Cadmium		1.7		0.50	"	"	"	"	6010C/SOP503
Calcium		14,000		100	"	"	"	"	6010C/SOP503
Chromium		21		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		58		4	"	"	"	"	6010C/SOP503
Iron	RE1	28,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		170		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		11,000		50	"	"	"	"	6010C/SOP503
Manganese		970		5	"	"	"	"	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		24		5	"	"	"	"	6010C/SOP503
Potassium		6,400		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		260		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		44		2	"	"	"	"	6010C/SOP503
Zinc		340		8	"	"	"	"	6010C/SOP503
Lab ID: 1310054-02									**Soil - Sampled: 10/10/13 11:11**
Sample ID: DRAFT: AD-SP-WEST									**DRAFT: Metals by EPA 6000/7000 Series Methods**
Mercury		0.019	A2, C1, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		30,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		10		2	"	"	"	"	6010C/SOP503
Barium		160		5	"	"	"	"	6010C/SOP503
Beryllium		2.1		0.10	"	"	"	"	6010C/SOP503
Cadmium		1.7		0.50	"	"	"	"	6010C/SOP503
Calcium		12,000		100	"	"	"	"	6010C/SOP503
Chromium		19		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		56		4	"	"	"	"	6010C/SOP503
Iron	RE1	26,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		170		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		11,000		50	"	"	"	"	6010C/SOP503

United States Environmental Protection Agency
Region 9 Laboratory
1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

DRAFT

Project Manager: Martin Powell
Project Number: R14S10
Project: Klondyke Tailing 2013 XRF Confirmation

Emergency Response Section
75 Hawthorne Street
San Francisco CA, 94105

SDG: DRAFT 13303E
Reported: 11/19/13 10:15

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID:	**1310054-02**								**Soil - Sampled: 10/10/13 11:11**
Sample ID:	**DRAFT: AD-SP-WEST**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Manganese		1,000		5	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		22		5	"	"	"	"	6010C/SOP503
Potassium		6,100		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		200		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		41		2	"	"	"	"	6010C/SOP503
Zinc		390		8	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-03**								**Soil - Sampled: 10/12/13 11:02**
Sample ID:	**DRAFT: RFSP-COMP-01**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Mercury		0.026	A2, J ✓	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		14,000	✓	100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		6.0		2	"	"	"	"	6010C/SOP503
Barium		130		5	"	"	"	"	6010C/SOP503
Beryllium		0.84		0.10	"	"	"	"	6010C/SOP503
Cadmium		ND	U	0.50	"	"	"	"	6010C/SOP503
Calcium		8,000		100	"	"	"	"	6010C/SOP503
Chromium		67		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		27		4	"	"	"	"	6010C/SOP503
Iron	RE1	38,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		22		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		5,800	✓	50	"	"	"	"	6010C/SOP503
Manganese		630	✓	5	"	"	"	"	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		32		5	"	"	"	"	6010C/SOP503
Potassium		2,000		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		180		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		100	✓	2	"	"	"	"	6010C/SOP503
Zinc		77		8	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-04**								**Soil - Sampled: 10/12/13 11:05**
Sample ID:	**DRAFT: RFSP-COMP-02**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Mercury		0.025	A2, J ✓	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535

United States Environmental Protection Agency
Region 9 Laboratory
1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

DRAFT

Project Manager: Martin Powell
Project Number: R14S10
Project: Klondyke Tailing 2013 XRF Confirmation

Emergency Response Section
75 Hawthorne Street
San Francisco CA, 94105

SDG: DRAFT 13303E
Reported: 11/19/13 10:15

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID:	**1310054-04**								**Soil - Sampled: 10/12/13 11:05**
Sample ID:	**DRAFT: RFSP-COMP-02**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Aluminum		13,000		100	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		5.5		2	"	"	"	"	6010C/SOP503
Barium		130		5	"	"	"	"	6010C/SOP503
Beryllium		0.81		0.10	"	"	"	"	6010C/SOP503
Cadmium		ND	U	0.50	"	"	"	"	6010C/SOP503
Calcium		8,100		100	"	"	"	"	6010C/SOP503
Chromium		55		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		27		4	"	"	"	"	6010C/SOP503
Iron	RE1	33,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		21		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		5,700		50	"	"	"	"	6010C/SOP503
Manganese		560		5	"	"	"	"	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		30		5	"	"	"	"	6010C/SOP503
Potassium		1,900		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		160		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		89		2	"	"	"	"	6010C/SOP503
Zinc		72		8	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-05**								**Soil - Sampled: 10/22/13 14:32**
Sample ID:	**DRAFT: 2:3-BLEND-SP-COMP-1**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Mercury		0.020	A2, C1, J ✓	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		18,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		7.6		2	"	"	"	"	6010C/SOP503
Barium		130		5	"	"	"	"	6010C/SOP503
Beryllium		1.4		0.10	"	"	"	"	6010C/SOP503
Cadmium		1.3		0.50	"	"	"	"	6010C/SOP503
Calcium		9,100		100	"	"	"	"	6010C/SOP503
Chromium		21		1	"	"	"	"	6010C/SOP503
Cobalt		8.8		2	"	"	"	"	6010C/SOP503
Copper		42		4	"	"	"	"	6010C/SOP503
Iron	RE1	24,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		140		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		7,300		50	"	"	"	"	6010C/SOP503
Manganese		720		5	"	"	"	"	6010C/SOP503

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DRAFT

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** DRAFT 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/19/13 10:15
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID:	**1310054-05**								**Soil - Sampled: 10/22/13 14:32**
Sample ID:	**DRAFT: 2:3-BLEND-SP-COMP-1**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Molybdenum		ND	U	5	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Nickel		20		5	"	"	"	"	6010C/SOP503
Potassium		3,800		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		170		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		46		2	"	"	"	"	6010C/SOP503
Zinc		280		8	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-06**								**Soil - Sampled: 10/14/13 14:03**
Sample ID:	**DRAFT: AA-03-00**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Arsenic		97		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		3,700		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-07**								**Soil - Sampled: 10/14/13 14:06**
Sample ID:	**DRAFT: AA-04-00**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Arsenic		74		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		8,100		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-08**								**Soil - Sampled: 10/15/13 08:25**
Sample ID:	**DRAFT: HS03-Y1-12**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Arsenic		22	/	2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		610	/	3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-09**								**Soil - Sampled: 10/18/13 07:42**
Sample ID:	**DRAFT: HS03-BF-SIDE**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Arsenic		4.2		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		27		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-10**								**Soil - Sampled: 10/22/13 08:55**
Sample ID:	**DRAFT: HS04-Y6-12**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Arsenic		6.2		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		180		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-11**								**Soil - Sampled: 10/22/13 08:55**
Sample ID:	**DRAFT: HS04-Y6-112**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Arsenic		7.0		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		170		3	"	"	"	"	6010C/SOP503
Lab ID:	**1310054-12**								**Soil - Sampled: 10/22/13 14:43**
Sample ID:	**DRAFT: HS04-BF-BACK**								**DRAFT: Metals by EPA 6000/7000 Series Methods**
Arsenic		4.7		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		16		3	"	"	"	"	6010C/SOP503

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DRAFT

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** DRAFT 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/19/13 10:15
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B13K007 - 3050B Sld Acid Dig - Metals by 6010										**Prepared: 11/03/13 Analyzed: 11/12/13**
										DRAFT: Metals by EPA 6000/7000 Series Methods - Quality Control
Blank (B13K007-BLK1)										
Aluminum	ND	U	100	mg/kg wet						
Antimony	ND	U	2	"						
Arsenic	ND	U	2	"						
Barium	ND	U	5	"						
Beryllium	ND	U	0.1	"						
Cadmium	ND	U	0.5	"						
Calcium	ND	U	100	"						
Chromium	ND	U	1	"						
Cobalt	ND	U	2	"						
Copper	ND	U	4	"						
~~Iron~~	~~ND~~	~~U~~	~~100~~	"						
Lead	ND	U	3	"						
Magnesium	ND	U	50	"						
Manganese	ND	U	5	"						
Molybdenum	ND	U	5	"						
Nickel	ND	U	5	"						
Potassium	ND	U	500	"						
Selenium	ND	U	2	"						
Silver	ND	U	1	"						
Sodium	ND	U	50	"						
Thallium	ND	U	5	"						
Vanadium	ND	U	2	"						
Zinc	ND	U	8	"						
Blank (B13K007-BLK2)										
Iron	ND	U	100	mg/kg wet						
Matrix Spike (B13K007-MS1)		**Source: 1310054-06**								
Arsenic	488		2	mg/kg wet	385	97	102	75-125		20
Lead	3,670	Q10	3	"	96.2	3,670	2	75-125		20
Matrix Spike Dup (B13K007-MSD1)		**Source: 1310054-06**								
Arsenic	499		2	mg/kg wet	388	97	104	75-125	2	20
Lead	3,790	Q10	3	"	97.1	3,670	123	75-125	3	20
Reference (B13K007-SRM1)										
Aluminum	144		100	mg/kg wet	115		125	47.6-152		
Antimony	60.2		2	"	66.1		91	41.2-158		
Arsenic	283		2	"	253		112	60.9-139		
Barium	ND	U	5	"	1.60			62.5-138		
Beryllium	5.06		0.1	"	4.90		103	61.2-139		
Cadmium	10.5		0.5	"	10.9		96	70.6-128		

NR OK 11-19-13

Limits updated 11-19-13 GG

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DRAFT

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** DRAFT 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/19/13 10:15
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B13K007 - 3050B Sld Acid Dig - Metals by 6010								**Prepared: 11/03/13 Analyzed: 11/12/13**		
								DRAFT: Metals by EPA 6000/7000 Series Methods - Quality Control		
Reference (B13K007-SRM1)										
Calcium	48,900		100	"	44200		111	68.6-132		
Chromium	29.5		1	"	27.1		109	68.3-132		
Cobalt	38		2	"	37.4		101	64.7-135		
Copper	1,600		4	"	1770		90	74.6-126		
Lead	56.5		3	"	57.0		99	72.8-127		
Magnesium	29,100		50	"	29200		100	70.2-130		
Manganese	67.1		5	"	61.1		110	68.2-132		
Nickel	16.3		5	"	16.3		100	55.2-145		
Potassium	ND	U	500	"	39.7			0-215		
Selenium	5.16		2	"	10.0		52	41-159		
Silver	6.99		1	"	5.91		118	45.8-154		
Sodium	ND	U	50	"	72.6			0-298		
Thallium	5.95		5	"	9.51		63	30.5-169		
Vanadium	17.9		2	"	17.6		102	65.9-135		
Zinc	53.5		8	"	47.5		112	43.2-157		
Reference (B13K007-SRM3)										
Iron	7,220		100	mg/kg wet	6480		111	66.2-134		
Batch B13K041 - 7473 Hg Prep - Mercury by 7473								**Prepared & Analyzed: 11/06/13**		
								DRAFT: Metals by EPA 6000/7000 Series Methods - Quality Control		
Blank (B13K041-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Matrix Spike (B13K041-MS1)		**Source: 1310054-02**								
Mercury	0.517		0.025	mg/kg wet	0.461	0.019	108	80-120		20
Matrix Spike Dup (B13K041-MSD1)		**Source: 1310054-02**								
Mercury	0.486		0.025	mg/kg wet	0.423	0.019	110	80-120	2	20
Reference (B13K041-SRM1)										
Mercury	1.2		0.025	mg/kg wet	1.10		109	80-120		

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DRAFT

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** DRAFT 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/19/13 10:15
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Qualifiers and Comments

Q10 The analyte concentration in the unfortified sample is significantly greater than the concentration spiked into the matrix spike and matrix spike duplicate. The reported spike recovery is not a meaningful measure of the dataset's analytical accuracy.

J The reported result for this analyte should be considered an estimated value.

C1 The reported concentration for this analyte is below the quantitation limit.

A2 The sample was received above the recommended temperature range.

U Not Detected

NR Not Reported

RE1, RE2, etc: Result is from a sample re-analysis.

Certificate of Analysis

CL21304

Expires 02/28/16

Preparer:** Vendor ** 12 21 10

Titanium Stock 10000ppm

ULTRAgrade™ Solution
Titanium ICP Standard
10000 µg/mL

Catalog Number: ICP-122
Lot Number: K00126
Job Number: J00009427
Lot Issue Date: 02/12/2009
Expiration Date: 02/28/2016

Starting Material:	Ammonium Hexafluorotitanate
Starting Material Purity:	99.99%
Starting Material Lot No.:	BH01107
Matrix:	2% nitric acid, with trace hydrofluoric acid, in low TOC water (< 50 ppb)
Atomic Weight Ti:	47.90

Certified Value: 10010 ± 20 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001:2000 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The certified value and uncertainty value, at the 95% confidence level, for each analyte determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3162a

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001

Trace Metallic Impurities in Solution Standard in µg/mL:

*	Al	<0.010	D	*	Ga	<0.005	ND	n	Nb			n	S				
*	Sb	<0.005	ND	n	Ge			n	Os			n	Ta				
*	As	<0.005	ND	n	Au			*	Pd	<0.005	ND	n	Te				
*	Ba	<0.005	ND	n	Hf			*	P	<0.005	ND	n	Tb				
*	Be	<0.005	ND	n	Ho			*	Pt	<0.005	ND	*	Tl	<0.005	ND		
*	Bi	<0.005	ND	*	In	<0.005	ND	*	K	<0.005	ND	n	Th				
*	B	<0.005	ND	n	Ir			n	Pr			n	Tm				
*	Cd	<0.010	D	*	Fe	<0.020	D	n	Re			*	Sn	<0.005	ND		
*	Ca	<0.010	D	*	La	<0.005	ND	n	Rh			s	Ti				
n	Ce			*	Pb	<0.005	ND	n	Rb			n	W				
n	Cs			*	Li	<0.005	ND	n	Ru			n	U				
*	Cr	<0.005	ND	n	Lu			n	Sm			*	V	<0.005	ND		
*	Co	<0.010	D	*	Mg	<0.040	D	n	Sc			n	Yb				
*	Cu	<0.005	ND	*	Mn	<0.010	D	*	Se	<0.005	ND	n	Y				
n	Dy			*	Hg	<0.005	ND	*	Si	<0.005	ND	*	Zn	<0.005	ND		
*	Er	<0.005	ND	*	Mo	<0.005	ND	*	Ag	<0.005	ND	n	Zr				
*	Eu	<0.005	ND	n	Nd			*	Na	<0.005	ND						
*	Gd	<0.005	ND	*	Ni	<0.005	ND	*	Sr	<0.005	ND						

* - element checked for
ND - not detected

i - spectral interference
D - detected

n - not checked for
s - solution standard element

Density of Solution (measured at 23.0°C ± 0.5°C): 1.033 g/mL

ACCREDITED

ISO 17025:2005
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ISO 9001:2000
Registered
TUV USA, Inc.
Cert. No. 09-1009

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401-294-9400 Fax: 401-295-2330
www.ultrasci.com

See Reverse For Additional Information

William J. Leary
Quality Assurance Manager

Analytical Standard Record

EPA Region 9 Laboratory

0L21004

Description:	Titanium Stock, 10000ppm	**Expires:**	02/28/16
Standard Type:	Other Solution	**Prepared:**	12/21/10
Solvent:	2% Nitric Acid tr HF	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	12/21/10 11:44 by SC
Vendor:	Ultra Scientific	**Lot Numbe**	K00126

AU002653

Analyte	CAS Number	Concentration (ppm)
Titanium	7440-32-6	10000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Aluminum in 7% (v/v) HNO3**

Catalog Number:	CGAL10-1, CGAL10-2, and CGAL10-5
Lot Number:	**F2-AL04115**
Starting Material:	Al ingot
Starting Material Purity (%):	99.9991
Starting Material Lot No:	1629
Matrix:	7% (v/v) HNO3

1308040
Expires 03/01/14
Preparer:** Vendor ** 02/20/13
Aluminum Stock, 10000ppm

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 10,041 ± 51 µg/mL - weighted mean

Certified Density: 1.089 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

· The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **10,039 ± 31 µg/mL**
ICP Assay NIST SRM 3101a Lot Number: 060502

Assay Method #2 **10,043 ± 25 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

s Al	M Dy < 0.036903	O Li 0.000033	M Pr < 0.001845	M Te < 0.184517
M Sb < 0.003075	M Er < 0.030753	M Lu < 0.002460	M Re < 0.006151	M Tb < 0.001845
M As < 0.061506	M Eu < 0.018452	O Mg 0.002764	M Rh < 0.006151	M Tl < 0.006151
M Ba < 0.061506	M Gd < 0.006151	O Mn 0.000488	M Rb < 0.006151	M Th < 0.006151
O Be < 0.000170	M Ga < 0.006151	O Hg < 0.007000	M Ru < 0.012301	M Tm < 0.002460
M Bi 0.006000	M Ge < 0.036903	M Mo < 0.012301	M Sm < 0.006151	M Sn < 0.030753
O B 0.001626	M Au < 0.018452	M Nd < 0.012301	M Sc < 0.061506	O Ti 0.006016
M Cd < 0.018452	M Hf < 0.012301	O Ni 0.001301	M Se < 0.049205	M W < 0.061506
O Ca 0.013495	M Ho < 0.003075	M Nb < 0.003075	O Si 0.048777	M U < 0.012301
M Ce < 0.030753	M In < 0.061506	n Os	M Ag < 0.012301	M V < 0.012301
M Cs < 0.001845	M Ir < 0.030753	M Pd < 0.030753	O Na 0.022763	M Yb < 0.006151
O Cr < 0.001500	O Fe 0.003252	O P < 0.030000	M Sr < 0.003075	M Y < 0.246023
M Co < 0.018452	M La < 0.003075	M Pt < 0.012301	O S < 0.100000	O Zn 0.016259
M Cu < 0.036903	M Pb < 0.018452	O K 0.019511	M Ta < 0.043054	M Zr < 0.030753

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4 °C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 26.98154; +3; 6;Al(H2O)6+3

Chemical Compatibility - Soluble in HCl, HNO3, HF and H2SO4. Avoid neutral media. Soluble in strongly basic NaOH forming the Al(OH)4(H2O)21- species. Stable with most metals and inorganic anions. The phosphate is insoluble in water and only slightly soluble in acid.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

Al Containing Samples (Preparation and Solution) - Metal (Best dissolved in HCl / HNO3); α- Al2O3 (Na2CO3 fusion in Pt0); γ- Al2O3 (Soluble in acids such as HCl) ; Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (sulfuric/peroxide digestion or nitric / sulfuric / perchloric acid decomposition, or dry ash and dissolution in dilute HCl.

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES394.401 nm	0.05 / 0.006 µg/mL	1	atom	U, Ce
ICP-OES396.152 nm	0.03 / 0.006 µg/mL	1	atom	Mo, Zr, Ce
ICP-OES167.078 nm	0.1 / 0.009 µg/mL	1	ion	Fe
ICP-MS27 amu	30 ppt	n/a	M+	12C15N, 13C14N, 1H12C14N, 11B16O, 54Cr2+, 54Fe2+

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

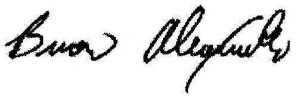
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: June 27, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Stephan Blaakman Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308040

Description:	Aluminum Stock, 10000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	7% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 15:50 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-AL04115

Analyte	CAS Number	Concentration (ppm)
Aluminum	7429-90-5	10000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Antimony in 1% (v/v) HNO3 / 3% Tartaric Acid**

Catalog Number:	CGSB1-1, CGSB1-2 and CGSB1-5
Lot Number:	**F2-SB03010**
Starting Material:	Sb shot
Starting Material Purity (%):	99.9974
Starting Material Lot No:	1647
Matrix:	1% (v/v) HNO3 / 3% Tartaric Acid

1308041
Expires 03/01/14
Preparer:** Vendor ** 02/20/13
Antimony Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.021 g/mL (measured at 20 ± 1°C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In *rare cases* where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **999 ± 3 µg/mL**
ICP Assay NIST SRM 3102A Lot Number: 061229

Assay Method #2 **1,000 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.003000	M	Dy	< 0.005935	O	Li	0.000302	M	Pr	< 0.000297	M	Te	< 0.029674
s	Sb		M	Er	< 0.004946	M	Lu	< 0.000396	M	Re	< 0.000989	M	Tb	< 0.000297
M	As	< 0.009891	M	Eu	< 0.002967	O	Mg	0.000302	M	Rh	< 0.000989	M	Tl	< 0.000989
O	Ba	0.000504	M	Gd	< 0.000989	O	Mn	< 0.000023	M	Rb	< 0.000989	M	Th	< 0.000989
O	Be	< 0.000010	M	Ga	< 0.000989	O	Hg	< 0.015000	M	Ru	< 0.001978	M	Tm	< 0.000396
O	Bi	0.000040	M	Ge	< 0.005935	M	Mo	< 0.001978	M	Sm	< 0.000989	M	Sn	< 0.004946
O	B	< 0.000140	M	Au	< 0.002967	M	Nd	< 0.001978	O	Sc	< 0.000160	O	Ti	0.001209
M	Cd	< 0.002967	M	Hf	< 0.001978	O	Ni	< 0.000900	M	Se	< 0.007913	M	W	< 0.009891
O	Ca	0.002015	M	Ho	< 0.000495	M	Nb	< 0.000495	O	Si	< 0.003300	M	U	< 0.001978
O	Ce	< 0.003000	M	In	< 0.009891	n	Os		M	Ag	< 0.001978	M	V	< 0.001978
M	Cs	< 0.000297	M	Ir	< 0.004946	M	Pd	< 0.004946	O	Na	0.007555	M	Yb	< 0.000989
O	Cr	0.001007	O	Fe	0.001713	O	P	< 0.040000	M	Sr	< 0.000495	M	Y	< 0.039566
M	Co	< 0.002967	O	La	< 0.001200	M	Pt	< 0.001978	n	S		O	Zn	< 0.000200
O	Cu	< 0.001100	M	Pb	< 0.002967	O	K	0.012088	M	Ta	< 0.006924	M	Zr	< 0.004946

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 121.75; +3 ; **6**; Sb(O)C4H4O6-1

Chemical Compatibility - Stable in concentrated HCl, dilute or concentrated HF. Stable in dilute HNO3 as the fluoride or tartrate complex. Avoid basic media. Stable with most metals and inorganic anions in acidic media as the tartrate provided the acidity is not too high or the acid is oxidizing causing loss of the stabilizing tartrate ion. The fluoride complex of antimony is stable in strong acid but you should only mix with other metals that are fluorinated.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-2% HNO3 / LDPE container.

Sb Containing Samples (Preparation and Solution) - Metal and alloys (Soluble in H2O / HF / HNO3 mixture); Oxides (Soluble in HCl and tartaric acid or H2O / HF / HNO3 mixtures); Ores (Fusion with Na2CO3 in Pt0 followed by dissolving the fuseate in a H2O / HF / HNO3 mixture); Organic based (Sulfuric acid / hydrogen peroxide digestion)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 206.833 nm	0.03 / 0.003 µg/mL	1	atom	Ta, Cr, Ge, Hf
ICP-OES 217.581 nm	0.05 / 0.005 µg/mL	1	atom	Nb, W, Re, Fe,
ICP-OES 231.147 nm	0.06 / 0.006 µg/mL	1	atom	Ni, Co ,Pt
ICP-MS 121 amu	5 ppt	n/a	M+	105Pd16O, 89Y16O2

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: March 27, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308041

Description:	Antimony Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	1% HNO3/3% Tartaric Acid	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 15:51 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-SB03010

Analyte	CAS Number	Concentration (ppm)
Antimony	7440-36-0	1000

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Arsenic in 2% (v/v) HNO3**

Catalog Number:	CGAS1-1, CGAS1-2, and CGAS1-5
Lot Number:	**F2-AS02083**
Starting Material:	As pieces
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1665
Matrix:	2% (v/v) HNO3

1308042
Expires 03/01/14
Preparer:** Vendor ** 02 20 13
Arsenic Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,001 ± 5 µg/mL - no weighted mean

Certified Density: 1.010 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,001 ± 3 µg/mL**
ICP Assay NIST SRM 3103a Lot Number: 100818

Assay Method #2 **1,000 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.000232	M	Dy	< 0.031014	O	Li	< 0.000020	M	Pr	< 0.001551	M	Te	< 0.155069
O	Sb	< 0.010000	M	Er	< 0.025845	M	Lu	< 0.002068	O	Re	< 0.010000	M	Tb	< 0.001551
s	As		M	Eu	< 0.015507	O	Mg	0.000019	M	Rh	< 0.005169	M	Tl	< 0.005169
M	Ba	< 0.051690	M	Gd	< 0.005169	O	Mn	< 0.000030	M	Rb	< 0.005169	M	Th	< 0.005169
M	Be	< 0.002584	M	Ga	< 0.005169	O	Hg	< 0.012000	M	Ru	< 0.010338	M	Tm	< 0.002068
M	Bi	0.000080	M	Ge	< 0.031014	M	Mo	< 0.010338	M	Sm	< 0.005169	O	Sn	< 0.004000
O	B	< 0.012000	M	Au	< 0.015507	M	Nd	< 0.010338	M	Sc	< 0.051690	M	Ti	< 0.258449
M	Cd	< 0.015507	M	Hf	< 0.010338	O	Ni	< 0.002000	M	Se	< 0.041352	M	W	< 0.051690
O	Ca	0.000484	M	Ho	< 0.002584	O	Nb	< 0.002000	O	Si	0.002515	M	U	< 0.010338
M	Ce	< 0.025845	M	In	< 0.051690	n	Os		M	Ag	< 0.010338	M	V	< 0.010338
M	Cs	< 0.001551	M	Ir	< 0.025845	M	Pd	< 0.025845	O	Na	0.000387	M	Yb	< 0.005169
O	Cr	< 0.000800	O	Fe	0.000213	O	P	< 0.002600	M	Sr	< 0.002584	M	Y	< 0.206759
M	Co	< 0.015507	M	La	< 0.002584	M	Pt	< 0.010338	n	S		M	Zn	0.000340
M	Cu	< 0.031014	M	Pb	< 0.015507	O	K	< 0.002000	M	Ta	< 0.036183	M	Zr	< 0.025845

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 74.9216; mix of +3 and +5; 6; H_3AsO_4 and $HAsO_2$

Chemical Compatibility -Arsenic has no cationic chemistry. It is soluble in HCl, HNO_3,H_3PO_4, H_2SO_4 and HF aqueous matrices water and NH_4OH . It is stable with most inorganic anions (forms arsenate when boiled with chromate) but many cationic metals form the insoluble arsenates under pH neutral conditions. When fluorinated and / or under acidic conditions arsenate formation is typically not a problem at moderate to low concentrations.

Stability - 2-100 ppb levels stable for months alone or mixed with other elements at equivalent levels in 1% HNO_3 / LDPE container.

1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

As Containing Samples (Preparation and Solution) - As0 (soluble in 1:1 H_2O / HNO_3); Oxides (the oxide exists in crystalline and amorphous forms where the amorphoric form is more water soluble. The oxides typically dissolve in dilute acidic solutions when boiled); Minerals (One gram of powered sample is fused in a Ni0 crucible with 10 grams of a 1:1 mix of K_2CO_3 and KNO_3 and
the melt extracted with hot water); Organic Matrices (0.2 to 0.5 grams of the sample are fused with 15 grams of a 1:1 Na_2CO_3 / Na_2O_2 mix in a Ni0 crucible. The fuseate is extracted with water and acidified with HNO_3)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES189.042 nm	0.05 / 0.005 µg/mL	1	atom	Cr
ICP-OES193.696 nm	0.1 / 0.01 µg/mL	1	atom	V, Ge
ICP-OES 228.812 nm	0.1 / 0.01 µg/mL	1	atom	Cd, Pt, Ir, Co
ICP-MS 75 amu	20 ppt	n/a	M+	40Ar35Cl, 59Co16O, 36Ar38Ar1H, 38Ar37Cl,Ar39K, 150Nd2+,150Sm2+

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

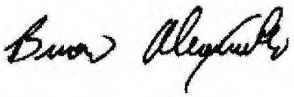
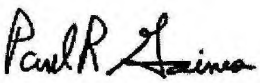
11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: May 21, 2012
Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308042

Description:	Arsenic Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 15:52 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-AS02083

Analyte	CAS Number	Concentration (ppm)
Arsenic	7440-38-2	1000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Barium in 0.1% (v/v) HNO3**

Catalog Number:	CGBA1-1, CGBA1-2, and CGBA1-5
Lot Number:	**F2-BA02076**
Starting Material:	Ba(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	BAE42012A1
Matrix:	0.1% (v/v) HNO3

1308043
Expires 03/01/14
Preparer:** Vendor ** 02/20/13
Barium Stock, 1000ppm

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 996 ± 5 µg/mL -No weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2\,[\,\Sigma(s_i)^2\,]^{1/2}$ 2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **996 ± 3 µg/mL**
ICP Assay NIST SRM 3104a Lot Number: 070222

Assay Method #2 **997 ± 8 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.000900	M	Dy	< 0.006885	O	Li	< 0.004000	M	Pr	< 0.000344	M	Te	< 0.034427
M	Sb	< 0.000574	M	Er	< 0.005738	M	Lu	< 0.000459	M	Re	< 0.001148	O	Tb	< 0.003900
M	As	< 0.011476	O	Eu	< 0.000400	O	Mg	0.000434	M	Rh	< 0.001148	M	Tl	< 0.001148
s	Ba		O	Gd	< 0.000520	O	Mn	0.000347	M	Rb	< 0.001148	M	Th	< 0.001148
M	Be	< 0.000574	M	Ga	< 0.001148	O	Hg	< 0.012000	M	Ru	< 0.002295	M	Tm	< 0.000459
M	Bi	< 0.000459	M	Ge	< 0.006885	M	Mo	< 0.002295	O	Sm	< 0.000710	M	Sn	< 0.005738
M	B	< 0.080330	M	Au	< 0.003443	O	Nd	< 0.001400	M	Sc	< 0.011476	M	Ti	< 0.057379
M	Cd	< 0.003443	M	Hf	< 0.002295	O	Ni	< 0.000900	M	Se	< 0.009181	M	W	< 0.011476
O	Ca	0.002605	M	Ho	< 0.000574	M	Nb	< 0.000574	O	Si	< 0.003400	M	U	< 0.002295
M	Ce	< 0.005738	M	In	< 0.011476	n	Os		M	Ag	< 0.002295	M	V	< 0.002295
M	Cs	< 0.000344	M	Ir	< 0.005738	M	Pd	< 0.005738	O	Na	0.001303	M	Yb	< 0.001148
M	Cr	< 0.005738	O	Fe	< 0.011000	O	P	< 0.002600	O	Sr	0.000043	O	Y	< 0.001000
M	Co	< 0.003443	O	La	< 0.000200	M	Pt	< 0.002295	O	S	< 0.025000	O	Zn	< 0.000390
M	Cu	< 0.006885	M	Pb	< 0.003443	O	K	< 0.001800	O	Ta	< 0.006900	M	Zr	< 0.005738

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 137.33; +2; 6; $Ba(H_2O)_6^{+2}$

Chemical Compatibility - Soluble in HCl, and HNO_3. Avoid H_2SO_4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate, iodate, molybdate, sulfite and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1 -10,000 ppm solutions chemically stable for years in 1-3.5% HNO_3 / LDPE container.

Ba Containing Samples (Preparation and Solution) - Metal(is best dissolved in diluted HNO_3); Ores(Carbonate fusion in Pt0 followed by HCl dissolution. If sulfate is present dissolve the fuseate using HCl / tartaric acid to prevent $BaSO_4$ precipitate); Organic Matrices (dry ash and dissolve in dilute HCl.)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 455.403 nm	0.002 / 0.0001 µg/mL	1	ion	Zr, U
ICP-OES 233.527 nm	0.004 / 0.0003 µg/mL	1	ion	
ICP-OES 230.424 nm	0.004 / 0.0005 µg/mL	1	ion	Mo, Ir, Co
ICP-MS 138 amu	1 ppt	n/a	M+	122Sn16O, 122Te16O

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

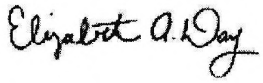
11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: January 09, 2013

Expiration Date:

EXPIRES
01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Zach Saunders Product Documentation Technician	
Certificate Approved By:	Beth Day Quality Assurance Specialist	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308043

Description:	Barium Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	0.1% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 15:53 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-BA02076

Analyte	CAS Number	Concentration (ppm)
Barium	7440-39-3	1000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Beryllium in 3% (v/v) HNO3**

Catalog Number:	CGBE1-1, CGBE1-2, and CGBE1-5
Lot Number:	**F2-BE02018**
Starting Material:	Be4O(OOCCH3)6
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1671
Matrix:	3% (v/v) HNO3

1308044
Expires 03/01/14
Preparer:** Vendor ** 02 20 13
Beryllium Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,002 ± 4 µg/mL - weighted mean

Certified Density: 1.021 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

· The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **1,002 ± 4 µg/mL**
ICP Assay NIST SRM 3105a Lot Number: 090514

Assay Method #2 **1,002 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O Al < 0.008000	M Dy < 0.013951	O Li < 0.000020	M Pr < 0.000698	M Te < 0.069757
M Sb < 0.001163	M Er < 0.011626	M Lu < 0.000930	M Re < 0.002325	M Tb < 0.000698
M As < 0.023252	M Eu < 0.006976	O Mg 0.000301	M Rh < 0.002325	M Tl < 0.002325
M Ba < 0.023252	M Gd < 0.002325	O Mn < 0.000020	M Rb < 0.002325	M Th < 0.002325
s Be	M Ga < 0.002325	O Hg < 0.015000	M Ru < 0.004650	M Tm < 0.000930
M Bi < 0.000930	M Ge < 0.013951	M Mo < 0.004650	M Sm < 0.002325	M Sn < 0.011626
O B < 0.012000	M Au < 0.006976	M Nd < 0.004650	O Sc < 0.000090	M Ti < 0.116262
M Cd < 0.006976	M Hf < 0.004650	O Ni < 0.003000	M Se < 0.018602	M W < 0.023252
O Ca 0.001075	M Ho < 0.001163	M Nb < 0.001163	O Si < 0.003400	M U < 0.004650
M Ce < 0.011626	M In < 0.023252	n Os	M Ag < 0.004650	M V < 0.004650
M Cs < 0.000698	M Ir < 0.011626	M Pd < 0.011626	O Na 0.001290	M Yb < 0.002325
O Cr < 0.009000	O Fe 0.000731	n P	M Sr < 0.001163	M Y < 0.093010
M Co < 0.006976	M La < 0.001163	M Pt < 0.004650	i S	O Zn 0.001978
M Cu < 0.013951	M Pb < 0.006976	O K < 0.100000	M Ta < 0.016277	M Zr < 0.011626

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 9.01218; +2; 4; $Be^{+(H2O)4+2}$

Chemical Compatibility - Soluble in HCl, HNO_3, H_2SO_4 and HF aqueous matrices. Stable with all metals and inorganic anions.

Stability - 2-100 ppb levels stable for months in 1 % HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 5-10 % HNO_3 / LDPE container.

Be Containing Samples (Preparation and Solution) - Meta l(is best dissolved in diluted H_2SO_4); BeO (boiling nitric, hydrochloric, or sulfuric acids or $KHSO_4$ fusion); Ores (H_2SO_4/HF digestion or carbonate fusion in Pt0); Organic Matrices (sulfuric/peroxide digestion or nitric/sulfuric/perchloric acid decomposition, or dry ash and dissolution according to the BeO procedure above).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 313.042 nm	0.0003 / 0.00009 µg/mL	1	ion	V, Ce, U
ICP-OES 234.861 nm	0.0003 / 0.00016 µg/mL	1	atom	Fe, Ta, Mo
ICP-OES 313.107 nm	0.0007 / 0.0005 µg/mL	1	ion	Ce, Th, Tm
ICP-MS 9 amu	4 ppt	n/a	M+	

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

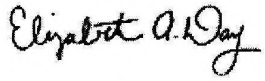
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: July 31, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Stephan Blaakman Product Documentation Technician	
Certificate Approved By:	Beth Day Quality Assurance Specialist	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308044

Description:	Beryllium Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	3% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 15:54 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-BE02018

Analyte	CAS Number	Concentration (ppm)
Beryllium	7440-41-7	1000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Boron in H2O / tr. NH4OH**

Catalog Number:	CGB1-1, CGB1-2, and CGB1-5
Lot Number:	**E2-B02103**
Starting Material:	H3BO3
Starting Material Purity (%):	100.0000
Starting Material Lot No:	OV0133 EF178
Matrix:	H2O / tr. NH4OH

1308047
Expires 03/01/14
Preparer:** Vendor ** 02 20 13

Boron Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,002 ± 5 µg/mL - weighted mean

Certified Density: 1.001 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors
(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,004 ± 3 µg/mL**
ICP Assay NIST SRM 3107 Lot Number: 070514

Assay Method #2 **1,000 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION -** All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION -** All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION -** An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.000900	M	Dy	< 0.005993	O	Li	< 0.000024	M	Pr	< 0.000300	M	Te	< 0.029966
M	Sb	< 0.000499	M	Er	< 0.004994	M	Lu	< 0.000400	M	Re	< 0.000999	M	Tb	< 0.000300
M	As	< 0.009989	M	Eu	< 0.002997	O	Mg	0.000057	M	Rh	< 0.000999	M	Tl	< 0.000999
O	Ba	< 0.000100	M	Gd	< 0.000999	O	Mn	< 0.000023	M	Rb	< 0.000999	M	Th	< 0.000999
O	Be	< 0.000170	O	Ga	< 0.001600	O	Hg	< 0.015000	M	Ru	< 0.001998	M	Tm	< 0.000400
M	Bi	< 0.000400	M	Ge	< 0.005993	M	Mo	< 0.001998	M	Sm	< 0.000999	M	Sn	< 0.004994
s	B		M	Au	< 0.002997	M	Nd	< 0.001998	O	Sc	< 0.000023	O	Ti	< 0.000600
M	Cd	< 0.002997	M	Hf	< 0.001998	O	Ni	< 0.002300	O	Se	< 0.006200	M	W	< 0.009989
O	Ca	< 0.000070	M	Ho	< 0.000499	M	Nb	< 0.000499	O	Si	< 0.003400	M	U	< 0.001998
O	Ce	< 0.003000	M	In	< 0.009989	n	Os		M	Ag	< 0.001998	O	V	< 0.000830
M	Cs	< 0.000300	M	Ir	< 0.004994	M	Pd	< 0.004994	O	Na	< 0.000100	M	Yb	< 0.000999
M	Cr	< 0.004994	O	Fe	< 0.001100	O	P	< 0.002500	M	Sr	< 0.000499	M	Y	< 0.039955
O	Co	< 0.001100	M	La	< 0.000499	M	Pt	< 0.001998	n	S		O	Zn	< 0.000190
M	Cu	< 0.005993	M	Pb	< 0.002997	O	K	0.000570	M	Ta	< 0.006992	M	Zr	< 0.004994

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 10.811; +3; 4; B(OH)3 and B(OH)4-1

Chemical Compatibility - Moderately soluble in HCl, HNO3, H2SO4 and HF aqueous matrices and very soluble in NH4OH . Stable with all metals and inorganic anions at low to moderate ppm levels.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-1,000 ppm solutions chemically stable for years in 1% HNO3 / LDPE container. 1000 -10,000 ppm stable for years in dilute NH4OH / LDPE container.

B Containing Samples (Preparation and Solution) - Metal (Crystalline form is scarcely attacked by acids or alkaline solutions; amorphous form is soluble in conc. HNO3 or H2SO4); B(OH)3 (water soluble); Ores(avoid acid digestions and use caustic fusions in PtE); Organic Matrices (dry ash mixed with Na2CO3 in PtE at 450EC then increase heat to 1000EC to fuse; or perform a Na2O2 fusion in a NiE crucible / Parr bomb).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 249.773 nm	0.003 / 0.001 µg/mL	1	atom	W, Ce, Co, Th, Ta, Mn, Mo, Fe
ICP-OES 249.678 nm	0.004 / 0.003 µg/mL	1	atom	Os, W, Co, Cr, Hf
ICP-OES 208.959 nm	0.007 / 0.0005 µg/mL	1	atom	Mo
ICP-MS 11amu	700 ppt	n/a	M+	

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: January 09, 2012

Expiration Date: EXPIRES 01 MAR 2014

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 10.811; +3; 4; $B(OH)_3$ and $B(OH)_4^{-1}$

Chemical Compatibility - Moderately soluble in HCl, HNO_3, H_2SO_4 and HF aqueous matrices and very soluble in NH_4OH . Stable with all metals and inorganic anions at low to moderate ppm levels.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-1,000 ppm solutions chemically stable for years in 1% HNO_3 / LDPE container. 1000 -10,000 ppm stable for years in dilute NH_4OH / LDPE container.

B Containing Samples (Preparation and Solution) - Metal (Crystalline form is scarcely attacked by acids or alkaline solutions; amorphous form is soluble in conc. HNO_3 or H_2SO_4); $B(OH)_3$ (water soluble); Ores(avoid acid digestions and use caustic fusions in PtE); Organic Matrices (dry ash mixed with Na_2CO_3 in PtE at 450EC then increase heat to 1000EC to fuse; or perform a Na_2O_2 fusion in a NiE crucible / Parr bomb).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 249.773 nm	0.003 / 0.001 µg/mL	1	atom	W, Ce, Co, Th, Ta, Mn, Mo, Fe
ICP-OES 249.678 nm	0.004 / 0.003 µg/mL	1	atom	Os, W, Co, Cr, Hf
ICP-OES 208.959 nm	0.007 / 0.0005 µg/mL	1	atom	Mo
ICP-MS 11amu	700 ppt	n/a	M+	

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: January 09, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308047

Description:	Boron Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	H2O/tr. NH4OH	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 15:57 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-B02103

Analyte	CAS Number	Concentration (ppm)
Boron	7440-42-8	1000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **10000 µg/mL Calcium in 2% v/v HNO3**

Catalog Number:	CGCA10-1, CGCA10-2, and CGCA10-5
Lot Number:	**F2-CA04053**
Starting Material:	CaO
Starting Material Purity (%):	99.9980
Starting Material Lot No:	1635
Matrix:	2% v/v HNO3

1308048
Expires 03/01/14
Preparer:** Vendor ** 02 20 13
Calcium Stock, 10000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	9,997 ± 50 µg/mL - weighted mean
Certified Density:	1.039 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

· The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **10,009 ± 28 µg/mL**
ICP Assay NIST SRM 3109a Lot Number: 050825

Assay Method #2 **9,983 ± 25 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 **BALANCE CALIBRATION -** All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION -** All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION -** An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O Al < 0.000900	M Dy < 0.041636	O Li < 0.000024	M Pr < 0.002082	M Te < 0.208178
M Sb < 0.003470	M Er < 0.034696	M Lu < 0.002776	M Re < 0.006939	M Tb < 0.002082
M As < 0.069393	M Eu < 0.020818	O Mg 0.027397	M Rh < 0.006939	M Tl < 0.006939
O Ba 0.008598	M Gd < 0.006939	O Mn < 0.000300	M Rb < 0.006939	M Th < 0.006939
O Be < 0.000085	M Ga < 0.006939	O Hg < 0.011000	M Ru < 0.013879	M Tm < 0.002776
M Bi < 0.002776	M Ge < 0.041636	M Mo < 0.013879	M Sm < 0.006939	M Sn < 0.034696
O B < 0.000540	M Au < 0.020818	M Nd < 0.013879	O Sc < 0.000020	O Ti < 0.005000
O Cd < 0.004500	M Hf < 0.013879	O Ni < 0.002300	O Se < 0.006200	M W < 0.069393
s Ca	M Ho < 0.003470	M Nb < 0.003470	O Si 0.010201	M U < 0.013879
M Ce < 0.034696	O In < 0.002000	n Os	M Ag < 0.013879	O V < 0.000900
M Cs < 0.002082	M Ir < 0.034696	M Pd < 0.034696	O Na 0.029146	M Yb < 0.006939
O Cr < 0.000800	O Fe < 0.001100	O P < 0.004800	O Sr 0.276885	M Y < 0.277571
O Co < 0.001200	M La < 0.003470	M Pt < 0.013879	O S < 0.025000	O Zn < 0.000190
O Cu < 0.004000	M Pb < 0.020818	O K 0.020402	M Ta < 0.048575	M Zr < 0.034696

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 40.078; +2; 6; $Ca(H_2O)_6^{+2}$

Chemical Compatibility - Soluble in HCl and HNO_3. Avoid H_2SO_4, HF, H_3PO_4 and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-10% HNO_3 / LDPE container.

Ca Containing Samples (Preparation and Solution) - Metal (best dissolved in diluted HNO_3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (dry ash and dissolution in dilute HCl. Do not heat when dissolving to avoid precipitation of SiO_2) .The oxide, hydroxide, carbonate, phosphate, and fluoride of calcium are soluble in % levels of HCl or HNO_3. The sulfates (gypsum, anhydrite, etc.), certain silicates and complex compounds require fusion with Na_2CO_3 followed by HCl / water dissolution. Contamination is a very real problem when analyzing for trace levels.

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 393.366 nm	0.0002 / 0.00004 µg/mL	1	ion	U, Ce
ICP-OES 396.847 nm	0.0005 / 0.00006 µg/mL	1	ion	Th
ICP-OES 422.673 nm	0.01 / 0.001 µg/mL	1	atom	Ge
ICP-MS 44 amu	1200 ppt	n/a	M+	16O212C, 28Si16O, 88Sr

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

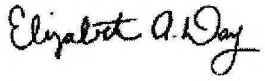
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: August 23, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Zach Saunders Product Documentation Technician	
Certificate Approved By:	Beth Day Quality Assurance Specialist	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308048

Description:	Calcium Stock, 10000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 15:59 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-CA04053

Analyte	CAS Number	Concentration (ppm)
Calcium	7440-70-2	10000

INORGANIC™ VENTURES
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Cadmium in 3% (v/v) HNO3**

Catalog Number:	CGCD1-1, CGCD1-2, and CGCD1-5
Lot Number:	**F2-CD02035**
Starting Material:	Cd shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1542
Matrix:	3% (v/v) HNO3

1308049
Expires 03/01/14
Preparer:** Vendor ** 02 20 13

Cadmium Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,003 ± 5 µg/mL - weighted mean

Certified Density: 1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements

Uncertainty $(\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$

Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,000 ± 3 µg/mL**
ICP Assay NIST SRM 3108 Lot Number: 060531

Assay Method #2 **1,005 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O Al < 0.000900	M Dy < 0.024377	O Li < 0.000020	M Pr < 0.001219	O Te < 0.007000
M Sb < 0.002031	M Er < 0.020314	M Lu < 0.001625	M Re < 0.004063	M Tb < 0.001219
M As < 0.040628	M Eu < 0.012188	O Mg < 0.000030	M Rh < 0.004063	M Tl < 0.004063
M Ba < 0.040628	M Gd < 0.004063	M Mn < 0.016251	M Rb < 0.004063	M Th < 0.004063
M Be < 0.002031	M Ga < 0.004063	O Hg < 0.012000	M Ru < 0.008126	M Tm < 0.001625
M Bi < 0.001625	M Ge < 0.024377	M Mo < 0.008126	M Sm < 0.004063	M Sn < 0.020314
O B < 0.009000	M Au < 0.012188	M Nd < 0.008126	M Sc < 0.040628	M Ti < 0.203141
s Cd	M Hf < 0.008126	O Ni < 0.003000	M Se < 0.032503	M W < 0.040628
O Ca < 0.001500	M Ho < 0.002031	M Nb < 0.002031	O Si < 0.003400	M U < 0.008126
M Ce < 0.020314	O In < 0.002000	n Os	M Ag < 0.008126	M V < 0.008126
M Cs < 0.001219	M Ir < 0.020314	M Pd < 0.020314	O Na 0.000246	M Yb < 0.004063
M Cr < 0.020314	O Fe < 0.001100	O P < 0.003000	M Sr < 0.002031	M Y < 0.162513
M Co < 0.012188	M La < 0.002031	M Pt < 0.008126	O S < 0.030000	O Zn < 0.000200
M Cu < 0.024377	M Pb < 0.012188	O K < 0.001800	M Ta < 0.028440	M Zr < 0.020314

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 112.41; +2; **4** ;Cd2(OH) (aq)3+ and Cd(OH)(aq) 1+

Chemical Compatibility - Stable in HCl, HNO3, H2SO4 , and HF. Avoid basic media forming insoluble carbonate and hydroxide. Stable with most metals and inorganic anions in acidic media. The sulfide, carbonate, oxalate, phosphate, and cyanide are insoluble in water and soluble
in HCl, HNO3 and NH4OH. The chloride, bromide and iodide are soluble in water. CdI2 us one of the few iodides soluble in ethanol. All compounds of Cd are soluble in excess NaI, due to the formation of the complex ion, CdI42-.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5 % HNO3/LDPE container.

Cd Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxides (Soluble in HCl or HNO3); Ores (Dissolve in HCl / HNO3 then take to fumes with H2SO4. The silica and lead sulfate are filtered off after addition of water.); Organic based (dry ash at 450EC and dissolve ash in HCl) (sulfuric/peroxide acid digestion).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 214.438 nm	0.003 / 0.0003 µg/mL	1	ion	Pt, Ir
ICP-OES 228.802 nm	0.003 / 0.0003 µg/mL	1	atom	Co, Ir, As, Pt
ICP-OES 226.502 nm	0.003 / 0.0003 µg/mL	1	ion	Ir
ICP-MS 111 amu	11 ppt	n/a	M+	95Mo16O

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

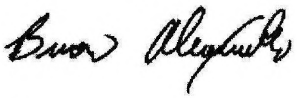
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: February 14, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308049

Description:	Cadmium Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	3% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:02 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-CD02035

Analyte	CAS Number	Concentration (ppm)
Cadmium	7440-43-9	1000

INORGANIC™ VENTURES
300 Technology Drive
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inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Chromium (+3) in 2% (v/v) HNO3**

Catalog Number:	CGCR(3)1-1, CGCR(3)1-2, and CGCR(3)1-5
Lot Number:	**E2-CR03060**
Starting Material:	Cr pieces
Starting Material Purity (%):	99.9958
Starting Material Lot No:	1604
Matrix:	2% (v/v) HNO3

1308051
Expires 03/01/14
Preparer:** Vendor ** 02/20/13

Chromium Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 998 ± 5 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors
(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **997 ± 3 µg/mL**
ICP Assay NIST SRM 3112a Lot Number: 030730

Assay Method #2 **998 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION -** All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION -** All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION -** An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.001480	M	Dy	< 0.032554	O	Li	< 0.000020	M	Pr	< 0.001628	M	Te	< 0.162771
M	Sb	< 0.002713	M	Er	< 0.027128	M	Lu	< 0.002170	M	Re	< 0.005426	M	Tb	< 0.001628
M	As	< 0.054257	M	Eu	< 0.016277	O	Mg	< 0.000300	M	Rh	< 0.005426	M	Tl	< 0.005426
M	Ba	< 0.054257	M	Gd	< 0.005426	M	Mn	< 0.021703	M	Rb	< 0.005426	M	Th	< 0.005426
M	Be	< 0.002713	M	Ga	< 0.005426	O	Hg	< 0.015000	M	Ru	< 0.010851	M	Tm	< 0.002170
M	Bi	< 0.002170	M	Ge	< 0.032554	M	Mo	< 0.010851	M	Sm	< 0.005426	M	Sn	< 0.027128
O	B	< 0.010000	M	Au	< 0.016277	M	Nd	< 0.010851	M	Sc	< 0.054257	O	Ti	< 0.001000
M	Cd	< 0.016277	M	Hf	< 0.010851	O	Ni	< 0.020000	M	Se	< 0.043406	M	W	< 0.054257
O	Ca	0.003885	M	Ho	< 0.002713	M	Nb	< 0.002713	O	Si	< 0.200000	M	U	< 0.010851
M	Ce	< 0.027128	M	In	< 0.054257	n	Os		M	Ag	< 0.010851	O	V	< 0.020000
M	Cs	< 0.001628	M	Ir	< 0.027128	M	Pd	< 0.027128	O	Na	0.004625	M	Yb	< 0.005426
s	Cr		O	Fe	0.022572	O	P	< 0.040000	M	Sr	< 0.002713	M	Y	< 0.217028
M	Co	< 0.016277	M	La	< 0.002713	M	Pt	< 0.010851	i	S		O	Zn	< 0.004000
M	Cu	0.006023	M	Pb	< 0.016277	O	K	0.004070	M	Ta	< 0.037980	M	Zr	< 0.027128

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 51.9961; +3; 6; $Cr(H_2O)_6^{3+}$

Chemical Compatibility - Stable in HCl, HNO_3, H_2SO_4, HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Cr Containing Samples (Preparation and Solution) - Metal (soluble in HCl); Oxides/Ores (Chrome ore/oxides are very difficult to dissolve. The following procedures [A-D] are commonly used:

A. Fusion with $KHSO_4$ and extraction with hot KCl. The residue fused with Na_2CO_3 and $KClO_3$, 3:1.

B. Fusion with $NaKSO_4$ and NaF, 2:1.

C. Fusion with magnesia or lime and sodium or potassium carbonates, 4:1.

D. Fusion with Na_2O_2 or NaOH and KNO_3 or NaOH and Na_2O_2.

Nickel, iron, copper, or silver crucibles should be used for **D**. Platinum may be used for **A, B and C**);
Organic Matrices (Ash at 450EC followed by one of the fusion methods above or sulfuric/hydrogen peroxide acid digestions **may** be applicable to **non oxide** containing samples) .

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 205.552 nm	0.006 / 0.0008 µg/mL	1	ion	Os
ICP-OES 284.325 nm	0.008 / 0.0007 µg/mL	1	ion	
ICP-OES 276.654 nm	0.01 / 0.001 µg/mL	1	ion	Cu, Ta, V
ICP-MS 52 amu	40 ppt	n/a	M+	36S16O, 36Ar16O - The 50Cr, 53Cr, 54Cr lines suffer from many more potential interferences from sulfur, chlorine and argon compounds of oxygen, nitrogen and carbon.

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

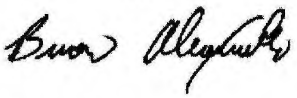
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: January 13, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308051

Description:	Chromium Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:06 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-CR03060

Analyte	CAS Number	Concentration (ppm)
Chromium	7440-47-3	1000

Analytical Standard Record

EPA Region 9 Laboratory

1308052

Description:	Cobalt Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	3% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:08 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-CO02044

Analyte	CAS Number	Concentration (ppm)
Cobalt	7440-48-4	1000

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CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Cobalt in 3% (v/v) HNO3**

Catalog Number:	CGCO1-1, CGCO1-2, and CGCO1-5
Lot Number:	**F2-CO02044**
Starting Material:	Co powder
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1640
Matrix:	3% (v/v) HNO3

1308052
Expires 03/01/14
Preparer:** Vendor ** 02 20 13
Cobalt Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 996 ± 5 µg/mL - weighted mean

Certified Density: 1.018 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2\,[\,\Sigma(s_i)^2\,]^{½}$ 2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

· The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **995 ± 3 µg/mL**
ICP Assay NIST SRM 3113 Lot Number: 00630

Assay Method #2 **997 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 **BALANCE CALIBRATION -** All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION -** All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION -** An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.000900	M	Dy	< 0.030277	O	Li	0.000204	M	Pr	< 0.001514	M	Te	< 0.151383
M	Sb	< 0.002523	M	Er	< 0.025230	M	Lu	< 0.002018	M	Re	< 0.005046	M	Tb	< 0.001514
i	As		M	Eu	< 0.015138	O	Mg	0.000163	M	Rh	< 0.005046	M	Tl	< 0.005046
M	Ba	< 0.050461	M	Gd	< 0.005046	O	Mn	< 0.004000	M	Rb	< 0.005046	M	Th	< 0.005046
M	Be	< 0.002523	M	Ga	< 0.005046	O	Hg	< 0.050000	M	Ru	< 0.010092	M	Tm	< 0.002018
M	Bi	< 0.002018	M	Ge	< 0.030277	M	Mo	< 0.010092	M	Sm	< 0.005046	M	Sn	< 0.025230
O	B	< 0.040000	M	Au	< 0.015138	M	Nd	< 0.010092	M	Sc	< 0.050461	M	Ti	< 0.252304
M	Cd	< 0.015138	M	Hf	< 0.010092	O	Ni	< 0.020000	i	Se		M	W	< 0.050461
O	Ca	0.001222	M	Ho	< 0.002523	M	Nb	< 0.002523	O	Si	< 0.004000	M	U	< 0.010092
M	Ce	< 0.025230	M	In	< 0.050461	n	Os		M	Ag	< 0.010092	M	V	< 0.010092
M	Cs	< 0.001514	M	Ir	< 0.025230	M	Pd	< 0.025230	O	Na	0.001833	M	Yb	< 0.005046
M	Cr	< 0.025230	O	Fe	< 0.050000	n	P		M	Sr	< 0.002523	M	Y	< 0.201843
s	Co		M	La	< 0.002523	M	Pt	< 0.010092	n	S		O	Zn	< 0.000600
M	Cu	< 0.030277	M	Pb	0.002055	O	K	0.000407	M	Ta	< 0.035323	M	Zr	< 0.025230

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return po removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 58.9332; +2; 6; Co(H2O)62+

Chemical Compatibility - Stable in HCl, HNO3, H2SO4 ,HF, H3PO4. Avoid basic media. Stable with most metals and inorganic anio in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.

Co Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 238.892 nm	0.01/.002 µg/mL	1	ion	Fe, W, Ta
ICP-OES 228.616 nm	0.01/.001µg/mL	1	ion	
ICP-OES 237.862 nm	0.01/.002 µg/mL	1	ion	W, Re, Al, Ta
ICP-MS 59 amu	2 ppt	n/a	M+	42Ca16O1H , 40Ar18O1H , 36Ar23Na, 43Ca16O, 24Mg35Cl

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

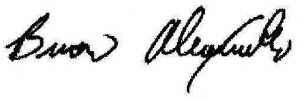
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: March 30, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308053

Description:	Copper Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	3% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:10 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-CU02147

Analyte	CAS Number	Concentration (ppm)
Copper	7440-50-8	1000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Copper in 3% (v/v) HNO3**

Catalog Number:	CGCU1-1, CGCU1-2, and CGCU1-5
Lot Number:	**F2-CU02147**
Starting Material:	Cu shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1718
Matrix:	3% (v/v) HNO3

1308053
Expires 03/01/14
Preparer:** Vendor ** 02/20/13

Copper Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2 [\Sigma(s_i)^2]^{½}$ 2 = the coverage factor.

$[\Sigma(s_i)^2]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

· The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **998 ± 3 µg/mL**
ICP Assay NIST SRM 3114 Lot Number: 011017

Assay Method #2 **1000 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 **BALANCE CALIBRATION -** All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION -** All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION -** An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.000900	M	Dy	< 0.053604	O	Li	< 0.000020	M	Pr	< 0.002680	M	Te	< 0.268021
M	Sb	< 0.004467	M	Er	< 0.044670	M	Lu	< 0.003574	M	Re	< 0.008934	M	Tb	< 0.002680
M	As	< 0.089340	M	Eu	< 0.026802	O	Mg	0.000003	M	Rh	< 0.008934	M	Tl	< 0.008934
M	Ba	< 0.089340	M	Gd	< 0.008934	O	Mn	< 0.000200	M	Rb	< 0.008934	M	Th	< 0.008934
M	Be	< 0.004467	M	Ga	< 0.008934	O	Hg	< 0.015000	M	Ru	< 0.017868	M	Tm	< 0.003574
M	Bi	< 0.003574	M	Ge	< 0.053604	M	Mo	< 0.017868	M	Sm	< 0.008934	O	Sn	< 0.004000
M	B	< 0.625382	M	Au	< 0.026802	M	Nd	< 0.017868	M	Sc	< 0.089340	M	Ti	< 0.446702
M	Cd	< 0.026802	M	Hf	< 0.017868	O	Ni	< 0.003000	M	Se	< 0.071472	M	W	< 0.089340
O	Ca	0.000078	M	Ho	< 0.004467	M	Nb	< 0.004467	O	Si	< 0.003400	M	U	< 0.017868
M	Ce	< 0.044670	M	In	< 0.089340	n	Os		M	Ag	< 0.017868	O	V	< 0.003000
M	Cs	< 0.002680	M	Ir	< 0.044670	M	Pd	< 0.044670	O	Na	0.000168	M	Yb	< 0.008934
M	Cr	< 0.044670	O	Fe	< 0.001100	O	P	< 0.002600	M	Sr	< 0.004467	M	Y	< 0.357361
M	Co	< 0.026802	M	La	< 0.004467	M	Pt	< 0.017868	n	S		O	Zn	< 0.010000
s	Cu		O	Pb	< 0.010000	O	K	0.000224	M	Ta	< 0.062538	M	Zr	< 0.044670

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 63.546; +2; 6; $Cu(H_2O)_6^{2+}$

Chemical Compatibility - Stable in HCl, HNO_3, H_2SO_4, HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Cu Containing Samples (Preparation and Solution) - Metal (soluble in HNO_3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO_3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 324.754 nm	0.06/.001 µg/mL		atom	Nb, U, Th, Mo, Hf
ICP-OES 224.700 nm	0.01/.001µg/mL	1	ion	Pb, Ir, Ni, W
ICP-OES 219.958 nm	0.01/.002 µg/mL	1	atom	Th, Ta, Nb, U, Hf
ICP-MS 63 amu	10 ppt	n/a	M+	40Ar23Na 47Ti16O, 14N12C37Cl, 16O12C35Cl, 23Na40Ca

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

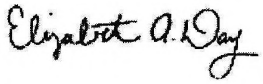
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: January 15, 2013

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Zach Saunders Product Documentation Technician	
Certificate Approved By:	Beth Day Quality Assurance Specialist	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308054

Description:	Iron Stock, 10000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	5% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:13 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-FE04007

Analyte	CAS Number	Concentration (ppm)
Iron	7439-89-6	10000

INORGANIC™ VENTURES
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **10000 µg/mL Iron in 5% HNO3**

Catalog Number:	CGFE10-1, CGFE10-2, and CGFE10-5
Lot Number:	**F2-FE04007**
Starting Material:	Fe pieces
Starting Material Purity (%):	99.9972
Starting Material Lot No:	1618
Matrix:	5% HNO3

1308054
Expires 03/01/14
Preparer:** Vendor ** 02 20 13

Iron Stock, 10000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 9991 ± 51 µg/mL

Certified Density: 1.047 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **9978 ± 31 µg/mL**
ICP Assay NIST SRM 3126a Lot Number: 051031

Assay Method #2 **10,010 ± 25 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.002700	M	Dy	< 0.038315	O	Li	< 0.000030	M	Pr	< 0.001916	M	Te	< 0.191576
M	Sb	< 0.003193	M	Er	< 0.031929	M	Lu	< 0.002554	M	Re	< 0.006386	M	Tb	< 0.001916
M	As	< 0.063859	M	Eu	< 0.019158	O	Mg	< 0.000060	M	Rh	< 0.006386	M	Tl	< 0.006386
O	Ba	< 0.000100	M	Gd	< 0.006386	O	Mn	0.046978	M	Rb	< 0.006386	M	Th	< 0.006386
O	Be	< 0.000050	M	Ga	< 0.006386	O	Hg	< 0.011000	M	Ru	< 0.012772	M	Tm	< 0.002554
M	Bi	< 0.002554	i	Ge		M	Mo	< 0.012772	M	Sm	< 0.006386	M	Sn	< 0.031929
O	B	< 0.020000	M	Au	< 0.019158	M	Nd	< 0.012772	M	Sc	< 0.063859	M	Ti	< 0.319293
M	Cd	< 0.019158	M	Hf	< 0.012772	O	Ni	0.101787	M	Se	< 0.051087	M	W	< 0.063859
O	Ca	0.009552	M	Ho	< 0.003193	M	Nb	< 0.003193	O	Si	< 0.010000	M	U	< 0.012772
M	Ce	< 0.031929	M	In	< 0.063859	n	Os		M	Ag	< 0.012772	M	V	< 0.012772
M	Cs	< 0.001916	M	Ir	< 0.031929	M	Pd	< 0.031929	O	Na	0.012997	M	Yb	< 0.006386
O	Cr	0.004698	s	Fe		i	P		M	Sr	< 0.003193	M	Y	< 0.255435
O	Co	0.090825	M	La	< 0.003193	M	Pt	< 0.012772	i	S		M	Zn	0.030000
M	Cu	< 0.038315	M	Pb	< 0.019158	O	K	< 0.001700	M	Ta	< 0.044701	M	Zr	< 0.031929

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 55.847; +3; 6; $Fe(H_2O)_6^{3+}$

Chemical Compatibility - Stable in HCl, HNO_3, H_2SO_4 ,HF and H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Fe Containing Samples (Preparation and Solution) - Metal (Soluble in HCl); Oxides (If the oxide has been at a high temperature then Na_2CO_3 fusion in Pt0 followed by HCl dissolution otherwise dissolve in dilute HCl); Ores (See Oxides above using only the fusion approach).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 238.204 nm	0.005 / 0.001 µg/mL	1	ion	Ru, Co
ICP-OES 239.562 nm	0.005 / 0.001 µg/mL	1	ion	Co, W, Cr
ICP-OES 259.940 nm	0.006 / 0.001 µg/mL	1	ion	Hf, Nb
ICP-MS 56 amu	970 ppt	n/a	M+	40Ar15N1H, 40Ar16O, 36Ar17O1H , 38Ar18O, 37Cl18O1H, 40Ca16O

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

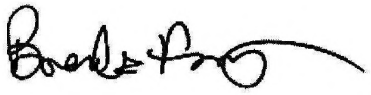
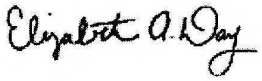
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: August 01, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Brenda Francis Product Documentation Technician	
Certificate Approved By:	Beth Day Quality Assurance Specialist	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308055

Description:	Lead Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	0.5% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:15 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-PB03035

Analyte	CAS Number	Concentration (ppm)
Lead	7439-92-1	1000

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Lead in 0.5% (v/v) HNO3**

Catalog Number:	CGPB1-1, CGPB1-2, and CGPB1-5
Lot Number:	**F2-PB03035**
Starting Material:	Pb(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1717
Matrix:	0.5% (v/v) HNO3

1308055
Expires 03/01/14
Preparer:** Vendor ** 02/20/13
Lead Stock, 1000ppm

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL - weighted mean

Certified Density: 1.002 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,000 ± 3 µg/mL**
ICP Assay NIST SRM 3128 Lot Number: 101026

Assay Method #2 **1,002 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.000477	M	Dy	< 0.017590	O	Li	0.000136	M	Pr	< 0.000880	M	Te	< 0.087952
M	Sb	< 0.001466	M	Er	< 0.014659	M	Lu	< 0.001173	M	Re	< 0.002932	M	Tb	< 0.000880
M	As	< 0.029317	M	Eu	< 0.008795	O	Mg	0.000102	O	Rh	< 0.009000	O	Tl	< 0.022000
O	Ba	0.000545	M	Gd	< 0.002932	M	Mn	< 0.011727	M	Rb	< 0.002932	M	Th	< 0.002932
M	Be	< 0.001466	M	Ga	< 0.002932	O	Hg	< 0.015000	M	Ru	< 0.005863	M	Tm	< 0.001173
O	Bi	< 0.020000	M	Ge	< 0.017590	M	Mo	< 0.005863	M	Sm	< 0.002932	M	Sn	< 0.014659
O	B	< 0.040000	M	Au	< 0.008795	M	Nd	< 0.005863	M	Sc	< 0.029317	M	Ti	< 0.146587
M	Cd	< 0.008795	M	Hf	< 0.005863	O	Ni	< 0.003000	M	Se	< 0.023454	M	W	< 0.029317
O	Ca	0.000682	M	Ho	< 0.001466	M	Nb	< 0.001466	O	Si	< 0.003400	M	U	< 0.005863
M	Ce	< 0.014659	M	In	< 0.029317	n	Os		M	Ag	< 0.005863	M	V	< 0.005863
M	Cs	< 0.000880	M	Ir	< 0.014659	M	Pd	< 0.014659	O	Na	< 0.006000	M	Yb	< 0.002932
M	Cr	< 0.014659	O	Fe	0.000545	O	P	< 0.005000	O	Sr	0.000204	M	Y	< 0.117270
M	Co	< 0.008795	M	La	< 0.001466	M	Pt	< 0.005863	O	S	< 0.100000	O	Zn	< 0.000200
M	Cu	< 0.017590	s	Pb		O	K	< 0.001800	M	Ta	< 0.020522	M	Zr	< 0.014659

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 207.2; +2; 6; $Pb(H_2O)_6^{+2}$

Chemical Compatibility - Soluble in HCl, HF and HNO_3. Avoid H_2SO_4. Stable with most metals and inorganic anions forming insoluble carbonate, borate, sulfate, sulfite, sulfide, phosphate, oxalate, chromate, tannate, iodate, and cyanide in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO_3 / LDPE container.

Pb Containing Samples (Preparation and Solution) - Metal (Best dissolved in 1:1 H_2O / HNO_3); Oxides (The many different Pb oxides are soluble in HNO_3 with the exception of PbO_2 which is soluble in HCl or HF); Ores and Alloys (Best attacked using 1:1 H_2O / HNO_3); Organic Matrices (Dry ash and dissolve in dilute HCl.).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 168.215 nm	0.03 / 0.003 µg/mL	1	ion	Co
ICP-OES 220.353 nm	0.04 / 0.006 µg/mL	1	ion	Bi, Nb
ICP-OES 217.000 nm	0.09 / 0.03 µg/mL	1	atom	W, Ir, Hf, Sb, Th
ICP-MS 208 amu	5 ppt	n/a	M+	192Pt16O, 192Os16O

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: February 10, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308057

Description:	Magnesium Stock, 10000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:21 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-MG03106

Analyte	CAS Number	Concentration (ppm)
Magnesium	7439-95-4	10000

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300 Technology Drive
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CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **10000 µg/mL Magnesium in 2% (v/v) HNO3**

Catalog Number:	CGMG10-1, CGMG10-2, and CGMG10-5
Lot Number:	**E2-MG03106**
Starting Material:	Mg metal
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1484
Matrix:	2% (v/v) HNO3

1308057
Expires 03/01/14
Preparer:** Vendor ** 02/20/13
Magnesium Stock, 10000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 10,000 ± 54 µg/mL - weighted mean

Certified Density: 1.053 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

· The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **9,999 ± 38 µg/mL**
ICP Assay NIST SRM 3131a Lot Number: 050302

Assay Method #2 **10,001 ± 26 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.000600	M	Dy	< 0.022339	O	Li	0.011947	M	Pr	< 0.001117	M	Te	< 0.111693
M	Sb	< 0.001862	M	Er	< 0.018615	M	Lu	< 0.001489	M	Re	< 0.003723	M	Tb	< 0.001117
M	As	< 0.037231	M	Eu	< 0.011169	s	Mg		M	Rh	< 0.003723	M	Tl	< 0.003723
M	Ba	< 0.037231	M	Gd	< 0.003723	O	Mn	< 0.000024	M	Rb	< 0.003723	M	Th	< 0.003723
O	Be	< 0.000170	M	Ga	< 0.003723	O	Hg	< 0.009000	M	Ru	< 0.007446	M	Tm	< 0.001489
M	Bi	< 0.001489	M	Ge	< 0.022339	M	Mo	< 0.007446	M	Sm	< 0.003723	M	Sn	< 0.018615
O	B	< 0.003000	M	Au	< 0.011169	M	Nd	< 0.007446	M	Sc	< 0.037231	O	Ti	< 0.001100
M	Cd	< 0.011169	M	Hf	< 0.007446	O	Ni	< 0.002700	M	Se	< 0.029785	M	W	< 0.037231
O	Ca	0.003982	M	Ho	< 0.001862	M	Nb	< 0.001862	O	Si	< 0.006000	M	U	< 0.007446
M	Ce	< 0.018615	M	In	< 0.037231	n	Os		M	Ag	< 0.007446	M	V	< 0.007446
M	Cs	< 0.001117	M	Ir	< 0.018615	M	Pd	< 0.018615	O	Na	0.011947	M	Yb	< 0.003723
O	Cr	< 0.000300	O	Fe	< 0.001600	O	P	< 0.016000	M	Sr	< 0.001862	M	Y	< 0.148924
M	Co	< 0.011169	M	La	< 0.001862	M	Pt	< 0.007446	n	S		O	Zn	< 0.000900
O	Cu	< 0.004000	M	Pb	0.004942	O	K	< 0.050000	M	Ta	< 0.026062	M	Zr	< 0.018615

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 24.305; +2; 6; $Mg(H_2O)_6^{+2}$

Chemical Compatibility - Soluble in HCl, HNO_3, and H_2SO_4 avoid HF, H_3PO_4 and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicates, carbonates, hydroxides, oxides, and tungstates in neutral and slightly acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-10% HNO_3 / LDPE container.

Mg Containing Samples (Preparation and Solution) - Metal (Best dissolved in diluted HNO_3); Oxide (Readily soluble in above compatible aqueous acidic solutions); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Sulfuric / peroxide digestion or nitric / sulfuric / perchloric acid decomposition, or dry ash and dissolution in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 279.553 nm	0.0002 / 0.00003 µg/mL	1	ion	Th
ICP-OES 280.270 nm	0.0003 / 0.00005 µg/mL	1	ion	U, V
ICP-OES 285.213 nm	0.002 / 0.00003 µg/mL	1	atom	U, Hf, Cr, Zr
ICP-MS 24 amu	42 ppt	n/a	M+	$^{7}Li^{17}O$, $^{48}Ti^{+2}$, $^{48}Ca^{+2}$

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: November 30, 2011

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308058

Description:	Manganese Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	3% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:23 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-MN02093

Analyte	CAS Number	Concentration (ppm)
Manganese	7439-96-5	1000

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CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Manganese in 3% (v/v) HNO3**

Catalog Number:	CGMN1-1, CGMN1-2, and CGMN1-5
Lot Number:	**E2-MN02093**
Starting Material:	Mn pieces
Starting Material Purity (%):	99.9940
Starting Material Lot No:	1573
Matrix:	3% (v/v) HNO3

1308058
Expires 03/01/14
Preparer:** Vendor ** 02/20/13
Manganese Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 999 ± 5 µg/mL - weighted mean

Certified Density: 1.017 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

· The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **998 ± 3 µg/mL**
ICP Assay NIST SRM 3132 Lot Number: 050429

Assay Method #2 **1,000 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.000806	M	Dy	< 0.049987	O	Li	< 0.000020	M	Pr	< 0.002499	M	Te	< 0.249933
M	Sb	< 0.004166	M	Er	< 0.041656	M	Lu	< 0.003332	M	Re	< 0.008331	M	Tb	< 0.002499
M	As	< 0.083311	M	Eu	< 0.024993	O	Mg	0.041735	M	Rh	< 0.008331	M	Tl	< 0.008331
M	Ba	< 0.083311	M	Gd	< 0.008331	s	Mn		M	Rb	< 0.008331	M	Th	< 0.008331
M	Be	< 0.004166	O	Ga	< 0.050000	i	Hg		M	Ru	< 0.016662	M	Tm	< 0.003332
M	Bi	< 0.003332	O	Ge	< 0.003000	M	Mo	< 0.016662	M	Sm	< 0.008331	M	Sn	< 0.041656
O	B	0.002646	M	Au	< 0.024993	M	Nd	< 0.016662	M	Sc	< 0.083311	O	Ti	< 0.002000
M	Cd	< 0.024993	M	Hf	< 0.016662	M	Ni	< 0.066649	M	Se	< 0.066649	M	W	< 0.083311
O	Ca	0.003247	M	Ho	< 0.004166	M	Nb	< 0.004166	O	Si	< 0.050000	M	U	< 0.016662
M	Ce	< 0.041656	M	In	< 0.083311	n	Os		M	Ag	< 0.016662	M	V	< 0.016662
M	Cs	< 0.002499	M	Ir	< 0.041656	M	Pd	< 0.041656	O	Na	0.006375	M	Yb	< 0.008331
M	Cr	0.004208	O	Fe	< 0.010000	i	P		M	Sr	< 0.004166	M	Y	< 0.333244
M	Co	0.001804	M	La	< 0.004166	M	Pt	< 0.016662	i	S		O	Zn	< 0.000600
M	Cu	< 0.049987	M	Pb	< 0.024993	O	K	0.000842	M	Ta	< 0.058318	M	Zr	< 0.041656

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 54.9380; +2; **6**; $Mn(H_2O)_6^{2+}$

Chemical Compatibility - Stable in HCl, HNO_3, H_2SO_4 ,HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5 % HNO_3/LDPE container.

Mn Containing Samples (Preparation and Solution) - Metal (Soluble in dilute acids); Oxides (Soluble in dilute acids); Ores (Dissolve with HCl. If silica is present add HF and then fume off silica by adding H_2SO_4 and heat to SO_3 fumes - dense white fumes).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 257.610 nm	0.0014 / 0.00002 µg/mL	1	ion	Ce, W, Re
ICP-OES 259.373 nm	0.0016 / 0.00002 µg/mL	1	ion	U, Ta, Mo, Fe, Nb
ICP-OES 260.569 nm	0.0021 / 0.00002 µg/mL	1	ion	Co
ICP-MS 55 amu	10 ppt	n/a	M+	40Ar14N1H, 39K16O, 37Cl18O, 40Ar15N, 38Ar17O, 36Ar18O1H , 38Ar16O1H, 37Cl17O1H, 23Na32S

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: January 03, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308059

Description:	Molybdenum Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	H2O/trace NH4OH	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:26 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-MO02046

Analyte	CAS Number	Concentration (ppm)
Molybdenum	7439-98-7	1000

INORGANIC™ VENTURES
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Molybdenum in H2O / tr. NH4OH**

Catalog Number:	CGMO1-1, CGMO1-2, and CGMO1-5
Lot Number:	**E2-MO02046**
Starting Material:	(NH4)6Mo7O24xH2O
Starting Material Purity (%):	99.9999
Starting Material Lot No:	P704MOA1
Matrix:	H2O / tr. NH4OH

1308059
Expires 03/01/14
Preparer:** Vendor ** 02/20/13
Molybdenum Stock, 1000ppm

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL - weighted mean

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **997 ± 3 µg/mL**
ICP Assay NIST SRM 3134 Lot Number: 891307

Assay Method #2 **1,001 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O Al < 0.050000	M Dy < 0.012134	O Li < 0.010000	O Pr < 0.100000	i Te
M Sb < 0.001011	M Er < 0.010111	M Lu < 0.000809	M Re < 0.002022	M Tb < 0.000607
M As < 0.020223	M Eu < 0.006067	O Mg < 0.050000	M Rh < 0.002022	M Tl < 0.002022
M Ba < 0.020223	M Gd < 0.002022	M Mn < 0.008089	M Rb < 0.002022	M Th < 0.002022
M Be < 0.001011	M Ga < 0.002022	i Hg	i Ru	M Tm < 0.000809
M Bi < 0.000809	M Ge < 0.012134	s Mo	M Sm < 0.002022	M Sn < 0.010111
O B < 0.500000	M Au < 0.006067	O Nd < 0.050000	O Sc < 0.050000	O Ti < 0.005000
O Cd < 0.500000	M Hf < 0.004045	M Ni < 0.016178	M Se < 0.016178	M W < 0.020223
O Ca 0.000377	M Ho < 0.001011	M Nb < 0.001011	O Si < 0.100000	M U < 0.004045
O Ce < 0.050000	M In 0.023844	n Os	M Ag < 0.004045	M V < 0.004045
M Cs < 0.000607	M Ir < 0.010111	M Pd < 0.010111	O Na < 0.100000	M Yb < 0.002022
M Cr < 0.010111	O Fe < 0.500000	i P	M Sr < 0.001011	M Y < 0.080891
M Co < 0.006067	M La < 0.001011	M Pt < 0.004045	i S	M Zn 0.003815
M Cu < 0.012134	M Pb < 0.006067	O K < 0.030000	M Ta < 0.014156	M Zr < 0.010111

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 95.94; +6; **6**,7,8,9; [MoO4]-2(chemical form as received)

Chemical Compatibility - Mo is received in a NH4OH matrix giving the operator the option of using HCl or HF to stabilize acidic solutions. The [MoO4]-2 is soluble in concentrated HCl [MoOCl5]-2, dilute HF / HNO3 [MoOF5]-2 and basic media [MoO4]-2. Stable at ppm levels with some metals provided it is fluorinated. Do not mix with Alkaline or Rare Earths when HF is present. Stable with most inorganic anions provided it is in the [MoO4]-2 chemical form.

Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the [MoOF5]-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the [MoO4]-2 chemically stable for years in 1% NH4OH in a LDPE container.

Mo Containing Samples (Preparation and Solution) - Metal (Soluble in HF / HNO3 or hot dilute HCl); Oxide (soluble in HF or NH4OH) ; Organic Matrices (Dry ash at 450EC in Pt0 and dissolve oxide with HF or HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 202.030 nm	0.008 / 0.0002 µg/mL	1	ion	Os, Hf
ICP-OES 203.844 nm	0.012 / 0.002 µg/mL	1	ion	
ICP-OES 204.598 nm	0.012 / 0.001 µg/mL	1	ion	Ir, Ta
ICP-MS 95 amu	3 ppt	n/a	M+	40Ar39K16O, 79Br16O, 190Os2+, 190Pt2+

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

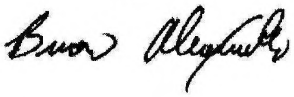
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: December 21, 2011

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308060

Description:	Nickel Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:29 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-NI02074

Analyte	CAS Number	Concentration (ppm)
Nickel	7440-02-0	1000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Nickel in 2% (v/v) HNO3**

Catalog Number:	CGNI1-1, CGNI1-2, and CGNI1-5
Lot Number:	**E2-NI02074**
Starting Material:	Ni pieces
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1559
Matrix:	2% (v/v) HNO3

1308060
Expires 03/01/14
Preparer:** Vendor ** 02 20 13

Nickel Stock, 1000ppm

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,003 ± 5 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors
(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

· The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **1,002 ± 3 µg/mL**
ICP Assay NIST SRM 3136 Lot Number: 000612

Assay Method #2 **1,003 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 **BALANCE CALIBRATION -** All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION -** All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION -** An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al < 0.003000	M	Dy < 0.070404	O	Li < 0.000020	M	Pr < 0.003520	M	Te < 0.352022
M	Sb < 0.005867	M	Er < 0.058670	M	Lu < 0.004694	M	Re < 0.011734	M	Tb < 0.003520
O	As < 0.005400	M	Eu < 0.035202	O	Mg 0.000033	M	Rh < 0.011734	M	Tl < 0.011734
M	Ba < 0.117341	M	Gd < 0.011734	M	Mn < 0.046936	M	Rb < 0.011734	M	Th < 0.011734
O	Be < 0.002000	M	Ga < 0.011734	O	Hg < 0.011000	M	Ru < 0.023468	M	Tm < 0.004694
M	Bi < 0.004694	M	Ge < 0.070404	M	Mo < 0.023468	M	Sm < 0.011734	M	Sn < 0.058670
O	B < 0.009900	M	Au < 0.035202	M	Nd < 0.023468	M	Sc < 0.117341	M	Ti < 0.586704
M	Cd < 0.035202	M	Hf < 0.023468	s	Ni	O	Se < 0.006000	M	W < 0.117341
O	Ca 0.000327	M	Ho < 0.005867	M	Nb < 0.005867	O	Si < 0.003400	M	U < 0.023468
M	Ce < 0.058670	M	In < 0.117341	n	Os	M	Ag < 0.023468	M	V < 0.023468
M	Cs < 0.003520	M	Ir < 0.058670	M	Pd < 0.058670	O	Na 0.000435	M	Yb < 0.011734
M	Cr < 0.058670	O	Fe 0.000762	O	P < 0.100000	M	Sr < 0.005867	M	Y < 0.469363
O	Co < 0.002000	M	La < 0.005867	M	Pt < 0.023468	O	S < 0.025000	M	Zn < 0.234682
M	Cu < 0.070404	M	Pb < 0.035202	O	K 0.000163	M	Ta < 0.082139	M	Zr < 0.058670

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 58.69; +2; 6; $Ni(H_2O)_6^{2+}$

Chemical Compatibility - Stable in HCl, HNO_3, H_2SO_4 ,HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Ni Containing Samples (Preparation and Solution) - Metal (Soluble in HNO_3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO_3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 221.647 nm	0.01 / 0.0009 µg/mL	1	ion	Si
ICP-OES 232.003 nm	0.02 / 0.006 µg/mL	1	atom	Cr, Re, Os, Nb, Ag, Pt, Fe
ICP-OES 231.604 nm	0.02 / 0.002 µg/mL	1	ion	Sb, Ta, Co
ICP-MS 60 amu	100 ppt	n/a	M+	43Ca16O1H , 44Ca16O, 23Na37Cl

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: February 10, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308061

Description:	Potassium Stock, 10000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:32 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-K03029

Analyte	CAS Number	Concentration (ppm)
Potassium	7440-09-7	10000

INORGANIC™ VENTURES
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **10000 µg/mL Potassium in 2% (v/v) HNO3**

Catalog Number:	CGK10-1, CGK10-2, and CGK10-5
Lot Number:	**F2-K03029**
Starting Material:	KNO3
Starting Material Purity (%):	99.9981
Starting Material Lot No:	B19P01
Matrix:	2% (v/v) HNO3

1308061
Expires 03/01/14
Preparer:** Vendor ** 02/20/13
Potassium Stock, 10000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 9,979 ± 55 µg/mL - weighted mean

Certified Density: 1.024 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **9,981 ± 40 µg/mL**
ICP Assay NIST SRM 3141a Lot Number: 051220

Assay Method #2 **9,971 ± 18 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.000900	M	Dy	< 0.037817	O	Li	0.000065	M	Pr	< 0.001891	M	Te	< 0.189084
M	Sb	< 0.003151	M	Er	< 0.031514	M	Lu	< 0.002521	M	Re	< 0.006303	M	Tb	< 0.001891
M	As	< 0.063028	M	Eu	< 0.018908	O	Mg	0.001032	M	Rh	< 0.006303	M	Tl	< 0.006303
O	Ba	0.000055	M	Gd	< 0.006303	O	Mn	0.000161	M	Rb	0.416797	M	Th	< 0.006303
O	Be	< 0.000200	M	Ga	< 0.006303	O	Hg	< 0.015000	M	Ru	< 0.012606	M	Tm	< 0.002521
M	Bi	< 0.002521	O	Ge	< 0.001500	M	Mo	< 0.012606	M	Sm	< 0.006303	M	Sn	< 0.031514
O	B	< 0.000600	O	Au	< 0.003000	M	Nd	< 0.012606	O	Sc	< 0.000100	O	Ti	< 0.000700
M	Cd	< 0.018908	M	Hf	< 0.012606	O	Ni	0.000806	O	Se	< 0.050000	M	W	< 0.063028
O	Ca	0.003548	M	Ho	< 0.003151	M	Nb	< 0.003151	O	Si	< 0.003400	M	U	< 0.012606
M	Ce	< 0.031514	M	In	< 0.063028	n	Os		M	Ag	< 0.012606	O	V	< 0.000900
M	Cs	< 0.001891	M	Ir	< 0.031514	M	Pd	< 0.031514	O	Na	0.051613	M	Yb	< 0.006303
M	Cr	< 0.031514	O	Fe	0.000500	O	P	< 0.002500	M	Sr	< 0.003151	M	Y	< 0.252111
M	Co	< 0.018908	M	La	< 0.003151	M	Pt	< 0.012606	O	S	< 0.072000	O	Zn	0.000403
M	Cu	< 0.037817	M	Pb	< 0.018908	s	K		M	Ta	< 0.044119	M	Zr	< 0.031514

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 39.0983; +1; (6); K+(aq)
(Coordination Number in parentheses is assumed, not certain.)

Chemical Compatibility - Soluble in HCl, HNO3, H2SO4 and HF aqueous matrices. Avoid use of HClO4 due to insolubility of the perchlorate. Stable with all metals and inorganic anions except ClO4-.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.

K Containing Samples (Preparation and Solution) - Metal (Dissolves very rapidly in water); Ores (Sodium carbonate fusion in Pt0 followed by HCl dissolution-blank levels of K in sodium carbonate critical); Organic Matrices (Sulfuric/peroxide digestion)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 766.490 nm	0.4 / 0.001 µg/mL	1	atom	2nd order radiation from R.E.s on some optical designs
ICP-OES 771.531 nm	1.0 / 0.03 µg/mL	1	atom	2nd order radiation from R.E.s on some optical designs
ICP-OES 404.721 nm	1.1 / 0.05 µg/mL	1	atom	U, Ce,
ICP-MS 39 amu	10 ppt	n/a	M+	38ArH, 23Na16O, 78Se

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

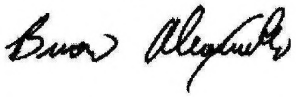
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: March 29, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308062

Description:	Selenium Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:36 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-SE02033

Analyte	CAS Number	Concentration (ppm)
Selenium	7782-49-2	1000

INORGANIC™ VENTURES
300 Technology Drive
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inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Selenium(+4) in 2% (v/v) HNO3**

Catalog Number:	CGSE(4)1-1, CGSE(4)1-2, and CGSE(4)1-5
Lot Number:	**E2-SE02033**
Starting Material:	Se shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1616
Matrix:	2% (v/v) HNO3

1308062
Expires 03/01/14
Preparer:** Vendor ** 02/20 13

Selenium Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,001 ± 6 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

· The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **1,002 ± 4 µg/mL**
ICP Assay NIST SRM 3149 Lot Number: 100901

Assay Method #2 **1,000 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.000169	M	Dy < 0.022740	O	Li < 0.000030	M	Pr < 0.001137	M	Te < 0.113700
M	Sb < 0.001895		M	Er < 0.018950	M	Lu < 0.001516	O	Re < 0.009000	M	Tb < 0.001137
O	As < 0.005000		M	Eu < 0.011370	O	Mg 0.000066	M	Rh < 0.003790	M	Tl < 0.003790
M	Ba < 0.037900		M	Gd < 0.003790	M	Mn < 0.015160	M	Rb < 0.003790	M	Th < 0.003790
O	Be < 0.000090		M	Ga < 0.003790	O	Hg < 0.014000	O	Ru < 0.007000	M	Tm < 0.001516
M	Bi < 0.001516		M	Ge < 0.022740	O	Mo < 0.004000	M	Sm < 0.003790	M	Sn < 0.018950
O	B	0.000686	M	Au < 0.011370	M	Nd < 0.007580	M	Sc < 0.037900	M	Ti < 0.189500
M	Cd < 0.011370		M	Hf < 0.007580	O	Ni < 0.000900	s	Se	M	W < 0.037900
O	Ca	0.000435	M	Ho < 0.001895	O	Nb < 0.004000	O	Si < 0.003000	M	U < 0.007580
M	Ce < 0.018950		M	In < 0.037900	n	Os	M	Ag < 0.007580	M	V < 0.007580
M	Cs < 0.001137		M	Ir < 0.018950	M	Pd < 0.018950	O	Na 0.002638	M	Yb < 0.003790
M	Cr < 0.018950		O	Fe 0.000198	O	P < 0.003000	M	Sr < 0.001895	M	Y < 0.151600
M	Co < 0.011370		M	La < 0.001895	M	Pt < 0.007580	O	S < 0.040000	O	Zn < 0.000200
M	Cu < 0.022740		M	Pb < 0.011370	O	K 0.000211	M	Ta < 0.026530	O	Zr < 0.000400

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 78.96; +4; 6; H_2SeO_3

Chemical Compatibility - Soluble in HCl, HNO_3, H_3PO_4, H_2SO_4 and HF aqueous matrices and water. It is stable with most inorganic anions but many cationic metals form the insoluble selenites under pH neutral conditions. When fluorinated and/or under acidic conditions precipitation is typically not a problem at moderate to low concentrations.

Stability - 2-100 ppb levels- stable for months alone or mixed with other elements at equivalent levels - in 1 % HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Se Containing Samples (Preparation and Solution) - Metal (Soluble in HNO_3); Oxides (Readily soluble in water); Minerals and alloys (Acid digestion with HNO_3or HNO_3 / HF); Organic Matrices (Acid digestion with hot concentrated H_2SO_4 accompanied by the careful dropwise addition of H_2O_2 until clear)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 196.026 nm	0.08 / 0.006 µg/mL	1	atom	Fe
ICP-OES 203.985 nm	0.2 / 0.05 µg/mL	1	atom	Sb, Ir, Cr, Ta
ICP-OES 206.279 nm	0.3 / 0.16 µg/mL	1	atom	Cr, Pt
ICP-MS 82 amu	200 ppt	n/a	M+	12C35Cl2

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

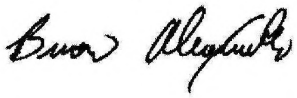
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: December 15, 2011

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308063

Description:	Silica Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	1% HNO3/ trace HF	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:41 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-SI03020

Analyte	CAS Number	Concentration (ppm)
Silica (SiO2)	763-18-69	1000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Silica in 1% (v/v) HNO3 / tr. HF**

Catalog Number:	CGSIO1-1, CGSIO1-2, and CGSIO1-5
Lot Number:	**F2-SI03020**
Starting Material:	SiO2
Starting Material Purity (%):	99.9993
Starting Material Lot No:	1551
Matrix:	1% (v/v) HNO3 / tr. HF

1308063
Expires 03/01/14
Preparer:** Vendor ** 02 20 13

Silica Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,002 ± 5 µg/mL - weighted mean

Certified Density: 1.006 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,001 ± 3 µg/mL**
ICP Assay NIST SRM 3150 Lot Number: 071204

Assay Method #2 **1,002 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.005154	M	Dy	< 0.014460	O	Li	< 0.000034	M	Pr	< 0.000723	M	Te	< 0.072301
M	Sb	< 0.001205	M	Er	< 0.012050	M	Lu	< 0.000964	M	Re	< 0.002410	M	Tb	< 0.000723
M	As	< 0.024100	M	Eu	< 0.007230	O	Mg	0.000100	M	Rh	< 0.002410	M	Tl	< 0.002410
M	Ba	< 0.024100	M	Gd	< 0.002410	M	Mn	< 0.009640	M	Rb	< 0.002410	M	Th	< 0.002410
O	Be	< 0.000344	M	Ga	< 0.002410	O	Hg	< 0.018898	M	Ru	< 0.004820	M	Tm	< 0.000964
M	Bi	< 0.000964	M	Ge	< 0.014460	M	Mo	< 0.004820	M	Sm	< 0.002410	M	Sn	0.000328
n	B		M	Au	< 0.007230	M	Nd	< 0.004820	O	Sc	< 0.000344	O	Ti	0.000334
M	Cd	< 0.007230	M	Hf	< 0.004820	O	Ni	< 0.003951	M	Se	< 0.019280	O	W	< 0.006872
O	Ca	0.001502	M	Ho	< 0.001205	M	Nb	< 0.001205	s	Si		M	U	< 0.004820
M	Ce	< 0.012050	M	In	< 0.024100	n	Os		M	Ag	< 0.004820	O	V	< 0.001546
M	Cs	< 0.000723	M	Ir	< 0.012050	M	Pd	< 0.012050	n	Na		M	Yb	< 0.002410
O	Cr	< 0.002577	O	Fe	0.000334	O	P	< 0.008590	O	Sr	< 0.000120	M	Y	< 0.096401
M	Co	< 0.007230	M	La	< 0.001205	M	Pt	< 0.004820	O	S	< 0.042951	O	Zn	< 0.000344
O	Cu	< 0.001718	M	Pb	< 0.007230	O	K	0.001335	O	Ta	< 0.010308	M	Zr	< 0.012050

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 28.0855; +4; 6; Si(OH)x(F)y2-

Chemical Compatibility - Soluble in HCl, HF, H3PO4 H2SO4 and HNO3 as the Si(OH)x(F)y2-. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths, or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming silicic acid (silicic acid is soluble up to ~100 ppm in water) in all dilute acids except HF.

Stability - 2-100 ppb levels - stability unknown - (alone or mixed with all other metals) as the Si(OH)x(F)y2-. 1-10,000 ppm single element solutions as the Si(OH)x(F)y2- chemically stable for years in 2-5 % HNO3 / trace HF in a LDPE container.

Si Containing Samples (Preparation and Solution) - Metal (Soluble in 1:1:1 H2O / HF / HNO3); Oxide - SiO2, amorphic (Dissolve by heating in 1:1:1 H2O / HF / HNO3); Oxide - quartz (Fuse in Pt0 with Na2CO3); Geological Samples (Fuse in Pt0with Na2CO3 followed by HCl solution of the fuseate); Organic Matrices containing silicates and non volatile silicon compounds (Dry ash at 450□C in Pt0 and dissolve by gently warming with 1:1:1 H2O / HF / H2SO4 or fuse / ash with Na2CO3 and dissolve fuseate with HCl / H2O); Silicone Oils - dimethyl silicones depolymerize to form volatile monomer units when heated (Measure directly in alcoholic KOH / xylene mixture where sample is treated first with the KOH at 60-100 □C to "unzip" the Si-O-Si polymeric structure or digest with concentrated H2SO4/H2O2 followed by cooling and dissolution of the dehydrated silica with HF.) Note that the direct analysis of silicone oils in an organic solvent will result in false high results due to high vapor pressure of volatile monomer units like hexamethylcyclotrisiloxane. The KOH forms the K2+Si(CH3)2O= salt which is not volatile at room temperature.

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 251.611 nm	0.012 / 0.003 µg/mL	1	ion	Ta, U, Zn, Th
ICP-OES 212.412 nm	0.02 / 0.01 µg/mL	1	ion	Hf, Os, Mo, Ta
ICP-OES 288.158 nm	0.03 / 0.004 µg/mL	1	ion	Ta, Ce, Cr, Cd, Th
ICP-MS 28 amu	4000 - 8000 ppt	n/a	M+	14N2, 12C16O

HF Note: This standard should not be prepared or stored in glass.

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

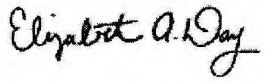
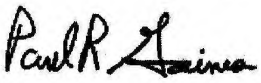
11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: September 17, 2012
Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Stephan Blaakman Product Documentation Technician	
Certificate Approved By:	Beth Day Quality Assurance Specialist	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308064

Description:	Silver Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	5% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:44 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-AG03019

Analyte	CAS Number	Concentration (ppm)
Silver	7440-22-4	1000

INORGANIC™ VENTURES
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Silver in 5% (v/v) HNO3**

Catalog Number:	CGAG1-1, CGAG1-2, and CGAG1-5
Lot Number:	**E2-AG03019**
Starting Material:	Ag shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1641
Matrix:	5% (v/v) HNO3

1308064
Expires 03/01/14
Preparer:** Vendor ** 02/20/13

Silver Stock, 1000ppm

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL - weighted mean

Certified Density: 1.027 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors
(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **997 ± 3 µg/mL**
ICP Assay NIST SRM 3151 Lot Number: 992212

Assay Method #2 **1,002 ± 2 µg/mL**
Volhard NIST SRM 999b Lot Number: 999b

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O Al < 0.000900	M Dy < 0.013851	O Li < 0.000020	M Pr < 0.000693	M Te < 0.069256
M Sb < 0.001154	M Er < 0.011543	M Lu < 0.000923	M Re < 0.002309	M Tb < 0.000693
M As < 0.023085	M Eu < 0.006926	O Mg < 0.000030	M Rh < 0.002309	M Tl < 0.002309
M Ba < 0.023085	M Gd < 0.002309	M Mn < 0.009234	M Rb < 0.002309	M Th < 0.002309
M Be < 0.001154	M Ga < 0.002309	O Hg < 0.015000	M Ru < 0.004617	M Tm < 0.000923
M Bi < 0.000923	M Ge < 0.013851	M Mo < 0.004617	M Sm < 0.002309	M Sn < 0.011543
M B < 0.161597	O Au < 0.003000	M Nd < 0.004617	M Sc < 0.023085	M Ti < 0.115427
O Cd < 0.005000	M Hf < 0.004617	O Ni < 0.003000	M Se < 0.018468	M W < 0.023085
O Ca 0.000095	M Ho < 0.001154	M Nb < 0.001154	O Si < 0.003400	M U < 0.004617
M Ce < 0.011543	M In < 0.023085	n Os	s Ag	M V < 0.004617
M Cs < 0.000693	M Ir < 0.011543	O Pd < 0.004000	O Na 0.000087	M Yb < 0.002309
M Cr < 0.011543	O Fe < 0.001000	O P < 0.003000	M Sr < 0.001154	M Y < 0.092341
M Co < 0.006926	M La < 0.001154	O Pt < 0.017000	O S < 0.025000	O Zn < 0.000400
O Cu < 0.003000	M Pb < 0.006926	O K < 0.002000	M Ta < 0.016160	M Zr < 0.011543

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling- Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 107.8682; +1; 6; $Ag(H_2O)_6^+$

Chemical Compatibility - Stable in HNO_3, and HF. **Avoid** basic media. Ag forms more insoluble salts than any other metal. It also is subject to photochemical reduction to the metal in HCl media although 10 µg/mL solutions in 10% HCl [$AgCl_{x1-x}$] are commonly used in the analytical laboratory. The most common solubility problems exist with arsenate, arsenite , bromide, chloride, iodide, carbonate , chromate, cyanide, iodate, oxalate, oxide, sulfate, sulfide, tartrate, and thiocyanate in aqueous media. The addition of nitric acid renders many of these salts soluble.

Stability - 2-100 ppb levels stable for 75+ days when mixed with equivalent levels of all other elements including the precious metals (where chloride is present) when in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Ag Containing Samples (Preparation and Solution) - Metal (Soluble in HNO_3); Oxides (Soluble in HNO_3); Ores (Digestion with conc. HNO_3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES328.068 nm	0.007 / 0.0007 µg/mL	1	atom	Ce, Rh, V
ICP-OES338.289 nm	0.013 / 0.001µg/mL	1	atom	Ce, Cr, Th
ICP-OES243.779 nm	0.12 / 0.01 µg/mL	1	ion	Mn, Th, Ni, Rh
ICP-MS 107 amu	1 ppt	n/a	M^+	$^{91}Zr^{16}O$

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

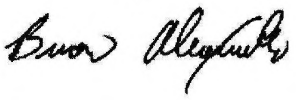
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: February 09, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308065

Description:	Strontium Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	0.1% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:46 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-SR02036

Analyte	CAS Number	Concentration (ppm)
Strontium	7440-24-6	1000

INORGANIC VENTURES™
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Christiansburg, VA 24073 • USA
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CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Strontium in 0.1% (v/v) HNO3**

Catalog Number:	CGSR1-1, CGSR1-2, and CGSR1-5
Lot Number:	**F2-SR02036**
Starting Material:	SrCO3
Starting Material Purity (%):	99.9988
Starting Material Lot No:	1610
Matrix:	0.1% (v/v) HNO3

1308065
Expires 03/01/14
Preparer:** Vendor ** 02.20.13
Strontium Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.001 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,000 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #2 **999 ± 3 µg/mL**
ICP Assay NIST SRM 3153a Lot Number: 990906

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.000239	M	Dy < 0.030091	O	Li < 0.000030	M	Pr < 0.001505	O	Te < 0.100000
M	Sb < 0.002508		M	Er < 0.025076	M	Lu < 0.002006	M	Re < 0.005015	M	Tb < 0.001505
O	As < 0.005000		M	Eu < 0.015045	O	Mg 0.000120	O	Rh < 0.006000	M	Tl < 0.005015
O	Ba	0.009975	M	Gd < 0.005015	O	Mn < 0.000030	i	Rb	M	Th < 0.005015
O	Be < 0.000090		M	Ga < 0.005015	O	Hg < 0.015000	O	Ru < 0.003000	M	Tm < 0.002006
M	Bi < 0.002006		M	Ge < 0.030091	M	Mo < 0.010030	M	Sm < 0.005015	M	Sn < 0.025076
O	B < 0.000600		M	Au < 0.015045	M	Nd < 0.010030	M	Sc < 0.050151	M	Ti < 0.250757
M	Cd < 0.015045		M	Hf < 0.010030	O	Ni < 0.003000	O	Se < 0.050000	M	W < 0.050151
O	Ca	0.006983	M	Ho < 0.002508	M	Nb < 0.002508	O	Si 0.001676	M	U < 0.010030
M	Ce < 0.025076		O	In < 0.002000	n	Os	M	Ag < 0.010030	M	V < 0.010030
M	Cs < 0.001505		M	Ir < 0.025076	O	Pd < 0.004000	O	Na 0.000399	M	Yb < 0.005015
O	Cr < 0.000800		O	Fe 0.000738	O	P < 0.004800	s	Sr	O	Y < 0.000040
M	Co < 0.015045		M	La < 0.002508	M	Pt < 0.010030	n	S	O	Zn < 0.000400
O	Cu < 0.001400		M	Pb < 0.015045	O	K < 0.001700	M	Ta < 0.035106	M	Zr < 0.025076

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± °4C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62; +2; 6; Sr(H2O)6+2

Chemical Compatibility - Soluble in HCl, and HNO3. Avoid H2SO4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO3 / LDPE container.

Sr Containing Samples (Preparation and Solution) - Metal (Best dissolved in diluted HNO3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	ion	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	ion	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	atom	Ce
ICP-MS 88 amu	1200 ppt	n/a	M+	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

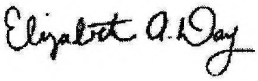
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: September 05, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Stephan Blaakman Product Documentation Technician	
Certificate Approved By:	Beth Day Quality Assurance Specialist	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308066

Description:	Sodium Stock, 10000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:49 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-NA03103

Analyte	CAS Number	Concentration (ppm)
Sodium	7440-23-5	10000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

[illegible]

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **10000 µg/mL Sodium in 2% (v/v) HNO3**

Catalog Number:	CGNA10-1, CGNA10-2, and CGNA10-5
Lot Number:	**F2-NA03103**
Starting Material:	Na2CO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1628
Matrix:	2% (v/v) HNO3

1308066
Expires 03/01/14
Preparer:** Vendor ** 02/20/13

Sodium Stock, 10000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 9,992 ± 53 µg/mL - Weighted mean

Certified Density: 1.034 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2 [\Sigma(s_i)^2]^{½}$ 2 = the coverage factor.

$[\Sigma(s_i)^2]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **9,990 ± 36 µg/mL**
ICP Assay NIST SRM 3152a Lot Number: 010728

Assay Method #2 **10,004 ± 16 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O Al < 0.000900	M Dy < 0.053827	O Li 0.000077	M Pr < 0.002691	M Te < 0.269135
M Sb < 0.004486	M Er < 0.044856	M Lu < 0.003588	M Re < 0.008971	M Tb < 0.002691
M As < 0.089712	M Eu < 0.026914	O Mg 0.000663	M Rh < 0.008971	M Tl < 0.008971
O Ba 0.000110	M Gd < 0.008971	O Mn < 0.000030	M Rb < 0.008971	M Th < 0.008971
O Be < 0.000200	M Ga < 0.008971	O Hg < 0.015000	M Ru < 0.017942	M Tm < 0.003588
M Bi < 0.003588	O Ge < 0.001500	M Mo < 0.017942	M Sm < 0.008971	M Sn < 0.044856
O B < 0.000600	M Au < 0.026914	M Nd < 0.017942	O Sc < 0.000020	O Ti < 0.000700
M Cd < 0.026914	M Hf < 0.017942	O Ni < 0.002300	O Se < 0.050000	M W < 0.089712
O Ca 0.006517	M Ho < 0.004486	M Nb < 0.004486	O Si < 0.003400	M U < 0.017942
M Ce < 0.044856	M In < 0.089712	n Os	M Ag < 0.017942	O V < 0.000900
M Cs < 0.002691	M Ir < 0.044856	M Pd < 0.044856	S Na	M Yb < 0.008971
M Cr < 0.044856	O Fe < 0.001100	O P < 0.040000	O Sr 0.000011	M Y < 0.358847
M Co < 0.026914	M La < 0.004486	M Pt < 0.017942	O S < 0.072000	O Zn < 0.000200
O Cu < 0.001400	M Pb < 0.026914	O K 0.023198	M Ta < 0.062798	M Zr < 0.044856

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 22.98977; +1; (6); Na+(aq) largely ionic in nature (Coordination Number in parentheses is assumed, not certain.)

Chemical Compatibility - Soluble in HCl, HNO3, H2SO4 and HF aqueous matrices. Stable with all metals and inorganic anions.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.

Na Containing Samples (Preparation and Solution) - Metal (Dissolves very rapidly in water); Ores (Lithium carbonate fusion in graphite crucible followed by HCl dissolution - blank levels of Na in lithium carbonate critical); Organic Matrices (Sulfuric / peroxide digestion or nitric/sulfuric/perchloric acid decomposition).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 589.595 nm	0.07 / 0.00009 µg/mL	1	atom	2nd order radiation from R.E.s on some optical designs
ICP-OES 588.995 nm	0.03 / 0.006 µg/mL	1	atom	2nd order radiation from R.E.s on some optical designs
ICP-OES 330.237 nm	2.0 / 0.09 µg/mL	1	atom	Pd, Zn
ICP-MS 23 amu	310 ppt	n/a	M+	46Ti+2 , 46Ca+2

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

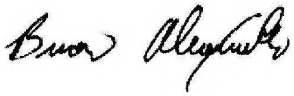
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: October 03, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Stephan Blaakman Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308067

Description:	Thallium Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	0.7% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:50 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-TL01124

Analyte	CAS Number	Concentration (ppm)
Thallium	7440-28-0	1000

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CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Thallium in 0.7% (v/v) HNO3**

Catalog Number:	CGTL1-1, CGTL1-2, and CGTL1-5
Lot Number:	**E2-TL01124**
Starting Material:	TlNO3
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1576
Matrix:	0.7% (v/v) HNO3

1308067
Expires 03/01/14
Preparer:** Vendor ** 02/20/13

Thallium Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,002 ± 5 µg/mL - weighted mean

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

· The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **1,004 ± 3 µg/mL**
ICP Assay NIST SRM 3158 Lot Number: 993012

Assay Method #2 **1,000 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION -** All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION -** All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION -** An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O Al < 0.005000	M Dy < 0.015947	O Li < 0.000020	M Pr < 0.000797	M Te < 0.079734
M Sb < 0.001329	M Er < 0.013289	M Lu < 0.001063	M Re < 0.002658	M Tb < 0.000797
M As < 0.026578	M Eu < 0.007973	O Mg < 0.000030	M Rh < 0.002658	s Tl
M Ba < 0.026578	M Gd < 0.002658	M Mn < 0.010631	M Rb < 0.002658	M Th < 0.002658
M Be < 0.001329	M Ga < 0.002658	O Hg < 0.012000	M Ru < 0.005316	M Tm < 0.001063
M Bi < 0.001063	M Ge < 0.015947	M Mo < 0.005316	M Sm < 0.002658	M Sn < 0.013289
O B < 0.001400	M Au < 0.007973	M Nd < 0.005316	M Sc < 0.026578	M Ti < 0.132890
O Cd 0.000794	M Hf < 0.005316	O Ni < 0.000900	M Se < 0.021262	M W < 0.026578
O Ca 0.000640	M Ho < 0.001329	M Nb < 0.001329	O Si < 0.003400	M U < 0.005316
M Ce < 0.013289	M In < 0.026578	n Os	M Ag < 0.005316	M V < 0.005316
M Cs < 0.000797	M Ir < 0.013289	M Pd < 0.013289	O Na < 0.000100	M Yb < 0.002658
M Cr < 0.013289	O Fe < 0.001000	O P < 0.002600	M Sr < 0.001329	M Y < 0.106312
M Co < 0.007973	M La < 0.001329	M Pt < 0.005316	O S < 0.030000	O Zn 0.001054
M Cu < 0.015947	M Pb 0.003702	O K < 0.001800	M Ta < 0.018605	M Zr < 0.013289

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 204.383; +1; 6;Tl(H2O)61+

Chemical Compatibility - Soluble in HCl, HNO3, and H2SO4. Stable with most metals and inorganic anions. The sulfite, thiocyanate and oxalate are moderately soluble; the phosphate and arsenite are slightly soluble and the sulfide is insoluble.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

Tl Containing Samples (Preparation and Solution) - Metal (Best dissolved in HNO3 which forms chiefly the Tl1+ ion.); Oxide (The thallous oxide is readily soluble in water. The thallic oxide requires high levels of acid); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicate severe)
ICP-OES 190.864 nm	0.04 / 0.004 µg/mL	1	ion	V, Ti
ICP-OES 276.787 nm	0.1 / 0.01 µg/mL	1	atom	Ta, V, Fe, Cr
ICP-OES 351.924 nm	0.2 / 0.02 µg/mL	1	atom	Th, Ce, Zr
ICP-MS 205 amu	2 ppt	n/a	M+	189Os16O

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

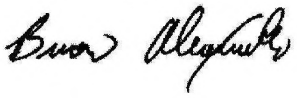
11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: December 30, 2011

Expiration Date:

EXPIRES
01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308069

Description:	Tin Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	trace HNO3/ trace HF/DI H2O	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:56 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-SN02053

Analyte	CAS Number	Concentration (ppm)
Tin	7440-31-5	1000

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CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Tin in tr. HNO3 / tr. HF**

Catalog Number:	CGSN1-1, CGSN1-2, and CGSN1-5
Lot Number:	**F2-SN02053**
Starting Material:	Sn shot
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1744
Matrix:	tr. HNO3 / tr. HF

1308069
Expires 03/01/14
Preparer:** Vendor ** 02.20.13

Tin Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,001 ± 6 µg/mL - weighted mean

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,001 ± 4 µg/mL**
ICP Assay NIST SRM 3161a Lot Number: 070330

Assay Method #2 **1,000 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.001042	M	Dy < 0.017411	O	Li < 0.000020	M	Pr < 0.000871	O	Te < 0.050000
O	Sb < 0.010000		M	Er < 0.014509	M	Lu < 0.001161	M	Re < 0.002902	M	Tb < 0.000871
O	As < 0.005000		M	Eu < 0.008705	O	Mg 0.000139	M	Rh < 0.002902	M	Tl < 0.002902
O	Ba < 0.000700		M	Gd < 0.002902	M	Mn < 0.011607	M	Rb < 0.002902	M	Th < 0.002902
M	Be < 0.001451		O	Ga < 0.001600	O	Hg < 0.015000	M	Ru < 0.005804	M	Tm < 0.001161
M	Bi < 0.001161		O	Ge < 0.004000	M	Mo < 0.005804	M	Sm < 0.002902	s	Sn
O	B < 0.012000		M	Au < 0.008705	M	Nd < 0.005804	M	Sc < 0.029018	M	Ti < 0.145091
O	Cd < 0.005000		M	Hf < 0.005804	O	Ni < 0.010000	O	Se < 0.050000	M	W < 0.029018
O	Ca 0.000069		M	Ho < 0.001451	M	Nb < 0.001451	O	Si < 0.003400	M	U < 0.005804
O	Ce < 0.010000		O	In < 0.002000	n	Os	M	Ag < 0.005804	O	V < 0.001200
M	Cs < 0.000871		M	Ir < 0.014509	M	Pd < 0.014509	O	Na 0.000347	M	Yb < 0.002902
O	Cr < 0.001000		O	Fe 0.000174	O	P < 0.005000	M	Sr < 0.001451	M	Y < 0.116073
O	Co < 0.002000		M	La < 0.001451	M	Pt < 0.005804	n	S	O	Zn < 0.000200
M	Cu < 0.017411		O	Pb < 0.010000	O	K 0.000486	M	Ta < 0.020313	M	Zr < 0.014509

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 118.710; +4; 4,5, **6**,7,8; Sn(OH)xFy2-

Chemical Compatibility - Soluble in HCl and dilute HF / HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away. (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated.) Stable with most inorganic anions provided it is in the chemical form shown above.

Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the Sn(OH)xFy2- for 1 year in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the Sn(OH)xFy2- chemically stable for years in 2-5% HNO3 / trace HF in a LDPE container.

Sn Containing Samples (Preparation and Solution) - Metal (Soluble in HF / HNO3 or HCl); Oxides - SnO (soluble in HCl), SnO2 -very resistant to all acids including HF(Fusion with equal parts of Na2CO3 and S. It is then soluble in water or dilute acids as the thiostannate.); Alloys (Treat first 0.1 g with 10 mL conc. H2SO4 to boiling until the alloy disintegrates and nearly all of the sulfuric acid is expelled. Then add 100 mL O2 free water and 50 mL of conc HCl or transfer to a plastic container and add 1 mL HF in either case warming gently to bring about solution.); Organic Matrices (Volatility and precipitation of the insoluble stannic oxide are problems. Consultation of the literature should be made for individual matrices / Sn compounds.)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 189.989 nm	0.03 / 0.003 µg/mL	1	ion	
ICP-OES 242.949 nm	0.1 / 0.01 µg/mL	1	atom	W, Mo, Rh ,Ta, Co
ICP-MS 120 amu	5 ppt	n/a	M+	120Te, 104Ru16O, 104Pd16O

HF Note: This standard should not be prepared or stored in glass.

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

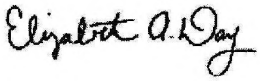
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: November 01, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Stephan Blaakman Product Documentation Technician	
Certificate Approved By:	Beth Day Quality Assurance Specialist	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308070

Description:	Titanium Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3/ trace HF/DI H2O	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 16:58 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-TI02090

Analyte	CAS Number	Concentration (ppm)
Titanium	7440-32-6	1000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Titanium in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGTI1-1, CGTI1-2, and CGTI1-5
Lot Number:	**F2-TI02090**
Starting Material:	Ti powder
Starting Material Purity (%):	99.9976
Starting Material Lot No:	1707
Matrix:	2% (v/v) HNO3 / tr. HF

1308070
Expires 03/01/14
Preparer:** Vendor ** 02/20/13

Titanium Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,002 ± 5 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.
- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1 **Assay Method #1** **1,000 ± 3 µg/mL**
ICP Assay NIST SRM 3162a Lot Number: 060808

Assay Method #2 **1,003 ± 3 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION -** All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION -** All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION -** An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al < 0.005418	M	Dy < 0.015989	O	Li < 0.000361	M	Pr < 0.000799	M	Te < 0.079947
M	Sb < 0.000032	M	Er < 0.013324	M	Lu < 0.001066	M	Re < 0.002665	M	Tb < 0.000799
M	As < 0.026649	M	Eu < 0.007995	O	Mg < 0.000181	M	Rh < 0.002665	M	Tl < 0.002665
M	Ba < 0.000053	M	Gd < 0.002665	O	Mn < 0.000054	M	Rb < 0.002665	M	Th < 0.002665
M	Be < 0.001332	M	Ga < 0.002665	O	Hg < 0.027088	M	Ru < 0.005330	M	Tm < 0.001066
M	Bi 0.000090	M	Ge < 0.015989	M	Mo < 0.005330	M	Sm < 0.002665	M	Sn 0.000701
O	B < 0.003612	M	Au < 0.007995	M	Nd < 0.005330	O	Sc < 0.000036	s	Ti
M	Cd < 0.007995	M	Hf 0.000150	M	Ni 0.002003	M	Se < 0.021319	M	W < 0.026649
O	Ca 0.000679	M	Ho < 0.001332	M	Nb 0.000070	O	Si < 0.007223	M	U < 0.005330
M	Ce < 0.013324	M	In < 0.026649	n	Os	M	Ag 0.000230	M	V 0.000401
M	Cs < 0.000799	M	Ir < 0.013324	M	Pd < 0.013324	O	Na 0.001357	M	Yb < 0.002665
M	Cr 0.001502	O	Fe 0.003394	O	P < 0.009029	M	Sr < 0.001332	M	Y < 0.106596
M	Co < 0.000053	M	La < 0.001332	M	Pt < 0.005330	i	S	O	Zn < 0.000361
O	Cu < 0.005418	M	Pb < 0.007995	O	K 0.020362	O	Ta < 0.012641	M	Zr < 0.013324

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.867; +4; 6; Ti(F)6-2

Chemical Compatibility - Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)6-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)6-2 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF ***caution -powder reacts violently***); Oxide - low temperature history *anatase or rutile* (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); Oxide - high temperature history (~800EC) *brookite* (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	ion	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	ion	W, Mo, Co
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	ion	Ce, Ar, Ni
ICP-MS 48 amu	14 ppt	n/a	M+	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]

HF Note: This standard should not be prepared or stored in glass.

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous. Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

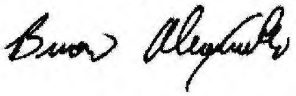
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: May 07, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308072

Description:	Vanadium Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 17:03 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-V02074

Analyte	CAS Number	Concentration (ppm)
Vanadium	7440-62-2	1000

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Vanadium in 2% (v/v) HNO3**

Catalog Number:	CGV1-1, CGV1-2, and CGV1-5
Lot Number:	**F2-V02074**
Starting Material:	V2O5
Starting Material Purity (%):	99.9893
Starting Material Lot No:	46
Matrix:	2% (v/v) HNO3

1308072
Expires 03/01/14
Preparer:** Vendor ** 02.20.13
Vanadium Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **998 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #2 **1,001 ± 4 µg/mL**
ICP Assay NIST SRM 3165 Lot Number: 992706

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.006000	M	Dy	< 0.007532	O	Li	< 0.000020	M	Pr	< 0.000377	M	Te	< 0.037661
M	Sb	0.072999	M	Er	< 0.006277	M	Lu	< 0.000502	M	Re	< 0.001255	M	Tb	< 0.000377
M	As	< 0.012554	M	Eu	< 0.003766	O	Mg	< 0.100000	M	Rh	< 0.001255	M	Tl	< 0.001255
M	Ba	< 0.012554	M	Gd	< 0.001255	M	Mn	0.000939	M	Rb	< 0.001255	M	Th	< 0.001255
M	Be	< 0.000628	M	Ga	< 0.001255	O	Hg	< 0.012000	M	Ru	< 0.002511	M	Tm	< 0.000502
M	Bi	< 0.000502	M	Ge	< 0.007532	M	Mo	0.030242	M	Sm	< 0.001255	M	Sn	< 0.006277
O	B	< 0.040000	M	Au	< 0.003766	M	Nd	< 0.002511	O	Sc	< 0.001000	M	Ti	< 0.062769
M	Cd	< 0.003766	M	Hf	< 0.002511	O	Ni	< 0.003000	M	Se	< 0.010043	M	W	< 0.012554
O	Ca	0.008307	M	Ho	< 0.000628	M	Nb	0.000313	O	Si	< 0.003400	M	U	0.001043
M	Ce	< 0.006277	M	In	< 0.012554	n	Os		M	Ag	< 0.002511	s	V	
M	Cs	< 0.000377	M	Ir	< 0.006277	M	Pd	< 0.006277	O	Na	< 0.010000	M	Yb	< 0.001255
M	Cr	< 0.006277	O	Fe	0.083070	O	P	< 0.100000	M	Sr	< 0.000628	M	Y	< 0.050215
O	Co	< 0.002000	M	La	< 0.000628	M	Pt	< 0.002511	n	S		O	Zn	< 0.050000
M	Cu	< 0.007532	M	Pb	0.000626	O	K	< 0.030000	M	Ta	< 0.008788	M	Zr	< 0.006277

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 50.9415; +5; 6; $H_2V_{10}O_{28}^{4-}$

Chemical Compatibility - Soluble in HCl, HNO_3, H_2SO_4, HF, H_3PO_4 and strong basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

V Containing Samples (Preparation and Solution) - Metal (Fusion with NaOH or KOH in Ni0 or Na_2CO_3 / KNO_3); Oxides (V_2O_3 - use HCl, V_2O_4 - use HCl or HNO_3, V_2O_5 - use concentrated acids); Ores (Na_2CO_3 / KNO_3 in Pt0 ***caution - nitrates attack Pto*** followed by water extraction of fuseate); Organic Matrices (Ash at 450 EC followed by dissolving according to V_2O_5 above) .

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe.)
ICP-OES 309.311 nm	0.005 / 0.001 µg/mL	1	ion	Mg, U, Th
ICP-OES 292.402 nm	0.006 / 0.001 µg/mL	1	ion	Th
ICP-OES 290.882 nm	0.008 / 0.0008 µg/mL	1	atom	Hf, Nb
ICP-MS 51 amu	4 ppt	n/a	M+	34S16O1H, 35Cl16O, 38Ar13C, 36Ar15N,36Ar14N1H, 37Cl14N,36S15N, 33S18O, 34S17O, 102Ru+2,02Pd+2

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

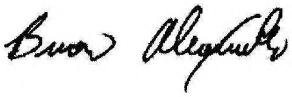
11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: February 13, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1308073

Description:	Zinc Stock, 1000ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	02/20/13
Solvent:	2% HNO3	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	02/20/13 17:05 by CND
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-ZN02075

Analyte	CAS Number	Concentration (ppm)
Zinc	7440-66-6	1000

INORGANIC™ VENTURES
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Zinc in 2% (v/v) HNO3**

Catalog Number:	CGZN1-1, CGZN1-2, and CGZN1-5
Lot Number:	**F2-ZN02075**
Starting Material:	Zn shot
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1676 1677
Matrix:	2% (v/v) HNO3

1308073
Expires 03/01/14
Preparer:** Vendor ** 02/20/13
Zinc Stock, 1000ppm

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.007 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors
(Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **998 ± 3 µg/mL**
ICP Assay NIST SRM 3168a Lot Number: 080123

Assay Method #2 **1,001 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.007000	M	Dy	< 0.031427	O	Li	< 0.000030	M	Pr	< 0.001571	M	Te	< 0.157134
M	Sb	< 0.002619	M	Er	< 0.026189	M	Lu	< 0.002095	M	Re	< 0.005238	M	Tb	< 0.001571
M	As	< 0.052378	M	Eu	< 0.015713	M	Mg	0.000330	M	Rh	< 0.005238	M	Tl	0.000020
M	Ba	< 0.052378	M	Gd	< 0.005238	O	Mn	< 0.000300	M	Rb	< 0.005238	M	Th	< 0.005238
M	Be	< 0.002619	M	Ga	< 0.005238	O	Hg	< 0.010000	M	Ru	< 0.010476	M	Tm	< 0.002095
M	Bi	< 0.002095	M	Ge	< 0.031427	M	Mo	< 0.010476	M	Sm	< 0.005238	M	Sn	< 0.026189
O	B	< 0.001000	M	Au	< 0.015713	M	Nd	< 0.010476	M	Sc	< 0.052378	M	Ti	< 0.261891
M	Cd	< 0.015713	M	Hf	< 0.010476	O	Ni	< 0.000900	M	Se	< 0.041903	M	W	< 0.052378
O	Ca	0.000134	M	Ho	< 0.002619	M	Nb	< 0.002619	O	Si	< 0.004000	M	U	< 0.010476
M	Ce	< 0.026189	M	In	< 0.052378	n	Os		M	Ag	< 0.010476	M	V	< 0.010476
M	Cs	< 0.001571	M	Ir	< 0.026189	M	Pd	< 0.026189	O	Na	0.000153	M	Yb	< 0.005238
O	Cr	< 0.001000	O	Fe	< 0.001000	O	P	< 0.003000	M	Sr	< 0.002619	M	Y	< 0.209513
M	Co	< 0.015713	M	La	< 0.002619	M	Pt	< 0.010476	O	S	< 0.020000	s	Zn	
O	Cu	< 0.000500	M	Pb	< 0.015713	O	K	< 0.003000	M	Ta	< 0.036665	M	Zr	< 0.026189

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Eletrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± °4C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 65.39; +2; 4; Zn(OH)(aq)1+

Chemical Compatibility - Stable in HCl, HNO3, H2SO4 ,HF, H3PO4 Avoid basic media that promotes the formation of insoluble carbonate and hydroxide. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.

Zn Containing Samples (Preparation and Solution) - Metal (Soluble in HNO3); Oxides (Soluble in HCl); Ores (Dissolve in HCl /HNO3); Organic based (Dry ash at 450EC and dissolve ash in HCl) (Sulfuric/peroxide acid digestion)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe)
ICP-OES 213.856 nm	0.002 / 0.0004 µg/mL	1	atom	Ni, Cu, V
ICP-OES 202.548 nm	0.004 / 0.0002 µg/mL	1	ion	Nb, Cu, Co, Hf
ICP-OES 206.200 nm	0.006 / 0.0006 µg/mL	1	ion	Sb, Ta, Bi, Os
ICP-MS 66 amu	7 ppt	n/a	M+	50Ti16O,50Cr16O, 50V16O, 34S16O2, 32S16O18O, 32S17O2, 33S16O17O, 32S34S, 33S2

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: February 13, 2012

Expiration Date: EXPIRES 01 MAR 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Danny Feeny Product Documentation Technician	
Certificate Approved By:	Brian Alexander PhD., Quality Control Supervisor	
Certifying Officer:	Paul Gaines PhD., Senior Technical Director	

Analytical Standard Record

EPA Region 9 Laboratory

1309051

Description:	Nitric Acid	**Expires:**	02/28/20
Standard Type:	Other Solution	**Prepared:**	02/28/13
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	2500	**Department:**	Metals
Vials:	1	**Last Edit:**	02/28/13 11:23 by CND
Vendor:	J.T. Baker	**Lot Numbe**	0000025627

JT Baker, 69.0%-70.0%, Barcode AU005069

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	1000000

Analytical Standard Record

EPA Region 9 Laboratory

1309063

Description:	QL Intermediate, Be	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	03/01/13
Solvent:	n/a	**Prepared By:**	Christina Navarro-Dizon
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	03/01/13 16:07 by CND
Vendor:	*Prepared*	**Lot Numbe**	n/a

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	20000
Beryllium	7440-41-7	100

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
2B22011	Beryllium Stock, 1000 mg/L	02/22/12	** Vendor **	03/01/13	03/02/12 09:46 by SC	10
1309051	Nitric Acid	02/28/13	** Vendor **	02/28/20	02/28/13 11:23 by CND	2

Analytical Standard Record

EPA Region 9 Laboratory

1310124

Description:	6010, QLS Intermediate #1	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	03/07/13
Solvent:	N/A	**Prepared By:**	Christina Navarro-Dizon
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	03/07/13 10:39 by CND
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Zinc	7440-66-6	8
Vanadium	7440-62-2	2
Titanium	7440-32-6	1
Thallium	7440-28-0	5
Strontium	7440-24-6	0.5
Nitric Acid (Solvent)	7697-37-2	50000
Nickel	7440-02-0	5
Molybdenum	7439-98-7	5
Manganese	7439-96-5	5
Copper	7440-50-8	4
Cobalt	7440-48-4	2
Chromium	7440-47-3	1
Cadmium	7440-43-9	0.5
Beryllium	7440-41-7	0.1
Barium	7440-39-3	5

Analytical Standard Record

EPA Region 9 Laboratory

1310124

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1308043	Barium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:36 by SC	0.5
1309051	Nitric Acid	02/28/13	** Vendor **	02/28/20	02/28/13 11:23 by CND	5
1308049	Cadmium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:36 by SC	0.05
1308051	Chromium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:37 by SC	0.1
1308052	Cobalt Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:37 by SC	0.2
1308053	Copper Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:37 by SC	0.4
1308058	Manganese Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:38 by SC	0.5
1308059	Molybdenum Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:38 by SC	0.5
1308060	Nickel Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:38 by SC	0.5
1308065	Strontium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:46 by CND	0.05
1308070	Titanium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:58 by CND	0.1
1308072	Vanadium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:40 by SC	0.2
1308073	Zinc Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:40 by SC	0.8
1308067	Thallium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:39 by SC	0.5
1309063	QL Intermediate, Be	03/01/13	Christina Navarro-Diz	03/01/14	03/04/13 13:03 by CND	0.1

Analytical Standard Record

EPA Region 9 Laboratory

1310127

Description:	6010, QLS Intermediate #2	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	03/07/13
Solvent:	N/A	**Prepared By:**	Christina Navarro-Dizon
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	03/07/13 10:28 by CND
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Tin	7440-31-5	10
Sodium	7440-23-5	50
Potassium	7440-09-7	500
Nitric Acid (Solvent)	7697-37-2	50000
Magnesium	7439-95-4	50
Iron	7439-89-6	100
Calcium	7440-70-2	100
Boron	7440-42-8	10
Aluminum	7429-90-5	100

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1309051	Nitric Acid	02/28/13	** Vendor **	02/28/20	02/28/13 11:23 by CND	5
1308040	Aluminum Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:35 by SC	1
1308047	Boron Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:36 by SC	1
1308048	Calcium Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 15:59 by CND	1
1308054	Iron Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:13 by CND	1
1308057	Magnesium Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:38 by SC	0.5
1308061	Potassium Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:32 by CND	5
1308066	Sodium Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:49 by CND	0.5
1308069	Tin Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:56 by CND	1

Analytical Standard Record

EPA Region 9 Laboratory

1310128

Description:	6010, QLS Intermediate #3	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	03/07/13
Solvent:	N/A	**Prepared By:**	Christina Navarro-Dizon
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	03/07/13 10:31 by CND
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Silver	7440-22-4	1
Selenium	7782-49-2	2
Nitric Acid (Solvent)	7697-37-2	50000
Lead	7439-92-1	3
Arsenic	7440-38-2	2
Antimony	7440-36-0	2

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1309051	Nitric Acid	02/28/13	** Vendor **	02/28/20	02/28/13 11:23 by CND	5
1308041	Antimony Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:35 by SC	0.2
1308042	Arsenic Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:35 by SC	0.2
1308055	Lead Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:37 by SC	0.3
1308062	Selenium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:39 by SC	0.2
1308064	Silver Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:39 by SC	0.1

Analytical Standard Record

EPA Region 9 Laboratory

1310132

Description:	Iron Stock, 10000ppm	**Expires:**	03/31/18
Standard Type:	Other Solution	**Prepared:**	03/07/13
Solvent:	2% HNO3 in low TOC water	**Prepared By:**	** Vendor **
Final Volume (mls):	125	**Department:**	Metals
Vials:	1	**Last Edit:**	03/07/13 14:37 by CND
Vendor:	Ultra Scientific	**Lot Numbe**	M00133

Barcode# AU004900

Analyte	CAS Number	Concentration (ppm)
Iron	7439-89-6	10000

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ULTRAgrade™ Solution
Iron ICP Standard
10000 µg/mL

Catalog Number: ICP-126
Lot Number: M00133
Job Number: J00012569
Lot Issue Date: 02/15/2011
Expiration Date: 03/31/2018

Starting Material:	Iron (III) Nitrate
Starting Material Purity:	99.999%
Starting Material Lot No.:	BH01557
Matrix:	2% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Fe:	55.85

Certified Value: 10014 ± 20 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within ± 2.5%, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value at the 95% confidence level for each analyte is determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3126a

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001.

Trace Metallic Impurities in Solution Standard in µg/mL:

*	Al	<0.005	ND	*	Ga	<0.005	ND	n	Nb			n	S				
*	Sb	<0.005	ND	n	Ge			n	Os			n	Ta				
*	As	<0.005	ND	n	Au			*	Pd	<0.005	ND	n	Te				
*	Ba	<0.005	ND	n	Hf			*	P	<0.005	ND	n	Tb				
*	Be	<0.005	ND	n	Ho			*	Pt	<0.005	ND	*	Tl	<0.005	ND		
*	Bi	<0.005	ND	*	In	<0.005	ND	*	K	<0.005	ND	n	Th				
*	B	<0.005	ND	n	Ir			n	Pr			n	Tm				
*	Cd	<0.005	ND	s	Fe			n	Re			*	Sn	<0.005	ND		
*	Ca	<0.005	ND	*	La	<0.005	ND	n	Rh			*	Ti	<0.005	ND		
n	Ce			*	Pb	<0.020	D	n	Rb			n	W				
n	Cs			*	Li	<0.005	ND	n	Ru			n	U				
*	Cr	<0.005	ND	n	Lu			n	Sm			*	V	<0.005	ND		
*	Co	<0.005	ND	*	Mg	<0.005	ND	n	Sc			n	Yb				
*	Cu	<0.005	ND	*	Mn	<0.005	ND	*	Se	<0.005	ND	n	Y				
n	Dy			*	Hg	<0.005	ND	*	Si	<0.005	ND	*	Zn	<0.020	D		
*	Er	<0.005	ND	*	Mo	<0.005	ND	*	Ag	<0.005	ND	n	Zr				
*	Eu	<0.005	ND	n	Nd			*	Na	<0.005	ND						
*	Gd	<0.005	ND	*	Ni	<0.005	ND	*	Sr	<0.005	ND						

* - element checked for
ND - not detected

i - spectral interference
D - detected

n - not checked for
s - solution standard element

1310132
Expires 03/31/18
Preparer:** Vendor ** 03 07 13

Iron Stock, 10000ppm

Density of Solution (measured at 21.5°C ± 0.5°C): 1.049 g/mL

A2LA ACCREDITED

ISO 17025:2005
Accredited
A2LA
Cert. No. 0851.01

ISO 9001:2000
Registered
TUV USA, Inc.
Cert. No. 06-1004

William J. Leary
Quality Assurance Manager

250 Smith Street, North Kingstown, RI 02852 USA
Ph: 401-294-9400 * Fax: 401-295-2330
www.ultrasci.com

Analytical Standard Record

EPA Region 9 Laboratory

1314060

Description:	CLPP-SPK-1 (6010 Matrix Spike A)	**Expires:**	05/01/14
Standard Type:	Analyte Spike	**Prepared:**	04/03/13
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	04/03/13 13:57 by WD
Vendor:	Inorganic Ventures	**Lot Numbe**	F2-MEB427123

Barcode # AU005319.

Analyte	CAS Number	Concentration (ppm)
Zinc	7440-66-6	500
Vanadium	7440-62-2	500
Silver	7440-22-4	50
Nickel	7440-02-0	500
Manganese	7439-96-5	500
Iron	7439-89-6	1000
Copper	7440-50-8	250
Cobalt	7440-48-4	500
Chromium	7440-47-3	200
Beryllium	7440-41-7	50
Barium	7440-39-3	2000
Aluminum	7429-90-5	2000

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tel: 800.669.6799 · 540.585.3030
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info@inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** Stock Solution

Catalog No.: CLPP-SPK-1

Lot Number: **F2-MEB427123**

Matrix: 7% HNO3(v/v)

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Ag, Be

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	**2,000 ± 14 µg/mL**	**Barium, Ba**	**2,000 ± 13 µg/mL**	**Beryllium, Be**	**50.01 ± 0.34 µg/mL**
Chromium+3, Cr3	**200.0 ± 1.4 µg/mL**	**Cobalt, Co**	**500.0 ± 3.2 µg/mL**	**Copper, Cu**	**250.1 ± 1.6 µg/mL**
Iron, Fe	**1,000 ± 7 µg/mL**	**Manganese, Mn**	**500.0 ± 3.2 µg/mL**	**Nickel, Ni**	**499.9 ± 3.3 µg/mL**
Silver, Ag	**50.02 ± 0.32 µg/mL**	**Vanadium, V**	**500.0 ± 3.5 µg/mL**	**Zinc, Zn**	**500.0 ± 3.2 µg/mL**

Certified Density: 1.070 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 ASSAY INFORMATION

ELEMENT	METHOD	NIST SRM#	SRM LOT#	ELEMENT	METHOD	NIST SRM#	SRM LOT#
Ag	Calculated		See Sec. 4.2	Ag	ICP Assay	3151	992212
Al	ICP Assay	3101a	060502	Al	EDTA	928	928
Ba	Gravimetric		See Sec. 4.2	Ba	ICP Assay	3104a	070222
Be	Calculated		See Sec. 4.2	Be	ICP Assay	3105a	892707
Co	ICP Assay	3181	000630	Co	EDTA	928	928
Cr3	Calculated		See Sec. 4.2	Cr3	ICP Assay	3112a	030730
Cu	ICP Assay	3114	011017	Cu	EDTA	928	928
Fe	ICP Assay	3126a	051031	Fe	EDTA	928	928
Mn	ICP Assay	3132	050429	Mn	EDTA	928	928
Ni	ICP Assay	3136	000612	Ni	EDTA	928	928
V	ICP Assay	3165	992706	V	EDTA	928	928
Zn	ICP Assay	3168a	080123	Zn	EDTA	928	928

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES IN µg/mL - N/A

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Electrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep **Tightly** sealed when not in use. Store and use at 20 ± 4ºC. **Do Not** pipette from the container. **Do Not** return portions removed from pipetting to container.

Element Specific Information - For specific information regarding any element: Contact technical staff.

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous.

Inorganic Ventures homogeneity data indicate that the end user should take a minimum sample size of 0.2mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies of chemically-stable solutions performed at the manufacturer's facility show a CRM shelf-life of twenty one months for solutions packaged in 125-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: July 20, 2012

Expiration Date:

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By: Stephan Blaakman
Product Documentation Technician

Certificate Approved By: Brian Alexander
PhD., Quality Control Supervisor

Certifying Officer: Paul Gaines
PhD., Senior Technical Director

Analytical Standard Record

EPA Region 9 Laboratory

1314061

Description:	CLPP-SPK-2 (6010 Matrix Spike A)	**Expires:**	05/01/14
Standard Type:	Analyte Spike	**Prepared:**	04/03/13
Solvent:	N0NE	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	04/03/13 14:05 by WD
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-MEB376039

Barcode # AU005320

Analyte	CAS Number	Concentration (ppm)
Antimony	7440-36-0	500

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fax: 540.585.3012
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CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** Stock Solution

Catalog No.: CLPP-SPK-2

Lot Number: **E2-MEB376039**

Matrix: 1% HNO3(v/v), 3% Tartaric Acid

500 µg/mL ea:
Sb

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	**500.0 ± 2.2 µg/mL**				

Certified Density: 1.017 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 ASSAY INFORMATION

ELEMENT	METHOD	NIST SRM#	SRM LOT#	ELEMENT	METHOD	NIST SRM#	SRM LOT#
Sb	ICP Assay	3102A	061229	Sb	EDTA	928	928

4.2 BALANCE CALIBRATION - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 THERMOMETER CALIBRATION - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 GLASSWARE CALIBRATION - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES IN µg/mL - N/A

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Electrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of “working reference samples”
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep **Tightly** sealed when not in use. Store and use at 20 ± 4ºC. **Do Not** pipette from the container. **Do Not** return portions removed from pipetting to container.

Element Specific Information - For specific information regarding any element: Contact technical staff.

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration
- QMI File Number 010105

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission
- Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies of chemically-stable solutions performed at the manufacturer's facility show a CRM shelf-life of twenty one months for solutions packaged in 125-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

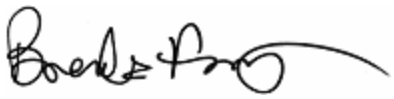
11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: May 12, 2011

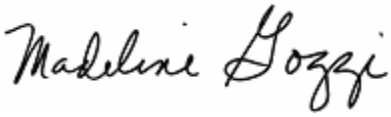
Expiration Date:

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By: Brenda Francis, Product Documentation Technician



Certificate Approved By: Madeline Gozzi, Quality Control Supervisor



Certifying Officer: Paul Gaines, PhD., Senior Technical Director

Analytical Standard Record

EPA Region 9 Laboratory

1314062

Description:	CLPP-SPK-3 (6010 Matrix Spike A)	**Expires:**	05/01/14
Standard Type:	Analyte Spike	**Prepared:**	04/03/13
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	04/03/13 14:10 by WD
Vendor:	Inorganic Ventures	**Lot Numbe**	E2-MEB389054

Barcode # AU005321.

Analyte	CAS Number	Concentration (ppm)
Thallium	7440-28-0	2000
Selenium	7782-49-2	2000
Lead	7439-92-1	500
Cadmium	7440-43-9	50
Arsenic	7440-38-2	2000

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM**

Stock Solution

Catalog No.: CLPP-SPK-3

Lot Number: **E2-MEB389054**

Matrix: 7.14% HNO3(v/v)

2,000 µg/mL ea:
As, Se, Tl,

500 µg/mL ea:
Pb,

50 µg/mL ea:
Cd

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Arsenic, As	2,000 ± 10 µg/mL	Cadmium, Cd	49.97 ± 0.17 µg/mL	Lead, Pb	500.0 ± 2.5 µg/mL
Selenium, Se	2,000 ± 12 µg/mL	Thallium, Tl	2,000 ± 10 µg/mL		

Certified Density: 1.056 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 ASSAY INFORMATION

ELEMENT	METHOD	NIST SRM#	SRM LOT#	ELEMENT	METHOD	NIST SRM#	SRM LOT#
As	Calculated		See Sec. 4.2	As	ICP Assay	3103a	010713
Cd	ICP Assay	3108	060531	Cd	EDTA	928	928
Pb	ICP Assay	3128	030721	Pb	EDTA	928	928
Se	Calculated		See Sec. 4.2	Se	ICP Assay	3149	992106
Tl	Calculated		See Sec. 4.2	Tl	ICP Assay	3158	993012

4.2 **BALANCE CALIBRATION** - All analytical balances are calibrated yearly by an A2LA accredited calibration laboratory and are traceable to a class E 2 analytical weight set with NIST Traceability. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

4.3 **THERMOMETER CALIBRATION** - All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

4.4 **GLASSWARE CALIBRATION** - An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM's.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES IN µg/mL - N/A

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
HPLC, IC, TLC, ISE, IR, NMR, UV/VIS, MS, Capillary Electrophoresis, Potentiometry, Wet Chemistry and Voltammetry
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact Technical Staff

This CRM was manufactured using 18 megohm doubly deionized water that has been filtered through a 0.2 micron filter.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep **Tightly** sealed when not in use. Store and use at 20 ± 4°C. **Do Not** pipette from the container. **Do Not** return portions removed from pipetting to container.

Element Specific Information - For specific information regarding any element: Contact technical staff.

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3.0.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Safety Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 **ISO 9001 Quality Management System Registration**
- QMI File Number 010105

10.2 **ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration"**
- Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 **ISO/IEC Guide 34 "General Requirements for the Competence of Reference Material Producers"**
- Reference Materials Production - Accredited A2LA Certificate Number 883.02

10.4 **10CFR50 Appendix B - Nuclear Regulatory Commission**
- Domestic Licensing of Production and Utilization Facilities

10.5 **10CFR21 - Nuclear Regulatory Commission**
- Reporting Defects and Non-Compliance

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies of chemically-stable solutions performed at the manufacturer's facility show a CRM shelf-life of twenty one months for solutions packaged in 125-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life. Manufacturer concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

11.3 Chemical Stability - Studies have been conducted on this or similar CRMs and it has been demonstrated that this CRM is chemically stable for a period of not less than two years provided the "Storage & Handling" conditions are followed that are described in section 7.0.

Certification Date: August 23, 2011

Expiration Date: EXPIRES 01 JUN 2014

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By: Brenda Francis
Product Documentation Technician

Certificate Approved By: Madeline Gozzi
Quality Control Supervisor

Certifying Officer: Paul Gaines
PhD., Senior Technical Director

Analytical Standard Record

EPA Region 9 Laboratory

1314063

Description:	6010, Matrix Spike A	**Expires:**	05/01/14
Standard Type:	Analyte Spike	**Prepared:**	04/03/13
Solvent:	N/A	**Prepared By:**	Bill Durbrow
Final Volume (mls):	1	**Department:**	Metals
Vials:	1	**Last Edit:**	04/03/13 14:24 by WD
Vendor:	*Prepared*	**Lot Numbe**	N/A

Virtual spike mix of three bottles (CLPP-SPK-1,2,3).

Analyte	CAS Number	Concentration (ppm)
Iron	7439-89-6	1000
Antimony	7440-36-0	500
Arsenic	7440-38-2	2000
Barium	7440-39-3	2000
Beryllium	7440-41-7	50
Cadmium	7440-43-9	50
Chromium	7440-47-3	200
Aluminum	7429-90-5	2000
Copper	7440-50-8	250
Zinc	7440-66-6	500
Lead	7439-92-1	500
Manganese	7439-96-5	500
Nickel	7440-02-0	500
Selenium	7782-49-2	2000
Silver	7440-22-4	50
Thallium	7440-28-0	2000
Vanadium	7440-62-2	500
Cobalt	7440-48-4	500

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1314060	CLPP-SPK-1 (6010 Matrix Spike A)	04/03/13	** Vendor **	05/01/14	04/03/13 13:57 by WD	1
1314061	CLPP-SPK-2 (6010 Matrix Spike A)	04/03/13	** Vendor **	05/01/14	04/03/13 14:05 by WD	1
1314062	CLPP-SPK-3 (6010 Matrix Spike A)	04/03/13	** Vendor **	05/01/14	04/03/13 14:10 by WD	1

Analytical Standard Record
EPA Region 9 Laboratory
1316133

Description:	Hydrochloric Acid	**Expires:**	04/19/20
Standard Type:	Other Solution	**Prepared:**	04/19/13
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	2500	**Department:**	Metals
Vials:	1	**Last Edit:**	04/19/13 11:58 by SC
Vendor:	J.T. Baker	**Lot Numb**	K42034

JT Baker, 36.5%-38.0%, Barcode AU004550

Analyte	CAS Number	Concentration (ppm)
Hydrochloric Acid (Solvent)	7647-01-0	1000000

Analytical Standard Record

EPA Region 9 Laboratory

1324008

Description:	200.7/6010, ICV/CCV Mixed Stock S	**Expires:**	05/30/14
Standard Type:	Other Solution	**Prepared:**	06/10/13
Solvent:	5% HNO3/tr Tart. Acid/Tr HF	**Prepared By:**	** Vendor **
Final Volume (mls):	500	**Department:**	Metals
Vials:	1	**Last Edit:**	06/10/13 13:35 by SC
Vendor:	Spex	**Lot Numb**	9-83YPX

AU004859

Analyte	CAS Number	Concentration (ppm)
Manganese	7439-96-5	20
Antimony	7440-36-0	20
Arsenic	7440-38-2	20
Barium	7440-39-3	20
Beryllium	7440-41-7	20
Boron	7440-42-8	20
Cadmium	7440-43-9	20
Calcium	7440-70-2	20
Chromium	7440-47-3	20
Cobalt	7440-48-4	20
Copper	7440-50-8	20
Iron	7439-89-6	20
Lead	7439-92-1	20
Aluminum	7429-90-5	20
Magnesium	7439-95-4	20
Zinc	7440-66-6	20
Molybdenum	7439-98-7	20
Nickel	7440-02-0	20
Phosphorus, Total	7723-14-0	100
Potassium	7440-09-7	100
Selenium	7782-49-2	20
Silica (SiO2)	763-18-69	100
Silver	7440-22-4	5
Sodium	7440-23-5	20
Strontium	7440-24-6	20
Thallium	7440-28-0	20
Tin	7440-31-5	20
Vanadium	7440-62-2	20
Lithium	7439-93-2	20

1324008

Expires 05/30/14

Preparer:** Vendor ** 06/10/13

200.7/6010, ICV CCV Mixed Stock Std

ACCREDITED
Reference Materials Producer
Cert #2495.01

SPEXertificate®

Certificate of Reference Material

ACCREDITED
Chemical Testing
Cert #2495.02

Catalog Number: LPC-1-500N **Lot No.** 9-83YPX

Description: LPC Standard 1

Matrix: 5% HNO_3 / tr Tart. Acid / tr HF

This **ASSURANCE®** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICP-OES, DCP, AA, ICP-MS, and XRF. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

The CRM is prepared from high purity single element concentrates of individual elements using Class A laboratory ware to give precise concentrations. See side 2 for details of certification.

Instrumental Analysis by ICP Spectrometer:

Analyte	Labeled	Measured	Uncertainty	SRM	Analyte	Labeled	Measured	Uncertainty	SRM
K	100 mg/L	98.9 mg/L	±0.5 mg/L	3141a*	Mg	20 mg/L	19.8 mg/L	±0.1 mg/L	3131a*
P	100 mg/L	99.8 mg/L	±0.5 mg/L	3139a*	Mn	20 mg/L	19.9 mg/L	±0.1 mg/L	3132*
SiO_2	100 mg/L	99.8 mg/L	±0.5 mg/L	3150*	Mo	20 mg/L	20.1 mg/L	±0.1 mg/L	3134*
Al	20 mg/L	19.9 mg/L	±0.1 mg/L	3101a*	Na	20 mg/L	19.7 mg/L	±0.1 mg/L	3152a*
As	20 mg/L	19.8 mg/L	±0.1 mg/L	3103a*	Nl	20 mg/L	20.3 mg/L	±0.1 mg/L	3136*
B	20 mg/L	20.2 mg/L	±0.1 mg/L	3107*	Pb	20 mg/L	20.0 mg/L	±0.1 mg/L	3128*
Ba	20 mg/L	20.1 mg/L	±0.1 mg/L	3104a*	Sb	20 mg/L	19.9 mg/L	±0.1 mg/L	3102a*
Be	20 mg/L	20.0 mg/L	±0.1 mg/L	3105a*	Se	20 mg/L	19.9 mg/L	±0.1 mg/L	3149*
Ca	20 mg/L	20.0 mg/L	±0.1 mg/L	3109a*	Sn	20 mg/L	19.9 mg/L	±0.1 mg/L	3161a*
Cd	20 mg/L	20.0 mg/L	±0.1 mg/L	3108*	Sr	20 mg/L	19.9 mg/L	±0.1 mg/L	3153a*
Co	20 mg/L	20.1 mg/L	±0.1 mg/L	3113*	Tl	20 mg/L	19.7 mg/L	±0.1 mg/L	3158*
Cr	20 mg/L	20.1 mg/L	±0.1 mg/L	3112a*	V	20 mg/L	20.1 mg/L	±0.1 mg/L	3165*
Cu	20 mg/L	20.3 mg/L	±0.1 mg/L	3114*	Zn	20 mg/L	20.1 mg/L	±0.1 mg/L	3168a*
Fe	20 mg/L	20.3 mg/L	±0.1 mg/L	3126a*	Ag	5 mg/L	5.00 mg/L	±0.03 mg/L	3151*
Li	20 mg/L	19.8 mg/L	±0.1 mg/L	3129a*					

* - indicates NIST SRM † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)

SPEX CertiPrep Reference Multi: Lot# 43-47AS, 24-134JB

Balances are calibrated regularly with weight sets traceable to NIST#s 32856, 32887 and others. This CRM is guaranteed stable and accurate to ±0.5% of the certified (measured) value. This includes uncertainty components due to preparation, measurement, homogeneity, short-term and long-term stability as well as transpiration loss. No measured concentration of any individual component exceeds ±2% of the labeled value. This guarantee is valid for a period of one year from the date of certification only when the material is kept tightly capped and stored under ambient laboratory conditions.

Date of Certification: MAY 2013 Certifying Officer:

Report of Certification

This Certified Reference Material (CRM) has been prepared and certified under an ISO 9001:2008, ISO 17025:2005, and ISO Guide 34:2009 quality system consistent with the following guides:

- ISO 9001: Quality management systems – Requirements – certified by UL-DQS
- ISO 17025: General requirements for the competence of testing and calibration laboratories – accredited by A2LA
- ISO Guide 34: General requirements for the competence of reference material producers – accredited by A2LA
- ISO Guide 31: Reference Materials – Contents of certificates and labels
- Guide To The Expression Of Uncertainty In Measurement 1997
- EURACHEM/CITAC Guide: Quantifying Uncertainty in Analytical Measurement – Second Edition
- ASTM Guide D6362-98
- NIST Technical Note 1297
- ILAC-G12-2000: Guidelines for the requirements for the competence of reference materials producers
- ISO/REMCO N280

Material Source:

All analytes and matrix materials are obtained and verified by SPEX CertiPrep from pre-qualified vendors as per ISO 9001:2008, ISO 17025:2005, and ISO Guide 34:2009 guidelines. Vendor identifications are proprietary, however sources of all materials used in the preparation and testing of SPEX CertiPrep CRMs are tracked and documented. For further assistance, please contact the Sales Support Department at crmsales@spexcsp.com.

Instructions for Use:

Primary usage of this CRM is in neat form or diluted serially with matrix of a purity at or greater than the purity of the original matrix solution. If dilution is required the diluent must be compatible with all certified analytes and contain stabilizers appropriate for the period of intended use. The CRM can also be used as a spike or with a spike, again with appropriate compatibility considerations. All solutions should be thoroughly mixed, by shaking, prior to use and never pipetted directly from the bottle. All surfaces that come in contact with the solution must be thoroughly cleaned and leached prior to use. Dilutions should be performed only with Class A volumetric glassware.

Method of Preparation:

Clean laboratory procedures and techniques have been used throughout the preparation. All materials, equipment, analytical instrumentation and personnel have been qualified prior to use. The highest purity acids applicable, 18 megohm, double deionized water, acid-leached triple-rinsed bottles (where appropriate), and Class A/calibrated volumetrics have been used in all preparations.

Homogeneity:

The homogeneity of the CRM has been confirmed by procedures consistent with ISO 17025:2005, ISO Guide 34:2009, and ASTM D6362-98 Appendix X2. Random, replicate samples of the final, packaged material have been analyzed to prove homogeneity in accordance with our internal procedure 4600-HOMOGEN-1A. Since the product is highly homogeneous, any sample size taken for analysis would be within the uncertainty budget. This is consistent with the intended use of the CRM.

Statistical Estimator and Confidence Limits:

The certified value 'X' listed on the reverse of this document is at the 95% level of confidence and can be expressed as:

- $X = x \pm U$ where x=measured value, U=expanded uncertainty
- $U = ku_c$ where k=2 is the coverage factor at the 95% confidence level
  U_c is obtained by combining the individual element standard uncertainty components u_i, and $u_c = \sqrt{\Sigma u_i^2}$

Certification Traveler Report:

All certified values reported were derived from the Traveler Report (SPEX CertiPrep's traceability documentation) identified by the lot number of this CRM. During the stated period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution. For further assistance, please contact the Sales Support Department at crmsales@spexcsp.com.

Legal Notice:

SPEX CertiPrep reference materials are not for any cosmetic, drug or household application and are to be used only by qualified individuals who are trained in appropriate procedures. No claims against SPEX CertiPrep, Inc. of any kind whatsoever, whether based on breach of warranty, alleged negligence, or otherwise, with respect to this Reference Material shall be greater than the purchase price. In no event shall SPEX CertiPrep, Inc. be liable for any loss of profits or any incidental, special, or consequential damages.

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Accredited to 17025 & Guide 34 ISO Certified to 9001

Analytical Standard Record

EPA Region 9 Laboratory

1324009

Description:	Aluminum Stock, 10000 mg/L	**Expires:**	04/30/16
Standard Type:	Other Solution	**Prepared:**	06/10/13
Solvent:	2% Nitric Acid	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	06/10/13 13:17 by SC
Vendor:	Ultra Scientific	**Lot Numb**	M00266A

Analyte	CAS Number	Concentration (ppm)
Aluminum	7429-90-5	10000

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

1324009
Expires 04/30/16
Preparer:** Vendor ** 06/10/13

Aluminum Stock, 10000 mg/L

ULTRAgrade™ Solution
Aluminum ICP Standard
10000 µg/mL

Catalog Number: ICP-113
Lot Number: M00266A
Job Number: J00012564
Lot Issue Date: 03/15/2011
Expiration Date: 04/30/2016

Starting Material:	Aluminum Nitrate Nonahydrate
Starting Material Purity:	99.998%
Starting Material Lot No.:	BH01794
Matrix:	2% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Al:	26.98

Certified Value: 10011 ± 20 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within ± 2.5%, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value at the 95% confidence level for each analyte is determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3101a

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001.

Trace Metallic Impurities in Solution Standard in µg/mL:

s	Al		
*	Sb	<0.005	ND
*	As	<0.005	ND
*	Ba	<0.005	ND
*	Be	<0.005	ND
*	Bi	<0.005	ND
*	B	<0.005	ND
*	Cd	<0.005	ND
*	Ca	<0.010	D
n	Ce		
n	Cs		
*	Cr	<0.010	D
*	Co	<0.005	ND
*	Cu	<0.005	ND
n	Dy		
*	Er	<0.005	ND
*	Eu	<0.005	ND
*	Gd	<0.005	ND
*	Ga	<0.010	D
n	Ge		
n	Au		
n	Hf		
n	Ho		
*	In	<0.005	ND
n	Ir		
*	Fe	<0.030	D
*	La	<0.005	ND
*	Pb	<0.005	ND
*	Li	<0.005	ND
n	Lu		
*	Mg	<0.005	ND
*	Mn	<0.005	ND
*	Hg	<0.005	ND
*	Mo	<0.005	ND
n	Nd		
*	Ni	<0.005	ND
n	Nb		
n	Os		
*	Pd	<0.005	ND
*	P	<0.005	ND
*	Pt	<0.005	ND
*	K	<0.005	ND
n	Pr		
n	Re		
n	Rh		
n	Rb		
n	Ru		
n	Sm		
n	Sc		
*	Se	<0.005	ND
*	Si	<0.010	D
*	Ag	<0.005	ND
*	Na	<0.050	D
*	Sr	<0.005	ND
n	S		
n	Ta		
n	Te		
n	Tb		
*	Tl	<0.005	ND
n	Th		
n	Tm		
*	Sn	<0.005	ND
*	Ti	<0.005	ND
n	W		
n	U		
*	V	<0.010	D
n	Yb		
n	Y		
*	Zn	<0.005	ND
n	Zr		

* - element checked for
ND - not detected

i - spectral interference
D - detected

n - not checked for
s - solution standard element

Density of Solution (measured at 20.8°C ± 0.5°C): 1.070 g/mL

ACCREDITED

ISO 17025 Accredited A2LA Cert. No. 0851-01

ISO 9001 Registered TUV USA, Inc. Cert. No. 09-1009

250 Smith Street, North Kingstown, RI 02852 USA
401-294-9400 Fax: 295-2330
www.ultrasci.com

William J. Leary
Quality Assurance Manager

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

1328150
Expires 05/31/20
Preparer:** Vendor ** 07/12/13

Yttrium Stock, 1000 mg/L

ULTRAgrade™ Solution
Yttrium ICP Standard
1000 µg/mL

Catalog Number: ICP-039
Lot Number: R00374
Job Number: J00016208
Lot Issue Date: 04/18/2013
Expiration Date: 05/31/2020

Starting Material:	Yttrium Oxide
Starting Material Purity:	99.999%
Starting Material Lot No.:	BH02380
Matrix:	5% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Y:	88.92

Certified Value: 1000 ± 2 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within ± 2.5%, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value at the 95% confidence level for each analyte is determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3167a

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001.

Trace Metallic Impurities in Solution Standard in µg/mL:

*	Al	<0.005	ND	*	Ga	<0.005	ND	n	Nb			n	S		
*	Sb	<0.005	ND	n	Ge			n	Os			n	Ta		
*	As	<0.005	ND	n	Au			*	Pd	<0.005	ND	n	Te		
*	Ba	<0.005	ND	n	Hf			*	P	<0.005	ND	n	Tb		
*	Be	<0.005	ND	n	Ho			*	Pt	<0.005	ND	*	Tl	<0.005	ND
*	Bi	<0.005	ND	*	In	<0.005	ND	*	K	<0.005	ND	n	Th		
*	B	<0.005	ND	n	Ir			n	Pr			n	Tm		
*	Cd	<0.005	ND	*	Fe	<0.005	ND	n	Re			*	Sn	<0.005	ND
*	Ca	<0.005	D	*	La	<0.005	ND	n	Rh			*	Ti	<0.005	ND
n	Ce			*	Pb	<0.005	ND	n	Rb			n	W		
n	Cs			*	Li	<0.005	ND	n	Ru			n	U		
*	Cr	<0.005	ND	n	Lu			n	Sm			*	V	<0.005	ND
*	Co	<0.005	ND	*	Mg	<0.005	ND	n	Sc			n	Yb		
*	Cu	<0.005	ND	*	Mn	<0.005	ND	*	Se	<0.005	ND	s	Y		
n	Dy			*	Hg	<0.005	ND	*	Si	<0.005	ND	*	Zn	<0.005	ND
*	Er	<0.005	ND	*	Mo	<0.005	ND	*	Ag	<0.005	ND	n	Zr		
*	Eu	<0.005	ND	n	Nd			*	Na	<0.005	ND				
*	Gd	<0.005	ND	*	Ni	<0.005	ND	*	Sr	<0.005	ND				

* - element checked for
ND - not detected

i - spectral Interference
D - detected

n - not checked for
s - solution standard element

Density of Solution (measured at 20.00°C ± 0.05°C): 1.0254 g/mL

A2LA ACCREDITED

ISO 17025:2005
Accredited
A2LA
Cert. No. 0851.01

ISO 9001:2000
Registered
TUV USA, Inc
Cert. No. 06-1004

William J. Leary
Quality Assurance Manager

250 Smith Street, North Kingstown, RI 02852 USA
Ph: 401-294-9400 * Fax: 401-295-2330
www.ultrasci.com

Analytical Standard Record

EPA Region 9 Laboratory

1328150

Description:	Yttrium Stock, 1000 mg/L	**Expires:**	05/31/20
Standard Type:	Other Solution	**Prepared:**	07/12/13
Solvent:	5% Nitric Acid	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	07/12/13 09:50 by SC
Vendor:	Ultra Scientific	**Lot Numb**	R00374

AU005569

Analyte	CAS Number	Concentration (ppm)
Yttrium	7440-65-5	1000

Analytical Standard Record
EPA Region 9 Laboratory
1329122

Description: 6010, Cal Std 1, 10/5/2/1 ppm
Standard Type: Other Solution
Solvent: 1
Final Volume (mls): 200
Vials: 1
Vendor: *Prepared*

Expires: 03/01/14
Prepared: 07/19/13
Prepared By: Stephen Carroll
Department: Metals
Last Edit: 07/19/13 12:51 by SC
Lot Numb: N/A

Analyte	CAS Number	Concentration (ppm)
Thallium	7440-28-0	5
Nitric Acid (Solvent)	7697-37-2	20000
Nickel	7440-02-0	2
Magnesium	7439-95-4	10
Lead	7439-92-1	10
Iron	7439-89-6	10
Hydrochloric Acid (Solvent)	7647-01-0	50000
Beryllium	7440-41-7	1

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(ml
1308044	Beryllium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:36 by SC	0.
1308054	Iron Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:13 by CND	0.
1308055	Lead Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:37 by SC	
1308057	Magnesium Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:38 by SC	0.
1308060	Nickel Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:38 by SC	0.
1308067	Thallium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:39 by SC	
1309051	Nitric Acid	02/28/13	** Vendor **	02/28/20	02/28/13 11:23 by CND	
1316133	Hydrochloric Acid	04/19/13	** Vendor **	04/19/20	04/19/13 11:58 by SC	1

Analytical Standard Record
EPA Region 9 Laboratory
1329123

Description: 6010, Cal Std 2
Standard Type: Other Solution
Solvent: N/A
Final Volume (mls): 200
Vials: 1
Vendor: *Prepared*

Expires: 03/01/14
Prepared: 07/19/13
Prepared By: Stephen Carroll
Department: Metals
Last Edit: 07/19/13 12:52 by SC
Lot Numb N/A

Analyte	CAS Number	Concentration (ppm)
Zinc	7440-66-6	5
Titanium	7440-32-6	10
Tin	7440-31-5	4
Silica (SiO2)	763-18-69	10
Nitric Acid (Solvent)	7697-37-2	5000
Hydrochloric Acid (Solvent)	7647-01-0	5000
Chromium	7440-47-3	5
Aluminum	7429-90-5	10

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(ml
1308040	Aluminum Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:35 by SC	0.
1308051	Chromium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:37 by SC	
1308063	Silica Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:41 by CND	
1308069	Tin Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:56 by CND	0.
1308070	Titanium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:58 by CND	
1308073	Zinc Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:40 by SC	
1309051	Nitric Acid	02/28/13	** Vendor **	02/28/20	02/28/13 11:23 by CND	
1316133	Hydrochloric Acid	04/19/13	** Vendor **	04/19/20	04/19/13 11:58 by SC	

Analytical Standard Record
EPA Region 9 Laboratory
1329124

Description: 6010, Cal Std 3, 2 ppm
Standard Type: Other Solution
Solvent: Solvent Lot #
Final Volume (mls): 200
Vials: 1
Vendor: *Prepared*

Expires: 03/01/14
Prepared: 07/19/13
Prepared By: Stephen Carroll
Department: Metals
Last Edit: 07/19/13 12:53 by SC
Lot Numb N/A

Analyte	CAS Number	Concentration (ppm)
Vanadium	7440-62-2	2
Nitric Acid (Solvent)	7697-37-2	20000
Hydrochloric Acid (Solvent)	7647-01-0	50000
Cobalt	7440-48-4	2

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(ml
1308052	Cobalt Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:37 by SC	0.
1308072	Vanadium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:40 by SC	0.
1309051	Nitric Acid	02/28/13	** Vendor **	02/28/20	02/28/13 11:23 by CND	
1316133	Hydrochloric Acid	04/19/13	** Vendor **	04/19/20	04/19/13 11:58 by SC	1

Analytical Standard Record
EPA Region 9 Laboratory
1329125

Description:	6010, Cal Std 5, 20/10/5/1 ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	07/19/13
Solvent:	Solvent Lot #	**Prepared By:**	Stephen Carroll
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	07/19/13 12:50 by SC
Vendor:	*Prepared*	**Lot Numb**	N/A

Analyte	CAS Number	Concentration (ppm)
Strontium	7440-24-6	1
Sodium	7440-23-5	10
Potassium	7440-09-7	20
Nitric Acid (Solvent)	7697-37-2	20000
Molybdenum	7439-98-7	10
Hydrochloric Acid (Solvent)	7647-01-0	50000

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(ml
1308059	Molybdenum Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:38 by SC	
1308061	Potassium Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:32 by CND	0.
1308066	Sodium Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:49 by CND	0.
1308065	Strontium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 16:46 by CND	0.
1309051	Nitric Acid	02/28/13	** Vendor **	02/28/20	02/28/13 11:23 by CND	
1316133	Hydrochloric Acid	04/19/13	** Vendor **	04/19/20	04/19/13 11:58 by SC	1

Analytical Standard Record
EPA Region 9 Laboratory
1331128

Description:	Nitric Acid	**Expires:**	08/02/20
Standard Type:	Other Solution	**Prepared:**	08/02/13
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	2500	**Department:**	Metals
Vials:	1	**Last Edit:**	08/02/13 12:38 by SC
Vendor:	J.T. Baker	**Lot Numb**	0000003390

JT Baker, 69.0%-70.0%, Barcode AU005459

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	1000000

Analytical Standard Record

EPA Region 9 Laboratory

1333134

Description:	6010, QLS, Varied Concentration	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	08/16/13
Solvent:	Solvent Lot #	**Prepared By:**	Stephen Carroll
Final Volume (mls):	500	**Department:**	Metals
Vials:	1	**Last Edit:**	08/16/13 12:56 by SC
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Manganese	7439-96-5	0.05
Antimony	7440-36-0	0.02
Arsenic	7440-38-2	0.02
Barium	7440-39-3	0.05
Beryllium	7440-41-7	0.001
Boron	7440-42-8	0.1
Cadmium	7440-43-9	0.005
Calcium	7440-70-2	1
Chromium	7440-47-3	0.01
Cobalt	7440-48-4	0.02
Copper	7440-50-8	0.04
Hydrochloric Acid (Solvent)	7647-01-0	50000
Iron	7439-89-6	1
Aluminum	7429-90-5	1
Magnesium	7439-95-4	0.5
Zinc	7440-66-6	0.08
Molybdenum	7439-98-7	0.05
Nickel	7440-02-0	0.05
Nitric Acid (Solvent)	7697-37-2	21500
Potassium	7440-09-7	5
Selenium	7782-49-2	0.02
Silver	7440-22-4	0.01
Sodium	7440-23-5	0.5
Strontium	7440-24-6	0.005
Thallium	7440-28-0	0.05
Tin	7440-31-5	0.1
Titanium	7440-32-6	0.01
Vanadium	7440-62-2	0.02
Lead	7439-92-1	0.03

Analytical Standard Record

EPA Region 9 Laboratory

1333134

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1309051	Nitric Acid	02/28/13	** Vendor **	02/28/20	02/28/13 11:23 by CND	10
1310124	6010, QLS Intermediate #1	03/07/13	Christina Navarro-Diz	03/01/14	03/07/13 10:39 by CND	5
1310127	6010, QLS Intermediate #2	03/07/13	Christina Navarro-Diz	03/01/14	07/24/13 11:35 by SC	5
1310128	6010, QLS Intermediate #3	03/07/13	Christina Navarro-Diz	03/01/14	03/07/13 10:31 by CND	5
1316133	Hydrochloric Acid	04/19/13	** Vendor **	04/19/20	04/19/13 11:58 by SC	25

Analytical Standard Record

EPA Region 9 Laboratory

1336008

Description:	Hydrochloric Acid	**Expires:**	09/03/23
Standard Type:	Other Solution	**Prepared:**	09/03/13
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	2500	**Department:**	Metals
Vials:	1	**Last Edit:**	09/03/13 16:35 by CND
Vendor:	J.T. Baker	**Lot Numbe**	K42034

JT Baker, 36.5%-38.0%, Barcode AU004549

Analyte	CAS Number	Concentration (ppm)
Hydrochloric Acid (Solvent)	7647-01-0	1000000

Analytical Standard Record

EPA Region 9 Laboratory

1336101

Description:	6010, ICV/CCV Std, 10/2/0.5 ppm	**Expires:**	05/30/14
Standard Type:	Other Solution	**Prepared:**	09/06/13
Solvent:	Solvent Lot #	**Prepared By:**	Christina Navarro-Dizon
Final Volume (mls):	500	**Department:**	Metals
Vials:	1	**Last Edit:**	09/06/13 11:24 by CND
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Calcium	7440-70-2	2
Aluminum	7429-90-5	2
Lead	7439-92-1	2
Iron	7439-89-6	2
Hydrochloric Acid (Solvent)	7647-01-0	50000
Copper	7440-50-8	2
Magnesium	7439-95-4	2
Chromium	7440-47-3	2
Manganese	7439-96-5	2
Cadmium	7440-43-9	2
Boron	7440-42-8	2
Beryllium	7440-41-7	2
Barium	7440-39-3	2
Arsenic	7440-38-2	2
Antimony	7440-36-0	2
Cobalt	7440-48-4	2
Silica (SiO2)	763-18-69	10
Vanadium	7440-62-2	2
Titanium	7440-32-6	2
Tin	7440-31-5	2
Thallium	7440-28-0	2
Strontium	7440-24-6	2
Lithium	7439-93-2	2
Silver	7440-22-4	0.5
Zinc	7440-66-6	2
Selenium	7782-49-2	2
Potassium	7440-09-7	10
Phosphorus, Total	7723-14-0	10
Nitric Acid (Solvent)	7697-37-2	20000
Nickel	7440-02-0	2

Analytical Standard Record

EPA Region 9 Laboratory

1336101

Molybdenum	7439-98-7	2
Sodium	7440-23-5	2

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
0L21004	Titanium Stock, 10000ppm	12/21/10	** Vendor **	02/28/16	12/21/10 11:44 by SC	0.1
1324008	200.7/6010, ICV/CCV Mixed Stock Std	06/10/13	** Vendor **	05/30/14	07/08/13 15:26 by SC	50
1331128	Nitric Acid	08/02/13	** Vendor **	08/02/20	08/02/13 12:38 by SC	10
1336008	Hydrochloric Acid	09/03/13	** Vendor **	09/03/23	09/03/13 16:35 by CND	25

Analytical Standard Record

EPA Region 9 Laboratory

1337063

Description:	6010, Cal Std 6, Zn 5ppm	**Expires:**	03/01/14
Standard Type:	Other Solution	**Prepared:**	09/11/13
Solvent:	N/A	**Prepared By:**	Christina Navarro-Dizon
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	09/11/13 10:58 by CND
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Zinc	7440-66-6	5
Nitric Acid (Solvent)	7697-37-2	20000
Hydrochloric Acid (Solvent)	7647-01-0	50000

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1308073	Zinc Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:40 by SC	1
1331128	Nitric Acid	08/02/13	** Vendor **	08/02/20	08/02/13 12:38 by SC	4
1336008	Hydrochloric Acid	09/03/13	** Vendor **	09/03/23	09/03/13 16:35 by CND	10

Analytical Standard Record

EPA Region 9 Laboratory

1337067

Description:	6010, Co SIC, 50ppm	**Expires:**	08/31/17
Standard Type:	Other Solution	**Prepared:**	09/11/13
Solvent:	Solvent Lot #	**Prepared By:**	Christina Navarro-Dizon
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	09/11/13 11:43 by CND
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	20000
Hydrochloric Acid (Solvent)	7647-01-0	50000
Cobalt	7440-48-4	50

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1D13040	Cobalt Stock, 10000 mg/L	07/26/10	** Vendor **	08/31/17	04/13/11 15:38 by SC	1
1331128	Nitric Acid	08/02/13	** Vendor **	08/02/20	08/02/13 12:38 by SC	4
1336008	Hydrochloric Acid	09/03/13	** Vendor **	09/03/23	09/03/13 16:35 by CND	10

Analytical Standard Record

EPA Region 9 Laboratory

1337068

Description:	6010, Ni SIC, 50ppm	**Expires:**	09/30/16
Standard Type:	Other Solution	**Prepared:**	09/11/13
Solvent:	Solvent Lot #	**Prepared By:**	Christina Navarro-Dizon
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	09/11/13 12:03 by CND
Vendor:	*Prepared*	**Lot Numbe**	K00825

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	20000
Nickel	7440-02-0	50
Hydrochloric Acid (Solvent)	7647-01-0	50000

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1331128	Nitric Acid	08/02/13	** Vendor **	08/02/20	08/02/13 12:38 by SC	4
1336008	Hydrochloric Acid	09/03/13	** Vendor **	09/03/23	09/03/13 16:35 by CND	10
1F03008	Nickel Stock, 10000ppm	06/03/11	** Vendor **	09/30/16	06/03/11 13:16 by SC	1

Analytical Standard Record
EPA Region 9 Laboratory
1341019

Description: 6010, Cal Std 4, 10/5/2/1/0.5 ppm
Standard Type: Other Solution
Solvent: Solvent Lot #
Final Volume (mls): 200
Vials: 1
Vendor: *Prepared*

Expires: 03/01/14
Prepared: 10/07/13
Prepared By: Stephen Carroll
Department: Metals
Last Edit: 10/07/13 14:05 by SC
Lot Numb N/A

Analyte	CAS Number	Concentration (ppm)
Silver	7440-22-4	0.5
Selenium	7782-49-2	5
Nitric Acid (Solvent)	7697-37-2	20000
Manganese	7439-96-5	2
Hydrochloric Acid (Solvent)	7647-01-0	50000
Copper	7440-50-8	2
Calcium	7440-70-2	10
Cadmium	7440-43-9	2
Boron	7440-42-8	2
Barium	7440-39-3	1
Arsenic	7440-38-2	10
Antimony	7440-36-0	5

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(ml
1308042	Arsenic Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:35 by SC	
1308043	Barium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:36 by SC	0.
1308047	Boron Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:36 by SC	0.
1308041	Antimony Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:35 by SC	
1308049	Cadmium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:36 by SC	0.
1308048	Calcium Stock, 10000ppm	02/20/13	** Vendor **	03/01/14	02/20/13 15:59 by CND	0.
1308053	Copper Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:37 by SC	0.
1308058	Manganese Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:38 by SC	0.
1308062	Selenium Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:39 by SC	
1308064	Silver Stock, 1000ppm	02/20/13	** Vendor **	03/01/14	02/27/13 14:39 by SC	0.
1316133	Hydrochloric Acid	04/19/13	** Vendor **	04/19/20	04/19/13 11:58 by SC	1
1331128	Nitric Acid	08/02/13	** Vendor **	08/02/20	08/02/13 12:38 by SC	

Analytical Standard Record

EPA Region 9 Laboratory

1341020

Description: 6010, Al SIC, 200ppm
Standard Type: Other Solution
Solvent: Solvent Lot #
Final Volume (mls): 200
Vials: 1
Vendor: *Prepared*

Expires: 04/30/16
Prepared: 10/07/13
Prepared By: Stephen Carroll
Department: Metals
Last Edit: 10/07/13 14:07 by SC
Lot Numb N/A

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	20000
Hydrochloric Acid (Solvent)	7647-01-0	50000
Aluminum	7429-90-5	200

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(ml
1324009	Aluminum Stock, 10000 mg/L	06/10/13	** Vendor **	04/30/16	06/19/13 11:40 by SC	
1316133	Hydrochloric Acid	04/19/13	** Vendor **	04/19/20	04/19/13 11:58 by SC	1
1331128	Nitric Acid	08/02/13	** Vendor **	08/02/20	08/02/13 12:38 by SC	

Analytical Standard Record

EPA Region 9 Laboratory

1344049

Description:	6010, S0, 2%HNO3/5%HCl Blank	**Expires:**	10/29/14
Standard Type:	Other Solution	**Prepared:**	10/29/13
Solvent:	Solvent Lot #	**Prepared By:**	Stephen Carroll
Final Volume (mls):	2000	**Department:**	Metals
Vials:	1	**Last Edit:**	10/30/13 09:53 by SC
Vendor:	*Prepared*	**Lot Numbe**	N/A

HNO3 Source 1331128 40mL; HCl Source 1316133 100mL

Analyte	CAS Number	Concentration (ppm)
Calcium	7440-70-2	0
Aluminum	7429-90-5	0
Iron	7439-89-6	0
Hydrochloric Acid (Solvent)	7647-01-0	50000
Copper	7440-50-8	0
Cobalt	7440-48-4	0
Lithium	7439-93-2	0
Cerium	7440-45-1	0
Magnesium	7439-95-4	0
Cadmium	7440-43-9	0
Boron	7440-42-8	0
Beryllium	7440-41-7	0
Barium	7440-39-3	0
Arsenic	7440-38-2	0
Antimony	7440-36-0	0
Chromium	7440-47-3	0
Silica (SiO2)	763-18-69	0
Vanadium	7440-62-2	0
Titanium	7440-32-6	0
Tin	7440-31-5	0
Thallium	7440-28-0	0
Strontium	7440-24-6	0
Lead	7439-92-1	0
Silver	7440-22-4	0
Zinc	7440-66-6	0
Selenium	7782-49-2	0
Potassium	7440-09-7	0
Nitric Acid (Solvent)	7697-37-2	20000
Nickel	7440-02-0	0
Molybdenum	7439-98-7	0

Manganese	7439-96-5	0
Sodium	7440-23-5	0

Analytical Standard Record

EPA Region 9 Laboratory

1344107

Description:	6010, Cr IEC, 50ppm	**Expires:**	06/30/16
Standard Type:	Other Solution	**Prepared:**	11/01/13
Solvent:	Solvent Lot #	**Prepared By:**	Stephen Carroll
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	11/01/13 14:17 by SC
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	20100
Hydrochloric Acid (Solvent)	7647-01-0	50100
Chromium	7440-47-3	0.25

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1316133	Hydrochloric Acid	04/19/13	** Vendor **	04/19/20	04/19/13 11:58 by SC	10
1331128	Nitric Acid	08/02/13	** Vendor **	08/02/20	08/02/13 12:38 by SC	4
1F21017	200.7, Cr SIC, 50ppm	06/21/11	Stephen Carroll	05/17/16	12/11/12 11:19 by jad	1

Analytical Standard Record

EPA Region 9 Laboratory

1344108

Description:	6010, Fe SIC, 300ppm	**Expires:**	03/31/18
Standard Type:	Other Solution	**Prepared:**	11/01/13
Solvent:	Solvent Lot #	**Prepared By:**	Stephen Carroll
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	11/01/13 14:20 by SC
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	50000
Iron	7439-89-6	200
Hydrochloric Acid (Solvent)	7647-01-0	20000

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1310132	Iron Stock, 10000ppm	03/07/13	** Vendor **	03/31/18	03/07/13 14:37 by CND	4
1316133	Hydrochloric Acid	04/19/13	** Vendor **	04/19/20	04/19/13 11:58 by SC	4
1331128	Nitric Acid	08/02/13	** Vendor **	08/02/20	08/02/13 12:38 by SC	10

Analytical Standard Record

EPA Region 9 Laboratory

1344127

Description:	Magnesium Stock, 10000ppm	**Expires:**	09/30/14
Standard Type:	Analyte Spike	**Prepared:**	11/02/13
Solvent:	2% HNO3	**Prepared By:**	Eddie Rankin
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	11/02/13 10:32 by ER
Vendor:	Inorganic Ventures	**Lot Numbe**	AE14-188MGY

Analyte	CAS Number	Concentration (ppm)
Magnesium	7439-95-4	10000

1344127

Expires 09/30/14

Preparer:Eddie Rankin 11/02/13

Magnesium Stock, 10000ppm

ACCREDITED
Reference Materials Producer
Cert #2495.01

SPEXertificate®

Certificate of Reference Material

ilac-MRA ACCREDITED
Chemical Testing
Cert #2495.02

Catalog Number: PLMG2-3Y **Lot No.** AE14-188MGY

Description: 10,000 mg/L Magnesium

Matrix: 5% HNO_3

This **ASSURANCE®** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICP-OES, DCP, AA, ICP-MS, and XRF. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Value: 9998 mg/L

Uncertainty Associated with Measurement: ±30 mg/L

Certified Value is Traceable to: 3131a*

* - indicates NIST SRM † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)

The CRM is prepared gravimetrically using high purity Magnesium Metal, Lot# 12121C. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 10019 mg/L

Method: EDTA titration using Eriochrome Black T as indicator. EDTA standardized against Pb(NO3)2 NIST SRM #928.

Instrumental Analysis by ICP Spectrometer: 9976 mg/L

Uncertified Properties

Density: 1.068 g/mL @ 20.0°C

Trace Metallic Impurities in the Actual Solution via ICP/ICP-MS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L
Ag	<0.001	Bi	<0.001	Fe	0.2	Mn	0.4	Rb	<0.002	Ti	<0.08
Al	0.2	Ca	<0.05	Ga	<0.002	Mo	<0.001	Re	<0.001	Tl	0.02
As	0.005	Cd	<0.001	In	<0.001	Na	<0.4	Sb	<0.001	V	0.001
B	<0.07	Co	<0.01	K	<0.1	Ni	<0.02	Si	1	Zn	0.01
Ba	<0.001	Cr	0.01	Li	<0.006	Pb	0.01	Sr	<0.001	Zr	<0.001
Be	<0.004	Cu	0.02								

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified value. This includes uncertainty components due to preparation, homogeneity by the most precise method, short term and long term stability as well as transpiration loss. This guarantee is valid for a period of one year from the date of certification only when the material is kept tightly closed and stored under ambient laboratory conditions.

Date of Certification: SEP 2013 Certifying Officer:

Analytical Standard Record

EPA Region 9 Laboratory

1344128

Description:	Boron Stock, 1000ppm	**Expires:**	09/30/14
Standard Type:	Analyte Spike	**Prepared:**	11/02/13
Solvent:	H2O/tr. NH4OH	**Prepared By:**	Eddie Rankin
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	11/02/13 10:32 by ER
Vendor:	Inorganic Ventures	**Lot Numbe**	18-87BY

Analyte	CAS Number	Concentration (ppm)
Boron	7440-42-8	1000

1344128

Expires 09/30/14

Preparer:Eddie Rankin 11/02/13

Boron Stock, 1000ppm

ACCREDITED
Reference Materials Producer
Cert #2495.01

SPEXertificate®

Certificate of Reference Material

ilac-MRA ACCREDITED
Chemical Testing
Cert #2495.02

Catalog Number: PLB9-2Y **Lot No.** 18-87BY

Description: 1000 mg/L Boron

Matrix: H_2O

This **ASSURANCE®** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICP-OES, DCP, AA, ICP-MS, and XRF. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Value: 1004 mg/L

Uncertainty Associated with Measurement: ±3 mg/L

Certified Value is Traceable to: 3107*

* - indicates NIST SRM † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)

The CRM is prepared gravimetrically using high purity Ammonium Tetraborate Tetrahydrate, Lot# 01091C. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1004 mg/L

Method: Titration with Sodium Hydroxide using Phenolphthalein as indicator. Sodium Hydroxide standardized against Potassium Biphthalate NIST SRM #84L

Instrumental Analysis by ICP Spectrometer: 1003 mg/L

Uncertified Properties

Density: 1.002 g/mL @ 20.0°C

Trace Metallic Impurities in the Actual Solution via ICP/ICP-MS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L
Ag	0.001	Ca	0.07	Ga	<0.02	Mn	<0.001	Rb	<0.001	Ti	<0.002
Al	0.03	Cd	<0.001	In	<0.001	Mo	<0.001	Re	<0.001	Tl	<0.004
As	<0.001	Co	<0.001	K	<0.2	Na	0.06	Sb	<0.001	V	<0.001
Ba	<0.001	Cr	<0.001	Li	<0.001	Ni	<0.001	Si	<0.1	Zn	0.002
Be	<0.001	Cu	<0.001	Mg	<0.001	Pb	<0.001	Sr	<0.001	Zr	<0.001
Bi	<0.001	Fe	0.01								

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified value. This includes uncertainty components due to preparation, homogeneity by the most precise method, short term and long term stability as well as transpiration loss. This guarantee is valid for a period of one year from the date of certification only when the material is kept tightly closed and stored under ambient laboratory conditions.

Date of Certification: SEP 2013 Certifying Officer:

Analytical Standard Record

EPA Region 9 Laboratory

1344129

Description:	Calcium Stock, 10000ppm	**Expires:**	09/30/14
Standard Type:	Analyte Spike	**Prepared:**	11/02/13
Solvent:	2% HNO3	**Prepared By:**	Eddie Rankin
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	11/02/13 10:43 by ER
Vendor:	Inorganic Ventures	**Lot Numbe**	AL14-14CAY

Analyte	CAS Number	Concentration (ppm)
Calcium	7440-70-2	10000

1344129

Expires 09/30/14

Preparer:Eddie Rankin 11/02/13

Calcium Stock, 10000ppm

SPEXertificate®

Certificate of Reference Material

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Reference Materials Producer
CERT #2495.01
Chemical Testing
CERT #2495.02

Catalog Number: PLCA2-3Y **Lot No.** AL14-148CAY

Description: 10,000 mg/L Calcium

Matrix: 5% HNO_3

This **ASSURANCE®** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICP-OES, DCP, AA, ICP-MS, and XRF. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Value: 10029 mg/L

Uncertainty Associated with Measurement: ±30 mg/L

Certified Value is Traceable to: 3109a*

* - indicates NIST SRM † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)

The CRM is prepared gravimetrically using high purity Calcium Carbonate, Lot# 08121C. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 10048 mg/L

Method: EDTA titration using Hydroxy Naphthol Blue as indicator. EDTA standardized against Pb(NO3)2 NIST SRM #928.

Instrumental Analysis by ICP Spectrometer: 10010 mg/L

Uncertified Properties

Density: 1.054 g/mL @ 20.0°C

Trace Metallic Impurities in the Actual Solution via ICP/ICP-MS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L
Ag	<0.001	Bi	<0.001	Ga	<0.001	Mn	<0.004	Rb	<0.001	Ti	<0.03
Al	<0.02	Cd	<0.002	In	<0.001	Mo	<0.001	Re	<0.001	Tl	<0.001
As	<0.02	Co	<0.006	K	<0.06	Na	0.05	Sb	<0.001	V	<0.002
B	<0.05	Cr	<0.02	Li	<0.05	Ni	<0.03	Si	<0.1	Zn	<0.02
Ba	<0.002	Cu	<0.002	Mg	<0.01	Pb	<0.001	Sr	0.3	Zr	0.005
Be	<0.006	Fe	0.05								

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified value. This includes uncertainty components due to preparation, homogeneity by the most precise method, short term and long term stability as well as transpiration loss. This guarantee is valid for a period of one year from the date of certification only when the material is kept tightly closed and stored under ambient laboratory conditions.

Date of Certification: SEP 2013 Certifying Officer: Vanaja Sivakumar

Analytical Standard Record

EPA Region 9 Laboratory

1344130

Description:	Potassium Stock, 10000ppm	**Expires:**	09/30/14
Standard Type:	Analyte Spike	**Prepared:**	11/02/13
Solvent:	2% HNO3	**Prepared By:**	Eddie Rankin
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	11/02/13 10:44 by ER
Vendor:	Inorganic Ventures	**Lot Numbe**	AJ14-184KY

Analyte	CAS Number	Concentration (ppm)
Potassium	7440-09-7	10000

1344130

Expires 09/30/14

Preparer:Eddie Rankin 11/02/13

Potassium Stock, 10000ppm

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Certificate of Reference Material

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Chemical Testing
Cert #2495.02

Catalog Number: PLK2-3Y **Lot No.** AJ14-184KY

Description: 10,000 mg/L Potassium

Matrix: 5% HNO_3

This **ASSURANCE®** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICP-OES, DCP, AA, ICP-MS, and XRF. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Value: 10018 mg/L

Uncertainty Associated with Measurement: ±30 mg/L

Certified Value is Traceable to: 3141a*

* - indicates NIST SRM † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)

The CRM is prepared gravimetrically using high purity Potassium Nitrate, Lot# 12111A. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 10032 mg/L

Method: Evaporate to dryness. Fume with Sulfuric Acid. Ignite and weigh as K2SO4.

Instrumental Analysis by ICP Spectrometer: 10003 mg/L

Uncertified Properties

Density: 1.040 g/mL @ 20.0°C

Trace Metallic Impurities in the Actual Solution via ICP/ICP-MS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L
Ag	<0.002	Bi	<0.001	Fe	0.1	Mn	<0.009	Rb	0.3	Tl	<0.001
Al	<0.008	Ca	0.3	Ga	<0.001	Mo	<0.001	Re	<0.001	Ti	<0.2
As	<0.005	Cd	<0.001	In	<0.001	Na	0.6	Sb	<0.001	V	<0.03
B	<0.04	Co	<0.01	Li	<0.002	Ni	<0.001	Si	0.5	Zn	0.02
Ba	<0.001	Cr	<0.009	Mg	0.003	Pb	0.001	Sr	<0.001	Zr	<0.002
Be	<0.001	Cu	<0.02								

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified value. This includes uncertainty components due to preparation, homogeneity by the most precise method, short term and long term stability as well as transpiration loss. This guarantee is valid for a period of one year from the date of certification only when the material is kept tightly closed and stored under ambient laboratory conditions.

Date of Certification: SEP 2013 Certifying Officer:

Analytical Standard Record

EPA Region 9 Laboratory

1344131

Description:	Sodium Stock, 10000ppm	**Expires:**	09/30/14
Standard Type:	Analyte Spike	**Prepared:**	11/02/13
Solvent:	2% HNO3	**Prepared By:**	Eddie Rankin
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	11/02/13 10:39 by ER
Vendor:	Inorganic Ventures	**Lot Numbe**	AI14-193NAY

Analyte	CAS Number	Concentration (ppm)
Sodium	7440-23-5	10000

1344131

Expires 09/30/14

Preparer:Eddie Rankin 11/02/13

Sodium Stock, 10000ppm

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Certificate of Reference Material

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Chemical Testing
Cert #2495.02

Catalog Number: PLNA2-3Y **Lot No.** AI14-193NAY

Description: 10,000 mg/L Sodium

Matrix: 5% HNO_3

This **ASSURANCE®** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICP-OES, DCP, AA, ICP-MS, and XRF. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Value: 9994 mg/L ±50 mg/L

Certified Value is Traceable to: 3152a*

* - indicates NIST SRM † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)

The CRM is prepared gravimetrically using high purity Sodium Carbonate, Lot# 10121F. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 10012 mg/L

Method: Evaporate to dryness. Fume with Sulfuric Acid. Ignite and weigh as Na2SO4.

Instrumental Analysis by ICP Spectrometer: 9975 mg/L

Uncertified Properties

Density: 1.053 g/mL @ 20.0°C

Trace Metallic Impurities in the Actual Solution via ICP-MS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L
Ag	<0.05	Bi	0.002	Fe	0.04	Mg	<0.01	Rb	0.2	Ti	<0.008
Al	<0.07	Ca	0.4	Ga	<0.003	Mn	0.006	Re	<0.001	Tl	<0.003
As	<0.01	Cd	<0.002	In	<0.001	Mo	<0.005	Sb	<0.001	V	<0.001
B	<0.06	Co	0.001	K	0.04	Ni	<0.03	Si	0.1	Zn	0.06
Ba	<0.001	Cr	0.002	Li	<0.01	Pb	<0.001	Sr	<0.001	Zr	<0.001
Be	<0.008	Cu	0.01								

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified value. This includes uncertainty components due to preparation, homogeneity by the most precise method, short term and long term stability as well as transpiration loss. This guarantee is valid for a period of one year from the date of certification only when the material is unopened and stored under ambient laboratory conditions.

Date of Certification: SEP 2013 Certifying Officer:

Analytical Standard Record

EPA Region 9 Laboratory

1344132

Description:	Tin Stock, 1000ppm	**Expires:**	09/30/14
Standard Type:	Analyte Spike	**Prepared:**	11/02/13
Solvent:	trace HNO3/ trace HF/DI H2O	**Prepared By:**	Eddie Rankin
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	11/02/13 10:41 by ER
Vendor:	Inorganic Ventures	**Lot Numbe**	18-189SNY

Analyte	CAS Number	Concentration (ppm)
Tin	7440-31-5	1000

1344132

Expires 09/30/14

Preparer:Eddie Rankin 11/02/13

Tin Stock, 1000ppm

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Cert #2495.02

Catalog Number: PLSN5-2Y **Lot No.** 18-189SNY

Description: 1000 mg/L Tin

Matrix: 20% HCl

This **ASSURANCE®** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICP-OES, DCP, AA, ICP-MS, and XRF. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Value: 1003 mg/L

Uncertainty Associated with Measurement: ±3 mg/L

Certified Value is Traceable to: 3161a*

* - indicates NIST SRM † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)

The CRM is prepared gravimetrically using high purity Tin Metal, Lot# 01131D. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1002 mg/L

Method: Precipitation using Ammonium Hydroxide. Filter, ignite, and weigh as SnO2.

Instrumental Analysis by ICP Spectrometer: 1004 mg/L

Uncertified Properties

Density: 1.041 g/mL @ 20.0°C

Trace Metallic Impurities in the Actual Solution via ICP/ICP-MS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L	Element	mg/L
Ag	<0.001	Bi	<0.001	Fe	0.03	Mn	<0.001	Rb	<0.001	Ti	<0.002
Al	0.004	Ca	0.01	Ga	<0.001	Mo	<0.001	Re	<0.001	Tl	0.009
As	0.007	Cd	<0.002	In	<0.02	Na	0.006	Sb	0.004	V	<0.001
B	<0.01	Co	<0.001	K	<0.001	Ni	0.02	Si	<0.1	Zn	0.02
Ba	0.01	Cr	0.01	Li	<0.001	Pb	0.01	Sr	<0.001	Zr	<0.01
Be	<0.001	Cu	0.001	Mg	<0.001						

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified value. This includes uncertainty components due to preparation, homogeneity by the most precise method, short term and long term stability as well as transpiration loss. This guarantee is valid for a period of one year from the date of certification only when the material is kept tightly closed and stored under ambient laboratory conditions.

Date of Certification: SEP 2013 Certifying Officer:

Analytical Standard Record

EPA Region 9 Laboratory

1344133

Description:	6010, Matrix Spike B	**Expires:**	09/30/14
Standard Type:	Analyte Spike	**Prepared:**	11/02/13
Solvent:	Solvent Lot #	**Prepared By:**	Eddie Rankin
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	11/02/13 11:05 by ER
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Tin	7440-31-5	50
Sodium	7440-23-5	1000
Potassium	7440-09-7	1000
Nitric Acid (Solvent)	7697-37-2	10000
Molybdenum	7439-98-7	50
Magnesium	7439-95-4	1000
Lithium	7439-93-2	10
Calcium	7440-70-2	1000
Boron	7440-42-8	200

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1344127	Magnesium Stock, 10000ppm	11/02/13	Eddie Rankin	09/30/14	11/02/13 10:32 by ER	20
1344128	Boron Stock, 1000ppm	11/02/13	Eddie Rankin	09/30/14	11/02/13 10:32 by ER	40
1344129	Calcium Stock, 10000ppm	11/02/13	Eddie Rankin	09/30/14	11/02/13 10:43 by ER	20
2K13005	Nitric Acid	11/13/12	Eddie Rankin	11/13/15	11/13/12 08:50 by ER	2
1D12021	Molybdenum Stock, 10000ppm	04/28/10	** Vendor **	05/31/17	04/12/11 15:57 by SC	1
1344130	Potassium Stock, 10000ppm	11/02/13	Eddie Rankin	09/30/14	11/02/13 10:44 by ER	20
1344131	Sodium Stock, 10000ppm	11/02/13	Eddie Rankin	09/30/14	11/02/13 10:39 by ER	20
9D10009	Lithium Stock, 1000ppm	05/14/08	** Vendor **	06/30/15	11/10/11 13:39 by jad	2
1344132	Tin Stock, 1000ppm	11/02/13	Eddie Rankin	09/30/14	11/02/13 10:41 by ER	10

Analytical Standard Record

EPA Region 9 Laboratory

1345077

Description:	200.7/6010, Internal Standard, Y 10ppm	**Expires:**	04/19/20
Standard Type:	Other Solution	**Prepared:**	11/06/13
Solvent:	Solvent Lot #	**Prepared By:**	Stephen Carroll
Final Volume (mls):	1000	**Department:**	Metals
Vials:	1	**Last Edit:**	11/06/13 13:22 by SC
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Yttrium	7440-65-5	10
Nitric Acid (Solvent)	7697-37-2	20000
Hydrochloric Acid (Solvent)	7647-01-0	50000

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1328150	Yttrium Stock, 1000 mg/L	07/12/13	** Vendor **	05/31/20	07/12/13 09:50 by SC	10
1316133	Hydrochloric Acid	04/19/13	** Vendor **	04/19/20	04/19/13 11:58 by SC	50
1331128	Nitric Acid	08/02/13	** Vendor **	08/02/20	08/02/13 12:38 by SC	20

Analytical Standard Record

EPA Region 9 Laboratory

1346029

Description:	Nitric Acid	**Expires:**	11/11/20
Standard Type:	Other Solution	**Prepared:**	11/11/13
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	2500	**Department:**	Metals
Vials:	1	**Last Edit:**	11/11/13 14:15 by SC
Vendor:	J.T. Baker	**Lot Numbe**	0000025627

JT Baker, 69.0%-70.0%, Barcode AU005063

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	1000000

Analytical Standard Record

EPA Region 9 Laboratory

1346030

Description:	6010, Mn SIC, 50ppm	**Expires:**	10/31/16
Standard Type:	Other Solution	**Prepared:**	11/11/13
Solvent:	Solvent Lot #	**Prepared By:**	Stephen Carroll
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	11/11/13 14:25 by SC
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	20000
Manganese	7439-96-5	50
Hydrochloric Acid (Solvent)	7647-01-0	50000

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1336008	Hydrochloric Acid	09/03/13	** Vendor **	09/03/23	09/03/13 16:35 by CND	10
1F29022	Manganese Stock, 10000ppm	06/29/11	** Vendor **	10/31/16	06/29/11 15:54 by SC	1
1346029	Nitric Acid	11/11/13	** Vendor **	11/11/20	11/11/13 14:15 by SC	4

Analytical Standard Record

EPA Region 9 Laboratory

1346031

Description:	6010, Mo SIC, 50ppm	**Expires:**	05/31/17
Standard Type:	Other Solution	**Prepared:**	11/11/13
Solvent:	Solvent Lot #	**Prepared By:**	Stephen Carroll
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	11/11/13 14:28 by SC
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Nitric Acid (Solvent)	7697-37-2	20000
Molybdenum	7439-98-7	50
Hydrochloric Acid (Solvent)	7647-01-0	50000

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1D12021	Molybdenum Stock, 10000ppm	04/28/10	** Vendor **	05/31/17	04/12/11 15:57 by SC	1
1336008	Hydrochloric Acid	09/03/13	** Vendor **	09/03/23	09/03/13 16:35 by CND	10
1346029	Nitric Acid	11/11/13	** Vendor **	11/11/20	11/11/13 14:15 by SC	4

Analytical Standard Record

EPA Region 9 Laboratory

1346032

Description:	6010, Ti SIC, 50ppm	**Expires:**	02/28/16
Standard Type:	Other Solution	**Prepared:**	11/11/13
Solvent:	Solvent Lot #	**Prepared By:**	Stephen Carroll
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	11/11/13 14:31 by SC
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Titanium	7440-32-6	50
Nitric Acid (Solvent)	7697-37-2	20000
Hydrochloric Acid (Solvent)	7647-01-0	50000

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
0L21004	Titanium Stock, 10000ppm	12/21/10	** Vendor **	02/28/16	12/21/10 11:44 by SC	1
1336008	Hydrochloric Acid	09/03/13	** Vendor **	09/03/23	09/03/13 16:35 by CND	10
1346029	Nitric Acid	11/11/13	** Vendor **	11/11/20	11/11/13 14:15 by SC	4

Analytical Standard Record

EPA Region 9 Laboratory

1346033

Description:	6010, V SIC, 50ppm	**Expires:**	10/31/17
Standard Type:	Other Solution	**Prepared:**	11/11/13
Solvent:	Solvent Lot #	**Prepared By:**	Stephen Carroll
Final Volume (mls):	200	**Department:**	Metals
Vials:	1	**Last Edit:**	11/11/13 14:32 by SC
Vendor:	*Prepared*	**Lot Numbe**	N/A

Analyte	CAS Number	Concentration (ppm)
Vanadium	7440-62-2	50
Nitric Acid (Solvent)	7697-37-2	20000
Hydrochloric Acid (Solvent)	7647-01-0	50000

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
1F27016	Vanadium Stock, 1000ppm	06/27/11	** Vendor **	10/31/17	06/27/11 10:44 by SC	1
1336008	Hydrochloric Acid	09/03/13	** Vendor **	09/03/23	09/03/13 16:35 by CND	10
1346029	Nitric Acid	11/11/13	** Vendor **	11/11/20	11/11/13 14:15 by SC	4

Analytical Standard Record

EPA Region 9 Laboratory

1D12021

Description:	Molybdenum Stock, 10000ppm	**Expires:**	05/31/17
Standard Type:	Other Solution	**Prepared:**	04/28/10
Solvent:	H2O Dil NH4OH	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	04/12/11 15:57 by SC
Vendor:	Ultra Scientific	**Lot Numbe**	L00470

Analyte	CAS Number	Concentration (ppm)
Molybdenum	7439-98-7	10000

Certificate of Analysis

ULTRA SCIENTIFIC
Analytical Solutions

1D12021
Expires 05/31/17
Preparer:** Vendor ** 04/28/10

Molybdenum Stock, 10000ppm

ULTRAgrade™ Solution
Molybdenum ICP Standard
10000 µg/mL

Catalog Number: ICP-142
Lot Number: L00470
Job Number: J00011199
Lot Issue Date: 04/28/2010
Expiration Date: 05/31/2017

Starting Material:	Molybdenum (VI) Oxide
Starting Material Purity:	99.999%
Starting Material Lot No.:	NT02992
Matrix:	4% ammonium hydroxide in low TOC water (< 50 ppb)
Atomic Weight Mo:	95.95

Certified Value: 10018 ± 20 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within ± 2.5%, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value for each analyte is determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3134

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001.

Trace Metallic Impurities in Solution Standard in µg/mL:

*	Al	<0.005	ND	*	Ga	<0.005	ND	n	Nb			n	S		
*	Sb	<0.005	ND	n	Ge			n	Os			n	Ta		
*	As	<0.005	ND	n	Au			*	Pd	<0.005	ND	n	Te		
*	Ba	<0.005	ND	n	Hf			*	P	<0.005	ND	n	Tb		
*	Be	<0.005	ND	n	Ho			*	Pt	<0.005	ND	*	Tl	<0.005	ND
*	Bi	<0.005	ND	*	In	<0.005	ND	*	K	<0.005	ND	n	Th		
*	B	<0.005	ND	n	Ir			n	Pr			n	Tm		
*	Cd	<0.005	ND	*	Fe	<0.005	ND	n	Re			*	Sn	<0.005	ND
*	Ca	<0.005	ND	*	La	<0.005	ND	n	Rh			*	Ti	<0.005	ND
n	Ce			*	Pb	<0.005	ND	n	Rb			*	W	<0.100	D
n	Cs			*	Li	<0.005	ND	n	Ru			n	U		
*	Cr	<0.005	ND	n	Lu			n	Sm			*	V	<0.005	ND
*	Co	<0.005	ND	*	Mg	<0.005	ND	n	Sc			n	Yb		
*	Cu	<0.005	ND	*	Mn	<0.005	ND	*	Se	<0.005	ND	n	Y		
n	Dy			*	Hg	<0.005	ND	*	Si	<0.005	ND	*	Zn	<0.005	ND
*	Er	<0.005	ND	s	Mo			*	Ag	<0.005	ND	n	Zr		
*	Eu	<0.005	ND	n	Nd			*	Na	<0.005	ND				
*	Gd	<0.005	ND	*	Ni	<0.005	ND	*	Sr	<0.005	ND				

* - element checked for
ND - not detected

i - spectral interference
D - detected

n - not checked for
s - solution standard element

Density of Solution (measured at 21.5°C ± 0.5°C): 1.008 g/mL

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A2LA
Cert. No. 0851-01

ISO 9001:2008
Registered
TUV USA, Inc.
Cert. No. 09-1009

250 Smith Street, North Kingstown, RI 02852 USA
401-294-9400 Fax: 295-2330
www.ultrasci.com

William J. Leary
Quality Assurance Manager

Analytical Standard Record

EPA Region 9 Laboratory

1D13040

Description:	Cobalt Stock, 10000 mg/L	**Expires:**	08/31/17
Standard Type:	Other Solution	**Prepared:**	07/26/10
Solvent:	2% Nitric Acid	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	04/13/11 15:38 by SC
Vendor:	Ultra Scientific	**Lot Numbe**	L00866

Analyte	CAS Number	Concentration (ppm)
Cobalt	7440-48-4	10000

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

1D13040
Expires 08/31/17
Preparer:** Vendor ** 07 26 10

Cobalt Stock, 10000 mg L

ULTRAgrade™ Solution
Cobalt ICP Standard
10000 µg/mL

Catalog Number: ICP-127
Lot Number: L00866
Job Number: J00011827
Lot Issue Date: 07/26/2010
Expiration Date: 08/31/2017

Starting Material:	Cobalt Nitrate Hexahydrate
Starting Material Purity:	99.999%
Starting Material Lot No.:	BH01158
Matrix:	2% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Co:	58.94

Certified Value: 100009 ± 20 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within ± 2.5%, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value for each analyte is determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3113

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001.

Trace Metallic Impurities in Solution Standard in µg/mL:

*	Al	<0.005	ND
*	Sb	<0.005	ND
*	As	<0.005	ND
*	Ba	<0.005	ND
*	Be	<0.005	ND
*	Bi	<0.005	ND
*	B	<0.005	ND
*	Cd	<0.005	ND
*	Ca	<0.005	ND
n	Ce		
n	Cs		
*	Cr	<0.005	ND
s	Co		
*	Cu	<0.005	ND
n	Dy		
*	Er	<0.005	ND
*	Eu	<0.005	ND
*	Gd	<0.005	ND

*	Ga	<0.005	ND
n	Ge		
n	Au		
n	Hf		
n	Ho		
*	In	<0.005	ND
n	Ir		
*	Fe	<0.030	D
*	La	<0.005	ND
*	Pb	<0.005	ND
*	Li	<0.005	ND
n	Lu		
*	Mg	<0.005	ND
*	Mn	<0.005	ND
*	Hg	<0.005	ND
*	Mo	<0.005	ND
n	Nd		
*	Ni	<0.030	D

n	Nb		
n	Cs		
*	Pd	<0.005	ND
*	P	<0.005	ND
*	Pt	<0.005	ND
*	K	<0.005	ND
n	Pr		
n	Re		
n	Rh		
n	Rb		
n	Ru		
n	Sm		
n	Sc		
*	Se	<0.005	ND
*	Si	<0.005	ND
*	Ag	<0.005	ND
*	Na	<0.005	ND
*	Sr	<0.005	ND

n	S		
n	Ta		
n	Te		
n	Tb		
*	Tl	<0.005	ND
n	Th		
n	Tm		
*	Sn	<0.005	ND
*	Ti	<0.005	ND
n	W		
n	U		
*	V	<0.005	ND
n	Yb		
n	Y		
*	Zn	<0.005	ND
n	Zr		

* - element checked for
ND - not detected

i - spectral interference
D - detected

n - not checked for
s - solution standard element

Density of Solution (measured at 22.5°C ± 0.5°C): 1.033 g/mL

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Quality Assurance Manager

Certificate of Analysis

1F03008

Expires 09/30/16

Preparer:** Vendor ** 06 03 11

Nickel Stock, 10000ppm

ULTRAgrade™ Solution
Nickel ICP Standard
10000 µg/mL

Catalog Number: ICP-128
Lot Number: K00825
Job Number: J00010210
Lot Issue Date: 08/12/2009
Expiration Date: 09/30/2016

Starting Material:	Nickel (II) Nitrate Hexahydrate
Starting Material Purity:	99.999%
Starting Material Lot No.:	BH01230
Matrix:	2% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Ni:	58.71

Certified Value: 10012 ± 20 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within ± 2.5%, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value for each analyte is determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3136

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001.

Trace Metallic Impurities in Solution Standard in µg/mL:

*	Al	<0.005	ND	*	Ga	<0.005	ND	n	Nb			n	S		
*	Sb	<0.005	ND	n	Ge			n	Os			n	Ta		
*	As	<0.005	ND	n	Au			*	Pd	<0.005	ND	n	Te		
*	Ba	<0.005	ND	n	Hf			*	P	<0.005	ND	n	Tb		
*	Be	<0.005	ND	n	Ho			*	Pt	<0.005	ND	*	Tl	<0.005	ND
*	Bi	<0.005	ND	*	In	<0.005	ND	*	K	<0.005	ND	n	Th		
*	B	<0.005	ND	n	Ir			n	Pr			n	Tm		
*	Cd	<0.005	ND	*	Fe	<0.010	D	n	Re			*	Sn	<0.005	ND
*	Ca	<0.005	ND	*	La	<0.005	ND	n	Rh			*	Ti	<0.005	ND
n	Ce			*	Pb	<0.005	ND	n	Rb			n	W		
n	Cs			*	Li	<0.005	ND	n	Ru			n	U		
*	Cr	<0.005	ND	n	Lu			n	Sm			*	V	<0.005	ND
*	Co	<0.005	ND	*	Mg	<0.010	D	n	Sc			n	Yb		
*	Cu	<0.005	ND	*	Mn	<0.005	ND	*	Se	<0.005	ND	n	Y		
n	Dy			*	Hg	<0.005	ND	*	Si	<0.005	ND	*	Zn	<0.005	ND
*	Er	<0.005	ND	*	Mo	<0.005	ND	*	Ag	<0.005	ND	n	Zr		
*	Eu	<0.005	ND	n	Nd			*	Na	<0.005	ND				
*	Gd	<0.005	ND	s	Ni			*	Sr	<0.005	ND				

* - element checked for
ND - not detected

i - spectral interference
D - detected

n - not checked for
s - solution standard element

Density of Solution (measured at 23.0°C ± 0.5°C): 1.036 g/mL

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William J. Leary
Quality Assurance Manager

Analytical Standard Record

EPA Region 9 Laboratory

1F03008

Description:	Nickel Stock, 10000ppm	**Expires:**	09/30/16
Standard Type:	Other Solution	**Prepared:**	06/03/11
Solvent:	n/a	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	06/03/11 13:16 by SC
Vendor:	Ultra Scientific	**Lot Numbe**	K00825

Analyte	CAS Number	Concentration (ppm)
Nickel	7440-02-0	10000

Analytical Standard Record

EPA Region 9 Laboratory

1F21016

Description:	Chromium Stock, 1000 mg/L	**Expires:**	06/30/16
Standard Type:	Other Solution	**Prepared:**	06/21/11
Solvent:	2% Nitric Acid	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	06/21/11 13:42 by SC
Vendor:	Ultra Scientific	**Lot Numbe**	BH01232

Analyte	CAS Number	Concentration (ppm)
Chromium	7440-47-3	10000

Certificate of Analysis

ULTRAgrade™ Solution
Chromium ICP Standard
10000 µg/mL

Catalog Number: ICP-124
Lot Number: K00358
Job Number: J00009728
Lot Issue Date: 04/20/2009
Expiration Date: 06/30/2016

Starting Material:	Chromium (III) Nitrate Nonahydrate
Starting Material Purity:	99.998%
Starting Material Lot No.:	BH01232
Matrix:	2% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Cr:	52.01

1F21016
Expires 06/30/16
Preparer:** Vendor ** 06 21 11
Chromium Stock, 1000 mg L

Certified Value: 10009 ± 20 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within ± 2.5%, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value for each analyte is determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3112a

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001

Trace Metallic Impurities in Solution Standard in µg/mL:

*	Al	<0.010	D	*	Ga	<0.005	ND	n	Nb			n	S	
*	Sb	<0.005	ND	n	Ge			n	Os			n	Ta	
*	As	<0.005	ND	n	Au			*	Pd	<0.005	ND	n	Te	
*	Ba	<0.005	ND	n	Hf			*	P	<0.005	ND	n	Tb	
*	Be	<0.005	ND	n	Ho			*	Pt	<0.005	ND	*	Tl	<0.005 ND
*	Bi	<0.005	ND	*	In	<0.005	ND	*	K	<0.005	ND	n	Th	
*	B	<0.005	ND	n	Ir			n	Pr			n	Tm	
*	Cd	<0.005	ND	*	Fe	<0.150	D	n	Re			*	Sn	<0.005 ND
*	Ca	<0.010	D	*	La	<0.005	ND	n	Rh			*	Ti	<0.005 ND
n	Ce			*	Pb	<0.005	ND	n	Rb			n	W	
n	Cs			*	Li	<0.005	ND	n	Ru			n	U	
s	Cr			n	Lu			n	Sm			*	V	<0.005 ND
*	Co	<0.005	ND	*	Mg	<0.005	ND	n	Sc			n	Yb	
*	Cu	<0.005	ND	*	Mn	<0.005	ND	*	Se	<0.005	ND	n	Y	
n	Dy			*	Hg	<0.005	ND	*	Si	<0.005	ND	*	Zn	<0.005 ND
*	Er	<0.005	ND	*	Mo	<0.005	ND	*	Ag	<0.005	ND	n	Zr	
*	Eu	<0.005	ND	n	Nd			*	Na	<0.050	D			
*	Gd	<0.005	ND	*	Ni	<0.005	ND	*	Sr	<0.005	ND			

* - element checked for
ND - not detected

i - spectral interference
D - detected

n - not checked for
s - solution standard element

Density of Solution (measured at 23.2°C ± 0.5°C): 1.044 g/mL

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William J. Leary
Quality Assurance Manager

Analytical Standard Record

EPA Region 9 Laboratory

1F27016

Description:	Vanadium Stock, 1000ppm	**Expires:**	10/31/17
Standard Type:	Other Solution	**Prepared:**	06/27/11
Solvent:	10% Nitric Acid/Tr HF	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	06/27/11 10:44 by SC
Vendor:	Ultra Scientific	**Lot Numbe**	L01087

Analyte	CAS Number	Concentration (ppm)
Vanadium	7440-62-2	10000

Certificate of Analysis

1F27016
Expires 10/31/17
Preparer:** Vendor ** 06 27 11

Vanadium Stock, 1000ppm

ULTRAgrade™ Solution
Vanadium ICP Standard
10000 µg/mL
(light sensitive)

Catalog Number: ICP-123
Lot Number: L01087
Job Number: J00011811
Lot Issue Date: 09/16/2010
Expiration Date: 10/31/2017

Starting Material:	Ammonium Metavanadate
Starting Material Purity:	99.999%
Starting Material Lot No.:	BH01608
Matrix:	10% nitric acid, 2% hydrofluoric acid in low TOC water (< 50 ppb)
Atomic Weight V:	50.95

Certified Value: 10011 ± 20 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within ± 2.5%, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value for each analyte is determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3165

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the menufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001.

Trace Metallic Impurities in Solution Standard in µg/mL:

*	Al	<0.005	ND	*	Ga	<0.005	ND	n	Nb			n	S		
*	Sb	<0.005	ND	n	Ge			n	Os			n	Ta		
*	As	<0.005	ND	n	Au			*	Pd	<0.005	ND	n	Te		
*	Ba	<0.005	ND	n	Hf			*	P	<0.005	ND	n	Tb		
*	Be	<0.005	ND	n	Ho			*	Pt	<0.005	ND	*	Tl	<0.005	ND
*	Bi	<0.005	ND	*	In	<0.005	ND	*	K	<0.005	ND	n	Th		
*	B	<0.005	ND	n	Ir			n	Pr			n	Tm		
*	Cd	<0.005	ND	*	Fe	<0.020	D	n	Re			*	Sn	<0.005	ND
*	Ca	<0.020	D	*	La	<0.005	ND	n	Rh			*	Ti	<0.005	ND
n	Ce			*	Pb	<0.005	ND	n	Rb			n	W		
n	Cs			*	Li	<0.005	ND	n	Ru			n	U		
*	Cr	<0.005	ND	n	Lu			n	Sm			s	V		
*	Co	<0.005	ND	*	Mg	<0.020	D	n	Sc			n	Yb		
*	Cu	<0.005	ND	*	Mn	<0.005	ND	*	Se	<0.005	ND	n	Y		
n	Dy			*	Hg	<0.005	ND	*	Si	<0.005	ND	*	Zn	<0.005	ND
*	Er	<0.005	ND	*	Mo	<0.005	ND	*	Ag	<0.005	ND	n	Zr		
*	Eu	<0.005	ND	n	Nd			*	Na	<0.005	ND				
*	Gd	<0.005	ND	*	Ni	<0.005	ND	*	Sr	<0.005	ND				

* - element checked for
ND - not detected

i - spectral interference
D - detected

n - not checked for
s - solution standard element

Density of Solution (measured at 22.0°C ± 0.5°C): 1.076 g/mL

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William J. Leary
Quality Assurance Manager

Analytical Standard Record

EPA Region 9 Laboratory

1F29022

Description:	Manganese Stock, 10000ppm	**Expires:**	10/31/16
Standard Type:	Other Solution	**Prepared:**	06/29/11
Solvent:	2% Nitric Acid	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	06/29/11 15:54 by SC
Vendor:	Ultra Scientific	**Lot Numbe**	K00953

Analyte	CAS Number	Concentration (ppm)
Manganese	7439-96-5	10000

Certificate of Analysis

1F29022
Expires 10/31/16
Preparer:** Vendor ** 06 29 11

Manganese Stock. 10000ppm

ULTRAgrade™ Solution
Manganese ICP Standard
10000 µg/mL

Catalog Number: ICP-125
Lot Number: K00953
Job Number: J00010209
Lot Issue Date: 09/14/2009
Expiration Date: 10/31/2016

Starting Material:	Manganese (II) Nitrate
Starting Material Purity:	99.999%
Starting Material Lot No.:	BH01079
Matrix:	2% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Mn:	54.94

Certified Value: 10008 ± 20 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within ± 2.5%, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value for each analyte is determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3132

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001.

Trace Metallic Impurities in Solution Standard in µg/mL:

*	Al	<0.005	ND	*	Ga	<0.005	ND	n	Nb			n	S				
*	Sb	<0.005	ND	n	Ge			n	Os			n	Ta				
*	As	<0.005	ND	n	Au			*	Pd	<0.005	ND	n	Te				
*	Ba	<0.005	ND	n	Hf			*	P	<0.005	ND	n	Tb				
*	Be	<0.005	ND	n	Ho			*	Pt	<0.005	ND	*	Tl	<0.005	ND		
*	Bi	<0.005	ND	*	In	<0.005	ND	*	K	<0.005	ND	n	Th				
*	B	<0.005	ND	n	Ir			n	Pr			n	Tm				
*	Cd	<0.005	ND	*	Fe	<0.030	D	n	Re			*	Sn	<0.005	ND		
*	Ca	<0.050	D	*	La	<0.005	ND	n	Rh			*	Ti	<0.005	ND		
n	Ce			*	Pb	<0.005	ND	n	Rb			n	W				
n	Cs			*	Li	<0.005	ND	n	Ru			n	U				
*	Cr	<0.030	D	n	Lu			n	Sm			*	V	<0.005	ND		
*	Co	<0.005	ND	*	Mg	<0.100	D	n	Sc			n	Yb				
*	Cu	<0.005	ND	s	Mn			*	Se	<0.005	ND	n	Y				
n	Dy			*	Hg	<0.005	ND	*	Si	<0.005	ND	*	Zn	<0.005	ND		
*	Er	<0.005	ND	*	Mo	<0.005	ND	*	Ag	<0.005	ND	n	Zr				
*	Eu	<0.005	ND	n	Nd			*	Na	<0.005	ND						
*	Gd	<0.005	ND	*	Ni	<0.005	ND	*	Sr	<0.005	ND						

* - element checked for
ND - not detected

i - spectral interference
D - detected

n - not checked for
s - solution standard element

Density of Solution (measured at 22.5°C ± 0.5°C): 1.035 g/mL

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William J. Leary
Quality Assurance Manager

Analytical Standard Record

EPA Region 9 Laboratory

1J04001

Description:	SRM 2782 Industrial Sludge	**Expires:**	10/01/15
Standard Type:	Reference Material	**Prepared:**	10/04/11
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	70	**Department:**	Metals
Vials:	1	**Last Edit:**	10/04/11 09:25 by WD
Vendor:	NIST	**Lot Numb**	2782

NIST SRM 2782, Industrial Sludge

Analyte	CAS Number	Concentration (ppm)	SRM Control Limits
Zinc	7440-66-6	1250	0-200
Selenium	7782-49-2	0.44	0-200
Nickel	7440-02-0	154	0-200
Molybdenum	7439-98-7	10.1	0-200
Mercury	7439-97-6	1.1	80-120
Lead	7439-92-1	574	0-200
Copper	7440-50-8	2590	0-200
Chromium	7440-47-3	109	0-200
Cadmium	7440-43-9	4.17	0-200
Arsenic	7440-38-2	166	0-200

1J04001

National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material® 2782

Industrial Sludge

This Standard Reference Material (SRM) is intended primarily for use in the evaluation of methods used for the analysis of sludges and other materials of a similar matrix. A unit of SRM 2782 consists of 70 g of dried, pulverized, and radiation sterilized industrial sludge.

Certified Concentration Values: The certified values, expressed as mass fractions on a dry basis, for ten elements are provided in Table 1. A NIST certified value is a value for which NIST has the highest confidence in its accuracy in that all known or suspected sources of bias have been investigated or accounted for by NIST [1]. The certified values in this SRM are based on either a single NIST primary method or on concordant results from NIST and two or more collaborating laboratories.

Reference Concentration Values: Reference values, expressed as mass fractions on a dry basis, for 16 additional elements are provided in Table 2. Reference values are noncertified values that are the best estimate of the true value; however, the values do not meet NIST criteria for certification and are provided with associated uncertainties that may reflect only measurement precision and may not include all sources of uncertainty [1]. The reference values in this SRM are based on a combination of results from collaborating laboratories.

Information Concentration Values: Information values are listed in Table 3. These values may be of interest to the SRM user and represent results from one or more collaborating laboratories. Insufficient information is available to adequately assess the uncertainty associated with these values [1].

Analytical methods used for the characterization of this SRM are given in Table 4. All values are reported as mass fractions [2], on a dry mass basis and are based on measurements using a sample mass of at least 100 mg.

Leachable Mass Fractions: Reference values for 14 acid-leachable mass fractions using U.S. Environmental Protection Agency (EPA) 3050, 3051, and New Jersey Department of the Environment (NJDEP) 100 methods are contained in Appendix A. These values are the means of all results supplied by cooperating EPA and NJDEP laboratories for the different leach and measurement methods used.

Expiration of Certification: The certification of **SRM 2782** is valid, within the measurement uncertainty specified, until **1 October 2015**, provided the SRM is handled and stored in accordance with instructions given in this certificate (See "Instructions for Use"). The certification is nullified if the SRM is damaged, contaminated or otherwise modified.

Maintenance of SRM Certification: NIST will monitor this SRM over the period of its certification. If substantive technical changes occur that affect the certification before the expiration of this certificate, NIST will notify the purchaser. Registration (see attached sheet) will facilitate notification.

Statistical consultation was provided by L.M. Gill of the NIST Statistical Engineering Division.

The overall direction and coordination of the analyses were under the chairmanship of J.D. Fassett and G.C. Turk of the NIST Analytical Chemistry Division.

Support aspects involved in the issuance of this SRM were coordinated through the NIST Measurement Services Division.

Stephen A. Wise, Chief
Analytical Chemistry Division

Gaithersburg, MD 20899
Certificate Issue Date: 09 September 2011
Certificate Revision History on Page 5

Robert L. Watters, Jr., Chief
Measurement Services Division

Source and Preparation of Material: The base material for SRM 2782 was obtained as effluence from an industrial site in northern New Jersey involved in pharmaceutical research and was collected before treatment with the assistance of the New Jersey Department of Environmental Protection. The base material was freeze dried at a commercial facility under contract to NIST, and transferred to the U.S. Geological Survey (USGS) in Denver, CO. At USGS the material was ball milled to pass a 75 μm (200 mesh) sieve and then blended into a single lot using a 0.2832 m^3 (10 ft^3) blender. The blended material was radiation sterilized and then bottled at USGS.

Analysis: The homogeneity was assessed at USGS on replicate samples of bulk material for over 40 elements using x-ray fluorescence (XRF) and/or inductively coupled plasma atomic emission spectrometry (ICP-AES). Homogeneity was further assessed during certification analysis with sample sizes of 100 mg or greater. No sample-to-sample variations in excess of those expected from the analytical measurements were detected.

Instructions for Use: A minimum sample mass of 100 mg (dry mass - see "Instructions for Drying") should be used and sample preparation procedures should be designed to effect complete dissolution for analytical determinations to be related to the certified values provided.

Instructions for Drying: When nonvolatile elements are to be determined, samples should be vacuum dried at room temperature for 24 h or oven dried for 2 h at 110 °C. Volatile elements (e.g., arsenic, mercury, and selenium) should be determined on samples as received; separate samples should be dried according to these instructions to obtain a correction factor for moisture. Moisture corrections are then made to measurement values before comparing them to the certified values. [**Note:** The mass loss on drying at the time of certification was found to be in the range of 2.1 % to 3.2 % when using the recommended drying procedures.]

Certified Values and Uncertainties: The certified values for Cd, Cu, Pb, Mo and Ni are based on a primary NIST method. The certified values for the remaining elements are the results from two or more independent analytical methods as described by Schiller and Eberhardt [3].

The uncertainty in the values certified by a NIST primary method is expressed as an expanded uncertainty, U, and is calculated according to the method described in the ISO Guide [4]. The expanded uncertainty is calculated as $U = ku_c$, where u_c is intended to represent, at the level of one standard deviation, the combined effect of uncertainty components associated with the measurement uncertainty and basis weight uncertainty. The coverage factor, k, is determined from the Student t-distribution corresponding to the appropriate associated degrees of freedom and 95 % confidence for each method.

The uncertainty in the values certified from combined independent method data is calculated as, $U = ku_c + B$. The quantity, u_c, is the combined standard uncertainty calculated according to ISO Guide [4], which accounts for the combined effect of the within variance for all participating laboratories at one standard deviation. The bias adjustment, B, is for the difference between methods, which is the maximum difference between the certified value and the method means [3].

Table 1. Certified Concentrations for Selected Inorganic Constituents (Dry-Mass Basis)

Element	Mass Fraction (mg/kg)		
Arsenic	166	±	20
Cadmium	4.17	±	0.09
Chromium	109	±	6.0
Copper	2594	±	52
Lead	574	±	11
Mercury	1.10	±	0.19
Molybdenum	10.07	±	0.20
Nickel	154.1	±	3.1
Selenium	0.44	±	0.11
Zinc	1254	±	196

Reference Values and Uncertainties: The reference values are the means of the results from two or more independent analytical methods. The uncertainty in the reference values is expressed as an expanded uncertainty, U, and is calculated according to the method described in the ISO *Guide to the Expression of Uncertainty in Measurement* [4]. The expanded uncertainty is calculated as $U = ku_c$, where u_c is intended to represent, at the level of one standard deviation, the combined effect of between-laboratory and within-laboratory components of uncertainty. The coverage factor, k, is determined from the Student t-distribution corresponding the appropriate associated degrees of freedom and 95 % confidence for each element. As the accuracy of the measurements could not be assessed from the data, the uncertainty associated with a reference value may fail to include all sources of uncertainties and may represent only a measure of the precision of the measurement methods.

Table 2. Reference Concentrations for Selected Inorganic Constituents (Dry-Mass Basis)

Element	Mass Fraction (mg/kg)	Element	Mass Fraction (%)
Barium	254 ± 24	Aluminum	1.37 ± 0.09
Cerium	1240 ± 110	Calcium	0.67 ± 0.06
Cobalt	66.3 ± 4.8	Iron	26.9 ± 0.7
Gallium	35 ± 10	Magnesium	0.26 ± 0.02
Indium	238 ± 70	Phosphorus	0.50 ± 0.06
Lanthanum	58.1 ± 2.4	Potassium	0.32 ± 0.01
Silver	30.6 ± 4.7	Sodium	1.30 ± 0.05
Titanium	880 ± 90		
Vanadium	80 ± 10		

Information Values: Additional data from collaborating laboratories are provided as information to the SRM user. These values represent results from one laboratory, two or more laboratories that used non-independent methods, or from two or more laboratories using different methods with significant differences in their results [1].

Table 3. Information Concentrations for Selected Inorganic Constituents (Dry-Mass Basis)

Element	Mass Fraction (mg/kg)	Element	Mass Fraction (%)
Antimony	2.0	Carbon	2.1
Europium	0.34	Silicon	20.3
Gold	2.2	Sulfur	0.2
Hafnium	0.77		
Lithium	5.0		
Manganese	300		
Rubidium	23		
Samarium	1.3		
Scandium	3.4		
Tantalum	0.73		
Terbium	0.48		
Thorium	2.4		
Uranium	8.3		
Ytterbium	0.74		
Yttrium	10		

Table 4. Methods Used for the Analysis of SRM 2782[a]

Aluminum	ICP-AES, INAA, XRF	Mercury	**CV-AAS, INAA**
Antimony	INAA	Molybdenum	ICP-AES, **ID-ICPMS**, INAA, TXRF
Arsenic	**HG-AAS, ICP-AES, INAA, TXRF**	Nickel	ICP-AES, **ID-ICPMS**, INAA, TXRF
Barium	ICP-AES, INAA, TXRF	Phosphorus	ICP-AES, XRF
Cadmium	**ID-ICPMS**, INAA, TXRF	Potassium	ICP-AES, INAA, TXRF, XRF
Calcium	ICP-AES, TXRF, XRF	Rubidium	INAA, TXRF
Carbon	RF-CIR	Samarium	INAA
Cerium	ICP-AES, INAA, TXRF	Scandium	ICP-AES, INAA
Chromium	**FAAS, ICP-AES, INAA, TXRF**	Selenium	**HG-AAS, INAA**
Cobalt	ICP-AES, INAA	Silicon	XRF
Copper	ICP-AES, **ID-ICPMS**, INAA, TXRF	Silver	ICP-AES, INAA, TXRF
Europium	INAA	Sodium	ICP-AES, NAA, XRF
Gallium	ICP-AES, INAA	Sulfur	TXRF, RF-SIR
Gold	AAS, INAA	Tantalum	INAA
Hafnium	INAA	Terbium	INAA
Indium	INAA, TXRF	Thorium	INAA
Iron	ICP-AES, INAA, TXRF, XRF	Titanium	ICP-AES, XRF
Lanthanum	ICP-AES, INAA	Uranium	INAA
Lead	ICP-AES, **ID-ICPMS**, TXRF	Vanadium	ICP-AES, INAA
Lithium	ICP-AES	Yttrium	ICP-AES, TXRF
Magnesium	ICP-AES, XRF	Ytterbium	INAA
Manganese	ICP-AES, INAA, TXRF, XRF	Zinc	**ICP-AES, ID-ICPMS, INAA, TXRF**

[a] Methods used for establishment of certified values are shown in bold-face type; methods used for reference and information values or to corroborate certified values are not in bold.

Methods

AAS	Atomic absorption spectrometry
FAAS	Flame atomic absorption spectrometry
RF-CIR	Resistance furnace with carbon infrared detector
RF-SIR	Resistance furnace with sulfur infrared detector
CV-AAS	Cold vapor atomic absorption spectrometry
HG-AAS	Hydride generation atomic absorption spectrometry
ICP-AES	Inductively coupled plasma atomic emission spectrometry
ID-ICPMS	Isotope dilution inductively coupled plasma mass spectrometry
INAA	Instrumental neutron activation analysis
TXRF	Total reflectance x-ray fluorescence
XRF	Wavelength dispersive x-ray fluorescence

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[3] Schiller, S.B. and Eberhardt, K.R., *Combining Data from Independent Analysis Methods*; Spectrochim. Acta, Vol 46B, pp. 1607–1613 (1991).

[4] JCGM 100:2008; *Evaluation of Measurement Data - Guide to the Expression of Uncertainty in Measurement* (ISO GUM 1995 with Minor Corrections); Joint Committee for Guides in Metrology (2008); available at http://www.bipm.org/utils/common/documents/jcgm/JCGM_100_2008_E.pdf (accessed Sep 2011); see also Taylor, B.N.; Kuyatt, C.E.; *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*; NIST Technical Note 1297; U.S. Government Printing Office: Washington, DC (1994); available at http://physics.nist.gov/Pubs/ (accessed Sep 2011).

[5] Federal Register SW-846 (1995); available at http://www.epa.gov/osw/hazard/testmethods/sw846/frn.htm (accessed Sep 2011).

[6] New Jersey Administrative Code, 1994. N.J.A.C. 7:14-4.

[7] Kane, J.S.; *Leach Data vs Total: Which is Relevant for SRMs*, Fresenius' J. Anal. Chem. Vol. 352: pp 209-213, (1995).

Certificate Revision History: 09 September 2011 (Editorial changes); 10 December 1998 (Original certificate date).

Users of this SRM should ensure that the Certificate of Analysis in their possession is current. This can be accomplished by contacting the SRM Program: Telephone (301) 975-2200, Fax (301) 926-4751, e-mail srminfo@nist.gov, or via the Internet at http://www.nist.gov/srm.

APPENDIX A

Leachable Mass Fractions Using U.S. EPA and NJDEP Methods

The U.S. EPA in its monitoring programs, has established a number of leach methods such as Methods [5] for the determination of acid labile or extractable mass fractions of elements. The New Jersey Department of the Environment (NJDEP) has developed its own leach method for state use [6]. The NJDEP and the U.S. EPA prepared samples of SRM 2782 using the NJDEP 100 method and EPA Methods 3050 and 3051 and analyzed the resulting leachates by FAAS, flame emission spectrometry (FES), and ICP-AES. Based upon these results, method dependent reference values have been developed for EPA 3050, 3051, and NJDEP 100 methods.

SRM 2782 has been certified for total mass fractions of constituent elements and thereby requires complete sample decomposition. However, for a number of environmental monitoring purposes, acid extractable mass fractions of elements are often used rather than total mass fractions. Acid extractable methods do not necessarily result in total decomposition of the sludge. It should be noted that results obtained using acid leach conditions are often depicted in reports as "total" results or total recoverable results. However, reported acid labile or extractable mass fractions of elements are generally lower than total mass fractions (see Table A1, Percentage Leach Recovery). Results are often presented as measured mass fractions in the leachate in comparison to the total or certified mass fractions. The recovery of an element as a percent of total is a function of several factors such as the mode of occurrence in the sample, leach medium, leach time, temperature conditions, and pH of the sample-leach medium mixture [7].

Reference Values and Uncertainties: Reference values have been established for the acid-leachable mass fractions of fourteen elements in SRM 2782. These values are the means of all results from the different leach and measurement methods used. Please note that because EPA method 3051 did not provide useable results for silver, its results were excluded. In addition, variation in arsenic, cadmium, and vanadium data prevented their use as reference values. The reference values given in Table 1 are not NIST certified but are provided as a reference for U.S. EPA 3050, 3051, and NJDEP 100 methods. The reference values along with their uncertainties are based on 95 % confidence intervals of the means of results. The uncertainties include within-laboratory and between-laboratory differences, which were significant for some elements.

Table A1. Mass Fractions Reference Concentrations Leach Values for SRM 2782

Element	Leachable Mass fraction (mg/kg)			Leach Recovery[a] (%)
Aluminum[b,c]	1553	±	82	11
Barium[b,c]	152	±	11	60
Calcium[c,d]	4740	±	220	71
Chromium[b,c]	66.1	±	9.3	61
Cobalt[b,c]	54.5	±	4.6	82
Copper[b,c]	2435	±	47	94
Iron[b,c]	254 000	±	16 000	94
Lead[b,c,e]	554	±	36	97
Magnesium[b,c]	484	±	28	19
Manganese[b,c]	258	±	15	86
Nickel[b,c]	95.9	±	4.7	62
Potassium[b,c]	87	±	33	3
Sodium[b,c]	2620	±	330	20
Zinc[b,c]	1167	±	57	93

[a] Percentage is calculated as leach value divided by certified (or non certified) value then multiplying it by one hundred.
[b] FAAS.
[c] ICP-AES.
[d] FES.
[e] Graphite furnace atomic absorption spectrometry (GFAAS).

Cooperating Analysts and Laboratories:
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J. Birri, K. Peist; U.S. Environmental Protection Agency, Edison, NJ.

Analytical Standard Record

EPA Region 9 Laboratory

1L01001

Description:	SRM 2781 Domestic Sludge	**Expires:**	11/23/16
Standard Type:	Reference Material	**Prepared:**	12/01/11
Solvent:	Solvent Lot #	**Prepared By:**	Bill Durbrow
Final Volume (mls):	70	**Department:**	Metals
Vials:	1	**Last Edit:**	12/01/11 08:11 by WD
Vendor:	NIST	**Lot Numbe**	2782

NIST SRM 2781, Domestic Sludge, AU004123

Analyte	CAS Number	Concentration (ppm)	SRM Control Limits
Zinc	7440-66-6	1270	0-200
Selenium	7782-49-2	16	0-200
Nickel	7440-02-0	80.2	0-200
Molybdenum	7439-98-7	46.7	0-200
Mercury	7439-97-6	3.64	0-200
Lead	7439-92-1	202	0-200
Copper	7440-50-8	627	0-200
Chromium	7440-47-3	202	0-200
Cadmium	7440-43-9	12.8	0-200
Arsenic	7440-38-2	7.82	0-200

1L01001

National Institute of Standards & Technology

Exp 11/23/16

Certificate of Analysis

Standard Reference Material® 2781

Domestic Sludge

This Standard Reference Material (SRM) is intended primarily for use in the evaluation of methods used for the analysis of sludges and other materials of a similar matrix. SRM 2781 is a dried and pulverized domestic sludge. A unit of SRM 2781 consists of 40 g of the dried material.

Certified Values: The certified values for 10 elements are listed in Table 1 and are based on concordant results from two or more analytical methods.

Analytical methods used for the characterization of this SRM are given in Table 3. All values are reported as mass fractions [1], on a dry mass basis and are based on measurements using a sample mass of at least 100 mg.

Noncertified Values: Noncertified values for eleven additional elements are listed in Table 2 and were derived from a combination of results from NIST and collaborating laboratories. These results may have sources of bias yet to be investigated and do not meet NIST criteria for certification.

Expiration of Certification: This certification is valid for five years from the date of shipment from NIST. However, the certification will be nullified if the SRM is contaminated or modified. Should any of the values change before the expiration of the certification, purchasers will be notified by NIST. Return of the attached registration card will facilitate notification.

Stability: This material is considered to be stable; however, its stability has not been rigorously assessed. NIST will continuously monitor this material and report any substantive changes in certification to the purchaser.

Use: A minimum sample mass of 100 mg (dry mass - see Instructions for Drying) should be used and sample preparation procedures should be designed to effect complete dissolution for analytical determinations to be related to the certified values provided.

Instructions for Drying: When nonvolatile elements are to be determined, samples should be vacuum dried at room temperature for 24 h or oven dried for 2 h at 110 °C. Volatile elements (e.g., arsenic, mercury, and selenium) should be determined on samples as received; separate samples should be dried according to these instructions to obtain a correction factor for moisture. Moisture corrections are then made to measurement values before comparing them to the certified values. [Note that the mass loss on drying at the time of certification was found to be in the range of 4.7 % to 6.6 % when using the recommended drying procedures.]

Statistical consultation was provided by L.M. Gill of the NIST Statistical Engineering Division.

The overall direction and coordination of the analyses were under the chairmanship of J.D. Fassett of the NIST Analytical Chemistry Division.

The technical and support aspects involved in the original preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program by J.S. Kane. Revision of this certificate was coordinated through the Standard Reference Materials Program by B.S. MacDonald.

Gaithersburg, MD 20899
Certificate Issue Date: October 25, 1996
(Revision of certificate dated 6-22-95 to include addendum)

Thomas E. Gills, Chief
Standard Reference Materials Program

Source and Preparation of Material: The U.S. Geological Survey (USGS), under contract to NIST, obtained partially dehydrated sewage cake material from the Metropolitan Denver Sewage Disposal District No. 1. The material (approximately 182 kg) was placed in plastic-lined drums and transported to the USGS facilities in Lakewood, CO for processing. It was dried at ambient temperature in a forced air chamber, ground to pass a 74 m. (200 mesh) sieve, blended for 24 h to assure homogeneity of the pulverized material after which test samples were taken from the blender for preliminary homogeneity analyses. The material was then radiation sterilized. The sterilized material was shipped in bulk to NIST, where the material was bottled in 40 g units after reblending for 4 h.

Analysis: The homogeneity was assessed at USGS on 10 replicate samples of bulk material for over 40 elements using x-ray fluorescence (XRF) and/or inductively coupled plasma atomic emission spectrometry (ICP-AES). Homogeneity was further assessed during certification analysis; at sample sizes of 100 mg or greater. No sample-to-sample variations in excess of those expected from the analytical measurements were detected.

Certified Values and Uncertainties: The certified values are the means of the results from two or more independent analytical methods as described by Schiller and Eberhardt [2]. The uncertainty is based on a 95 % confidence interval for the true value, and includes an allowance for differences between the analytical methods used [3].

Table 1. Certified Mass Fractions

Element	Mass Fraction (in mg/kg)	Element	Mass Fraction (in %)
Arsenic	7.82 ± 0.28	Nitrogen	4.78 ± 0.11
Cadmium	12.78 ± 0.72		
Copper	627.4 ± 13.5		
Lead	202.1 ± 6.5		
Mercury	3.64 ± 0.25		
Molybdenum	46.7 ± 3.2		
Nickel	80.2 ± 2.3		
Selenium	16.0 ± 1.6		
Zinc	1273 ± 53		

Noncertified Values and Uncertainties: The noncertified values are the means of the results from two or more independent analytical methods as described by Schiller and Eberhardt [2]. The uncertainty is based on a 95 % confidence interval for the mean, and includes an allowance for differences between the analytical methods used [3]. As the accuracy of the measurements could not be assessed from the data, the uncertainty associated with a noncertified value may fail to include all sources of uncertainties and may represent only a measure of the precision of the measurement methods.

Table 2. Noncertified Mass Fractions

Element	Mass Fraction (in mg/kg)	Element	Mass Fraction (in %)
Chromium	202 ± 9	Aluminum	1.6 ± 0.1
Silver	98 ± 8	Calcium	3.9 ± 0.1
		Iron	2.8 ± 0.1
		Magnesium	0.59 ± 0.04
		Phosphorus	2.42 ± 0.09
		Potassium	0.49 ± 0.03
		Silicon	5.1 ± 0.2
		Sodium	0.21 ± 0.02
		Titanium	0.32 ± 0.03

Table 3. Methods used for the Analysis of SRM 2781*

Aluminum	INAA, ICP-AES, XRF
Arsenic	**RNAA, Hyd. AAS**, INAA
Cadmium	**ID-ICPMS, PGAA, RNAA**, INAA, **TXRF**
Calcium	INAA, TXRF, ICP-AES, XRF
Chromium	INAA, TXRF, ICP-AES
Copper	**ID-ICPMS, RNAA**, INAA, TXRF
Iron	INAA, TXRF, ICP-AES, XRF
Lead	**ICP-AES, ID-ICPMS**, TXRF
Magnesium	INAA, ICP-AES, XRF
Mercury	**FIA-CV-AAS, RNAA**, INAA
Molybdenum	**ID-ICPMS, ICP-AES, TXRF**, INAA
Nickel	**ICP-AES, ID-ICPMS**, INAA, TXRF
Nitrogen	**Kjeldahl, PGAA**
Phosphorus	Color, ICP-AES, XRF
Potassium	INAA, TXRF, ICP-AES
Selenium	**Hyd. AAS, RNAA, INAA, TXRF**
Silicon	XRF
Silver	RNAA, INAA, TXRF
Sodium	INAA, ICP-AES, XRF
Titanium	INAA, TXRF, XRF
Zinc	**ICP-AES, ID-ICPMS, INAA, TXRF**

*Methods used for establishment of certified values are shown in bold-face type; methods used for information only values or to corroborate certified values are not in bold.

Methods

FIA-CV-AAS	Flow injection analysis cold vapor atomic absorption spectrometry
Hyd. AAS	Hydride generation atomic absorption spectrometry
ICP-AES	Inductively coupled plasma atomic emission spectrometry
ID-ICPMS	Isotope dilution inductively coupled plasma mass spectrometry
INAA	Instrumental neutron activation analysis
PGAA	Prompt gamma activation analysis
RNAA	Radiochemical neutron activation analysis
TXRF	Total reflectance x-ray fluorescence
XRF	Wavelength dispersive x-ray fluorescence

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[1] Taylor, B.N., "Guide for the Use of the International System of Units (SI)," NIST Special Publication 811, 1995 Ed., (April 1995).

[2] Schiller, S.B. and Eberhardt, K.R., Combining Data from Independent Chemical Analysis Methods, **Spectrochimical Acta, 46B** (12), pp 1607-1613, (1991).

[3] *Guide to the Expression of Uncertainty in Measurement*, ISBN 92-67-10188-9, 1st Ed. ISO, Geneva, Switzerland, (1993): see also Taylor, B.N. and Kuyatt, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note, 1297, U.S. Government Printing Office, Washington D.C., (1994).

Addendum to Standard Reference Material® 2781

Domestic Sludge

Leachable Mass Fractions Using U.S. EPA and NJDEP Methods for Flame Atomic Absorption Spectrometry and Inductively Coupled Plasma Atomic Emission Spectrometry

The certified concentration values of constituent elements in this certificate are given as total mass fractions. To obtain total mass fractions, either subsamples of the SRM must be completely decomposed, or the sample must be analyzed directly in its solid form. For mixed acid dissolution, hydrofluoric acid must be included in the acid mixture to totally dissolve siliceous material present in sludge.

For a number of environmental monitoring purposes, acid extractable mass fractions of elements are often used rather than total mass fractions. Acid extractable methods do not necessarily result in total decomposition of the sludge. It should be noted that results obtained using acid leach conditions are often depicted in reports as total results. However, reported acid labile or extractable mass fractions of elements are generally lower than total mass fractions. Results are often presented as measured mass fractions in the leachate in comparison to the total or certified mass fractions. The recovery of an element as a percent of total is a function of several factors such as the mode of occurrence in the sample, leach medium, leach time, temperature conditions, and pH of the sample-leach medium mixture [1].

In its monitoring programs, the U.S. Environmental Protection Agency (U.S. EPA) has established a number of leach methods, such as Methods 3015, 3050, and 3051 [2,3] for the determination of acid labile or extractable mass fractions of elements. The New Jersey Department of the Environment (NJDEP) has developed its own leach method, NJDEP 100 for state use [4]. The NJDEP and the U.S. EPA prepared samples of SRM 2781 using the NJDEP 100 method and EPA Methods 3050 and 3051 and analyzed the resulting leachates by flame atomic absorption spectrometry (FAAS) and inductively coupled plasma atomic emission spectrometry (ICP-AES).

Reference values have been established for the acid-leachable mass fractions of several elements in SRM 2781. These values are the means of all results from the different leach measurement methods and combinations used. The reference values are listed in Table 1, along with their uncertainties which are based on 95 % confidence intervals of the means of results. For some of the elements (copper, iron, silver, vanadium), no statistically significant differences were found among results from the two laboratories using three or four combinations of sample preparation and instrumental measurement techniques (NJDEP 100 - FAAS; NJDEP 100 - ICP-AES; EPA 3050 - ICP-AES; EPA 3051 - ICP-AES). For all other elements, statistically significant between-laboratory differences were identified and are included in the stated uncertainties. These differences are small in comparison to control limits for many environmental monitoring programs. Therefore, the reference values are meaningful, despite the between-laboratory differences found.

Reference Values and Uncertainties: The reference values given in Table 1 are not NIST certified but are provided as a reference for U.S. EPA 3050 and 3051, and NJDEP 100 methods. The uncertainties are based on a 95 % confidence interval for the mean and include an allowance for differences between the analytical methods used.

Gaithersburg, MD 20899
Addendum Issue Date: October 25, 1996

Thomas E. Gills, Chief
Standard Reference Material Program

Table 1. Reference Leach Values for SRM 2781

Element	Leachable mass fraction (in mg/kg)			% Leach Recovery*
Aluminum	8 040	±	980	50
Barium	570	±	65	---
Cadmium	11	±	2	86
Calcium	36 440	±	1 830	93
Chromium	143	±	14	71
Copper	601	±	16	96
Iron	24 300	±	2 100	87
Lead	183	±	15	91
Magnesium	4 850	±	290	82
Manganese	745	±	33	---
Nickel	72.3	±	6.3	90
Silver	86.3	±	1.7	88
Vanadium	81.9	±	3.8	---
Zinc	1 120	±	34	88

$$* \text{ \% Leach Recovery} = 100 \times \frac{\text{Leach Value}}{\text{Certified or Noncertified Value}}$$

Cooperating Analysts and Laboratories:

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J. Birri, K. Peist; U.S. Environmental Protection Agency, Edison, NJ.

REFERENCES

[1] Kane, J.S., Leach Data vs Total: Which is Relevant for SRMs, Fresenius J. Anal. Chem. 352: pp 209-213, (1995).
[2] U.S. EPA 1991 Code of Federal Regulations, Title 40, Part 136, Paragraph 33.
[3] Federal Register 1-13-95 SW-846 update #2, Final.
[4] New Jersey Administrative Code, 1994. N.J.A.C. 7:14-4.

Analytical Standard Record

EPA Region 9 Laboratory

2B03001

Description:	NIST Inorganics in Marine Sediment	**Expires:**	10/01/12
Standard Type:	Reference Material	**Prepared:**	02/03/12
Solvent:	Solvent Lot #	**Prepared By:**	Bill Durbrow
Final Volume (mls):	50	**Department:**	Metals
Vials:	1	**Last Edit:**	02/03/12 08:03 by WD
Vendor:	NIST	**Lot Numbe**	2702

NIST SRM 2702, Inorganics in Marine Sediment. Recieved 2/3/12

Analyte	CAS Number	Concentration (ppm)	SRM Control Limits
Mercury	7439-97-6	0.447	80-120
Arsenic	7440-38-2	45.3	0-200
Barium	7440-39-3	397	0-200
Cadmium	7440-43-9	0.817	0-200
Chromium	7440-47-3	352	0-200
Cobalt	7440-48-4	27.8	0-200
Antimony	7440-36-0	5.6	0-200
Manganese	7439-96-5	1760	0-200
Zinc	7440-66-6	485	0-200
Nickel	7440-02-0	75.4	0-200
Scandium	7440-20-2	25.9	0-200
Strontium	7440-24-6	120	0-200
Thallium	7440-28-0	0.827	0-200
Thorium	7440-29-1	20.5	0-200
Vanadium	7440-62-2	358	0-200
Lead	7439-92-1	133	0-200

National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material® 2702

Inorganics in Marine Sediment

Standard Reference Material (SRM) 2702 is a marine sediment collected at the mouth of the Baltimore Harbor, Baltimore, MD. SRM 2702 is intended for use in evaluating analytical methods for the determination of selected elements in marine or fresh water sediment and similar matrices. All of the constituents in SRM 2702, for which certified, reference, and information values are provided, were naturally present in the sediment material before processing. A unit of SRM 2702 consists of a bottle containing 50 g of radiation-sterilized, freeze-dried sediment material.

Certified Concentration Values: Certified values for concentrations, expressed as mass fractions, for 25 elements are provided in Table 1. The certified values are based on the agreement of results from two or more chemically independent analytical techniques obtained at NIST and collaborating expert laboratories [1]. A NIST certified value is a value for which NIST has the highest confidence in its accuracy in that all known or suspected sources of bias have been investigated or accounted for by NIST.

Reference Concentration Values: Reference values for concentrations, expressed as mass fractions, are provided for eight additional elements in Table 2. Reference values are non-certified values that are the best estimate of the true value. However, the values do not meet the NIST criteria for certification and are provided with associated uncertainties that may reflect only measurement precision, may not include all sources of uncertainty, or may reflect a lack of sufficient statistical agreement among multiple analytical methods [1].

Information Concentration Values: Information values for concentrations, expressed as mass fractions, are provided in Table 3 for 11 elements. An information value is considered to be a value that will be of interest and use to the SRM user, but for which insufficient information is available to assess adequately the uncertainty associated with the value, or only a limited number of analyses were performed [1].

Expiration of Certification: The certification of this SRM lot is valid until **01 October 2012**, within the measurement uncertainties specified, provided the SRM is handled and stored in accordance with the instructions given in this certificate. However, the certification is invalid if the SRM is damaged, contaminated, or otherwise modified.

Maintenance of SRM Certification: NIST will monitor this SRM over the period of its certification. If substantive technical changes occur that affect the certification before the expiration of this certificate, NIST will notify the purchaser. Return of the attached registration card will facilitate notification.

The coordination of the technical measurements leading to the certification of this material was under the leadership of R.L. Zeisler of the NIST Analytical Chemistry Division.

The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the NIST Standard Reference Materials Group by B.S. MacDonald.

Willie E. May, Chief
Analytical Chemistry Division

Gaithersburg, MD 20899
Certificate Issue Date: 03 December 2002

John Rumble, Jr., Chief
Measurement Services Division

Collection and preparation of SRM 2702 were performed by M.P. Cronise and C.N. Fales of the NIST Standard Reference Materials Program and B.J. Porter and M.M. Schantz of the NIST Analytical Chemistry Division.

The sediment material was collected with the assistance of G.G. Lauenstein, J. Collier, and J. Lewis (National Oceanic and Atmospheric Administration).

Consultation on the statistical design of the experimental work and evaluation of the data were provided by M. Vangel and W.S. Liggett, Jr. of the NIST Statistical Engineering Division.

NOTICE AND WARNING TO USERS

Storage: SRM 2702 must be stored in its original bottle at temperatures less than 30 °C away from direct sunlight.

Handling: This material is a naturally occurring marine sediment from an urban area and may contain constituents of unknown toxicity; therefore, caution and care should be exercised during its handling and use.

INSTRUCTIONS FOR USE

Prior to removal of subsamples for analysis, the contents of the bottle should be mixed. The concentrations of constituents in SRM 2702 are reported on a dry-mass basis. The SRM, as received, contains approximately 2.3 % moisture. The sediment sample should be dried to a constant mass before weighing for analysis or a separate subsample of the sediment should be removed from the bottle at the time of analysis and dried to determine the concentration on a dry-mass basis. If the constituents of interest are volatile, then the moisture must be determined with a separate subsample. The drying procedures described below, or equivalent, are recommended; the temperature of 90 °C shall **NOT** be exceeded.

PREPARATION AND ANALYSIS[1]

Sample Collection and Preparation: The sediment used to prepare this SRM was collected from the Chesapeake Bay at the mouth of the Baltimore (MD) Harbor near the Francis Scott Key Bridge (39°12.3'N and 76°31.4'W). This location is very near the site where SRM 1941 and SRM 1941a were collected. The sediment was collected using a Kynar-coated modified Van Veen-type grab sampler. A total of approximately 3300 kg of wet sediment was collected from the site. The sediment was freeze-dried, sieved at 70 μm (100 % passing), homogenized in a cone blender, radiation sterilized at 33 kGy to 45 kGy (^{60}Co) dose, and then packaged in screw-capped amber glass bottles each containing approximately 50 g.

Conversion to Dry-Mass Basis: The results for the constituents in SRM 2702 are reported on a dry-mass basis; however, the material "as received" contains residual moisture. The amount of moisture in SRM 2702 was determined by measuring the mass loss after freeze drying subsamples of 1.1 g to 1.3 g for four days at 1 Pa with a -10 °C shelf temperature and a -50 °C condenser temperature. The moisture content in SRM 2702 was 2.39 % ± 0.08 % (95 % confidence level). Alternately, drying in a conventional oven was studied. One gram portions were dried at 90 °C for 12 hours and 18 hours; a stable weight was achieved after 18 hours. The measured moisture content was 2.27 % ± 0.09 % (95 % confidence level).

Homogeneity Assessment: The homogeneity of SRM 2702 was assessed by analyzing duplicate samples of approximately 0.1 g from fifteen bottles selected by stratified random sampling. Results from direct determinations by instrumental neutron activation analysis (INAA) and energy-dispersive X-ray fluorescence analysis (EDXRF) showed observed standard deviations for all reported elements within the precision of the analytical techniques. No statistically significant differences among bottles were observed for the elements at this sample size.

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[1] Certain commercial equipment, instruments, or materials are identified in this certificate in order to adequately specify the experimental procedure. Such identification does not imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the materials or equipment identified are necessarily the best available for the purpose.

Analytical Approach: NIST has a number of analytical techniques available for value assignment. The ones applied to this SRM include dissolution based techniques such as thermal or inductively coupled plasma isotope dilution mass spectrometry (TIDMS or ICPIDMS) and direct analysis techniques such as INAA, neutron capture prompt gamma activation analysis (PGAA), and radiochemical neutron activation analysis (RNAA). Several of these techniques were also used by collaborating laboratories and complemented by additional dissolution techniques such as atomic absorption spectrometry (AAS), inductively coupled plasma atomic emission spectrometry (ICPAES) and mass spectrometry (ICPMS) and direct analysis techniques such as wave-length dispersive X-ray fluorescence (WDXRF) and EDXRF. Care has been taken to obtain results from both chemically destructive techniques and non-destructive or direct analysis techniques.

Certified Values and Uncertainties: Certified values, derived from the results of several analytical methods performed by NIST and collaborating laboratories (see Table 4) and whose combinations differ from element to element, are provided in Table 1. A complete description of the modes of value assignment is given in reference [1]. For consistency across elements, a Bayesian statistical model was chosen for computation of certified values and uncertainties [2]. The uncertainty listed with each value is an expanded uncertainty, with coverage factor 2 (approximately 95 % confidence). The reporting follows the ISO / NIST Guide to the Expression of Uncertainty in Measurements [3].

For each element, there is a NIST result with an uncertainty that is complete in coverage of recognized sources of uncertainties, complemented by results from collaborating laboratories with similarly complete uncertainties, and usually several results without complete uncertainties. The uncertainties of the latter results were augmented on the basis of the differences among the results obtained by different methods [4]. The Bayesian methods combine results by different methods from different laboratories according to the results provided and the uncertainties provided with them. Thus, a consistent methodology was used for all elements.

Table 1. Certified Concentrations for Selected Elements

Elements	Mass Fraction in mg/kg (unless noted as %)			Elements	Mass Fraction in mg/kg (unless noted as %)		
Al [b,c,f,G]	8.41 %	±	0.22 %	Ni [A,a,b,c,d,e]	75.4	±	1.5
As [b,c,d,G]	45.3	±	1.8	Rb [b,e,G]	127.7	±	8.8
Ba [A,b,e]	397.4	±	3.2	P [b,c,f,H]	0.1552 %	±	0.0066 %
Ce [b,c,e,G]	123.4	±	5.8	Pb [A,a,b,c,e]	132.8	±	1.1
Cd [A,a,b,d,I]	0.817	±	0.011	Sb [a,b,e,G]	5.60	±	0.24
Co [b,c,G]	27.76	±	0.58	Sc [b,c,G]	25.9	±	1.1
Cr [a,b,c,e,G]	352	±	22	Sr [A,b,c,e]	119.7	±	3.0
Fe [b,c,f,G]	7.91 %	±	0.24 %	Th [b,c,e,G]	20.51	±	0.96
Hg [d,H]	0.438	±	0.024	Ti [b,c,f,G]	0.884 %	±	0.082 %
K [b,c,f,G]	2.054 %	±	0.072 %	Tl [A,a]	0.8267	±	0.0060
La [b,c,e,G]	73.5	±	4.2	V [b,c,G]	357.6	±	9.2
Mn [b,c,G]	1757	±	58	Zn [a,b,c,e,G]	485.3	±	4.2
Na [b,c,f,G]	0.681 %	±	0.020 %				

Reference Values and Uncertainties: Reference values are based on results from one method carried out in several laboratories or from two or more analytical methods without NIST results. The Bayesian methods of combining the results by different methods from different laboratories were applied as above. These results do not fulfill the criteria for certification since a full estimate of method bias or results from NIST methods have not been available. The reporting follows the ISO / NIST Guide to the Expression of Uncertainty in Measurements [3].

Table 2. Reference Values for Concentrations of Selected Elements

Elements	Mass Fraction in mg/kg (unless noted as %)	Elements	Mass Fraction in mg/kg (unless noted as %)
Ag [a,d]	0.622 ± 0.078	Mg [b,c,f]	0.990 % ± 0.074 %
Ca [b,c,f]	0.343 % ± 0.024 %	Mo [b,c,e]	10.8 ± 1.6
Cu [a,b,c,d,e]	177.7 ± 5.6	Se [b,c,e]	4.95 ± 0.46
Ga [b,c,e]	24.3 ± 1.9	Sn [a,c,e]	31.6 ± 2.4

Information Values: Information values are given in SRM 2702 to assist users in the assays of non-certified elements. Information values are based on results that did not allow complete assessment of all sources of uncertainty, hence, only estimated means without uncertainties are given.

Table 3. Information Values for Selected Elements

Elements	Mass Fraction in mg/kg (unless noted as %)	Elements	Mass Fraction in mg/kg (unless noted as %)
Be [b,c]	3.0	Nb [c,e]	63
C (total) [j]	3.36 %	Nd [G]	56
C (organic) [j]	3.27 %	S [j]	1.5 %
Cs [b,G]	7.1	Sm [G]	10.8
Hf [G]	12.6	U [b,e]	10.4
Li [b,c]	78.2	W [G]	6.2

Supplemental Information:

Table 4. Analytical Techniques Used for Certified, Reference and Information Values
(Capital letters indicate methods used by NIST)

A, a	Inductively coupled plasma isotope dilution mass spectrometry (ICPIDMS)
b	Inductively coupled plasma mass spectrometry (ICPMS)
c	Inductively coupled plasma atomic emission spectrometry (ICPAES)
d	Atomic absorption spectrometry including hydride generation and cold vapor techniques (AAS)
e	Energy dispersive X-ray fluorescence (EDXRF)
f	Wave-length dispersive X-ray fluorescence (WDXRF)
G	Instrumental neutron activation analysis (INAA)
H	Radiochemical neutron activation analysis (RNAA)
I	Prompt gamma activation analysis (PGAA)
j	Combustion techniques

Analysts:

Analytical Chemistry Division, National Institute of Standards and Technology

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M.E. Howard
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US Geological Survey, Branch of Geochemistry, Denver, CO:
S.A. Wilson, M. Adams, P.H. Briggs , P. Lamothe, D. Siems , J. Taggart

REFERENCES

[1] May, W.E.; Gills, T.E.; Parris, R.; Beck, II, C.M.; Fassett, J.D.; Gettings, R.J.; Greenberg, R.R.; Guenther, F.R.; Kramer, G.; MacDonald, B.S.; Wise, S.A.; *Definitions of Terms and Modes Used at NIST for Value-Assignment of Reference Materials for Chemical Measurements*; NIST Special Publication 260-136 (1999); available at http://www.cstl.nist.gov/nist839/srminfo.html.

[2] Gelman, A.; Carlin, J.B.; Stern, H.S.; Rubin, D.R.; Bayesian Data Analysis, Chapman & Hall, London (1995).

[3] *Guide to the Expression of Uncertainty in Measurement*, ISBN 92-67-10188-9, 1st Ed. ISO, Geneva, Switzerland, (1993); see also Taylor, B.N.; Kuyatt, C.E.; *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*, NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC (1994); available at http://physics.nist.gov/Pubs/.

[4] Levenson, M.S.; Banks, D.L.; Eberhardt, K.R.; Gill, L.M.; Guthrie, W.F.; Liu, H.K.; Vangel, M.G.; Yen, J.H.; Zhang N.F.; *An approach to combining results from multiple methods motivated by the ISO GUM*, J. Res. National Institute of Standards and Technology 105, pp. 571-579 (2000).

Users of this SRM should ensure that the certificate in their possession is current. This can be accomplished by contacting the SRM Group at: telephone (301) 975-6776; fax (301) 926-4751; e-mail srminfo@nist.gov; or via the Internet http://www.nist.gov/srm.

National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material® 2702

Inorganics in Marine Sediment

This Standard Reference Material (SRM) is marine sediment collected at the mouth of the Baltimore Harbor, Baltimore, MD and is intended for use in evaluating analytical methods for the determination of selected elements in marine or fresh water sediment and similar matrices. All of the constituents in SRM 2702, for which certified, reference, and information values are provided, were naturally present in the sediment material before processing. A unit of SRM 2702 consists of a bottle containing 50 g of radiation-sterilized, freeze-dried sediment material.

Certified Concentration Values: Certified values for concentrations, expressed as mass fractions, for 25 elements are provided in Table 1. The certified values are based on the agreement of results from two or more chemically independent analytical techniques obtained at NIST and collaborating laboratories [1]. A NIST certified value is a value for which NIST has the highest confidence in its accuracy in that all known or suspected sources of bias have been investigated or taken into accounted.

Reference Concentration Values: Reference values for concentrations, expressed as mass fractions, are provided for eight additional elements in Table 2. Reference values are non-certified values that are the best estimate of the true value. However, the values do not meet the NIST criteria for certification and are provided with associated uncertainties that may reflect only measurement precision, may not include all sources of uncertainty, or may reflect a lack of sufficient statistical agreement among multiple analytical methods [1].

Information Concentration Values: Information values for concentrations, expressed as mass fractions, are provided in Table 3 for 11 elements. An information value is considered to be a value that will be of interest and use to the SRM user, but for which insufficient information is available to assess adequately the uncertainty associated with the value, or only a limited number of analyses were performed [1].

Expiration of Certification: The certification of **SRM 2702** is valid, within the measurement uncertainty specified, until **01 October 2022**, provided the SRM is handled and stored in accordance with the instructions given in this certificate (see "Instructions for Handling, Storage and Use"). However, the certification is nullified if the SRM is damaged, contaminated, or otherwise modified.

Maintenance of SRM Certification: NIST will monitor this SRM over the period of its certification. If substantive technical changes occur that affect the certification before the expiration of this certificate, NIST will notify the purchaser. Registration (see attached sheet) will facilitate notification.

The coordination of the technical measurements leading to the certification of this SRM was performed by R.L. Zeisler of the NIST Analytical Chemistry Division.

The preparation and collection of the sediment material was completed by M.P. Cronise and C.N. Fales of the NIST Measurement Services Division and B.J. Porter and M.M. Schantz of the NIST Analytical Chemistry Division. Assistance in collecting the sediment material was provided by G.G. Lauenstein, J. Collier, and J. Lewis of the National Oceanic and Atmospheric Administration (NOAA).

Statistical analysis was provided by M. Vangel and W.S. Liggett, Jr. formerly of the NIST Statistical Engineering Division.

Stephen A. Wise, Chief
Analytical Chemistry Division

Gaithersburg, MD 20899
Certificate Issue Date: 16 July 2012
Certificate Revision History on Last Page

Robert L. Watters, Jr., Chief
Measurement Services Division

Analytical measurements at NIST were performed by C.M. Beck II, T.A. Butler, R. Demiralp Oflaz, M.E. Howard, R.M. Lindstrom, S.E. Long, E.A. Mackey, J.L. Mann, K.E. Murphy, R.L. Paul, J.R. Sieber, R.D. Vocke, L.J. Wood, L.L. Yu, and R.L. Zeisler of the NIST Analytical Chemistry Division.

Certification of SRM 2702 was done in collaboration with S. Willie, J.W.H. Lam, C. Scriver, and L. Yang of the National Research Council Canada, Institute for National Measurement Standards, Chemical Metrology and S.A. Wilson, M. Adams, P.H. Briggs, P. Lamothe, D. Siems, and J. Taggart of the U.S. Geological Survey, Branch of Geochemistry, Denver, CO.

Support aspects involved in the issuance of this SRM were coordinated through the NIST Measurement Services Division.

INSTRUCTIONS FOR HANDLING, STORAGE AND USE

Handling: This material is a naturally occurring marine sediment from an urban area and may contain constituents of unknown toxicity; therefore, caution and care should be exercised during its handling and use.

Storage: SRM 2702 must be stored in its original bottle at temperatures less than 30 °C away from direct sunlight.

Use: Prior to removal of subsamples for analysis, the contents of the bottle should be mixed. The concentrations of constituents in SRM 2702 are reported on a dry-mass basis. The SRM, as received, contains approximately 2.3 % moisture. The sediment sample should be dried to a constant mass before weighing for analysis or a separate subsample of the sediment should be removed from the bottle at the time of analysis and dried to determine the concentration on a dry-mass basis. If the constituents of interest are volatile, then the moisture must be determined with a separate subsample. The drying procedures described below, or equivalent, are recommended; the temperature of 90 °C shall **NOT** be exceeded.

PREPARATION AND ANALYSIS[(1)]

Sample Collection and Preparation: The sediment used to prepare this SRM was collected from the Chesapeake Bay at the mouth of the Baltimore Harbor, Baltimore, MD near the Francis Scott Key Bridge (39°12.3'N and 76°31.4'W). This location is near the site where SRM 1941 and SRM 1941a were collected. The sediment was collected using a Kynar-coated modified Van Veen-type grab sampler. A total of approximately 3300 kg of wet sediment was collected from the site. The sediment was freeze-dried, sieved at 70 µm (100 % passing), homogenized in a cone blender, radiation sterilized at 33 kGy to 45 kGy (^{60}Co) dose, and then packaged in screw-capped amber glass bottles each containing approximately 50 g.

Conversion to Dry-Mass Basis: The results for the constituents in SRM 2702 are reported on a dry-mass basis; however, the material "as received" contains residual moisture. The amount of moisture in SRM 2702 was determined by measuring the mass loss after freeze drying subsamples of 1.1 g to 1.3 g for four days at 1 Pa with a –10 °C shelf temperature and a –50 °C condenser temperature. The moisture content in SRM 2702 was 2.39 % ± 0.08 % (95 % confidence level). Alternately, drying in a conventional oven was studied. One gram portions were dried at 90 °C for 12 h and 18 h; a stable weight was achieved after 18 h. The measured moisture content was 2.27 % ± 0.09 % (95 % confidence level).

Homogeneity Assessment: The homogeneity of SRM 2702 was assessed by analyzing duplicate samples of approximately 0.1 g from fifteen bottles selected by stratified random sampling. Results from direct determinations by instrumental neutron activation analysis (INAA) and energy-dispersive X-ray fluorescence analysis (ED-XRF) showed observed standard deviations for all reported elements within the precision of the analytical techniques. No statistically significant differences among bottles were observed for the elements at this sample size.

[(1)] Certain commercial equipment, instruments or materials are identified in this certificate to adequately specify the experimental procedure. Such identification does not imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the materials or equipment identified are necessarily the best available for the purpose.

Analytical Approach: NIST has a number of analytical techniques available for value assignment. The ones applied to this SRM include dissolution based techniques such as thermal or inductively coupled plasma isotope dilution mass spectrometry (TID-MS or ICP-IDMS) and direct analysis techniques such as INAA, neutron capture prompt gamma activation analysis (PGAA), and radiochemical neutron activation analysis (RNAA). Several of these techniques were also used by collaborating laboratories and complemented by additional dissolution techniques such as atomic absorption spectrometry (AAS), inductively coupled plasma atomic emission spectrometry (ICP-AES) and mass spectrometry (ICP-MS) and direct analysis techniques such as wavelength dispersive X-ray fluorescence (WD-XRF) and ED-XRF. Care has been taken to obtain results from both chemically destructive techniques and non-destructive or direct analysis techniques.

Certified Values and Uncertainties: Certified values, derived from the results of several analytical methods performed by NIST and collaborating laboratories and whose combinations differ from element to element, are provided in Table 1. A complete description of the modes of value assignment is given in reference 1. For consistency across elements, a Bayesian statistical model was chosen for computation of certified values and uncertainties [2]. The uncertainty listed with each value is an expanded uncertainty, with coverage factor 2 (approximately 95 % confidence). The reporting follows the ISO Guide [3].

For each element, there is a NIST result with an uncertainty that is complete in coverage of recognized sources of uncertainties, complemented by results from collaborating laboratories with similarly complete uncertainties, and usually several results without complete uncertainties. The uncertainties of the latter results were augmented on the basis of the differences among the results obtained by different methods [4]. The Bayesian methods combine results by different methods from different laboratories according to the results provided and the uncertainties provided with them. Thus, a consistent methodology was used for all elements.

Table 1. Certified Concentrations for Selected Elements

	Mass Fraction mg/kg (unless noted as %)				Mass Fraction mg/kg (unless noted as %)		
Al[a,b,c,d]	8.41 %	±	0.22 %	Ni[a,b,e,f,g,h]	75.4	±	1.5
As[a,b,d,e]	45.3	±	1.8	P[a,b,d,j]	0.1552 %	±	0.0066 %
Ba[a,f,g]	397.4	±	3.2	Pb[,a,b,f,g,h]	132.8	±	1.1
Ce[a,b,d,g]	123.4	±	5.8	Rb[a,d,g]	127.7	±	8.8
Cd[a,e,f,h,i]	0.817	±	0.011	Sb[a,d,g,h]	5.60	±	0.24
Co[a,b,d]	27.76	±	0.58	Sc[a,b,d]	25.9	±	1.1
Cr[a,b,d,g,h]	352	±	22	Sr[a,b,f,g]	119.7	±	3.0
Fe[a,b,c,d]	7.91 %	±	0.24 %	Th[a,b,d,g]	20.51	±	0.96
Hg[e,j,k]	0.4474	±	0.0069	Ti[a,b,c,d]	0.884 %	±	0.082 %
K[a,b,c,d]	2.054 %	±	0.072 %	Tl[f,h]	0.8267	±	0.0060
La[a,b,d,g]	73.5	±	4.2	V[a,b,d]	357.6	±	9.2
Mn[a,b,d]	1757	±	58	Zn[a,b,d,g,h]	485.3	±	4.2
Na[a,b,c,d]	0.681 %	±	0.020 %				

[a] Inductively coupled plasma mass spectrometry (ICP-MS)
[b] Inductively coupled plasma atomic emission spectrometry (ICP-AES)
[c] Wavelength dispersive X-ray fluorescence (WD-XRF)
[d] NIST method - Instrumental neutron activation analysis (INAA)
[e] Atomic absorption spectrometry including hydride generation and cold vapor techniques (AAS)
[f] NIST method - Inductively coupled plasma isotope dilution mass spectrometry (ICP-IDMS)
[g] Energy dispersive X-ray fluorescence (ED-XRF)
[h] Inductively coupled plasma isotope dilution mass spectrometry (ICP-IDMS)
[i] Prompt gamma activation analysis (PGAA)
[j] NIST method – Radiochemical neutron activation analysis (RNAA)
[k] NIST method - Cold vapor ICP-IDMS

Reference Values and Uncertainties: Reference values are based on results from one method carried out in several laboratories or from two or more analytical methods without NIST results. The Bayesian methods of combining the results by different methods from different laboratories were applied as above. These results do not fulfill the criteria for certification since a full estimate of method bias or results from NIST methods have not been available. The reporting follows the ISO Guide [3].

Table 2. Reference Values for Concentrations of Selected Elements

	Mass Fraction mg/kg (unless noted as %)				Mass Fraction mg/kg (unless noted as %)		
Ag[a,b]	0.622	±	0.078	Mg[c,d,e]	0.990 %	±	0.074 %
Ca[c,d,e]	0.343 %	±	0.024 %	Mo[c,d,f]	10.8	±	1.6
Cu[a,b,c,d,f]	117.7	±	5.6	Se[c,d,f]	4.95	±	0.46
Ga[c,d,f]	24.3	±	1.9	Sn[a,d,f]	31.6	±	2.4

[a] Inductively coupled plasma isotope dilution mass spectrometry (ICP-IDMS)
[b] Atomic absorption spectrometry including hydride generation and cold vapor techniques (AAS)
[c] Inductively coupled plasma mass spectrometry (ICP-MS)
[d] Inductively coupled plasma atomic emission spectrometry (ICP-AES)
[e] Wavelength dispersive X-ray fluorescence (WD-XRF)
[f] Energy dispersive X-ray fluorescence (ED-XRF)

Information Values: Information values are given in SRM 2702 to assist users in the assays of non-certified elements. Information values are based on results that did not allow complete assessment of all sources of uncertainty, hence, only estimated means without uncertainties are given.

Table 3. Information Values for Selected Elements

	Mass Fraction mg/kg (unless noted as %)		Mass Fraction mg/kg (unless noted as %)
Be[a,b]	3.0	Nb[b,e]	63
C (total) [c]	3.36 %	Nd[d]	56
C (organic)[c]	3.27 %	S[c]	1.5 %
Cs[a,d]	7.1	Sm[d]	10.8
Hf[d]	12.6	U[a,e]	10.4
Li[a,b]	78.2	W[d]	6.2

[a] Inductively coupled plasma mass spectrometry (ICP-MS)
[b] Inductively coupled plasma atomic emission spectrometry (ICP-AES)
[c] Combustion techniques
[d] NIST method - Instrumental neutron activation analysis (INAA)
[e] Energy dispersive X-ray fluorescence (ED-XRF)

REFERENCES

[1] May, W.; Parris, R.; Beck II, C.; Fassett, J.; Greenberg, R.; Guenther, F.; Kramer, G.; Wise, S.; Gills, T.; Colbert, J.; Gettings, R.; MacDonald, B.; *Definition of Terms and Modes Used at NIST for Value-Assignment of Reference Materials for Chemical Measurements*; NIST Special Publication 260-136 (2000); available at http://www.nist.gov/srm/upload/SP260-136.PDF (accessed July 2012).

[2] Gelman, A.; Carlin, J.B.; Stern, H.S.; Rubin, D.R.; *Bayesian Data Analysis*; Chapman & Hall: London (1995).

[3] JCGM 100:2008; *Evaluation of Measurement Data — Guide to the Expression of Uncertainty in Measurement* (ISO GUM 1995 with Minor Corrections); Joint Committee for Guides in Metrology (2008); available at http://www.bipm.org/utils/common/documents/jcgm/JCGM_100_2008_E.pdf (accessed July 2012); see also Taylor, B.N.; Kuyatt, C.E.; *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*; NIST Technical Note 1297; U.S. Government Printing Office: Washington, DC (1994); available at http://www.nist.gov/pml/pubs/tn1297/index.cfm (accessed July 2012).

[4] Levenson, M.S.; Banks, D.L.; Eberhardt, K.R.; Gill, L.M.; Guthrie, W.F.; Liu, H.-k.; Vangel, M.G.; Yen, J.H.; Zhang N.F.; *An Approach to Combining Results from Multiple Methods Motivated by the ISO GUM*; J. Res. Natl. Inst. Stand. Technol., Vol. 105, pp. 571–579 (2000).

Certificate Revision History: 16 July 2012 (Extension of certification period; editorial changes); **07 January 2004** (This revision reflects a corrected Cu reference value in Table 2, an updated Hg certified value and uncertainty in Table 1, and editorial revisions.); **03 December 2002** (Original certificate date).

Users of this SRM should ensure that the Certificate of Analysis in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srminfo@nist.gov; or via the Internet at http://www.nist.gov/srm.

Analytical Standard Record

EPA Region 9 Laboratory

2B03001

Description:	NIST Inorganics in Marine Sediment	**Expires:**	10/01/22
Standard Type:	Reference Material	**Prepared:**	02/03/12
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	50	**Department:**	Metals
Vials:	1	**Last Edit:**	09/12/12 14:45 by WD
Vendor:	NIST	**Lot Numbe**	2702

NIST SRM 2702, Inorganics in Marine Sediment. Recieved 2/3/12. NIST extended the certification period for this standard to 10/01/2022; approriate certificate attached.

Analyte	CAS Number	Concentration (ppm)	SRM Control Limits
Mercury	7439-97-6	0.447	80-120
Arsenic	7440-38-2	45.3	0-200
Barium	7440-39-3	397	0-200
Cadmium	7440-43-9	0.817	0-200
Chromium	7440-47-3	352	0-200
Cobalt	7440-48-4	27.8	0-200
Antimony	7440-36-0	5.6	0-200
Manganese	7439-96-5	1760	0-200
Zinc	7440-66-6	485	0-200
Nickel	7440-02-0	75.4	0-200
Scandium	7440-20-2	25.9	0-200
Strontium	7440-24-6	120	0-200
Thallium	7440-28-0	0.827	0-200
Thorium	7440-29-1	20.5	0-200
Vanadium	7440-62-2	358	0-200
Lead	7439-92-1	133	0-200

Analytical Standard Record

EPA Region 9 Laboratory

9D10009

Description:	Lithium Stock, 1000ppm	**Expires:**	06/30/15
Standard Type:	Other Solution	**Prepared:**	05/14/08
Solvent:	2% Nitric Acid	**Prepared By:**	** Vendor **
Final Volume (mls):	100	**Department:**	Metals
Vials:	1	**Last Edit:**	04/10/09 10:14 by SC
Vendor:	Ultra Scientific	**Lot Numb**	J00468

Analyte	CAS Number	Concentration (ppm)
Lithium	7439-93-2	1000

Certificate of Analysis

ULTRAgrade™ Solution
Lithium ICP Standard
1000 µg/mL

Catalog Number: ICP-003
Lot Number: J00468
Job Number: J00008345
Lot Issue Date: 05/14/2008
Expiration Date: 06/30/2015

Starting Material:	Lithium Carbonate
Starting Material Purity:	99.999%
Starting Material Lot No.:	NT00602
Matrix:	2% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Li:	6.94

Certified Value: 1001 ± 2 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001:2000 registered quality system, and the analyte concentrations were varified by our ISO 17025 accredited laboratory. The certified value and uncertainty value, at the 95% confidence level, for each analyte datermined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3129a

ULTRA uses purified acids, 18 megohm double deionized waler, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001

Trace Metallic Impurities in Solution Standard In µg/mL:

*	Al	<0.005	D	*	Ga	<0.005	ND	n	Nb			n	S				
*	Sb	<0.005	ND	n	Ge			n	Os			n	Ta				
*	As	<0.005	ND	n	Au			n	Pd	<0.005	ND	n	Te				
*	Ba	<0.005	ND	n	Hf			*	P	<0.005	ND	n	Tb				
*	Be	<0.005	ND	n	Ho			*	Pt	<0.005	ND	*	Tl	<0.005	ND		
*	Bi	<0.005	ND	*	In	<0.005	ND	*	K	<0.005	D	n	Th				
*	B	<0.005	ND	n	Ir			n	Pr			n	Tm				
*	Cd	<0.005	ND	*	Fe	<0.005	D	n	Re			*	Sn	<0.005	ND		
*	Ca	<0.005	D	*	La	<0.005	ND	n	Rh			*	Ti	<0.005	ND		
n	Ce			*	Pb	<0.005	D	n	Rb			n	W				
n	Cs			s	Li			n	Ru			n	U				
*	Cr	<0.005	D	n	Lu			n	Sm			*	V	<0.005	ND		
*	Co	<0.005	ND	*	Mg	<0.005	D	n	Sc			n	Yb				
*	Cu	<0.005	D	*	Mn	<0.005	ND	*	Se	<0.005	ND	n	Y				
n	Dy			*	Hg	<0.005	ND	*	Si	<0.005	D	*	Zn	<0.005	ND		
*	Er	<0.005	ND	*	Mo	<0.005	ND	*	Ag	<0.005	ND	n	Zr				
*	Eu	<0.005	ND	n	Nd			*	Na	<0.005	D						
*	Gd	<0.005	ND	*	Ni	<0.005	ND	*	Sr	<0.005	ND						

* - element checked for
ND - not detected

i - spectral interference
D - detected

n - not checked for
s - solution standard element

9D10009
Expires 06/30/15
Preparer:** Vendor ** 05 14 08

Lithium Stock, 1000ppm

Density of Solution (measured at 22.0°C ± 0.5°C): 1.007 g/mL

ACCREDITED

ISO 17025:2005
Accredited
A2LA
Cert. No. 0851.01

ISO 9001:2000
Registered
TUV USA, Inc.
Cert. No. 06-1004

250 Smith Street, North Kingstown, RI 02852 USA
401-294-9400 Fax: 401-295-2330
www.ultrasci.com

See Reverse For Additional Information

William J. Leary
Quality Assurance Manager

QATS INORGANIC REFERENCE MATERIAL
SOLID LABORATORY CONTROL SAMPLE
LCS-S (0405)

TABLE 1. "CERTIFIED VALUE" CONCENTRATIONS AND CONTROL LIMITS FOR THE ELEMENTS IN THE SOLID LABORATORY CONTROL SAMPLE, LCS-S (0405)

Element	"Certified Value" (mg/Kg)	Control Limits (mg/Kg)	
		Low Limit	High Limit
Al	115	54.7	175
Sb	66.0	27.6	104
As	253	154	352
Ba*	[1.6]	1.0	2.2
Be	4.9	3.0	6.8
Cd	10.9	7.7	14.0
Ca	44200	30300	58200
Cr	27.1	18.5	35.7
Co	37.4	24.2	50.6
Cu	1770	1320	2230
Fe	6470	4280	8660
Pb	56.9	41.4	72.4
Mg	29200	20500	37900
Mn	61.0	41.6	80.5
Hg	3.59	1.86	5.32
Ni	16.3	9.0	23.7
K*	[39.7]	0	85.3
Se	10.0	4.1	15.9
Ag	5.9	2.7	9.1
Na*	[72.5]	0	216
Tl	9.5	2.9	16.1
V	17.6	11.6	23.7
Zn	47.5	20.5	74.4

[ ] Denotes values which are greater than or equal to the method detection limit (MDL), but less than the Contract Required Quantitation Limit (CRQL).

* Barium, potassium, and sodium are present at concentrations below ILM05.x CRQLs. Acceptance limits are advisory only.

9G15001
Expires 12/31/29
Preparer:** Vendor ** 07 15 09

6010B Solid LCSS

9G15002
Expires 12/31/29
Preparer:** Vendor ** 07 15 09

6010B Solid LCSS

9G15003
Expires 12/31/29
Preparer:** Vendor ** 07 15 09

6010B Solid LCSS

9G15004
Expires 12/31/29
Preparer:** Vendor ** 07 15 09

6010B Solid LCSS

Analytical Standard Record

EPA Region 9 Laboratory

9G15002

Description:	6010B Solid LCSS	**Expires:**	12/31/29
Standard Type:	Reference Material	**Prepared:**	07/15/09
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	1	**Department:**	Metals
Vials:	1	**Last Edit:**	07/15/09 09:49 by SC
Vendor:	EPA QATS	**Lot Numbe**	LCS-S (0405)

AU001435

Analyte	CAS Number	Concentration (ppm)	SRM Control Limits
Magnesium	7439-95-4	29200	70.205-129.79
Antimony	7440-36-0	66	41.182-157.57
Arsenic	7440-38-2	253	60.87-139.13
Barium	7440-39-3	1.6	62.5-137.5
Beryllium	7440-41-7	4.9	61.224-138.77
Cadmium	7440-43-9	10.9	70.642-128.44
Calcium	7440-70-2	44200	68.552-131.67
Chromium	7440-47-3	27.1	68.266-131.73
Cobalt	7440-48-4	37.4	64.471-135.294
Copper	7440-50-8	1770	74.576-125.98
Aluminum	7429-90-5	115	47.565-152.17
Lead	7439-92-1	56.9	72.759-127.24
Zinc	7440-66-6	47.5	43.158-156.63
Manganese	7439-96-5	61	68.197-131.97
Mercury	7439-97-6	3.59	51.81-148.19
Nickel	7440-02-0	16.3	55.215-145.4
Potassium	7440-09-7	39.7	0-214.86
Selenium	7782-49-2	10	41-159
Silver	7440-22-4	5.9	45.763-154.24
Sodium	7440-23-5	72.5	0-297.93
Thallium	7440-28-0	9.5	30.526-169.47
Vanadium	7440-62-2	17.6	65.909-134.66
Iron	7439-89-6	6470	66.151-133.848

QATS INORGANIC REFERENCE MATERIAL
SOLID LABORATORY CONTROL SAMPLE
LCS-S (0405)

TABLE 1. "CERTIFIED VALUE" CONCENTRATIONS AND CONTROL LIMITS FOR THE ELEMENTS IN THE SOLID LABORATORY CONTROL SAMPLE, LCS-S (0405)

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		Low Limit	High Limit
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Sb	66.0	27.6	104
As	253	154	352
Ba*	[1.6]	1.0	2.2
Be	4.9	3.0	6.8
Cd	10.9	7.7	14.0
Ca	44200	30300	58200
Cr	27.1	18.5	35.7
Co	37.4	24.2	50.6
Cu	1770	1320	2230
Fe	6470	4280	8660
Pb	56.9	41.4	72.4
Mg	29200	20500	37900
Mn	61.0	41.6	80.5
Hg	3.59	1.86	5.32
Ni	16.3	9.0	23.7
K*	[39.7]	0	85.3
Se	10.0	4.1	15.9
Ag	5.9	2.7	9.1
Na*	[72.5]	0	216
Tl	9.5	2.9	16.1
V	17.6	11.6	23.7
Zn	47.5	20.5	74.4

[ ] Denotes values which are greater than or equal to the method detection limit (MDL), but less than the Contract Required Quantitation Limit (CRQL).

* Barium, potassium, and sodium are present at concentrations below ILM05.x CRQLs. Acceptance limits are advisory only.

9G15001
Expires 12/31/29
Preparer:** Vendor ** 07 15 09

6010B Solid LCSS

9G15002
Expires 12/31/29
Preparer:** Vendor ** 07 15 09

6010B Solid LCSS

9G15003
Expires 12/31/29
Preparer:** Vendor ** 07 15 09

6010B Solid LCSS

9G15004
Expires 12/31/29
Preparer:** Vendor ** 07 15 09

6010B Solid LCSS

Analytical Standard Record

EPA Region 9 Laboratory

9G15003

Description:	6010B Solid LCSS	**Expires:**	12/31/29
Standard Type:	Reference Material	**Prepared:**	07/15/09
Solvent:	Solvent Lot #	**Prepared By:**	** Vendor **
Final Volume (mls):	1	**Department:**	Metals
Vials:	1	**Last Edit:**	07/15/09 09:49 by SC
Vendor:	EPA QATS	**Lot Numbe**	LCS-S (0405)

AU001436

Analyte	CAS Number	Concentration (ppm)	SRM Control Limits
Magnesium	7439-95-4	29200	70.205-129.79
Antimony	7440-36-0	66	41.182-157.57
Arsenic	7440-38-2	253	60.87-139.13
Barium	7440-39-3	1.6	62.5-137.5
Beryllium	7440-41-7	4.9	61.224-138.77
Cadmium	7440-43-9	10.9	70.642-128.44
Calcium	7440-70-2	44200	68.552-131.67
Chromium	7440-47-3	27.1	68.266-131.73
Cobalt	7440-48-4	37.4	64.471-135.294
Copper	7440-50-8	1770	74.576-125.98
Aluminum	7429-90-5	115	47.565-152.17
Lead	7439-92-1	56.9	72.759-127.24
Zinc	7440-66-6	47.5	43.158-156.63
Manganese	7439-96-5	61	68.197-131.97
Mercury	7439-97-6	3.59	51.81-148.19
Nickel	7440-02-0	16.3	55.215-145.4
Potassium	7440-09-7	39.7	0-214.86
Selenium	7782-49-2	10	41-159
Silver	7440-22-4	5.9	45.763-154.24
Sodium	7440-23-5	72.5	0-297.93
Thallium	7440-28-0	9.5	30.526-169.47
Vanadium	7440-62-2	17.6	65.909-134.66
Iron	7439-89-6	6470	66.151-133.848

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailinga Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Laboratory: GEL Laboratories	Lab Project Number: 305539
Sampling Dates: 6/2/12 & 6/5/12	Sample Matrix: Soil
Analytical Method: *Total As & Pb (EPA 6010B)*	Data Reviewer: M. Song

REVIEW AND APPROVAL:

Data Reviewer: Mindy Song Date: 8/22/12
Technical QA Reviewer: Howard Edwards Date: 8/29/12
Project Manager: Robyn Kelly Date: _____

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	SP-F1-COMP	305539-001
2	SP-F2-COMP	305539-002
3	AD-SP-01-COMP	305539-003
4	UTP-CAP-01-COMP	305539-004
5	UTP-CAP-01-COMP PD	305539-005
0		
7		
8		
9		
10		
11		
12		
13		
14		
16		
16		
17		
18		
19		
20		

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X Included: no problems
- * Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

Case Narrative:

- X Case Narrative present

Quality Control Summary Package:

- X Data Summary sheets
- X Initial and Continuing Calibration results
- NR CRDL Standard results
- X Preparation Blank and Calibration Blank results
- X ICP Interference Check Sample results
- X Matrix Spike recoveries
- NR Matrix Duplicate results
- X Laboratory Control Sample recoveries
- NR Method of Standard Additions results
- * ICP Serial Dilution results
- NR Instrument Detection Limits
- NR ICP Interelement Correction Factors
- NR ICP Linear Ranges
- X Preparation Log
- X Analysis Run Log

Raw QC Data Package Section

- X Chain-of-Custody Records
- X Instrument Printouts
- X Sample Preparation Notebook Pages
- X Logbook and Worksheet Pages
- X Percent Solids Determination

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times	YES
2	Initial and Continuing Calibrations	YES
3	Laboratory Control Sample	YES
4	Matrix Spike	YES
5	Blanks and Background Samples	YES
6	Duplicate Analyses	YES
7	Interference Check Samples and Serial Dilution Analysis	NO
8	Post Digestion Spike and Standard Addition Analysis	N/A
9	Analyte Quantitation	YES
10	Overall Assessment of Data	YES
11	Usability of Data	NO

Comments: N/A: Not Applicable.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

1. HOLDING TIMES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

All Sample Matrices:
Mercury: 28 days (from collection) for analysis.
Hexavalent chromium: 24 hours (from collection) for analysis.
All other metals: 180 days (from collection) for analysis.

Comments: All holding times were met.

2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, an initial calibration verification (ICV) and a calibration blank were analyzed at the beginning of the run, and a continuing calibration verification (CCV) and a calibration blank were analyzed after every ten samples, and at the end of the run. ICV and CCV recoveries were within a range of 80-120% for mercury and tin, and 90-110% for all other metals. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 65% or above 135% (for mercury and tin) or below 75% or above 125% (for all other metals), all associated data are rejected (R).

Comments: All recoveries of metals in initial and continuing calibration verifications were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

3. LABORATORY CONTROL SAMPLE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: Percent recoveries of LCS were within the control limits.

4. MATRIX SPIKE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Matrix Spikes Analyzed

Matrix spike recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 75-125%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: Sample UTP-CAP-01-COMP was used for matrix spike and the recoveries were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

5. BLANKS AND BACKGROUND SAMPLES

__X__ Acceptable
_____ Detection Limits Adjusted

The following blanks were analyzed:
__X__ Method (preparation) Blanks
_____ Field Blanks
_____ Calibration Blanks
_____ Rinsate Blanks
_____ Background Samples

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: No contamination was found in the method blank at method blank reporting limit level.

6. DUPLICATE ANALYSES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Duplicates Analyzed

Type of duplicates analyzed:
__X__ Field Duplicates
_____ Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the detected results as estimated (J) for any analyte whose RPD in a laboratory duplicate exceeds 20% for water samples or 35% for soil samples.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tallings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Analyte (mg/kg)	UTP-CAP-01-COMP	UTP-CAP-01-COMP PD	RPD (%)
Arsenic	3.63	3.73	3
Lead	27.4	29.4	7

Comments: The RPDs were within the control limit (<35%).

7. INTERFERENCE CHECK SAMPLES AND SERIAL DILUTION ANALYSIS

_____ **Acceptable**
__X__ **Acceptable with qualification**
_____ **Unacceptable**
_____ **Not required**

Interference Check Samples (ICS) - Unless flagged below, an ICS was analyzed at the beginning and end of each run and at least twice every eight hours. Recoveries were within a range of 80-120%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J) if the concentrations of Al, Ca, Fe, or Mg are higher in the sample than in the ICS.

Serial Dilution Analysis - Unless flagged below, a serial dilution analysis was performed at a rate of one per 20 samples on a sample having analyte concentrations greater than 50 times the IDL. Percent differences were within a range of 0-10%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

Comments: ICS recoveries were within the control limit.
Serial Dilution Analysis: Sample UTP-CAP-01-COMP was used and %D of As was 13.9%. The detected As results were qualified estimated (J).

8. POST DIGESTION SPIKE AND STANDARD ADDITIONS

_____ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**
__X__ **Not required**

Post-digestion spikes - If a furnace AA result was flagged by the laboratory with an E to indicate interference, and the associated post-digestion spike recovery was less than 10%, the associated results are rejected (R).

Method of Standard Additions - If the method of standard additions was required and the correlation coefficient was less than 0.995, the associated results were qualified as estimated (J).

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Comments:

9. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

Water samples:

ug/L = (instrument printout concentration, mg/L)(1000 ug/mg)(final volume of extract, mL)
(Initial volume of extract, mL)

Soil samples:

mg/kg = (Instrument printout concentration, mg/L)(final volume of extract, mL)(0.001 L/mL)
(weight of sample extracted, g)(0.001 kg/g)(fraction solids)

Comments: Analyte quantitation is acceptable.
Sample AD-SP-01-COMP
As: (0.50757 mg/L) (0.05L/0.512 g) = 0.04957 mg/g= 49.57 mg/kg.
Lab reported 49.6 mg/kg.
Pb: (7.6171 mg/L) (0.05L/0.512 g) (10) = 7.4386 mg/g = 7438.6 mg/kg.
Lab reported 7440 mg/kg.

10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

_____ **Acceptable**
__X__ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:

_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported are valid.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

11. USABILITY OF DATA

A. These data are considered usable for the data use objectives stated in the *SAMPLING AND ANALYSIS PLAN KLONDYKE TAILINGS REREMOVAL, GRAHAM COUNTY, ARIZONA, MAY 2012 (SAP).*

The following data use objective was indicated in the *SAP:*

TO DOCUMENT THE CONCENTRATION OF LEAD AND ARSENIC IN EXPOSED SOILS AFTER EXCAVATION IN THE RESIDENTIAL DECISION AREAS THAT WERE IDENTIFIED AS CONTAMINATION HOT SPOTS DURING THE REMOVAL ASSEMENT PHASE.

TO DOCUMENT THE CONCENTRATION OF LEAD AND ARSENIC IN EXPOSED SOILS AFTER EXCAVATION IN THE INDUSTRIAL DECISION AREAS THAT WERE IDENTIFIED AS CONTAMINATION HOT SPOTS DURING THE ADEQ CHARACTERIZATION PHASE.

TO IDENTIFY WHETHER AN EXCAVATED INDUSTRIAL DECISION AREA REQUIRES ADDITIONAL SAMPLING, ADDITIONAL EXCAVATION, AND/OR BACKFILLING WITH CLEAN SOIL.

AS DEFINITIVE CONFIRMATORY DATA FOR CONFIRMATION OF NON-DEFINITIVE (SCREENING) DATA.

THE DATA ARE USABLE FOR THE ABOVE OBJECTIVE.

B. These data meet quality objectives stated in the *SAP.*

AS INDICATED IN SECTION 3 OF THE SAP, THE INVESTIGATION WILL GENERATE BOTH DEFINITIVE DATA AND SCREENING DATA AND TABLE 3-1 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVEL. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.

12. DOCUMENTATION OF LABORATORY CORRECTIVE ACTION

Problem: No problems requiring corrective action were found.

Resolution: Not required.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305539 **METHOD TYPE:** SW846

SAMPLE ID: 305539001 **CLIENT ID:** SP-F1-COMP

CONTRACT: ECOL00720

MATRIX: Misc Solid **DATE RECEIVED** 06-JUN-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	3.52 J	mg/kg			P	0.496	1	OPTIMA3	060712-1
7439-92-1	Lead	35.3	mg/kg		N	P	0.327	1	OPTIMA3	060712-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305539 **METHOD TYPE:** SW846

SAMPLE ID: 305539002 **CLIENT ID:** SP-F2-COMP

CONTRACT: ECOL00720

MATRIX: Misc Solid **DATE RECEIVED** 06-JUN-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	3.46 J	mg/kg			P	0.496	1	OPTIMA3	060712-1
7439-92-1	Lead	25.4	mg/kg		N	P	0.327	1	OPTIMA3	060712-1

***Analytical Methods:**

P **SW846 3050B/6010B**

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305539 **METHOD TYPE:** SW846

SAMPLE ID: 305539003 **CLIENT ID:** AD-SP-01-COMP

CONTRACT: ECOL00720

MATRIX: Misc Solid **DATE RECEIVED** 06-JUN-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	49.6 J	mg/kg			P	0.488	1	OPTIMA3	060712-1
7439-92-1	Lead	7440	mg/kg		N	P	3.22	10	OPTIMA3	060712-1

***Analytical Methods:**

P **SW846 3050B/6010B**

8/22/12

METALS
–1–
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305539 **METHOD TYPE:** SW846

SAMPLE ID: 305539004 **CLIENT ID:** UTP–CAP–01–COMP

CONTRACT: ECOL00720

MATRIX: Misc Solid **DATE RECEIVED** 06–JUN–12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440–38–2	Arsenic	3.63 J	mg/kg			P	0.49	1	OPTIMA3	060712–1
7439–92–1	Lead	27.4	mg/kg		N	P	0.324	1	OPTIMA3	060712–1

***Analytical Methods:**

P **SW846 3050B/6010B**

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305539 METHOD TYPE: SW846

SAMPLE ID: 305539005 CLIENT ID: UTP-CAP-01-COMP PD

CONTRACT: ECOL00720

MATRIX: Misc Solid DATE RECEIVED 06-JUN-12 LEVEL: Low %SOLIDS:

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	3.73 J	mg/kg			P	0.472	1	OPTIMA3	060712-1
7439-92-1	Lead	29.4	mg/kg		N	P	0.311	1	OPTIMA3	060712-1

*Analytical Methods:

P SW846 3050B/6010B

8/22/12

METALS
–3b–
PREPARATION BLANK SUMMARY

SDG NO. 305539
Contract: ECOL00720
Matrix: Misc Solid

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202672496								
	Arsenic	0.49	mg/kg	+/–2.94	U	P	0.49	2.94
	Lead	0.324	mg/kg	+/–0.98	U	P	0.324	0.98

***Analytical Methods:**

P **SW846 3050B/6010B**

8/22/12

Page: 1 of 1
Project #: 092693.2156.01RF
GEL Quote #:
COC Number (1):
PO Number:

GEL Chain of Custody and Analytical Request

GEL Work Order Number: 305539

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: ECOLOGY & ENVIRONMENT Phone #: 562 997 1200
Project/Site Name: KLONDYKE REMOVAL Fax #:
Address: 3700 INDUSTRY AVE #102 LAKEWOOD CA 90712
Collected by: A. SMITH / R. KELLY Send Results To: RKELLY@EENE.COM

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	QC Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	Should this sample be considered: TSCA Regulated	Total number of containers	EPA 6010B	<-- Preservative Type (6)	Comments
SP-F1-COMP	6/2/12	1230		C	SOIL			1	X		
SP-F2-COMP	6/2/12	1240		C				1	X		
AD-SP-01-COMP	6/5/12	1330		C				1	X		
UTP-CAP-01-COMP	6/5/12	1300		C				1	X		MS/MSD
UTP-CAP-01-COMP PD	6/5/12	1330	FD	C				1	X		

Note: extra sample is required for sample specific QC

TAT Requested: Normal: (Rush:) Specify: 24-HR (Subject to Surcharge) Fax Results: Yes / No Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

Sample Collection Time Zone: Eastern Pacific Central Other _____ Mountain

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	[signature]	6/5/12	1700	[signature]	6.6.12	0935
2						
3						

Sample Shipping and Delivery Details

GEL PM:
Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: C

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002683.2158.01RF

Laboratory: GEL Laboratories	Lab Project Number: 305844
Sampling Dates: 6/6/12 & 6/9/12	Sample Matrix: Soil
Analytical Method: *Total As & Pb (EPA 6010B)*	Data Reviewer: M. Song

REVIEW AND APPROVAL:

Data Reviewer: Mindy Song Date: 8/22/12
Technical QA Reviewer: Howard Edwards Date: 8/24/12
Project Manager: Robyn Kelly Date: _____

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	AD-02-00	305844-001
2	AD-04-01	305844-002
3	AD-06-00	305844-003
4	SH-BKG-00	305844-004
5	SH-02-00	305844-005
6	SH-13-00	305844-006
7		
8		
9		
10		
11		
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14		
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17		
18		
19		
20		

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X Included: no problems
- * Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

Case Narrative:

- X Case Narrative present

Quality Control Summary Package:

- X Data Summary sheets
- X Initial and Continuing Calibration results
- NR CRDL Standard results
- X Preparation Blank and Calibration Blank results
- X ICP Interference Check Sample results
- * Matrix Spike recoveries
- NR Matrix Duplicate results
- X Laboratory Control Sample recoveries
- NR Method of Standard Additions results
- X ICP Serial Dilution results
- NR Instrument Detection Limits
- NR ICP Interelement Correction Factors
- NR ICP Linear Ranges
- X Preparation Log
- X Analysis Run Log

Raw QC Data Package Section

- X Chain-of-Custody Records
- X Instrument Printouts
- X Sample Preparation Notebook Pages
- X Logbook and Worksheet Pages
- X Percent Solids Determination

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times	YES
2	Initial and Continuing Calibrations	YES
3	Laboratory Control Sample	YES
4	Matrix Spike	YES
5	Blanks and Background Samples	YES
6	Duplicate Analyses	YES
7	Interference Check Samples and Serial Dilution Analysis	YES
8	Post Digestion Spike and Standard Addition Analysis	N/A
9	Analyte Quantitation	YES
10	Overall Assessment of Data	YES
11	Usability of Data	YES

Comments: N/A: Not Applicable.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

1. HOLDING TIMES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

All Sample Matrices:
Mercury: 28 days (from collection) for analysis.
Hexavalent chromium: 24 hours (from collection) for analysis.
All other metals: 180 days (from collection) for analysis.

Comments: All holding times were met.

2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, an initial calibration verification (ICV) and a calibration blank were analyzed at the beginning of the run, and a continuing calibration verification (CCV) and a calibration blank were analyzed after every ten samples, and at the end of the run. ICV and CCV recoveries were within a range of 80-120% for mercury and tin, and 90-110% for all other metals. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 65% or above 135% (for mercury and tin) or below 75% or above 125% (for all other metals), all associated data are rejected (R).

Comments: All recoveries of metals in initial and continuing calibration verifications were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

3. LABORATORY CONTROL SAMPLE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: Percent recoveries of LCS were within the control limits.

4. MATRIX SPIKE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Matrix Spikes Analyzed

Matrix spike recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 75-125%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: Sample SH-02-00 was used for matrix spike and the recovery of lead was outside of control limits. Qualification was not required since the amount of lead present in the parent sample was greater than 4x the amount spiked.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

5. BLANKS AND BACKGROUND SAMPLES

__X__ Acceptable
_____ Detection Limits Adjusted

The following blanks were analyzed:
__X__ Method (preparation) Blanks
_____ Field Blanks
_____ Calibration Blanks
_____ Rinsate Blanks
_____ Background Samples

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: No contamination was found in the method blank at method blank reporting limit level.

6. DUPLICATE ANALYSES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Duplicates Analyzed

Type of duplicates analyzed:
_____ Field Duplicates
__X__ Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the detected results as estimated (J) for any analyte whose RPD in a laboratory duplicate exceeds 20% for water samples or 35% for soil samples.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Analyte (mg/kg)	AD-02-00	AD-02-00 DUP	RPD (%)
Arsenic	147	149	1
Lead	3300	3350	2

Comments: The RPDs were within the control limit (<35%).

7. INTERFERENCE CHECK SAMPLES AND SERIAL DILUTION ANALYSIS

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**
_____ **Not required**

Interference Check Samples (ICS) - Unless flagged below, an ICS was analyzed at the beginning and end of each run and at least twice every eight hours. Recoveries were within a range of 80-120%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J) if the concentrations of Al, Ca, Fe, or Mg are higher in the sample than in the ICS.

Serial Dilution Analysis - Unless flagged below, a serial dilution analysis was performed at a rate of one per 20 samples on a sample having analyte concentrations greater than 50 times the IDL. Percent differences were within a range of 0-10%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

Comments: ICS recoveries were within the control limit.
Serial Dilution Analysis: Sample SH-02-00 was used and percent differences were within the control limits.

8. POST DIGESTION SPIKE AND STANDARD ADDITIONS

_____ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**
__X__ **Not required**

Post-digestion spikes - If a furnace AA result was flagged by the laboratory with an E to indicate interference, and the associated post-digestion spike recovery was less than 10%, the associated results are rejected (R).

Method of Standard Additions - If the method of standard additions was required and the correlation coefficient was less than 0.995, the associated results were qualified as estimated (J).

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Comments:

9. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

Water samples:

ug/L = (Instrument printout concentration, mg/L)(1000 ug/mg)(final volume of extract, mL)
(Initial volume of extract, mL)

Soil samples:

mg/kg = (Instrument printout concentretion, mg/L)(final volume of extract, mL)(0.001 L/mL)
(weight of sample extracted, g)(0.001 kg/g)(fraction solids)

Comments: Analyte quantitation is acceptable.
Sample SH-13-00
As: (2.0459 mg/L) (0.05L/0.504 g) (5) = 1.0148 mg/g= 1014.8 mg/kg.
Lab reported 1010 mg/kg.
Pb: (8.7712 mg/L) (0.05L/0.504 g) (50) = 43.508 mg/g = 43508 mg/kg.
Lab reported 43500 mg/kg.

10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

__X__ **Acceptable**
_____ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:

_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported are valid.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Taillngs Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

11. USABILITY OF DATA

A. These data are considered usable for the data use objectives stated in the *SAMPLING AND ANALYSIS PLAN KLONDYKE TAILINGS REREMOVAL, GRAHAM COUNTY, ARIZONA, MAY 2012 (SAP).*

The following data use objective was indicated in the *SAP:*

TO DOCUMENT THE CONCENTRATION OF LEAD AND ARSENIC IN EXPOSED SOILS AFTER EXCAVATION IN THE RESIDENTIAL DECISION AREAS THAT WERE IDENTIFIED AS CONTAMINATION HOT SPOTS DURING THE REMOVAL ASSEMENT PHASE.

TO DOCUMENT THE CONCENTRATION OF LEAD AND ARSENIC IN EXPOSED SOILS AFTER EXCAVATION IN THE INDUSTRIAL DECISION AREAS THAT WERE IDENTIFIED AS CONTAMINATION HOT SPOTS DURING THE ADEQ CHARACTERIZATION PHASE.

TO IDENTIFY WHETHER AN EXCAVATED INDUSTRIAL DECISION AREA REQUIRES ADDITIONAL SAMPLING, ADDITIONAL EXCAVATION, AND/OR BACKFILLING WITH CLEAN SOIL.

AS DEFINITIVE CONFIRMATORY DATA FOR CONFIRMATION OF NON-DEFINITIVE (SCREENING) DATA.

THE DATA ARE USABLE FOR THE ABOVE OBJECTIVE.

B. These data meet quality objectives stated in the *SAP.*

AS INDICATED IN SECTION 3 OF THE SAP, THE INVESTIGATION WILL GENERATE BOTH DEFINITIVE DATA AND SCREENING DATA AND TABLE 3-1 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVEL. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.

12. DOCUMENTATION OF LABORATORY CORRECTIVE ACTION

Problem: No problems requiring corrective action were found.

Resolution: Not required.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 **METHOD TYPE:** SW846

SAMPLE ID: 305844001 **CLIENT ID:** AD-02-00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 12-JUN-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	14	mg/kg		N	P	0.492	1	OPTIMA3	061312-1
7439-92-1	Lead	1220	mg/kg		N	P	0.325	1	OPTIMA3	061312-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 **METHOD TYPE:** SW846

SAMPLE ID: 305844002 **CLIENT ID:** AD-04-01

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 12-JUN-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	6.81	mg/kg		N	P	0.496	1	OPTIMA3	061312-1
7439-92-1	Lead	89.5	mg/kg		N	P	0.327	1	OPTIMA3	061312-1

***Analytical Methods:**

P **SW846 3050B/6010B**

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 **METHOD TYPE:** SW846

SAMPLE ID: 305844003 **CLIENT ID:** AD-06-00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 12-JUN-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	11.1	mg/kg		N	P	0.491	1	OPTIMA3	061312-1
7439-92-1	Lead	748	mg/kg		N	P	0.324	1	OPTIMA3	061312-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 **METHOD TYPE:** SW846

SAMPLE ID: 305844004 **CLIENT ID:** SH-BKG-00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 12-JUN-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	25.4	mg/kg		N	P	0.483	1	OPTIMA3	061312-1
7439-92-1	Lead	726	mg/kg		N	P	0.319	1	OPTIMA3	061312-1

*Analytical Methods:
P SW846 3050B/6010B

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 METHOD TYPE: SW846

SAMPLE ID: 305844005 CLIENT ID: SH-02-00

CONTRACT: ECOL00720

MATRIX: Soil DATE RECEIVED 12-JUN-12 LEVEL: Low %SOLIDS:

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	96.3	mg/kg		N	P	0.497	1	OPTIMA3	061312-1
7439-92-1	Lead	3100	mg/kg		N	P	1.64	5	OPTIMA3	061312-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-I-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 305844 METHOD TYPE: SW846

SAMPLE ID: 305844006 CLIENT ID: SH-13-00

CONTRACT: ECOL00720

MATRIX:Soil DATE RECEIVED 12-JUN-12 LEVEL: Low %SOLIDS:

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	1010	mg/kg		N	P	2.48	5	OPTIMA3	061312-1
7439-92-1	Lead	43500	mg/kg		N	P	16.4	50	OPTIMA3	061312-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
–3b–
PREPARATION BLANK SUMMARY

SDG NO. 305844
Contract: ECOL00720
Matrix: Soil

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202676785								
	Arsenic	0.489	mg/kg	+/–2.94	U	P	0.489	2.94
	Lead	0.441	mg/kg	+/–0.978	B	P	0.323	0.978

***Analytical Methods:**

P **SW846 3050B/6010B**

8/22/12

Page: 1 of ~~1~~ 1
Project #:
GEL Quote #:
COC Number (1):
PO Number:

GEL Chain of Custody and Analytical Request

20120692181
GEL Work Order Number: 305844%

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: ECOLOGY & ENVIRONMENT Phone #: 415-238-3673
Project/Site Name: KLONDYKE REMOVAL Fax #:
Address: 3700 INDUSTRY AVE #102, LAKEWOOD, CA 90712
Collected by: A. SMITH/K VILLARS Send Results To: RKELLY@ENE.COM

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	TSCA Regulated	Total number of containers	EPA 6010B										<-- Preservative Type (6) Comments Note: extra sample is required for sample specific QC
AD-02-00	6/8/12	0830			SOIL			1	X										
AD-04-01	6/8/12	1500			↓			1	X										
AD-06-00	6/8/12	0835			↓			1	X										
SH-BKG-00	6/9/12	0930			↓			1	X										
SH-02-00	6/9/12	0935			↓			1	X										MS/MSD)
SH-13-00	6/9/12	1015			↓			1	X										

TAT Requested: Normal: Rush Specify: 24 Hr (Subject to Surcharge) Fax Results: Yes / No Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards

NONE

Sample Collection Time Zone
Eastern Pacific
Central Other _____
Mountain

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1 [signature]	6/9/12	1550	1 Fed Ex Naybill		875821369273
2			2 [signature]	6-12-12	0930
3			3		

Sample Shipping and Delivery Details

GEL PM:
Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: C

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Laboratory: GEL Laboratories	Lab Project Number: 306122
Sampling Dates: 6/6/12 thru 6/13/12	Sample Matrix: Soil
Analytical Method: *Total As & Pb (EPA 6010B)*	Data Reviewer: M. Song

REVIEW AND APPROVAL:

Data Reviewer: Mindy Song Date: 8/22/12
Technical QA Reviewer: Howard Edwards Date: 8/24/12
Project Manager: Robyn Kelly Date: _____

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	AD-04-00	306122-001
2	AD-46-12COMP	306122-002
3	SH-20-00	306122-003
4	AC-01-00	306122-004
5	AD-44-12COMP	306122-005
6	SH-19-00	306122-006
7	AC-02-00	306122-007
8	AD-50-12COMP	306122-008
9	AD-03-01	306122-009
10	AD-03-00-PD	306122-010
11	AD-46-12COMP	306122-011
12		
13		
14		
15		
16		
17		
18		
19		
20		

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X Included: no problems
- * Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

Case Narrative:

- X Case Narrative present

Quality Control Summary Package:

- X Data Summary sheets
- X Initial and Continuing Calibration results
- NR CRDL Standard results
- X Preparation Blank and Calibration Blank results
- X ICP Interference Check Sample results
- * Matrix Spike recoveries
- X Matrix Duplicate results
- X Laboratory Control Sample recoveries
- NR Method of Standard Additions results
- X ICP Serial Dilution results
- NR Instrument Detection Limits
- NR ICP Interelement Correction Factors
- NR ICP Linear Ranges
- X Preparation Log
- X Analysis Run Log

Raw QC Data Package Section

- X Chain-of-Custody Records
- X Instrument Printouts
- X Sample Preparation Notebook Pages
- X Logbook and Worksheet Pages
- X Percent Solids Determination

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times	YES
2	Initial and Continuing Calibrations	YES
3	Laboratory Control Sample	YES
4	Matrix Spike	YES
5	Blanks and Background Samples	YES
6	Duplicate Analyses	YES
7	Interference Check Samples and Serial Dilution Analysis	YES
8	Post Digestion Spike and Standard Addition Analysis	N/A
9	Analyte Quantitation	YES
10	Overall Assessment of Data	YES
11	Usability of Data	YES

Comments: N/A: Not Applicable.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

1. HOLDING TIMES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

All Sample Matrices:
Mercury: 28 days (from collection) for analysis.
Hexavalent chromium: 24 hours (from collection) for analysis.
All other metals: 180 days (from collection) for analysis.

Comments: All holding times were met.

2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, an initial calibration verification (ICV) and a calibration blank were analyzed at the beginning of the run, and a continuing calibration verification (CCV) and a calibration blank were analyzed after every ten samples, and at the end of the run. ICV and CCV recoveries were within a range of 80-120% for mercury and tin, and 90-110% for all other metals. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 65% or above 135% (for mercury and tin) or below 75% or above 125% (for all other metals), all associated data are rejected (R).

Comments: All recoveries of metals in initial and continuing calibration verifications were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

3. LABORATORY CONTROL SAMPLE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: Percent recoveries of LCS were within the control limits.

4. MATRIX SPIKE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Matrix Spikes Analyzed

Matrix spike recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 75-125%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: Sample AD-44-12COMP was used for matrix spike and the recovery of lead was outside of control limits. Qualification was not necessary since the amount of lead present in the parent sample was greater than 4X the amount spiked.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

5. BLANKS AND BACKGROUND SAMPLES

__X__ Acceptable
_____ Detection Limits Adjusted

The following blanks were analyzed:
__X__ Method (preparation) Blanks
_____ Field Blanks
_____ Calibration Blanks
__X__ Rinsate Blanks
_____ Background Samples

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: No contamination was found in the method blank and rinsate blank at reporting limit levels.

6. DUPLICATE ANALYSES

__X__ Acceptable
_____ Acceptable with quallfication
_____ Unacceptable
_____ No Duplicates Analyzed

Type of duplicates analyzed:
_____ Field Duplicates
__X__ Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the detected results as estimated (J) for any analyte whose RPD in a laboratory duplicate exceeds 20% for water samples or 35% for soil samples.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Analyte (mg/kg)	AD-44-12COMP	AD-44-12COMP DUP	RPD (%)
Arsenic	16.8	16.7	1
Lead	781	783	0

Comments: The RPDs were wilhin the control limit (<35%).

7. INTERFERENCE CHECK SAMPLES AND SERIAL DILUTION ANALYSIS

___X___ **Acceptable**
_____ **Acceptable with qualificatlon**
_____ **Unacceptable**
_____ **Not required**

Interference Check Samples (ICS) - Unless flagged below, an ICS was analyzed at the beginning and end of each run and at least twice every eight hours. Recoveries were within a range of 80-120%. For analytes which exceeded these control limlts, associated detected results are qualified as estlmated (J) if the concentrations of Al, Ca, Fe, or Mg are higher in the sample than in the ICS.

Serial Dilution Analysls - Unless flagged below, a serial dilutlon analysis was performed at a rate of one per 20 samples on a sample having analyte concentratlons greater than 50 times the IDL. Percent dlfferences were within a range of 0-10%. For analytes which exceeded these control limits, associated detected results are qualified as estlmated (J).

Comments: ICS recoveries were wilhin the control limil.
Serial Dilution Analysis: Sample AD-44-12COMP was used and percent differences were within lhe control limits.

8. POST DIGESTION SPIKE AND STANDARD ADDITIONS

_____ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**
___X___ **Not requlred**

Post-digestion spikes - If a furnace AA result was flagged by the laboratory with an E to indlcate Interference, and the associated post-digestion spike recovery was less than 10%, the associated results are rejected (R).

Method of Standard Additions - If the method of standard additions was required and the correlation coefficient was less than 0.995, the associated results were quallfied as estimated (J).

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Comments:

9. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

Water samples:

ug/L = (Instrument printout concentration, mg/L)(1000 ug/mg)(final volume of extract, mL)
(Initial volume of extract, mL)

Soil samples:

mg/kg = (Instrument printout concentration, mg/L)(final volume of extract, mL)(0.001 L/mL)
(weight of sample extracted, g)(0.001 kg/g)(fraction solids)

Comments: Analyte quantitation is acceptable.
Sample AD-04-00
As: (0.13881 mg/L) (0.05L/0.501 g) = 0.01385 mg/g= 13.85 mg/kg.
Lab reported 13.9 mg/kg.
Pb: (8.6733 mg/L) (0.05L/0.501 g) = 0.8656 mg/g = 865.6 mg/kg.
Lab reported 871 mg/kg.

10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

__X__ **Acceptable**
_____ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:

_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported are valid.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Taillngs Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

11. USABILITY OF DATA

A. These data are considered usable for the data use objectives stated in the *SAMPLING AND ANALYSIS PLAN KLONDYKE TAILINGS REREMOVAL, GRAHAM COUNTY, ARIZONA, MAY 2012 (SAP).*

The following data use objective was indicated in the *SAP:*

TO DOCUMENT THE CONCENTRATION OF LEAD AND ARSENIC IN EXPOSED SOILS AFTER EXCAVATION IN THE RESIDENTIAL DECISION AREAS THAT WERE IDENTIFIED AS CONTAMINATION HOT SPOTS DURING THE REMOVAL ASSEMENT PHASE.

TO DOCUMENT THE CONCENTRATION OF LEAD AND ARSENIC IN EXPOSED SOILS AFTER EXCAVATION IN THE INDUSTRIAL DECISION AREAS THAT WERE IDENTIFIED AS CONTAMINATION HOT SPOTS DURING THE ADEQ CHARACTERIZATION PHASE.

TO IDENTIFY WHETHER AN EXCAVATED INDUSTRIAL DECISION AREA REQUIRES ADDITIONAL SAMPLING, ADDITIONAL EXCAVATION, AND/OR BACKFILLING WITH CLEAN SOIL.

AS DEFINITIVE CONFIRMATORY DATA FOR CONFIRMATION OF NON-DEFINITIVE (SCREENING) DATA.

THE DATA ARE USABLE FOR THE ABOVE OBJECTIVE.

B. These data meet quality objectives stated in the *SAP.*

AS INDICATED IN SECTION 3 OF THE SAP, THE INVESTIGATION WILL GENERATE BOTH DEFINITIVE DATA AND SCREENING DATA AND TABLE 3-1 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVEL. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.

12. DOCUMENTATION OF LABORATORY CORRECTIVE ACTION

Problem: No problems requiring corrective action were found.

Resolution: Not required.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 METHOD TYPE: SW846

SAMPLE ID: 306122001 CLIENT ID: AD-04-00

CONTRACT: ECOL00720

MATRIX:Soil DATE RECEIVED 15-JUN-12 LEVEL: Low %SOLIDS: 99.39

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	13.9	mg/kg			P	0.502	1	OPTIMA3	061512-1
7439-92-1	Lead	871	mg/kg			P	0.331	1	OPTIMA3	061512-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122002 **CLIENT ID:** AD-46-12COMP

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15-JUN-12 **LEVEL:** Low **%SOLIDS:** 96.9

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	13.2	mg/kg			P	0.466	1	OPTIMA3	061512-1
7439-92-1	Lead	753	mg/kg			P	0.307	1	OPTIMA3	061512-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122003 **CLIENT ID:** SH-20-00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15-JUN-12 **LEVEL:** Low **%SOLIDS:** 99.965

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	16.5	mg/kg			P	0.5	1	OPTIMA3	061512-1
7439-92-1	Lead	828	mg/kg			P	0.33	1	OPTIMA3	061512-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122004 **CLIENT ID:** AC-01-00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15-JUN-12 **LEVEL:** Low **%SOLIDS:** 99.36

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	12.1	mg/kg			P	0.478	1	OPTIMA3	061512-1
7439-92-1	Lead	899	mg/kg			P	0.316	1	OPTIMA3	061512-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122005 **CLIENT ID:** AD-44-12COMP

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15-JUN-12 **LEVEL:** Low **%SOLIDS:** 95.5

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	16.8	mg/kg			P	0.483	1	OPTIMA3	061512-1
7439-92-1	Lead	781	mg/kg			P	0.319	1	OPTIMA3	061512-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-I-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122006 **CLIENT ID:** SH-19-00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15-JUN-12 **LEVEL:** Low **%SOLIDS:** 100

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	25.1	mg/kg			P	0.487	1	OPTIMA3	061512-1
7439-92-1	Lead	751	mg/kg			P	0.322	1	OPTIMA3	061512-1

*Analytical Methods:
P SW846 3050B/6010B

8/22/12

METALS
-I-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122007 **CLIENT ID:** AC-02-00

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15-JUN-12 **LEVEL:** Low **%SOLIDS:** 97

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	8.94	mg/kg			P	0.505	1	OPTIMA3	061512-1
7439-92-1	Lead	415	mg/kg			P	0.333	1	OPTIMA3	061512-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122008 **CLIENT ID:** AD-50-12COMP

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15-JUN-12 **LEVEL:** Low **%SOLIDS:** 96.9

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	10.5	mg/kg			P	0.481	1	OPTIMA3	061512-1
7439-92-1	Lead	461	mg/kg			P	0.318	1	OPTIMA3	061512-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-I-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122009 **CLIENT ID:** AD-03-01

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15-JUN-12 **LEVEL:** Low **%SOLIDS:** 90

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	8.27	mg/kg			P	0.551	1	OPTIMA3	061512-1
7439-92-1	Lead	87.2	mg/kg			P	0.364	1	OPTIMA3	061512-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122010 **CLIENT ID:** AD-03-00-PD

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15-JUN-12 **LEVEL:** Low **%SOLIDS:** 97.6

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	20.5	mg/kg			P	0.489	1	OPTIMA3	061512-1
7439-92-1	Lead	1170	mg/kg			P	0.323	1	OPTIMA3	061512-1

***Analytical Methods:**

P **SW846 3050B/6010B**

8/22/12

METALS
-I-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306122 **METHOD TYPE:** SW846

SAMPLE ID: 306122011 **CLIENT ID:** AD-48-12COMP

CONTRACT: ECOL00720

MATRIX: Soil **DATE RECEIVED** 15-JUN-12 **LEVEL:** Low **%SOLIDS:** 97.8

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	11.2	mg/kg			P	0.497	1	OPTIMA3	061512-1
7439-92-1	Lead	469	mg/kg			P	0.328	1	OPTIMA3	061512-1

***Analytical Methods:**

P SW846 3050B/6010B

8/22/12

METALS
-3b-
PREPARATION BLANK SUMMARY

SDG NO. 306122
Contract: ECOL00720
Matrix: Soil

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202679758								
	Arsenic	0.478	mg/kg	+/-2.87	U	P	0.478	2.87
	Lead	0.701	mg/kg	+/-0.956	B	P	0.315	0.956

***Analytical Methods:**

P **SW846 3050B/6010B**

8/22/12

ENVIRONMENTAL PROTECTION AGENCY
Region 9 Laboratory

CHAIN OF CUSTODY RECORD

306122

1337 S. 46th St., Bldg. 201
Richmond, CA 94804-4698

PROJ. NO. 002693.

PROJECT NAME: KLONDYKE TAILINGS REMOVAL

SAMPLERS: (Signature)

Ecology & Environment
3700 Industry Ave #162
Lakewood, CA 90712
562-997-1200

DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	EPA 6010 B	REMARKS
6/13/12	1200	Soil	(1)	X	AD-04-00	1	X	
6/12/12	1511		X	(1)	AD-46-12COMP	1	X	
6/11/12	1200		(1)	X	SH-20-00	1	X	
6/9/12	1200		(1)	X	AC-01-00	1	X	
6/12/12	1508		X	(1)	AD-44-12COMP	1	X	
6/11/12	1200		(1)	X	SH-19-00	1	X	MS/MSD
6/9/12	1200		(1)	X	AC-02-00	1	X	
6/12/12	1530		X	(1)	AD-50-12COMP	1	X	
6/9/12	1200		(1)	X	AD-03-01	1	X	
6/8/12	1200		(1)	X	AD-03-00-PD	1	X	
6/12/12	1515		X	(1)	AD-48-12COMP	1	X	

Send results to Robyn Kelly <rkelly@ene.com>

Rush: 24hr TAT

Relinquished by: (Signature) Matt Diener	Date / Time 6/14/12 0645	Received by: (Signature) to FedEx	Relinquished by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)
Received for Laboratory by: (Signature)	Date / Time	Temp. / Seals Intact (Y/N)	Conditions / Remarks

Relinquished by: (Signature) — Date / Time — Received by: (Signature) 6.15.12 0930

Relinquished by: (Signature) — Date / Time — Received by: (Signature)

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

9-2406

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Laboratory: GEL Laboratories	Lab Project Number: 306325
Sampling Dates: 6/12/12 & 6/13/12	Sample Matrix: Water
Analytical Method: *Total As & Pb (EPA 6010B)*	Data Reviewer: M. Song

REVIEW AND APPROVAL:

Data Reviewer: Mindy Song Date: 8/22/12
Technical QA Reviewer: Howard Edwards Date: 8/24/12
Project Manager: Robyn Kelly Date: _____

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	RB-061212	306325-001
2	RB-061312	306325-002
3		
4		
5		
6		
7		
8		
9		
10		
11		
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19		
20		

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X Included: no problems
- * Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

Case Narrative:

- X Case Narrative present

Quality Control Summary Package:

- X Data Summary sheets
- X Initial and Continuing Calibration results
- NR CRDL Standard results
- X Preparation Blank and Calibration Blank results
- X ICP Interference Check Sample results
- X Matrix Spike recoveries
- NR Matrix Duplicate results
- X Laboratory Control Sample recoveries
- NR Method of Standard Additions results
- X ICP Serial Dilution results
- NR Instrument Detection Limits
- NR ICP Interelement Correction Factors
- NR ICP Linear Ranges
- X Preparation Log
- X Analysis Run Log

Raw QC Data Package Section

- X Chain-of-Custody Records
- X Instrument Printouts
- X Sample Preparation Notebook Pages
- X Logbook and Worksheet Pages
- X Percent Solids Determination

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times	YES
2	Initial and Continuing Calibrations	YES
3	Laboratory Control Sample	YES
4	Matrix Spike	YES
5	Blanks and Background Samples	YES
6	Duplicate Analyses	YES
7	Interference Check Samples and Serial Dilution Analysis	YES
8	Post Digestion Spike and Standard Addition Analysis	N/A
9	Analyte Quantitation	YES
10	Overall Assessment of Data	YES
11	Usability of Data	YES

Comments: N/A: Not Applicable.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

1. HOLDING TIMES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

All Sample Matrices:
Mercury: 28 days (from collection) for analysis.
Hexavalent chromium: 24 hours (from collection) for analysis.
All other metals: 180 days (from collection) for analysis.

Comments: All holding times were met.

2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, an initial calibration verification (ICV) and a calibration blank were analyzed at the beginning of the run, and a continuing calibration verification (CCV) and a calibration blank were analyzed after every ten samples, and at the end of the run. ICV and CCV recoveries were within a range of 80-120% for mercury and tin, and 90-110% for all other metals. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 65% or above 135% (for mercury and tin) or below 75% or above 125% (for all other metals), all associated data are rejected (R).

Comments: All recoveries of metals in initial and continuing calibration verifications were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

3. LABORATORY CONTROL SAMPLE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: Percent recoveries of LCS were within the control limits.

4. MATRIX SPIKE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Matrix Spikes Analyzed

Matrix spike recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 75-125%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: Sample RB-061212 was used for matrix spike and the recoveries were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

5. BLANKS AND BACKGROUND SAMPLES

__X__ Acceptable
_____ Detection Limits Adjusted

The following blanks were analyzed:
__X__ Method (preparation) Blanks
_____ Field Blanks
_____ Calibration Blanks
_____ Rinsate Blanks
_____ Background Samples

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: No contamination was found in the method blank at method blank reporting limit level.

6. DUPLICATE ANALYSES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Duplicates Analyzed

Type of duplicates analyzed:
_____ Field Duplicates
__X__ Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the detected results as estimated (J) for any analyte whose RPD in a laboratory duplicate exceeds 20% for water samples or 35% for soil samples.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Analyte (ug/L)	RB-061212	RB-061212 DUP	RPD (%)
Arsenic	<5	<5	0
Lead	3.32	<3.3	0

Comments: The RPDs were within the control limit (<20%).

7. INTERFERENCE CHECK SAMPLES AND SERIAL DILUTION ANALYSIS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ Not required

Interference Check Samples (ICS) - Unless flagged below, an ICS was analyzed at the beginning and end of each run and at least twice every eight hours. Recoveries were within a range of 80-120%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J) if the concentrations of Al, Ca, Fe, or Mg are higher in the sample than in the ICS.

Serial Dilution Analysis - Unless flagged below, a serial dilution analysis was performed at a rate of one per 20 samples on a sample having analyte concentrations greater than 50 times the IDL. Percent differences were within a range of 0-10%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

Comments: ICS recoveries were within the control limit.
Serial Dilution Analysis: Sample RB-061212 was used and percent differences were within the control limits.

8. POST DIGESTION SPIKE AND STANDARD ADDITIONS

_____ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
__X__ Not required

Post-digestion spikes - If a furnace AA result was flagged by the laboratory with an E to indicate interference, and the associated post-digestion spike recovery was less than 10%, the associated results are rejected (R).

Method of Standard Additions - If the method of standard additions was required and the correlation coefficient was less than 0.995, the associated results were qualified as estimated (J).

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Comments:

9. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

Water samples:

$$\text{ug/L} = \frac{\text{(Instrument printout concentration, mg/L)(1000 ug/mg)(final volume of extract, mL)}}{\text{(Initial volume of extract, mL)}}$$

Soil samples:

$$\text{mg/kg} = \frac{\text{(Instrument printout concentration, mg/L)(final volume of extract, mL)(0.001 L/mL)}}{\text{(weight of sample extracted, g)(0.001 kg/g)(fraction solids)}}$$

Comments: Analyte quantitation is acceptable.
Sample RB-061212
Pb: (3.3231 ug/L) (50 mL/50mL) = 3.3231 ug/L.
Lab reported 3.32 ug/L.

10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

__X__ **Acceptable**
_____ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:
_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported are valid.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

11. USABILITY OF DATA

A. These data are considered usable for the data use objectives stated in the *SAMPLING AND ANALYSIS PLAN KLONDYKE TAILINGS REREMOVAL, GRAHAM COUNTY, ARIZONA, MAY 2012 (SAP).*

The following data use objective was indicated in the *SAP:*

TO DOCUMENT THE CONCENTRATION OF LEAD AND ARSENIC IN EXPOSED SOILS AFTER EXCAVATION IN THE RESIDENTIAL DECISION AREAS THAT WERE IDENTIFIED AS CONTAMINATION HOT SPOTS DURING THE REMOVAL ASSEMENT PHASE.

TO DOCUMENT THE CONCENTRATION OF LEAD AND ARSENIC IN EXPOSED SOILS AFTER EXCAVATION IN THE INDUSTRIAL DECISION AREAS THAT WERE IDENTIFIED AS CONTAMINATION HOT SPOTS DURING THE ADEQ CHARACTERIZATION PHASE.

TO IDENTIFY WHETHER AN EXCAVATED INDUSTRIAL DECISION AREA REQUIRES ADDITIONAL SAMPLING, ADDITIONAL EXCAVATION, AND/OR BACKFILLING WITH CLEAN SOIL.

AS DEFINITIVE CONFIRMATORY DATA FOR CONFIRMATION OF NON-DEFINITIVE (SCREENING) DATA.

THE DATA ARE USABLE FOR THE ABOVE OBJECTIVE.

B. These data meet quality objectives stated in the *SAP.*

AS INDICATED IN SECTION 3 OF THE SAP, THE INVESTIGATION WILL GENERATE BOTH DEFINITIVE DATA AND SCREENING DATA AND TABLE 3-1 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVEL. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.

12. DOCUMENTATION OF LABORATORY CORRECTIVE ACTION

Problem: No problems requiring corrective action were found.

Resolution: Not required.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306325 **METHOD TYPE:** SW846

SAMPLE ID: 306325001 **CLIENT ID:** RB-061212

CONTRACT: ECOL00720

MATRIX: Water **DATE RECEIVED** 19-JUN-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-38-2	Arsenic	5	ug/L	U		P	5	1	OPTIMA5	062612-1
7439-92-1	Lead	3.32	ug/L	B		P	3.3	1	OPTIMA5	062612-1

***Analytical Methods:**

P SW846 3005/6010B

8/22/12

METALS
–I–
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 306325 **METHOD TYPE:** SW846

SAMPLE ID: 306325002 **CLIENT ID:** RB–061312

CONTRACT: ECOL00720

MATRIX: Water **DATE RECEIVED** 19–JUN–12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440–38–2	Arsenic	5	ug/L	U		P	5	1	OPTIMA5	062612–1
7439–92–1	Lead	3.3	ug/L	U		P	3.3	1	OPTIMA5	062612–1

***Analytical Methods:**

P SW846 3005/6010B

8/22/12

METALS
–3b–
PREPARATION BLANK SUMMARY

SDG NO. 306325
Contract: ECOL00720
Matrix: Water

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202683375								
	Arsenic	5	ug/L	+/–30	U	P	5	30
	Lead	3.3	ug/L	+/–10	U	P	3.3	10

***Analytical Methods:**

P **SW846 3005/6010B**

8/22/12

Page: 1 of 1
Project #:
GEL Quote #:
COC Number (1):
PO Number:

GEL Chain of Custody and Analytical Request

20120692 181
GEL Work Order Number: 305844 % 306325

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Ecology + Environment Phone #: 562-997-1200
Project/Site Name: Klondyke Tailings Removal Fax #:
Address: 3700 Industry Ave #102, Lakewood CA 90712
Collected by: M. Diener / K. Villar Send Results To: RKELLY@EINE.com

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	Should this sample be considered: TSCA Regulated	Total number of containers	EPH 8015B										<-- Preservative Type (6)
RB-061212	06-12-12	1500	EB		water			1	X										
RB-061312	06-13-12	1505	EB		↓			1	X										

Comments
Note: extra sample is required for sample specific QC

TAT Requested: Normal: X Rush: Specify: (Subject to Surcharge) Fax Results: Yes / No
Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards
none

Sample Collection Time Zone
Eastern (Pacific) Central Other ____ Mountain

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1 [signature]	6/18/12	0515	1 to FedEx		
2			2 [signature]	6-19-12	0905
3			3		

Sample Shipping and Delivery Details

GEL PM:
Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: C

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Laboratory: EPA Region 9 Laboratory	Lab Project Number: 1310054 SDG 13303E
Sampling Dates: 10/12/13 -10/22/13	Sample Matrix: Soil
Analytical Method: *Total Metals (EPA 6010B)*	Data Reviewer: M. Song

REVIEW AND APPROVAL:

Data Reviewer: Mindy Song Date: 11/26/13
Technical QA Reviewer: Howard Edwards Date: 12/4/13
Project Manager: Kate Villers Date: _____

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	AD-SP-NORTH	1310054-01
2	AD-SP-WEST	1310054-02
3	RFSP-COMP-01	1310054-03
4	RFSP-COMP-02	1310054-04
5	2:3-BLEND-SP-COMP-1	1310054-05
6	AA-03-00	1310054-06
7	AA-04-00	1310054-07
8	HS03-Y1-12	1310054-08
9	HS03-BF-SIDE	1310054-09
10	HS04-Y6-12	1310054-10
11	HS04-Y6-112	1310054-11
12	HS04-BF-BACK	1310054-12
13		
14		
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ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X Included: no problems
- * Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

Case Narrative:

- X Case Narrative present

Quality Control Summary Package:

- X Data Summary sheets
- X Initial and Continuing Calibration results
- NR CRDL Standard results
- X Preparation Blank and Calibration Blank results
- X ICP Interference Check Sample results
- * Matrix Spike recoveries
- * Matrix Duplicate results
- X Laboratory Control Sample recoveries
- NR Method of Standard Additions results
- X ICP Serial Dilution results
- NR Instrument Detection Limits
- NR ICP Interelement Correction Factors
- NR ICP Linear Ranges
- X Preparation Log
- X Analysis Run Log

Raw QC Data Package Section

- X Chain-of-Custody Records
- X Instrument Printouts
- X Sample Preparation Notebook Pages
- X Logbook and Worksheet Pages
- X Percent Solids Determination

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times	YES
2	Initial and Continuing Calibrations	YES
3	Laboratory Control Sample	YES
4	Matrix Spike	YES
5	Blanks and Background Samples	YES
6	Duplicate Analyses	YES
7	Interference Check Samples and Serial Dilution Analysis	YES
8	Post Digestion Spike and Standard Addition Analysis	N/A
9	Analyte Quantitation	YES
10	Overall Assessment of Data	YES
11	Usability of Data	YES

Comments: N/A: Not Applicable.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

1. HOLDING TIMES

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

All Sample Matrices:
Mercury: 28 days (from collection) for analysis.
Hexavalent chromium: 24 hours (from collection) for analysis.
All other metals: 180 days (from collection) for analysis.

Comments: All holding times were met.

2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, an initial calibration verification (ICV) and a calibration blank were analyzed at the beginning of the run, and a continuing calibration verification (CCV) and a calibration blank were analyzed after every ten samples, and at the end of the run. ICV and CCV recoveries were within a range of 80-120% for mercury and tin, and 90-110% for all other metals. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 65% or above 135% (for mercury and tin) or below 75% or above 125% (for all other metals), all associated data are rejected (R).

Comments: All recoveries of metals in initial and continuing calibration verifications were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

3. LABORATORY CONTROL SAMPLE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: Percent recoveries of LCS were within the control limits.

4. MATRIX SPIKE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Matrix Spikes Analyzed

Matrix spike recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 75-125%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

Comments: Sample Aa-03-00 was used for MS/MSD analysis and the recoveries for Al, Ca, Cu, Fe, Pb, Mn, and Zn were outside of control limits. Qualification was not necessary since the amount of these metals present in the parent sample was greater than 4X the amount spiked.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

5. BLANKS AND BACKGROUND SAMPLES

___X___ Acceptable
_____ Detection Limits Adjusted

The following blanks were analyzed:
___X___ Method (preparation) Blanks
_____ Field Blanks
_____ Calibration Blanks
_____ Rinsate Blanks
_____ Background Samples

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: No contamination was found in the method blank at reporting limit levels.

6. DUPLICATE ANALYSES

___X___ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Duplicates Analyzed

Type of duplicates analyzed:
___X___ Field Duplicates
_____ Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation Indicated below. Qualify the detected results as estimated (J) for any analyte whose RPD in a laboratory duplicate exceeds 20% for water samples or 35% for soil samples.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

Analyte (mg/kg)	HS04-Y6-12	HS04-Y6-112	RPD (%)
Arsenic	6.2	7.0	12.1
Lead	180	170	5.71

Comments: The RPDs were within the control limit (<35%).

7. INTERFERENCE CHECK SAMPLES AND SERIAL DILUTION ANALYSIS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ Not required

Interference Check Samples (ICS) - Unless flagged below, an ICS was analyzed at the beginning and end of each run and at least twice every eight hours. Recoveries were within a range of 80-120%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J) if the concentrations of Al, Ca, Fe, or Mg are higher in the sample than in the ICS.

Serial Dilution Analysis - Unless flagged below, a serial dilution analysis was performed at a rate of one per 20 samples on a sample having analyte concentrations greater than 50 times the IDL. Percent differences were within a range of 0-10%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

Comments: ICS recoveries were within the control limit.
Serial Dilution Analysis: Not analyzed.

8. POST DIGESTION SPIKE AND STANDARD ADDITIONS

_____ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
__X__ Not required

Post-digestion spikes - If a furnace AA result was flagged by the laboratory with an E to indicate interference, and the associated post-digestion spike recovery was less than 10%, the associated results are rejected (R).

Method of Standard Additions - If the method of standard additions was required and the correlation coefficient was less than 0.995, the associated results were qualified as estimated (J).

Comments:

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

9. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

Water samples:

ug/L = (Instrument printout concentration, mg/L)(1000 ug/mg)(final volume of extract, mL)
(Initial volume of extract, mL)

Soil samples:

mg/kg = (Instrument printout concentration, mg/L)(final volume of extract, mL)(0.001 L/mL)
(weight of sample extracted, g)(0.001 kg/g)(fraction solids)

Comments: Analyte quantitation is acceptable.
Sample AA-03-00
As: (0.9892 mg/L) (0.05L/1.02 g) (2) = 0.09698 mg/g= 96.98 mg/kg.
Lab reported 97 mg/kg.
Pb: (37.45 mg/L) (0.05L/1.02 g) (2) = 3.6716 mg/g = 3671.6 mg/kg.
Lab reported 3700 mg/kg.

10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

__X__ Acceptable
_____ Acceptable with Qualification
_____ Rejected

Accepted data meet the minimum requirements for the following EPA data category:

_____ ERS Screening
_____ Non-definitive with 10 % Conformation by Definitive Methodology
_____ Definitive, Comprehensive Statistical Error Determination was performed.
__X__ Definitive, Comprehensive Statistical Error Determination was not performed.

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported are valid.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Klondyke Tailings Removal	Location: Graham County, Arizona
TDD Number: 09-11-09-0001	Project Number: 002693.2156.01RF

11. USABILITY OF DATA

A. These data are considered usable for the data use objectives stated in the *SAMPLING AND ANALYSIS PLAN KLONDYKE TAILINGS REREMOVAL, GRAHAM COUNTY, ARIZONA, MAY 2012 (SAP).*

The following data use objective was indicated in the *SAP:*

TO DOCUMENT THE CONCENTRATION OF LEAD AND ARSENIC IN EXPOSED SOILS AFTER EXCAVATION IN THE RESIDENTIAL DECISION AREAS THAT WERE IDENTIFIED AS CONTAMINATION HOT SPOTS DURING THE REMOVAL ASSEMENT PHASE.

TO DOCUMENT THE CONCENTRATION OF LEAD AND ARSENIC IN EXPOSED SOILS AFTER EXCAVATION IN THE INDUSTRIAL DECISION AREAS THAT WERE IDENTIFIED AS CONTAMINATION HOT SPOTS DURING THE ADEQ CHARACTERIZATION PHASE.

TO IDENTIFY WHETHER AN EXCAVATED INDUSTRIAL DECISION AREA REQUIRES ADDITIONAL SAMPLING, ADDITIONAL EXCAVATION, AND/OR BACKFILLING WITH CLEAN SOIL.

AS DEFINITIVE CONFIRMATORY DATA FOR CONFIRMATION OF NON-DEFINITIVE (SCREENING) DATA.

THE DATA ARE USABLE FOR THE ABOVE OBJECTIVE.

B. These data meet quality objectives stated in the *SAP.*

AS INDICATED IN SECTION 3 OF THE SAP, THE INVESTIGATION WILL GENERATE BOTH DEFINITIVE DATA AND SCREENING DATA AND TABLE 3-1 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVEL. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.

12. DOCUMENTATION OF LABORATORY CORRECTIVE ACTION

Problem: No problems requiring corrective action were found.

Resolution: Not required.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1310054-01									**Soil - Sampled: 10/10/13 11:05**
Sample ID: AD-SP-NORTH									**Metals by EPA 6000/7000 Series Methods**
Mercury		0.023	A2, C1, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		31,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		10		2	"	"	"	"	6010C/SOP503
Barium		180		5	"	"	"	"	6010C/SOP503
Beryllium		2.0		0.10	"	"	"	"	6010C/SOP503
Cadmium		1.7		0.50	"	"	"	"	6010C/SOP503
Calcium		14,000		100	"	"	"	"	6010C/SOP503
Chromium		21		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		58		4	"	"	"	"	6010C/SOP503
Iron	REI	28,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		170		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		11,000		50	"	"	"	"	6010C/SOP503
Manganese		970		5	"	"	"	"	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		24		5	"	"	"	"	6010C/SOP503
Potassium		6,400		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		260		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		44		2	"	"	"	"	6010C/SOP503
Zinc		340		8	"	"	"	"	6010C/SOP503
Lab ID: 1310054-02									**Soil - Sampled: 10/10/13 11:11**
Sample ID: AD-SP-WEST									**Metals by EPA 6000/7000 Series Methods**
Mercury		0.019	A2, C1, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		30,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		10		2	"	"	"	"	6010C/SOP503
Barium		160		5	"	"	"	"	6010C/SOP503
Beryllium		2.1		0.10	"	"	"	"	6010C/SOP503
Cadmium		1.7		0.50	"	"	"	"	6010C/SOP503
Calcium		12,000		100	"	"	"	"	6010C/SOP503
Chromium		19		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		56		4	"	"	"	"	6010C/SOP503
Iron	REI	26,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		170		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		11,000		50	"	"	"	"	6010C/SOP503

11/26/13

United States Environmental Protection Agency
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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1310054-02									**Soil - Sampled: 10/10/13 11:11**
Sample ID: AD-SP-WEST									**Metals by EPA 6000/7000 Series Methods**
Manganese		1,000		5	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		22		5	"	"	"	"	6010C/SOP503
Potassium		6,100		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		200		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		41		2	"	"	"	"	6010C/SOP503
Zinc		390		8	"	"	"	"	6010C/SOP503
Lab ID: 1310054-03									**Soil - Sampled: 10/12/13 11:02**
Sample ID: RFSP-COMP-01									**Metals by EPA 6000/7000 Series Methods**
Mercury		0.026	A2, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		14,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		6.0		2	"	"	"	"	6010C/SOP503
Barium		130		5	"	"	"	"	6010C/SOP503
Beryllium		0.84		0.10	"	"	"	"	6010C/SOP503
Cadmium		ND	U	0.50	"	"	"	"	6010C/SOP503
Calcium		8,000		100	"	"	"	"	6010C/SOP503
Chromium		67		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		27		4	"	"	"	"	6010C/SOP503
Iron	RE1	38,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		22		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		5,800		50	"	"	"	"	6010C/SOP503
Manganese		630		5	"	"	"	"	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		32		5	"	"	"	"	6010C/SOP503
Potassium		2,000		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		180		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		100		2	"	"	"	"	6010C/SOP503
Zinc		77		8	"	"	"	"	6010C/SOP503
Lab ID: 1310054-04									**Soil - Sampled: 10/12/13 11:05**
Sample ID: RFSP-COMP-02									**Metals by EPA 6000/7000 Series Methods**
Mercury		0.025	A2, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535

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Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1310054-04									**Soil - Sampled: 10/12/13 11:05**
Sample ID: RFSP-COMP-02									**Metals by EPA 6000/7000 Series Methods**
Aluminum		13,000		100	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		5.5		2	"	"	"	"	6010C/SOP503
Barium		130		5	"	"	"	"	6010C/SOP503
Beryllium		0.81		0.10	"	"	"	"	6010C/SOP503
Cadmium		ND	U	0.50	"	"	"	"	6010C/SOP503
Calcium		8,100		100	"	"	"	"	6010C/SOP503
Chromium		55		1	"	"	"	"	6010C/SOP503
Cobalt		11		2	"	"	"	"	6010C/SOP503
Copper		27		4	"	"	"	"	6010C/SOP503
Iron	RE1	33,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		21		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		5,700		50	"	"	"	"	6010C/SOP503
Manganese		560		5	"	"	"	"	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		30		5	"	"	"	"	6010C/SOP503
Potassium		1,900		500	"	"	"	"	6010C/SOP503
Selenium		NO	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		160		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		89		2	"	"	"	"	6010C/SOP503
Zinc		72		8	"	"	"	"	6010C/SOP503
Lab ID: 1310054-05									**Soil - Sampled: 10/22/13 14:32**
Sample ID: 2:3-BLEND-SP-COMP-1									**Metals by EPA 6000/7000 Series Methods**
Mercury		0.020	A2, C1, J	0.025	mg/kg wet	B13K041	11/06/13	11/06/13	7473/SOP535
Aluminum		18,000		100	"	B13K007	11/03/13	11/12/13	6010C/SOP503
Antimony		ND	U	2	"	"	"	"	6010C/SOP503
Arsenic		7.6		2	"	"	"	"	6010C/SOP503
Barium		130		5	"	"	"	"	6010C/SOP503
Beryllium		1.4		0.10	"	"	"	"	6010C/SOP503
Cadmium		1.3		0.50	"	"	"	"	6010C/SOP503
Calcium		9,100		100	"	"	"	"	6010C/SOP503
Chromium		21		1	"	"	"	"	6010C/SOP503
Cobalt		8.8		2	"	"	"	"	6010C/SOP503
Copper		42		4	"	"	"	"	6010C/SOP503
Iron	RE1	24,000		100	"	"	"	11/12/13	6010C/SOP503
Lead		140		3	"	"	"	11/12/13	6010C/SOP503
Magnesium		7,300		50	"	"	"	"	6010C/SOP503
Manganese		720		5	"	"	"	"	6010C/SOP503

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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1310054-05									**Soil - Sampled: 10/22/13 14:32**
Sample ID: 2:3-BLEND-SP-COMP-1									**Metals by EPA 6000/7000 Series Methods**
Molybdenum		ND	U	5	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Nickel		20		5	"	"	"	"	6010C/SOP503
Potassium		3,800		500	"	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	"	6010C/SOP503
Sodium		170		50	"	"	"	"	6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		46		2	"	"	"	"	6010C/SOP503
Zinc		280		8	"	"	"	"	6010C/SOP503
Lab ID: 1310054-06									**Soil - Sampled: 10/14/13 14:03**
Sample ID: AA-03-00									**Metals by EPA 6000/7000 Series Methods**
Arsenic		97		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		3,700		3	"	"	"	"	6010C/SOP503
Lab ID: 1310054-07									**Soil - Sampled: 10/14/13 14:06**
Sample ID: AA-04-00									**Metals by EPA 6000/7000 Series Methods**
Arsenic		74		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		8,100		3	"	"	"	"	6010C/SOP503
Lab ID: 1310054-08									**Soil - Sampled: 10/15/13 08:25**
Sample ID: HS03-Y1-12									**Metals by EPA 6000/7000 Series Methods**
Arsenic		22		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		610		3	"	"	"	"	6010C/SOP503
Lab ID: 1310054-09									**Soil - Sampled: 10/18/13 07:42**
Sample ID: HS03-BF-SIDE									**Metals by EPA 6000/7000 Series Methods**
Arsenic		4.2		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		27		3	"	"	"	"	6010C/SOP503
Lab ID: 1310054-10									**Soil - Sampled: 10/22/13 08:55**
Sample ID: HS04-Y6-12									**Metals by EPA 6000/7000 Series Methods**
Arsenic		6.2		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		180		3	"	"	"	"	6010C/SOP503
Lab ID: 1310054-11									**Soil - Sampled: 10/22/13 08:55**
Sample ID: HS04-Y6-112									**Metals by EPA 6000/7000 Series Methods**
Arsenic		7.0		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		170		3	"	"	"	"	6010C/SOP503
Lab ID: 1310054-12									**Soil - Sampled: 10/22/13 14:43**
Sample ID: HS04-BF-BACK									**Metals by EPA 6000/7000 Series Methods**
Arsenic		4.7		2	mg/kg wet	B13K007	11/03/13	11/12/13	6010C/SOP503
Lead		16		3	"	"	"	"	6010C/SOP503

11/26/13

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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B13K007 - 3050B Sld Acid Dig - Metals by 6010										
								Prepared: 11/03/13 Analyzed: 11/12/13		
								Metals by EPA 6000/7000 Series Methods - Quality Control		
Blank (B13K007-BLK1)										
Aluminum	ND	U	100	mg/kg wet						
Antimony	ND	U	2	"						
Arsenic	ND	U	2	"						
Barium	ND	U	5	"						
Beryllium	ND	U	0.1	"						
Cadmium	ND	U	0.5	"						
Calcium	ND	U	100	"						
Chromium	ND	U	1	"						
Cobalt	ND	U	2	"						
Copper	ND	U	4	"						
Lead	ND	U	3	"						
Magnesium	ND	U	50	"						
Manganese	ND	U	5	"						
Molybdenum	ND	U	5	"						
Nickel	ND	U	5	"						
Potassium	ND	U	500	"						
Selenium	ND	U	2	"						
Silver	ND	U	1	"						
Sodium	ND	U	50	"						
Thallium	ND	U	5	"						
Vanadium	ND	U	2	"						
Zinc	ND	U	8	"						
Blank (B13K007-BLK2)										
Iron	ND	U	100	mg/kg wet						
Matrix Spike (B13K007-MS1)		**Source: 1310054-06**								
Aluminum	7,140	Q10	100	mg/kg wet	385	6,830	81	75-125		20
Antimony	48.9		2	"	96.2	3.49	47	75-125		20
Arsenic	488		2	"	385	97	102	75-125		20
Barium	364		5	"	385	17.4	90	75-125		20
Beryllium	11.1		0.1	"	9.62	2.19	92	75-125		20
Cadmium	33.7		0.5	"	9.62	24.7	93	75-125		20
Calcium	21,700	Q10	100	"	1920	20,800	44	75-125		20
Chromium	49.5		1	"	38.5	11.8	98	75-125		20
Cobalt	97.3		2	"	96.2	10.9	90	75-125		20
Copper	2,320	Q10	4	"	48.1	2,370	NR	75-125		20
Iron	42,700	Q10	100	"	192	41,600	566	75-125		20
Lead	3,670	Q10	3	"	96.2	3,670	2	75-125		20
Magnesium	2,470		50	"	1920	780	88	75-125		20
Manganese	6,080	Q10	5	"	96.2	6,190	NR	75-125		20
Molybdenum	155		5	"	96.2	65	94	75-125		20

11/26/13

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 13303E
Project Number: R14S10	**75 Hawthorne Street**	**Reported:** 11/22/13 14:04
Project: Klondyke Tailing 2013 XRF Confirmation	**San Francisco CA, 94105**	

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B13K007 - 3050B Std Acid Dig - Metals by 6010								**Prepared: 11/03/13 Analyzed: 11/12/13**		
Reference (B13K007-SRM1)								**Metals by EPA 6000/7000 Series Methods - Quality Control**		
Chromium	29.5		1	"	27.1		109	68.3-132		
Cobalt	38		2	"	37.4		101	64.7-135		
Copper	1,600		4	"	1770		90	74.6-126		
Lead	56.5		3	"	57.0		99	72.8-127		
Magnesium	29,100		50	"	29200		100	70.2-130		
Manganese	67.1		5	"	61.1		110	68.2-132		
Nickel	16.3		5	"	16.3		100	55.2-145		
Potassium	ND	U	500	"	39.7			0-215		
Selenium	5.16		2	"	10.0		52	41-159		
Silver	6.99		1	"	5.91		118	45.8-154		
Sodium	ND	U	50	"	72.6			0-298		
Thallium	5.95		5	"	9.51		63	30.5-169		
Vanadium	17.9		2	"	17.6		102	65.9-135		
Zinc	53.5		8	"	47.5		112	43.2-157		
Reference (B13K007-SBM3)										
Iron	7,220		100	mg/kg wet	6480		111	66.2-134		
Batch B13K041 - 7473 Hg Prep - Mercury by 7473								**Prepared & Analyzed: 11/06/13**		
Blank (B13K041-BLK1)								**Metals by EPA 6000/7000 Series Methods - Quality Control**		
Mercury	ND	U	0.025	mg/kg wet						
Matrix Spike (B13K041-MS1)		**Source: 1310054-02**								
Mercury	0.517		0.025	mg/kg wet	0.461	0.019	108	80-120		20
Matrix Spike Dup (B13K041-MSD1)		**Source: 1310054-02**								
Mercury	0.486		0.025	mg/kg wet	0.423	0.019	110	80-120	2	20
Reference (B13K041-SRM1)										
Mercury	1.2		0.025	mg/kg wet	1.10		109	80-120		

11/26/13

ENVIRONMENTAL PROTECTION AGENCY
Region 9 Laboratory

CHAIN OF CUSTODY RECORD

1337 S. 46th St., Bldg. 201
Richmond, CA 94804-4698

PROJ. NO.	PROJECT NAME
R14510	Klondyke Tailings Removal

SAMPLERS: (Signature)
K. Villars

DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CON-TAINERS	EPA 6010B PbAs	EPA 6010B - TAL list	REMARKS
10/10/13	1185	SOIL	X		AD-SP-NORTH	1		X	Full list
10/10/13	1111	"	X		AD-SP-WEST	1		X	Full list
10/12/13	1162	"	X		RFSP-COMP-01	1		X	Full list
10/12/13	1105	"	X		RFSP-COMP-02	1		X	Full list
10/22/13	1432	"	X		2:3-BLEND-SP-COMP-1	1		X	Full list
10/14/13	1403	"		X	AA-03-00	2	X		MS/MSD, Pb & As
10/14/13	1406	"		X	AA-04-00	1	X		Pb & As
10/15/13	0925	"	X		HS03-Y1-12	1	X		
10/18/13	0742	"		X	HS03-BF-SIDE	1	X		
10/22/13	0855	"	X		HS04-Y6-12	1	X		
10/22/13	0855	"	X		HS04-Y6-112	1	X		
10/22/13	1443	"		X	HS04-BF-BACK	1	X		Pb & As

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	1633 10/25/13	Fedex 8996 3487 1669
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received for Laboratory by: (Signature)	Date / Time	Temp. / Seals Intact (Y/N)
[signature]	11/29/13 1505	22C / Y

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	RLS	10/29/13

Conditions / Remarks

9-2472