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Phase II
Environmental Site Assessment

Former Martin Brick Quarry
Brownfield Site

Prepared for Texas Commission on Environmental Quality
Austin, Texas

February 14, 2003

194045

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Executive Summary

The Martin Brick Quarry site has been investigated for potential hazardous materials and petroleum products contamination and to determine if groundwater beneath the site might be threatened from previous property use. The results of the investigation indicate the presence of metals at concentrations that are most likely naturally occurring within the clay lithology. No other contaminants were detected at significant concentrations, and neither groundwater, potentially groundwater-bearing strata, nor plastic clays were encountered during the subsurface investigation.

1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) was retained by the Texas Commission on Environmental Quality (TCEQ) to conduct an environmental site assessment (ESA) at the Martin Brick Quarry (MBQ) site near Coleman, Texas. In particular, the ESA targeted the western portion of the quarry, which was previously owned by the Martin Brick Company and is now owned by the Coleman Economic Development Corporation. The work was performed under a Remedial Investigation and Removal Services (RIRS) Contract for the Brownfield Site Assessment program managed within the TCEQ Voluntary Cleanup Program.

A Phase I ESA including limited soil sampling and analysis of the MBQ conducted by DBS&A on July 17 and 18, 2001 revealed environmental concerns that required additional assessment. Phase II assessment activities were originally scheduled during July 2002, but extreme seasonal rain caused area-wide flooding that prevented the timely assessment of the property. Therefore, the Phase II investigation was postponed until January 2003.

On January 6 and 7, 2003, a soil boring was installed to 75 feet to determine whether groundwater beneath the site has been impacted from site activities or adjacent landfill use, and shallow subsurface soil samples were collected in areas of potential concern identified during the previous assessment.

1.1 Special Terms and Conditions

Drilling methods, sample collection procedures, laboratory analytical services, and reporting for the Phase II ESA were conducted in accordance with the specifications within the line items of the RIRS contract. As specified in the RIRS contract, the organization of this Phase II report conforms with the American Society for Testing and Materials (ASTM) *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process* (Designation E1903 – 97). Additional services specified in the RIRS contract but not normally part of a Phase II ESA include the subcontracting of the Coleman County Surveyor, Needham Surveyors, to prepare a plat map of the site.

1.2 Limitations and Exceptions of Assessment

This Phase II ESA has been prepared for use by the City of Coleman and the TCEQ. The information presented in this report is based on the project scope of work and includes observations recorded by DBS&A personnel during the site reconnaissance and sampling event conducted on July 17 and 18, 2001 and during the subsequent investigation conducted January 7, 2003. For the description of historical conditions, DBS&A relied upon anecdotal information provided by others and a review of regulatory databases and files, but makes no warranties or guarantees regarding the accuracy or completeness of the information provided or compiled by others.

No assessment can completely eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of this assessment is intended to reduce, but not eliminate, uncertainty regarding the presence of recognized environmental conditions. The available data do not provide definitive information relative to past uses, operations, or incidents at the site or adjacent properties. The existence of site contamination not identified during the reconnaissance is possible and cannot be adequately assessed without additional research beyond the scope of work for this project.

1.3 Limiting Conditions and Methodology Used

In the period between the initial ESA and the Phase II field activities, the site has been subjected to natural and anthropogenic activities that have altered surface features. During the summer of 2002, torrential rain caused area-wide flooding, and the quarry excavation was filled with floodwater for several weeks. The resulting hydrated clay prevented access to the site by a drill rig for the remainder of the summer. Sometime during the fall of 2002, heavy equipment was used at the site in what appeared to be an effort to remove some of the debris piles and to enhance drainage. As a result of these actions, the surface is markedly different from that present during the initial inspection. Debris piles, reference points, and pin flags left from the initial inspection were not found during the Phase II investigation. Consequently, the location of shallow subsurface soil samples may not be in the exact vicinity of the previous soil sampling location.

2. Background

2.1 Site Descriptions and Features

The site is located in a rural area northwest of Coleman (Figure 1). A dirt road provides access at the northeast corner of the property; however, this road is not an official city easement. The access road forks to form a loop within the main quarry excavation.

Another dirt road depicted on the topographic map (Figure 1) reportedly provides property access from the south. DBS&A personnel did not observe this access road, which is located on property owned by (b) (6) [redacted]. (b) (6) [redacted] confirmed the existence of the southern road, but stated that it does not provide direct access to the excavation area. No structures were observed on the (b) (6) property.

The site was formerly situated on a hill slope, which was gradually excavated during the course of quarry activities. The excavation contains many areas where standing water was once located, as indicated by extensive cracking in the dried mud and the presence of cattails and other wetland plant species. In the northeast section of the main excavation is a debris pile containing tires, wood, and bricks. Near the southern end of the main excavation some smaller items appear to be buried in the mud. A larger excavation exists to the south of and separated by a ridge from the main quarry excavation. This southern excavation was found to contain an abandoned excavator.

Numerous large piles of brick and tile shards lie west of both excavations, and a number of smaller debris piles are located west of the main excavation along the access road. The smaller piles contain a wide variety of material including, but not limited to, municipal garbage, wood, oil filters, tires, 5-gallon containers (some with labels indicating petroleum products), bricks, tiles, and a white material resembling crushed limestone or caliche. Many of these piles can be easily spotted due to a lack of vegetation nearby. In addition, DBS&A identified rusted and empty 55-gallon drums in two locations: (1) an area with three drums in a dried wetland south of the access road and west of the main excavation and (2) an area with another three drums near a gap in the west fence line. A trailer and other structures were located off-site near this gap,

and the drums in this area likely originate from off-site activities. These two drum areas are the only areas on the quarry property or other surrounding properties that appear to be of environmental concern.

Near the southwestern fence corner and west of the main excavation DBS&A identified a surface water body resembling a stock pond. Raccoon, deer, and bird footprints were observed in mud near the water. Small frogs or toads were seen near the pond and also near mud cracks in the excavated areas of the property. During the July 2001 reconnaissance visit, DBS&A personnel encountered a deer near the piles of brick and tile. Spent shell casings were noticed in a number of on-site areas, indicating that the site is used as a shooting range.

An overgrown road is located to the immediate left of the gate at the northeast corner of the quarry property. This access road leads to the former Coleman Municipal Landfill located east of the subject property. Further exploration of this road did not reveal any environmental concerns, and no piles of debris or municipal trash were observed near the road. DBS&A personnel did not visit the former landfill property.

2.2 Site History and Land Use

The site is in a rural portion of Coleman County. Historical records, aerial photographs, and interviews with persons knowledgeable of the area all indicate that the site was undeveloped prior to the early 1960s. Information gathered during the course of this investigation indicates that the original site development was for a clay quarry. Use of the property as a quarry ended between 1990 and 1991, and the property is currently abandoned with no apparent land use.

2.3 Adjacent Property Land Use

Currently, the area surrounding the site consists primarily of rural properties with agricultural land uses. Properties to the west have historically been used for agricultural purposes, but properties to the north, south and east of the MBQ property have been owned by the Martin Brick Company and were likely used to support clay quarrying and brick-making activities. The

MBQ property was formerly a portion of the properties owned by the Martin Brick Company. In 2000, a number of these properties were auctioned during a tax foreclosure sale.

A 15.7-acre parcel directly east of the site is still owned by the Martin Brick Company. This land was formerly used as a clay quarry by the Martin Brick Company, but following the cessation of excavation activities, the City of Coleman used this property as a municipal landfill. The landfill stopped receiving municipal waste in 1982 and was closed and capped prior to 1984. No evidence of leachate and municipal waste was observed originating from the landfill property during the 2001 DBS&A site reconnaissance of the MBQ property.

Ownership and uses of other land near the site are:

- East of the landfill is property owned by (b) (6) [redacted] uses his property to grow hay.
- South of the site is land owned by (b) (6) [redacted] plans to use the southern property as his primary residence and is in the process of building a home. Another party is currently using the property as their primary residence. The remainder of the property is unoccupied.

Rural properties to the west and the north appear to be undeveloped ranchland.

2.4 Summary of Previous Assessments

Apparently, the only environmental investigation of the MBQ property has been the ESA conducted by DBS&A in 2001. The purpose of this ESA was to identify conditions that currently or historically have had the potential to adversely affect the MBQ property through the release of hazardous substances to the surface, subsurface, and/or groundwater. The ESA process revealed that:

- The property was originally used as a clay quarry for brick production.

- The properties surrounding the MBQ property are primarily agricultural.

- The site is not listed on any of the state or federally managed environmental databases.

- A former municipal landfill is located off-site, adjacent to the eastern property boundary.

- A variety of different materials have been dumped on the MBQ property, including:
  - Municipal garbage
  - Wood
  - Oil filters
  - Tires
  - 5-gallon containers (some with labels indicating petroleum products)
  - 55 gallon drums
  - Bricks
  - Tiles
  - A white material resembling crushed limestone or caliche

- It is possible that additional objects of environmental concern may be buried on-site or in sediment filling in the excavated areas.

- The property has been used as a rifle range, reportedly by local residents and municipal organizations.

- The surface water identified on-site includes a livestock pond.

- Wildlife directly observed include deer and small frogs (frogs observed near surface water and mud cracks) on-site and a blue heron within close vicinity of the property. The presence of raccoons and abundant bird species was indirectly indicated by footprints at the site.

3. Phase II Activities

3.1 Scope of Assessment

The scope of work for the Phase II Assessment included the installation of up to three monitor wells to an approximate depth of 50 feet below ground surface (bgs) or to 15 feet below the first-encountered groundwater, whichever occurs first. Also proposed for the Phase II ESA was the resampling of shallow subsurface soils in the vicinity of the previously collected SS-13.

3.1.1 Conceptual Site Model and Sampling Plan

DBS&A agreed with the TCEQ that if groundwater was not encountered at the 50-foot total depth, DBS&A personnel would call TCEQ from the field to evaluate options based on identified lithology. The decision criteria for installation of monitor wells were:

- If fat clay is observed, but water is not observed, set the monitor well and allow sufficient time for groundwater accumulation to sample.
- If varying lithology including sand and gravel beds are observed, but saturation is not encountered, then continue to a saturated depth not to exceed 150 feet bgs and set a single monitor well.
- If the depth to water is greater than 75 feet, install only one monitoring well.
- If depth to water is between 50 feet and 75 feet, the TCEQ Project Manager will decide whether to proceed with the installation of the remaining two monitor wells.

The three monitor wells were to be gauged no sooner than 24-hours after completion. Upon gauging the three wells, mechanical well development would begin. Wells would be considered developed when three consecutive readings taken at 3- to 5-minute intervals indicated that produced water was free from visual turbidity, pH was stable within 0.2 unit, and conductivity

and temperature parameters were stable within 3 percent. Groundwater samples could then be withdrawn using a bottom-loading bailer.

Nine surface soil samples were to be collected from 12- to 24-inch intervals, provided these depths were achievable. The scope of work specified that:

- Surface samples be collected from hand-auger borings using a new, dedicated disposal stainless steel spoon
- Soil sample locations be approximately 10 feet from the location near the debris pile where soil sample SS-13 was previously collected
- The location of the sample collection points be flagged and photo-documented

3.1.2 Chemical Testing Plan

The scope of work for the Phase II investigation specified that soil and groundwater samples be collected in areas of concern identified during the Phase I ESA. Surface soil samples were to be submitted for RCRA 8 metals (U.S. Environmental Protection Agency [EPA] method 6020/7471A). Subsurface soil from borings and groundwater samples was to be analyzed for volatile organic compounds (VOCs) using EPA method 8260B.

Quality assurance/quality control samples specified in the scope of work included:

- Aqueous equipment blanks collected for VOC analyses each day that subsurface soil and groundwater samples are collected
- A field blank poured in the field each day that VOCs are collected
- A laboratory-prepared trip blank for every cooler containing VOC samples
- A temperature blank in every cooler

- One duplicate sample for every 20 primary samples submitted for each media/analysis type

Given the limited number of primary samples, replicate samples were not included. Table 1 summarizes the sample quantity requested at the onset of the investigation.

Table 1. Sample Analysis Matrix

	Number of Sample Types Requested in Scope of Work			
Analyte/Sample Type	Surface Soil	Subsurface Soil	Groundwater	IDW
Aqueous Metals				
Primary sample			3	1
Equipment blank		3	1	
Total				8
Aqueous VOC				
Primary sample			3	1
Equipment blank			1	
Duplicate			1	
MS/MSD			1	
Field blank		3	1	
Total				11
Solid Metals				
Primary sample	9	3		1
Duplicate	1			
Total				14
Solid VOC				
Primary sample		3		1
Total				4

IDW = Investigation-derived waste
VOC = Volatile organic compound
MS/MSD = Matrix spike/matrix spike duplicate

Samples were submitted for routine laboratory analysis as specified in the contract. In keeping with the 10 percent validation of analytical batches requirement of the contract, one VOC and one metals analytical batch was submitted for data validation.

3.1.3 Deviations from the Work Plan

Upon drilling the monitor well to the total depth of 50 feet, no plastic clay or saturated soils were identified. The decision was made to continue to 75 feet, and if the soils did not show any signs of hydrated clay or alternate lithology, the boring would be plugged and abandoned. As no such lithology was indicated in the next 25 feet, the boring was plugged and abandoned.

Because the surface features had been mechanically deformed, the location of the SS-13 debris pile could not be positively identified. To determine locations for Phase II soil sampling, the former SS-13 location was approximated based on background hills and prominent vegetation apparent in photographs taken during the Phase I ESA.

Due to multiple contract negotiation issues with the Coleman County Surveyor, Needham Surveyors, the production of a plat map for this property was cancelled with TCEQ concurrence.

3.2 Field Explorations and Methods

3.2.1 Test Borings

The soil boring MW-1 was installed using the air rotary drilling technique. Soil samples were collected from cuttings returned to the surface at approximate 5-foot intervals. A portion of the cuttings was preserved on ice for possible laboratory analysis, while a second portion was set aside for headspace analysis and lithologic logging. The portion of the soil sample set aside from the bottom of the boring (75 feet bgs) was submitted for laboratory analysis of RCRA 8 metals. A copy of the field-prepared boring log is included as Appendix A.

3.2.2 Shallow Surface Soil Sampling

Shallow surface soil samples were collected by excavating to the top of the target depth (12 inches) then switching sampling devices to disposable stainless steel spoons. Soil samples were generally collected in the 12- to 18-inch depth interval. Figure 2 shows the locations of the soil samples in relation to the surmised SS-13 location.

3.3 Sampling and Chemical Analyses and Methods

Soil samples submitted for metals analysis were collected by filling an 8-ounce glass jar filled to capacity with soil from the targeted source. Samples were analyzed for RCRA 8 metals using EPA SW 846 methods 6020/7471A. The 6020 method of analysis uses inductively coupled plasma with a mass spectrometer (ICP-MS) to determine inorganic analyte concentrations. ICP-MS is applicable for the determination of minute concentrations of a large number of elements in water samples and in waste extracts or digests.

Mercury was analyzed for using a cold-vapor atomic absorption method designed for solids analysis. This method is based on the absorption of radiation at the 253.7nanometer (nm) wavelength by mercury vapor. The mercury is reduced to the elemental state and aerated from solution in a closed system. The mercury vapor then passes through a cell positioned in the light path of an atomic absorption spectrophotometer. Absorbance (peak height) is measured as a function of mercury concentration.

4. Evaluation and Presentation of Results

4.1 Subsurface Conditions

The uppermost geologic formation encountered on-site is the Permian-aged Elm Creek Formation (Barnes, 1976). The geologic unit observed on hill crests on-site is the lower part of the Elm Creek Formation, which includes a gray fossiliferous limestone. The Elm Creek Formation typically forms a prominent scarp near the boundary with the underlying Admiral Formation (restricted), which is the formation mined during quarry activities. The Admiral Formation crops out east of the MBQ property and consists of clayey shale containing thin coal and locally thin sandstone beds. The Admiral Formation's thickness is estimated between 200 and 225 feet (Barnes, 1976).

The boring log generated during site activities indicates that the top 10 feet of the borehole consists of non-plastic sandy clay of a dark brown color grading to a reddish yellow with depth. Below 10 feet to the total depth of 75 feet bgs, non-plastic clay of various colorations was observed. This clay is consistent with descriptions of the Admiral Formation in geologic literature. Photoionization detector and combustible gas indicator analysis never produced any readings above zero.

4.2 Analytical Data

Laboratory analytical results indicate that concentrations of barium, cadmium, and selenium exceeded Texas Media-Specific Background Soil Concentrations or the protective concentration level (PCL) for a 30-acre source area, as appropriate (Table 2). However, these values may be misleading when used in the context of an illite clay/shale, as observed at the site. Both barium (+2) and cadmium (+2) at the concentrations reported are quite probably cation receptor exchange elements for the normally occurring calcium (+2) and magnesium (+2) within the clay matrix. The selenium (–2) concentrations observed most likely occur as an oxyanion (–2) replacement element within the clay matrix. The analyte concentrations observed are most likely from normal incorporation during deposition and clay genesis within the Permian-aged epiric sea that dominated the area at that time.

Table 2. Results of Soil Sample Analyses
Phase II Environmental Site Assessment, January 2003
Martin Brick Quarry, Coleman, Texas

Sample Designation [a]	Concentration [b] (mg/kg [ppm])							
	Arsenic	Barium	Cadmium	Chromium	Lead [c]	Mercury	Selenium	Silver
§350.51(m) Background Soil [c]	*5.9*	*300*	*---*	*30*	*15*	*0.04*	*0.3*	*---*
Soil 30-Acre Commercial [c]	*13*	*220*	*0.75*	*1200*	*1.5*	*1.0*	*1.1*	*0.2*
HA-1	7.820	**443**	**3.200**	24.9 J	44.6	0.018 J	0.935 J	0.072 J
HA-2	5.370	**1000**	**4.850**	21.8 J	112	0.02 J	**1.32 J**	0.067 J
HA-3	4.700	**904**	**12.4**	22.5 J	347	0.026 J	**1.24 J**	0.079 J
HA-4	4.460	204	0.43 J	19.3 J	27.8	0.016 J	0.637 J	0.065 J
HA-5	5.100	**474**	**166**	22.4 J	850	0.02 J	**3.640**	0.07 J
HA-6	6.090	121	<0.092 U	18 J	15.8	0.018 J	0.773 J	0.04 J
HA-7	5.700	**495**	**0.935**	124 J	211	0.024 J	0.704 J	0.074 J
HA-8	3.990	204	0.164 J	33.1 J	20.1	0.017 J	0.773 J	0.052 J
Duplicate (HA-8)	4.170	244	0.552 J	19.7 J	29.6	0.021 J	0.839 J	0.054 J
HA-9	4.280	**333**	0.474 J	19.1 J	32.6	0.024 J	0.623 J	0.061 J
MW-1	12.8	198	<0.088 U	17.1 J	8.430	0.053	0.456 J	0.046 J

[a] All samples collected January 7, 2003

[b] **Bolding** indicates value that exceeds the protective concentration level (PCL)

[c] The residential soil PCL for lead is 500 mg/kg (§350.76(c)(1)). The commercial/ industrial soil PCL for lead is 1,600 mg/kg based on the soil ingestion pathway (§350.76(c)(2)).

[cd] Shading indicates the value used for the PCL

5. Discussion of Findings and Conclusions

5.1 Recognized Environmental Conditions

The ASTM guidance standard defines recognized environmental conditions as "the presence or likely presence of any hazardous substances or petroleum products on property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimus conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."

Based upon the ASTM definition, no recognized environmental conditions have been identified on the MBQ property:

The biased sampling around the 55 drums conducted during the previous investigation did not indicate a recognized environmental condition. The previously listed municipal-type waste materials still require general housekeeping. The use of the site as a rifle range does not appear to comprise a material threat to human health or the environment.

Previous sampling of surface soils, sediments, and surface water did not detect the presence of VOCs, semivolatile organic compounds, pesticides, or total petroleum hydrocarbons above TCEQ PCLs. Barium, cadmium, and selenium above TCEQ PCLs were reported in laboratory-analyzed soil samples collected at the site; however, these metals are believed to be naturally occurring within the clay substrate.

The observed unsaturated thickness of clay indicates that the probability that previous overlying land usage has negatively impacted the subsurface is low. The proposed future use of the site as a landfill seems to be a good use of the property since the naturally occurring clay substrate

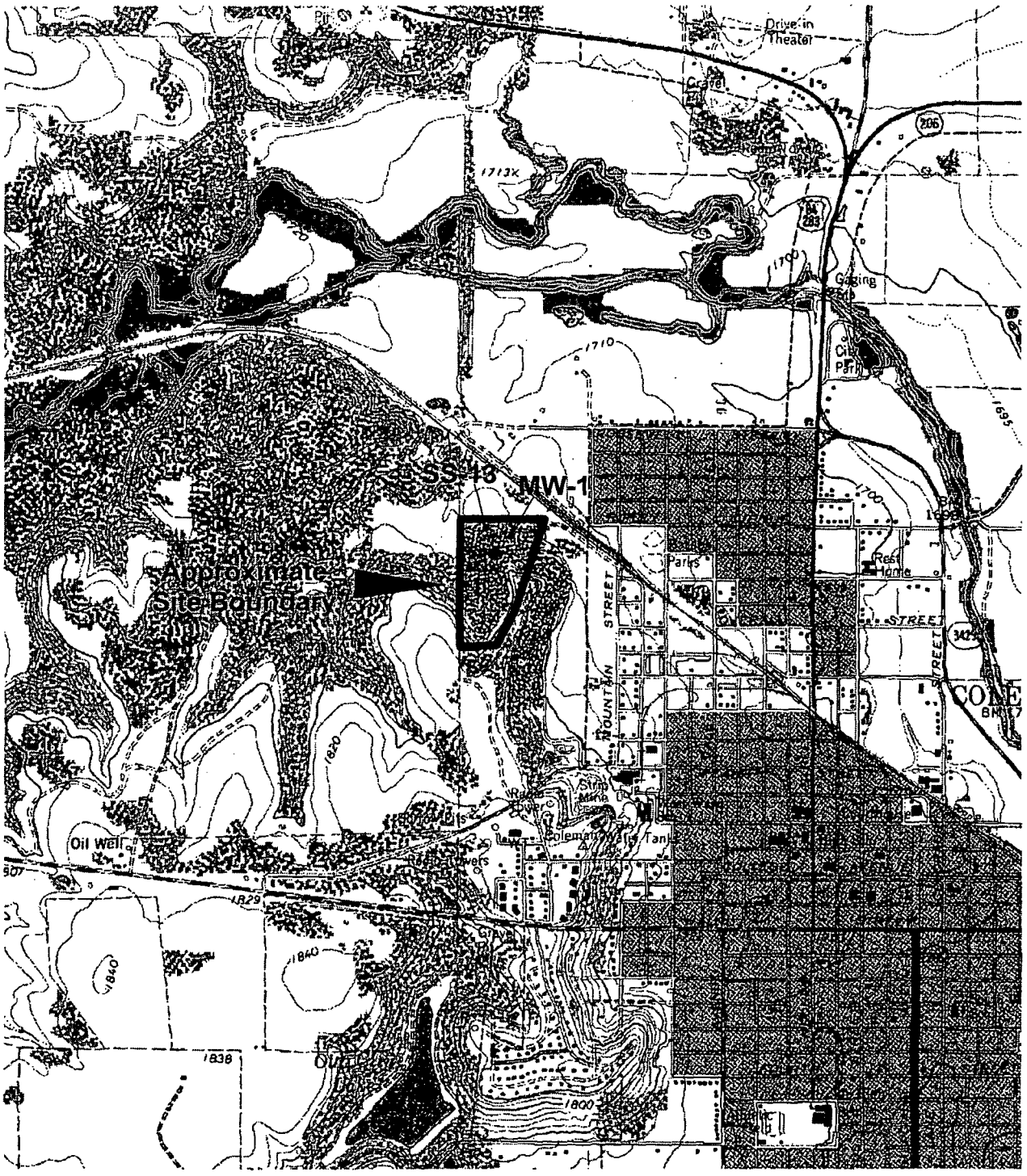
would provide an excellent buffer to contain landfill leachate and prevent migration to subsurface groundwater systems.

5.2 Evaluation of Media Quality

A data usability summary (DUS) has been prepared to verify the validity of the laboratory-produced data. The results of the DUS indicate that the data are usable and acceptable for making project decisions. No unacceptable deviations from the Superfund Cleanup Section (SCS) Quality Assurance Project Plan (QAPP) were encountered. All methods and SCS QAPP procedures were followed by the laboratory, and the data are of acceptable quality. A copy of the DUS report and the verified laboratory data are provided as Appendix B.

5.3 Adequacy of Assessment

The Phase II investigations conducted at the site are believed to be adequate to determine if hazardous substances and petroleum products may be present at the site or if previous land use could threaten underlying groundwater.



N

0' 2,000'

0" 1"

Source: Modified from Coleman, Texas 7.5 minute USGS Topographic map, photorevised 1987.

Former Martin Brick Quarry

Brownfields Site BSAG 050

Coleman, Coleman County, Texas

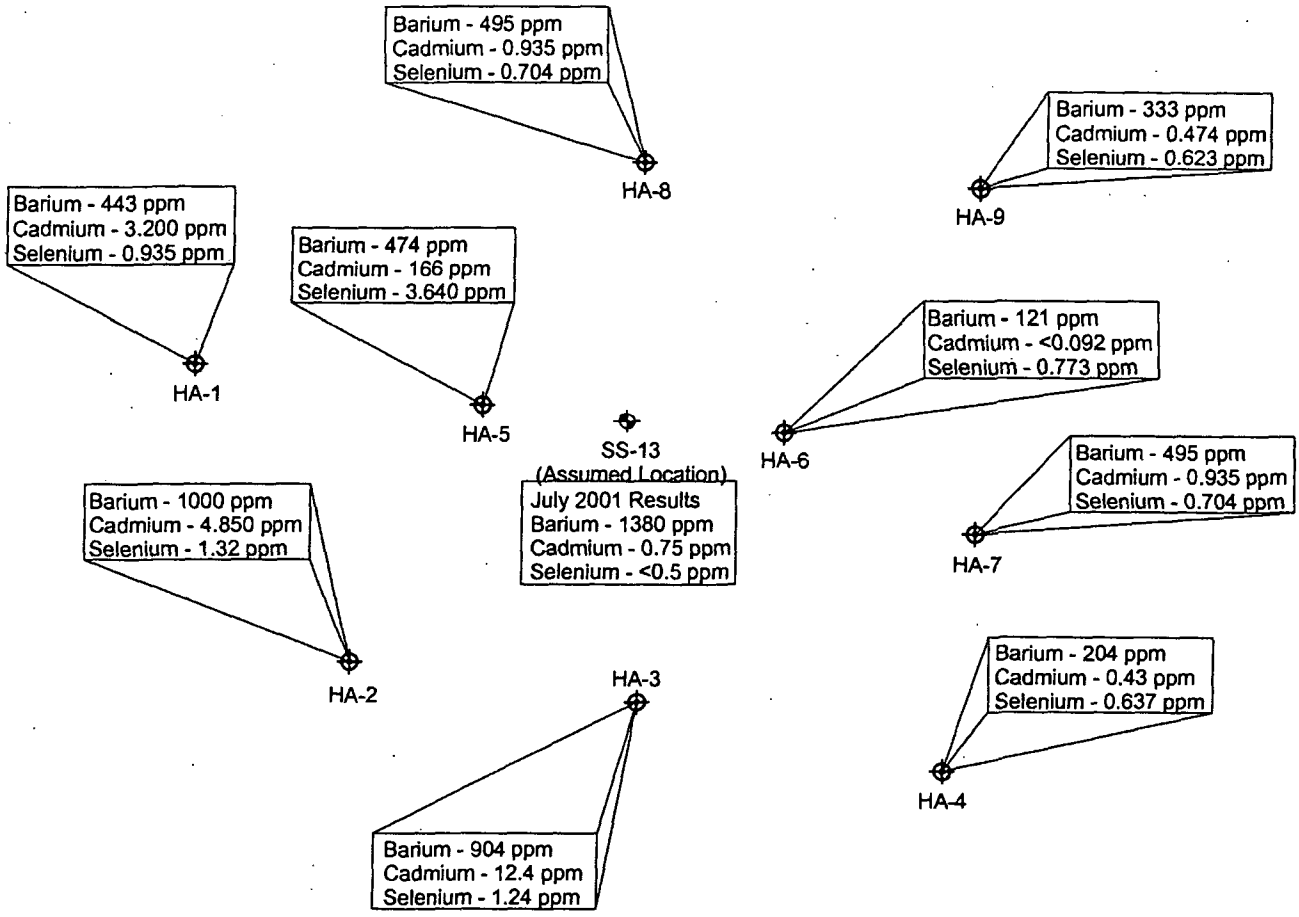
Site Location Map

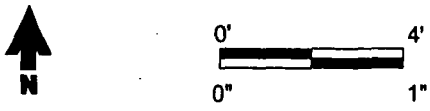
Daniel B. Stephens & Associates, Inc.

6-08-01

JN 8344.001

Figure 1





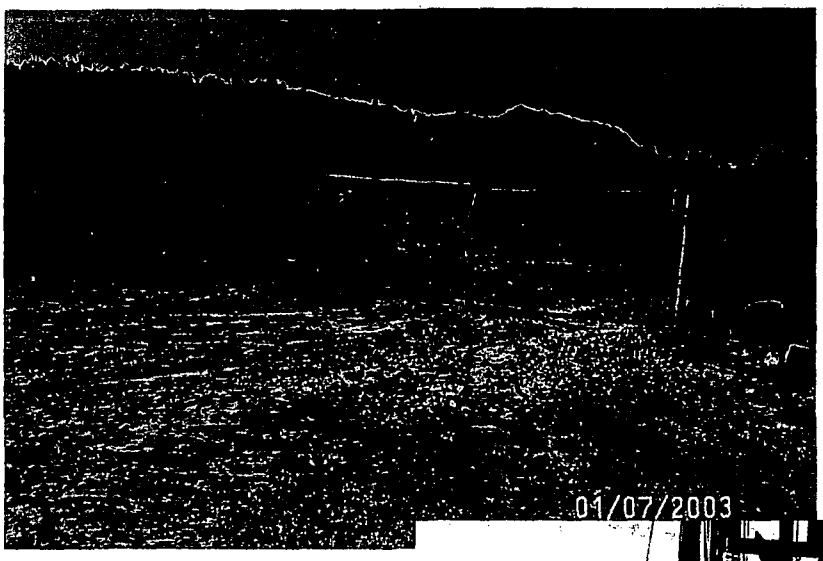
Analytical results for all Hand Auger (HA) samples are based on the January 2003 Phase II investigation.

All sample locations are assumed based on field measurements. The actual location of SS-13 could not be determined due to changed site conditions.

Former Martin Brick Quarry
Brownfields Site BSAG 050
Coleman, Coleman County, Texas
January 2003 Soil Sample Location Map

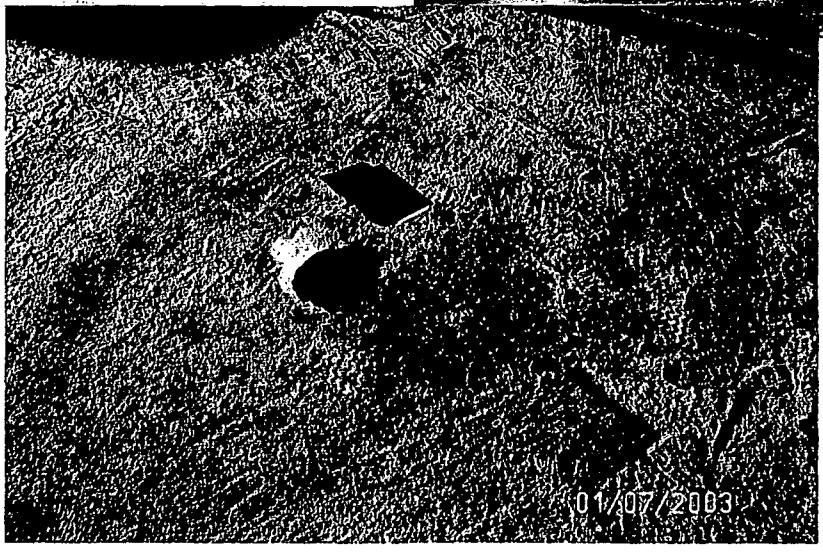
Daniel B. Stephens & Associates, Inc.
2-5-03
JN 8439

Figure 2



View of entry gate leading into the quarry.

Viewing east.
Drilling of MW-1 is in progress.



View of MW-1 upon completion and prior to plugging.

Martin Brick Quarry
VCP ID BSAG050
Site Photographs

Daniel B. Stephens Associates, Inc.

1/03 JN 8439

View west of surface soil sample site.

View north of surface soil sample site.

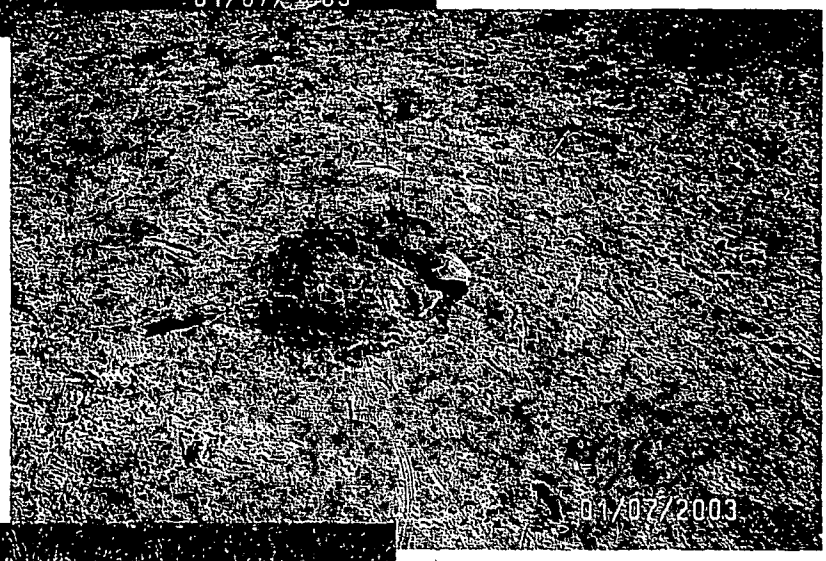
View east of surface soil sample site.

Martin Brick Quarry
VCP ID BSAG 050
Site Photographs

Daniel B. Stephens Associates, Inc.

1/03 JN 8439

Drillers are plugging MW-1. Bentonite chips were used to plug boring. Water was poured into boring to hydrate the bentonite chips.



View of MW-1 upon completion of plugging.

View west of surface soil sample site.

Martin Brick Quarry
VCP ID BSAG050
Site Photographs

Daniel B. Stephens Associates, Inc.

1/03 JN 8439

DANIEL B. STEPHENS & ASSOCIATES, INC.

Boring Log

Site FORMER MARTIN QUARRY (8439.0000.00)	Location Map
Logged by MARY DUNBAR	Client/Project # TCEQ
Boring Number MW-1	Drilling Co. T&T DRILLING
Drilling Method AIR ROTARY	Drill Rig
Date Started 1-6-03	Date Completed 1-7-03

LEL / O_2	PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
0 / 20.9	0		HAND AUGER		0-2		SC	2	SANDY CLAY, VERY SILTY, NON PLASTIC, DRY (7.5YR 3/3 DARK BROWN)
0 / 20.9	0		CUTTINGS		2-5		SC	10	SANDY CLAY, SLIGHTLY-MODERATELY, SLIGHTLY PLASTIC, DRY (7.5YR 7/8 REDDISH YELLOW)
0 / 20.9	0		CUTTINGS		5-15		CL	15	CLAY W/TRACE SAND, SLIGHTLY PLASTIC, DRY W/CALICHE (2.5Y 7/2 LIGHT GRAY)
0 / 20.9	0		CUTTINGS		15-20		CL	20	CLAY, SLIGHTLY-NON PLASTIC, MODERATELY INDURATED, DRY (5YR 5/6 YELLOWISH RED)
0 / 20.9	0		CUTTINGS		20-30		SC	30	SANDY CLAY, VERY FINE GRAINED, SILTY, NON PLASTIC, MODERATELY INDURATED (2.5YR 7/6 YELLOW)
0 / 20.9	0		CUTTINGS		30-40		CL	40	CLAY, NON PLASTIC, DRY, SLIGHTLY INDURATED (2.5YR 6/3 LIGHT YELLOW BROWN)
0 / 20.9	0		CUTTINGS		40-45		CL	45	CLAY, NON PLASTIC, DRY, SLIGHTLY INDURATED (2.5Y 6/1 GRAY)
0 / 20.9	0		CUTTINGS		45-50		CL	50	CLAY, AS ABOVE (5YR 5/3 REDDISH BROWN)
0 / 20.9	0		CUTTINGS		50-60		CL	60	CLAY, NON PLASTIC, DRY, SLIGHTLY-MODERATELY INDURATED (10YR 5/3 BROWN)
0 / 20.9	0		CUTTINGS		60-65		CL	65	CLAY, AS ABOVE (10YR 6/2 LIGHT GRAYISH BROWN)
0 / 20.9	0		CUTTINGS		65-75		CL	75	CLAY, NON PLASTIC, DRY, SLIGHTLY-MODERATELY INDURATED, SLIGHTLY SILTY (2.5Y 6/1 GRAY)
									TD = 75
									WELL WAS PLUGGED ON 1-7-03 WITH:
									0'-5' CEMENT
									5'-75' HYDRATED BENTONITE CHIPS

DATA USABILITY SUMMARY REPORT

Former Martin Brick Quarry
Brownfield Site

January, 2003

Prepared by:

Lisa Rottinghaus
Quality Assurance Specialist
INTERA Inc.

Reviewed by:

Bill Green
Project Manager

Daniel B. Stephens & Associates, Inc.

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January 27, 2003

Mr. Bill Green
Daniel B. Stephens & Associates
8403 Cross Park Drive
Suite 1A
Austin, Texas 78754

Re: Data Usability Summary Report for January 2003 Sampling Event at Former Martin Brick Quarry

Dear Bill,

Enclosed please find one copy of the Data Usability Summary Report for the January 2003 sampling event at the Former Martin Brick Quarry Brownfield Site. The revised electronic data summary tables will be forwarded to you via electronic mail.

If you have any questions regarding this deliverable, please feel free to call me at 425-2074.

Sincerely,

Lisa Rottinghaus

Lisa Rottinghaus
QA Specialist

Enclosure

cc: project file

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LIST OF APPENDICES

Appendix A – Analytical Data Package Including Lab Review Checklist

1. Introduction

This Data Usability Summary (DUS) Report covers the results from one sampling event conducted in January 2003 at the Former Martin Brick Quarry Brownfield Site in Coleman, Texas. Samples were collected and analyzed in accordance with the *TNRCC Superfund Cleanup Section, Remediation Division Quality Assurance Project Plan 200919.2* (hereafter referred to as the SCS QAPP). All samples were collected by DBS&A personnel and were analyzed by Columbia Analytical Services (CAS), Jacksonville, Florida. Data review and validation of the sampling data was performed by INTERA Inc. Sample identification data are summarized in Table 1.1.

Table 1.1 Sampling Identification Data for January 2003 Sampling Event

CAS Job Number J2300038					
Sample ID	**Matrix**	**Collected**	**Lab Sample ID**	**Analyses**	**QC Designation**
HA-1	Soil	1/7/03	J2300038-001	RCRA 8 Metals	
HA-2	Soil	1/7/03	J2300038-002	RCRA 8 Metals	
HA-3	Soil	1/7/03	J2300038-003	RCRA 8 Metals	
HA-4	Soil	1/7/03	J2300038-004	RCRA 8 Metals	
HA-5	Soil	1/7/03	J2300038-005	RCRA 8 Metals	
HA-6	Soil	1/7/03	J2300038-006	RCRA 8 Metals	
HA-7	Soil	1/7/03	J2300038-007	RCRA 8 Metals	
HA-8	Soil	1/7/03	J2300038-008	RCRA 8 Metals	
HA-9	Soil	1/7/03	J2300038-009	RCRA 8 Metals	MS/MSD sample
Duplicate	Soil	1/7/03	J2300038-010	RCRA 8 Metals	Field Duplicate of HA-8
MW-1	Soil	1/7/03	J2300038-011	RCRA 8 Metals	

RCRA: Resource Conservation and Recovery Act

One job number was analyzed for the January 2003 sampling event, which was reviewed and validated. The data review and validation for this sampling event were performed independently of the laboratory using the specifications, acceptance criteria, and corrective action requirements listed in Section B.5.1.16 (metals by EPA method 6020B) and Section B.5.1.19 (mercury by EPA method 7471) in the SCS QAPP.

This report includes a summary of any problems encountered by the laboratory, corrective measures, and any deviations from the methods and/or laboratory standard operating procedures. The data tabulation includes results, regulatory control limits, and all data qualifiers. Data validation qualifier definitions and data qualifier codes are summarized in Tables 1.2 and 1.3 respectively. The report also discusses sample collection events and provides a synopsis of data usability.

Table 1.2 Data Validation Qualifier Definitions

QUALIFIER	DEFINITIONS[1]
U	The analyte was analyzed for, but was not detected above the level of the associated value. The associate value is either the sample quantitation limit or the sample detection limit.
J	The associated value is an estimated quantity.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. (Note: Analyte may or may not be present.)

[1] Definitions cited from the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994.

Table 1.3 Data Validation Qualifier Codes

QUALIFIER CODE	DATA QUALITY CONDITION RESULTING IN ASSIGNED QUALIFICATION
General use	
HT	Holding time requirement was not met
MB	Method blank or preparation blank contamination
LCS	Laboratory control sample evaluation criteria not met
FB	Field blank contamination
RB	Rinsate blank contamination
FD	Field duplicate evaluation criteria not met
SQL	Sample quantitation limit exceeds decision criteria (for non-detects)
P	Preservation requirements not met
Inorganic methods	
ICV	Initial calibration verification evaluation criteria not met
CCV	Continuing calibration verification evaluation criteria not met
PB	Preparation blank contamination
CCB	Continuing calibration blank contamination
ICS	Interference check sample evaluation criteria not met
D	Laboratory duplicate precision evaluation criteria not met
MS	Matrix spike recovery outside acceptance range
PDS	Post-digestion spike recovery outside acceptance range
MSA	Method of standard additions correlation coefficient <0.995
DL	Serial dilution results did not meet evaluation criteria
Organic methods	
TUNE	Instrument performance (tuning) criteria not met
P	The detected concentration difference between the primary and secondary column is greater than 25%.
ICAL	Initial calibration evaluation criteria not met
CCAL	Continuing calibration evaluation criteria not met
SUR	Surrogate recovery outside acceptance range
MS/MSD	Matrix spike/matrix spike duplicate accuracy and/or precision criteria not met
IS	Internal standard evaluation criteria not met
ID	Target compound identification criteria not met
BIAS CODES	**BIAS DIRECTION**
H	Bias in sample result likely to be high
L	Bias in sample result likely to be low
I	Bias in sample result is indeterminate

2. Laboratory Review Checklist Review Criteria

Review of the analytical data and Laboratory Review Checklist (LRC) for the January 2003 sampling event was performed using the specifications, acceptance criteria, and corrective action requirements listed in Section B.5.1.16 (metals by EPA method 6020B) and Section B.5.1.19 (mercury by EPA method 7471) in the SCS QAPP. The LRC review criteria evaluated for the data package summary forms include initial calibration, initial and continuing calibration verification, internal standard data, interference check standard data, serial dilution, and post-digestion spike data.

2.1 Initial Calibration

The SCS QAPP contains the QC acceptance criteria for initial calibration for the analytical methods required for this project. If the LRC indicated that the initial calibration for any analyte did not meet the acceptance criteria, the Exception Report (ER) was evaluated and all results for that analyte associated with the initial calibration were qualified as estimated (J for positive results and UJ for non-detects) with a qualifier code of ICAL and a bias code of I for indeterminate direction of bias.

2.2 Initial and/or Continuing Calibration Verification

The SCS QAPP contains the QC acceptance criteria for initial and continuing calibration verification for the analytical methods required for this project. If the LRC indicated that the initial or continuing calibration verification for any analyte did not meet the acceptance criteria, all results for that analyte associated with the initial or continuing calibration verification were qualified as estimated (J for positive results and UJ for non-detects) with a qualifier code of ICV or CCV for inorganics and CCAL organics. If the data reviewer could determine a probable magnitude and/or direction of bias to the associated sample results, based on the information provided in the ER, the appropriate qualifier bias codes were assigned.

2.3 Internal Standard Data

The SCS QAPP contains the QC acceptance criteria for internal standard area counts for GC/MS organic analysis and internal standard quantitation methods for the analytical method required for this project. If the ER indicates that internal standard area counts for a given internal standard compound are below the lower acceptance limit, non-detect results for analytes quantified using the given internal standard were qualified as estimated (UJ). Positive results were not qualified in this circumstance. If the ER indicates that internal standard area counts for a given internal standard compound are above the upper acceptance limit, results for analytes quantified using the given internal standard were qualified as estimated (J for positive results and UJ for non-detects). The qualifier code IS was added to all results qualified on the basis of internal standard failures.

2.4 ICP Interference Check Sample

For analytes present in the ICS sample, the percent recoveries were compared to the acceptance range of 80-120%. For analytes not present in the ICS sample, the absolute value of the result was compared to the acceptance criterion of less than the method quantitation limit for the analyte. Sample results were reviewed to determine if interferent concentrations on the order of the concentrations in the ICS samples (A and AB) were present. Where interferent elements were present at a concentration greater than or equal to their concentration in the ICS, results were qualified as follows:

- If the ICS recovery of an analyte was above 120%, positive results were qualified J with a positive bias. Non-detect results required no qualifier.
- If the ICS recovery of an analyte was below 80%, results for that analyte were qualified estimated (J for positive results and UJ for non-detects).
- If the ER indicates that analytes not actually present in the ICS are reported above the SQL, the potential magnitude and bias of the effect was evaluated for samples containing interfering elements.

- If the concentration in the ICS was greater than 25% of an associated sample result, the result was qualified J with a positive bias. Non-detect results required no qualifier.

- If a negative result was reported and the absolute value in the ICS was greater than 25% of an associated sample result, the result was qualified estimated (J for positive results and UJ for non-detects) with a potential low bias.

- If ICS recovery result for an analyte was less than 50%, the associated results for that analyte were qualified unusable (R).

The qualifier code ICS was added to all results qualified on the basis of ICS results.

2.5 ICP Serial Dilution

An ICP serial dilution was analyzed on one sample in each analytical batch to evaluate the presence of significant physical or chemical interferences due to the sample matrix where the result for at least one analyte was at least 10X the IDL. If the percent difference between the diluted and the original result was greater than 10%, all associated results for affected analytes were qualified as estimated (J for positive results and UJ for non-detects) in accordance with the National Functional Guidelines (NFG) for Inorganics. The qualifier code DL was added to all results qualified on the basis of serial dilution results.

2.6 Post-Digestion Spike Analysis

When a result for an analyte in the post-digestion spike analysis, which was not obtained by Method of Standard Additions, exceeded the QAPP acceptance range of 70-130%, the results for the analyte in the associated sample were qualified based on the following criteria:

- If recovery was >130%, positive results were qualified J. Non-detect results required no qualifier.

- If recovery was <70%, positive results were qualified J (J for positive results and UJ for non-detects).

3. Laboratory Data Package Review Criteria

The January 2003 sampling data were reviewed for the following items, as applicable: chain-of-custody documentation, sample holding times, detection limits and method reporting limits, method/rinsate/equipment/trip blank data, field duplicates, surrogate recovery data, laboratory control sample, and matrix/matrix spike duplicates. Each of these items was compared to the specifications, acceptance criteria, and corrective action requirements listed in Section B.5.1.16 (metals by EPA method 6020B) and Section B.5.1.19 (mercury by EPA method 7471) in the SCS QAPP. A checklist of the review criteria was created for each method in each batch of data. By completing the checklist, the data reviewer identified whether or not the laboratory or sampler met, or failed to meet, the review criteria stipulated in the SCS QAPP or the method. Checklists are included with the data packages in Appendix A. A summary table of comments and data qualifiers generated during the review is also included with each data package in Appendix A.

3.1 Holding Times

Holding times were calculated by computing the difference between the sample collection date found on the chain-of-custody form and the sample analysis date found on the sample test reports. The holding times were compared to the holding time requirements contained in the QAPP or analytical method. Results for analyses not performed within holding time limits were qualified as estimated (J for positive results and UJ for non-detects). The qualifier code HT was added to all results qualified because of holding time exceedances.

3.2 Blanks

The results for method blanks, rinsate blanks, preparation blanks, and calibration blanks were reviewed. Sample results for analytes detected in an associated blank at concentrations less than five times the blank concentration were qualified as non-detect (U). Negative blank concentrations were evaluated for potential effects (low bias) on sample data when the absolute value of the negative concentration was greater that the analyte method quantitation limit. If the

negative concentration in a blank may have produced more than a 25% effect on a reported sample result, the associated sample result was qualified as estimated (J for positive results and UJ for non-detects). Qualifiers caused by contamination in a preparation blank were carried forward to all samples prepared with that given blank. If contamination was found in a continuing calibration blank, the samples preceding that blank and following that blank were evaluated for potential effects. The appropriate qualifier code, MB, FB, RB, or CCB was added to all results qualified because of blank data.

3.3 Laboratory Duplicate Sample Analysis

Results for the duplicate sample (laboratory duplicate or matrix spike duplicate) analyses were compared to the acceptance criteria in QAPP Element D.1.1. The Relative Percent Difference (RPD) criterion (≤40% for organics and ≤30% for inorganics) was applied in cases in which both the sample and duplicate results were greater than 5 times the method quantitation limit. Where results for analytes in one or both of the duplicate samples were less than 5 times the MQL, satisfactory precision was indicated if the absolute difference between the results was less than 2 times the higher SQL for soil samples or 1 times the higher SQL for aqueous samples. When the above criteria were not met for an analyte, all associated sample data for that analyte was qualified estimated (J) and the qualifier code of D was added to all results qualified because of duplicate precision failures.

3.4 Field Duplicate Results

Results for the field duplicate sample analyses were compared to concentration-dependent acceptance criteria. The Relative Percent Difference (RPD) criterion, ≤30% for aqueous and ≤50% for soils, was applied in cases in which both the sample and duplicate results were greater than 5 times the method quantitation limit. Where results for analytes in one or both of the field duplicate samples were less than 5 times the MQL, satisfactory precision was indicated if the field duplicate results agreed within 3.5 times the higher SQL for soil samples or 2 times the higher SQL for aqueous samples. When the above criteria were not met for an analyte, all

associated sample data for that analyte were qualified estimated (J) and FD was added to all results qualified because of duplicate precision failures.

3.5 Matrix Spike Sample Analysis

The analyte recoveries obtained for matrix spike analyses were compared to the acceptance range of 70-130% for inorganics and 60-140% for organics specified in the QAPP or analytical method for cases in which the native sample concentration was less than 4 times the spike concentration. When sample concentrations are greater than 4 times the spiking concentrations, the results are considered inappropriate for assessing accuracy. Data associated with matrix spike recoveries exceeding the acceptance range were qualified in accordance with the SCS QAPP. All positive results for an analyte having a matrix spike recovery >130% for inorganics or >140% for organics were qualified estimated (J). Non-detect results were not qualified. Results for an analyte where the matrix spike recovery was less than the lower limit of 70% for inorganics or 60% for organics, but >30% for inorganics or >10% for organics, were qualified estimated (J for positive results and UJ for non-detects). Positive results for an analyte where the matrix spike recovery was less than 30% for inorganics or 10% for organics were qualified estimated, J, and non-detect results were qualified as unusable, R. The qualifier code MS was added to all results qualified because of matrix spike recoveries.

3.6 Laboratory Control Sample (LCS) Results

The analyte recoveries obtained for LCS analyses were compared to the acceptance range of 70-130% for inorganics and 60-140% for organics specified in the QAPP or analytical method. All positive results for an analyte having an LCS recovery >130% were qualified estimated (J). Non-detect results were not qualified. Results for an analyte where the LCS recovery was less than the lower limit (60% or 70%), but >30%, were qualified estimated (J for positive results and UJ for non-detects). Results for an analyte where the LCS recovery was less than 30% were qualified as unusable (R) as specified by the SCS QAPP. The qualifier code LCS was added to all results qualified because of LCS recoveries.

4. Data Validation Criteria

The data validation was performed by evaluating initial calibration data, initial and continuing calibration verification results, internal standard data, internal standard responses, mass spectral tuning, interference check sample results, serial dilution analysis, post-digestion spike data, holding times, blank contamination, and matrix spike and laboratory control sample results. SCS QAPP criteria were applied in the validation, which are partially summarized in Section 2 of this report. If the requirements for a parameter were not specifically covered in the QAPP, guidance was taken from the NFG and/or the analytical method.

5. Data Review Results

The results of the data review process are summarized in this section. Table 1.1 summarizes the samples that were collected and reviewed as part of the January 2003 sampling event at the Former Martin Brick Quarry Brownfield site. Only those problems noted during the review that required qualifying the data are discussed in this section. A summary table of comments and data qualifiers generated during the review is also included with each data package in Appendix A. Please note that the CAS laboratory placed a "B" qualifier on all metal results that were detected between the method detection limit (MDL) and the method reporting limit (MRL). These qualifiers were changed to "J" qualifiers by the data reviewer.

5.1 Review of the Laboratory Review Checklist (LRC)

The laboratory provided a LRC with each job number, which included a summary of exceptions and discrepancies and was signed by the laboratory QA officer. The evaluation of laboratory performance criteria and sample-specific criteria were conducted as summarized above in Sections 2.0 and 3.0, respectively.

5.2 Holding Times

All samples were prepared and analyzed within the required holding times.

5.3 Blanks

All method, equipment, trip, and calibration blanks were within acceptance criteria.

5.4 Laboratory Duplicate Sample Analysis

Duplicate sample precision results were either less than the MQL or the RPDs were within acceptance criteria for this sampling event.

5.5 Field Duplicate Result Agreement

A field duplicate was collected at one soil sampling location during the January 2003 sampling event. Table 1.1 summarizes where the duplicate sample was collected and the requested analyses. All results for the duplicate pair were either less than the MQL or the relative percent differences (RPDs) were within acceptance criteria specified in the SCS QAPP with the following exceptions:

Job Number J2300038

- For metals by EPA method 6020B, the field duplicate RPD was outside control limits for chromium. Associated samples were qualified as estimates (J/UJ) for this analyte. Samples that required qualification include HA-1, HA-2, HA-3, HA-4, HA-5, HA-6, HA-7, HA-8, HA-9, Duplicate, and MW-1.

5.6 Matrix Spike Sample Analysis

Matrix spike and matrix spike duplicate (MS/MSD) results were within acceptance criteria for January 2003 sampling event with the following exceptions:

Job Number J2300038

- For metals by EPA method 6020B, the RPD between the MS and MSD was outside of control limits for barium. Since the MS/MSD percent recoveries and the LCS for barium were all within control limits, professional judgment was used to determine qualification is not necessary.

5.7 Laboratory Control Sample (LCS)

- LCS results were within acceptance criteria for the January 2003 sampling event.

6. Data Validation Results

The laboratories appear to have adequate QA systems in place that are designed to ensure the accurate reporting of analytical results generated by the laboratory. No transcription or calculation errors were found. All instances in which the analytical QC results fell outside of the acceptance criteria were fully and correctly reported in the Laboratory Review Checklist. A summary of those data validation items which caused associated data to be qualified are summarized below. A list of qualifiers applied to each job number is included with the data packages presented in Appendix A.

6.1 Initial Calibration Data

Calibrations met minimal SW846 method requirements for all analytical batches analyzed in the January 2003 sampling event.

6.2 Calibration Verification

Calibration verifications met minimal SW846 method requirements for all analytical batches analyzed in this sampling event.

6.3 Internal Standard Data

All internal standard performance for samples, blanks, check standards, and standards met acceptance criteria.

6.4 Mass Spectral Tuning

Mass tuning was performed with acceptable results prior to the analysis of each sample batch.

6.5 ICP Interference Check Sample (ICS)

Interference check sample results were within acceptance criteria.

6.6 ICP Serial Dilution

Serial dilution results were within acceptance criteria for this sampling event.

6.7 Post-Digestion Spike (PDS) Recoveries

PDS results were within acceptance criteria for this sampling event.

6.8 Tentatively Identified Compounds

Tentatively identified compounds and volatile organics were not analyzed for in the January 2003 sampling event.

11. Rejected Data and Project Consequences

All data collected during the January 2003 sampling event are considered usable and acceptable for making project decisions.

12. Conclusions

With the exception of the limitations noted in Sections 8 and 11, the data are considered to be usable for making project decisions. For end uses of the data other than those for which decision criteria are specified in Section 7, the end user of the data should perform a data quality assessment relative to their specific end use objectives and should perform an evaluation of whether the analytical data are sufficiently representative of the medium under evaluation for their specific data use.

13. References

Environmental Protection Agency (EPA) 1994. USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Data Review. EPA540/R-94/013. February.

Environmental Protection Agency (EPA) 1999. USEPA Contract Laboratory Program, National Functional Guidelines for Organic Data Review. EPA540/R-99/008. October.

Texas Natural Resource Conservation Commission (TNRCC) 2002. Superfund Cleanup Section, Remediation Division, Quality Assurance Project Plan, Revision 2.0. Document Control No. 200919.2. March 28.

Comments And Data Qualifiers Generated During Review And Validation
Former Martin Brick Quarry – CAS Job Number J2300038

Job Number	Analysis	Samples	Analyte	Qualifier	Reason for Qualification
J2300038	Metals 6020B	J2300033 - 001 to 011	Barium	Not Qualified	The RPD for the MS and MSD was outside of control limits. Since the MS/MSD and LCS were within limits, professional judgment was used to determine qualification was not necessary.
			Chromium	J for detects UJ for non-detects	Field duplicate RPD is outside of control limits. All associated data were qualified as estimates.
	Mercury 7471	J2300033 - 001 to 011	N/A	N/A	No problems noted with mercury analyses.

Terms

MS/MSD: Matrix Spike/Matrix Spike Duplicate
QAPP: Quality Assurance Project Plan
RPD: Relative Percent Difference
SCS: Superfund Cleanup Section

Daniel B. Stephens & Associates, Inc.

DATA REVIEW - GENERAL	
Project Name: Formy Martin Quarry	Date: 1/22/03
Project Number: 8439	Reviewer Name: L. Rottinghaus
Laboratory Name: CAS Jacksonville	Batch Number: J2300038

LABORATORY REVIEW CHECKLIST

Is the laboratory review checklist present?	yes ☑	no ☐	n/a ☐
Is it signed and dated?	yes ☑	no ☐	n/a ☐
Does it clearly identify all problems?	yes ☑	no ☐	n/a ☐

CHAIN OF CUSTODY DOCUMENTATION (C-O-C)

Is the C-O-C present?	yes ☑	no ☐	n/a ☐
Is it signed and dated by the relinquisher?	yes ☑	no ☐	n/a ☐
Is it signed and dated by the receiver?	yes ☑	no ☐	n/a ☐
Are all the samples included on the C-O-C?	yes ☑	no ☐	n/a ☐
Are all the samples maintained at 4°C ± 2°C?	yes ☑	no ☐	n/a ☐
Are all samples requiring chemical preservation preserved?	yes ☑	no ☐	n/a ☐
Are all samples in the appropriate containers?	yes ☑	no ☐	n/a ☐
Are there any other problems noted on the C-O-C?	yes ☐	no ☑	n/a ☐

SAMPLE AND QUALITY CONTROL IDENTIFICATION

Are the field sample ID #'s cross-referenced with the laboratory ID #'s ?	yes ☑	no ☐	n/a ☐
Are all the laboratory ID #'s cross-referenced to the corresponding QC data?	yes ☑	no ☐	n/a ☐

Daniel B. Stephens & Associates, Inc.

DATA REVIEW - METHOD 6020B	
Project Name: Former Martin Quarry	Date: 1/22/03
Project Number: 8439	Reviewer Name: Lisa Rottinghaus
Laboratory Name: CAS Jacksonville	Batch Number: J2300038

TEST REPORTS

Are all samples prepared and analyzed within 180 days?	yes ☑	no ☐	n/a ☐
Are sample quantitation limits reported for all analytes not detected?	yes ☑	no ☐	n/a ☐
Are results reported on a dry weight basis, if applicable?	yes ☑	no ☐	n/a ☐

TEST REPORTS FOR BLANK SAMPLES

Is there one method blank per analytical batch?	yes ☑	no ☐	n/a ☐
Is method blank free of detected analytes?	yes ☑	no ☐	n/a ☐
Are there any equipment/rinsate/field blanks present?	yes ☐	no ☑	n/a ☐
Are the equipment/rinsate/field blanks free of detected analytes?	yes ☐	no ☐	n/a ☑

LABORATORY CONTROL SAMPLE (LCS) DATA

Is there one laboratory control sample per analytical batch?	yes ☑	no ☐	n/a ☐
Does it contain all project required analytes?	yes ☑	no ☐	n/a ☐
Are the LCS recoveries within 30% of expected value?	yes ☑	no ☐	n/a ☐

MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE(MSD) DATA

Is native sample concentration less than four times spike concentration?	yes ☑	no ☐	n/a ☐
Is a sample designated on the C-O-C as an MS/MSD?	yes ☑	no ☐	n/a ☐
Is there a MS/MSD ran on a project sample?	yes ☑	no ☐	n/a ☐
Is there one MS/MSD per analytical batch?	yes ☑	no ☐	n/a ☐
Do the MS/MSD contain all project required analytes?	yes ☑	no ☐	n/a ☐
Do the MS/MSD recoveries attain the required criteria for accuracy (30%)?	yes ☑	no ☐	n/a ☐
Does the MS/MSD attain the required criteria for precision (30%)?	yes ☐	no ☑	n/a ☐

RPD for Barium outside limits. MS/MSD and LCS w/i limits. Professional judgment used to not qualify results.

LABORATORY DUPLICATE DATA (Lab Duplicate or MSD)

Are sample results greater than five times quantitation limit?	yes ☑	no ☐	n/a ☐
If yes, are recoveries within 30% of expected value?	yes ☑	no ☐	n/a ☐
Is the RPD within 30% of expected value?	yes ☐	no ☐	n/a ☑

FIELD DUPLICATE DATA

Are there any field duplicates present?	yes ☑	no ☐	n/a ☐
Do %RPD values attain required criteria for precision (refer to pD14 of QAPP)?	yes ☐	no ☑	n/a ☐

J2300038-010 dup of HA-8 – CR (51%) & lead (38%)
qualify CR as J/UJ.

METHOD QUANTITATION LIMITS (MQLs)

Are the lab reporting limits less than or equal to project action levels?	yes ☑	no ☐	n/a ☐

Daniel B. Stephens & Associates, Inc.

DATA VALIDATION - METHOD 6020B	
Project Name: Former Martin Quarry	Date: 1/22/03
Project Number: 8439	Reviewer Name: Lisa Rottinghaus
Laboratory Name: CAS Jacksonville	Batch Number: J2300038

INITIAL CALIBRATION

Does the package contain the initial multipoint calibration results? yes ☑ no ☐ n/a ☐
Is the correlation coefficient > 0.995 for linear regression? yes ☑ no ☐ n/a ☐
IC meets method requirements

CALIBRATION VERIFICATION

Is there an ICV ran after initial calibration and are all analytes within ±10%? yes ☑ no ☐ n/a ☐
Are there CCVs run after every 10 samples and at the end of analysis? yes ☑ no ☐ n/a ☐
Are all CCV analytes within ±10% of expected value? yes ☑ no ☐ n/a ☐
Is a calibration blank run after every CCV? yes ☑ no ☐ n/a ☐
Were any analytes detected in the CCB? yes ☑ no ☐ n/a ☐
some analytes detected in CCB at concentrations btwn MDL and MRL.

TEST REPORTS FOR BLANK SAMPLES

Is there one method blank per analytical batch? yes ☑ no ☐ n/a ☐
Is method blank free of detected analytes? yes ☑ no ☐ n/a ☐
Are there any equipment/rinsate/field blanks present? yes ☐ no ☑ n/a ☐
Are the equipment/rinsate/field blanks free of detected analytes? yes ☐ no ☐ n/a ☑

INTERFERENCE CHECK STANDARD

Was an ICS run at the beginning/end of each analytical sequence? yes ☑ no ☐ n/a ☐
Are all analytes within ±20% of expected value? yes ☑ no ☐ n/a ☐

INTERNAL STANDARD

Where internal standards run for every sample? yes ☑ no ☐ n/a ☐
Are all results within control limits specified in the method? yes ☑ no ☐ n/a ☐

TEST REPORTS

Are all samples prepared and analyzed within 180 days? yes ☑ no ☐ n/a ☐
Are sample quantitation limits reported for all analytes not detected? yes ☑ no ☐ n/a ☐
Are results reported on a dry weight basis? yes ☑ no ☐ n/a ☐

Daniel B. Stephens & Associates, Inc.

DATA REVIEW - METHOD 7470A/7471A	
Project Name: Former Martin Dairy	Date: 1/22/03
Project Number:	Reviewer Name: L. Rottinghaus
Laboratory Name:	Batch Number: J23000038

TEST REPORTS

Are all samples prepared and analyzed within 28 days?	yes ☑	no ☐	n/a ☐
Are sample quantitation limits reported for all analytes not detected?	yes ☑	no ☐	n/a ☐
Are results reported on a dry weight basis?	yes ☑	no ☐	n/a ☐

TEST REPORTS FOR BLANK SAMPLES

Is there one method blank per analytical batch?	yes ☑	no ☐	n/a ☐
Is method blank free of detected analytes?	yes ☑	no ☐	n/a ☐
Are there any equipment/rinsate blanks present?	yes ☐	no ☑	n/a ☐
Are the equipment/rinsate blanks free of detected analytes?	yes ☐	no ☐	n/a ☑

LABORATORY CONTROL SAMPLE (LCS) DATA

Is there one laboratory control sample per analytical batch?	yes ☑	no ☐	n/a ☐
Does it contain all project required analytes?	yes ☑	no ☐	n/a ☐
Are the LCS recoveries within 70-130% of expected value?	yes ☑	no ☐	n/a ☐

MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD) DATA

Is a sample designated on the C-O-C as an MS/MSD?	yes ☑	no ☐	n/a ☐
Is there a MS/MSD ran on a project sample?	yes ☑	no ☐	n/a ☐
Is there one MS/MSD per analytical batch?	yes ☑	no ☐	n/a ☐
Do the MS/MSD contain all project required analytes?	yes ☑	no ☐	n/a ☐
Are the MS/MSD recoveries within 77-120% of expected value?	yes ☑	no ☐	n/a ☐
Does the MS/MSD attain the required criteria for precision?	yes ☑	no ☐	n/a ☐

FIELD DUPLICATE DATA

Are there any field duplicates present? yes☑ no☐ n/a☐

Do %RPD values attain required criteria for precision? yes☑ no☐ n/a☐

J2300038-10 dup HA-B - ok

METHOD QUANTITATION LIMITS (MQLs)

Are the lab reporting limits less than or equal to project action levels? yes☑ no☐ n/a☐

Daniel B. Stephens & Associates, Inc.

DATA VALIDATION - METHOD 7470A/7471A	
Project Name: Former Martin Quarry	Date: 1/22/03
Project Number: 8439	Reviewer Name: L. Rottinghaus
Laboratory Name: CAS Jacksonville	Batch Number: J2300038

INITIAL CALIBRATION

Does the package contain the initial multipoint calibration results?	yes ☑	no ☐	n/a ☐
Is the correlation coefficient > 0.995 for linear regression?	yes ☑	no ☐	n/a ☐

CALIBRATION VERIFICATION

Are there CCVs run after every 10 samples and at the end of analysis?	yes ☑	no ☐	n/a ☐
Are all CCV analytes within ±10% of expected value?	yes ☑	no ☐	n/a ☐
Is a calibration blank run after every CCV?	yes ☑	no ☐	n/a ☐
Are all CCB analytes less than the reporting limit?	yes ☑	no ☐	n/a ☐

TEST REPORTS FOR BLANK SAMPLES

Is there one method blank per analytical batch?	yes ☑	no ☐	n/a ☐
Is method blank free of detected analytes?	yes ☑	no ☐	n/a ☐
Are there any equipment/rinsate/field blanks present?	yes ☐	no ☑	n/a ☐
Are the equipment/rinsate/field blanks free of detected analytes?	yes ☐	no ☐	n/a ☑

TEST REPORTS

Are all samples prepared and analyzed within 180 days?	yes ☑	no ☐	n/a ☐
Are sample quantitation limits reported for all analytes not detected?	yes ☑	no ☐	n/a ☐
Are results reported on a dry weight basis?	yes ☑	no ☐	n/a ☐

LABORATORY CONTROL SAMPLE (LCS) DATA

Is there one laboratory control sample per analytical batch?	yes ☑	no ☐	n/a ☐
Does it contain all project required analytes?	yes ☑	no ☐	n/a ☐
Are the LCS/LCSD recoveries within 30% of expected value?	yes ☑	no ☐	n/a ☐
Does the LCS/LCSD attain the required criteria for precision (30%)?	yes ☐	no ☐	n/a ☑

MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD) DATA

Is the review of MS/MSD data applicable (native concentration less than four times spike concentration)?	yes ☑	no ☐	n/a ☐
Is a sample designated on the C-O-C as an MS/MSD?	yes ☑	no ☐	n/a ☐
Is there a MS/MSD ran on a project sample?	yes ☑	no ☐	n/a ☐
Is there one MS/MSD per analytical batch?	yes ☑	no ☐	n/a ☐
Do the MS/MSD contain all project required analytes?	yes ☑	no ☐	n/a ☐
Are the MS/MSD recoveries within 30% of expected value?	yes ☑	no ☐	n/a ☐
Does the MS/MSD attain the required criteria for precision (30%)?	yes ☑	no ☐	n/a ☐

DILUTION TEST/POST DIGESTION SPIKE

Was a dilution test run for each matrix in each analytical batch?	yes ☑	no ☐	n/a ☐
Is dilution test recovery within ±30% of original sample?	yes ☑	no ☐	n/a ☐
Is a post digestion spike performed when dilution test fails?	yes ☑	no ☐	n/a ☐
Are PDS recoveries within ±30% of expected value?	yes ☑	no ☐	n/a ☐

LABORATORY DUPLICATE DATA (Lab Duplicate or MSD)

Are sample results greater than five times the quantitation limit?	yes ☑	no ☐	n/a ☐
If yes, are recoveries within 30% of expected value?	yes ☑	no ☐	n/a ☐
Is the RPD within 30% of expected value?	yes ☑	no ☐	n/a ☐

FIELD DUPLICATE DATA

Are there any field duplicates present?	yes ☑	no ☐	n/a ☐
Do %RPD values attain required criteria for precision (refer to page D14 of QAPP)?	yes ☑	no ☐	n/a ☐

METHOD QUANTITATION LIMITS (MQLs)

Are the lab reporting limits less than or equal to project action levels?	yes ☑	no ☐	n/a ☐
Are the laboratory MDL studies current?	yes ☑	no ☐	n/a ☐

Columbia Analytical Services INC.
An Employee-Owned Company

January 13, 2003

Service Request No. J2300038

Bill Green
Daniel B Stephens & Associates, Inc.
8403 Cross Park Drive Suite 1A
Austin, TX 78754

RE: Certified Analytical Report for
Project No.: 8439-0000.00
Project Name: Former Martin Quarry

Dear Bill Green:

Enclosed are the results of the samples(s) submitted to our laboratory on January 08, 2003. For your reference, these analyses have been assigned our service request number: J2300038.

All analyses were performed according to our laboratory's quality assurance program. NELAP requirements were met unless footnotes in each sample report indicate otherwise. Estimates regarding the degree of uncertainty in measurements can be inferred from the accuracy limits in the laboratory QA manual. However, these limits do not account for possible matrix effects. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Joe Wiegel
Project Manager

CAS Jacksonville is NELAC-accredited by the State of Florida (E82502). Other state accreditations include: AR, AR; LA, AI 30759; MA, M-FL937; NC, 527; SC, 96021; WA, C278.

8540 Baymeadows Rd. - Jacksonville, FL 32256 (904) 739-2277 - Fax (904) 739-2...

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Non-CLP Tier IV (Tier IV w/ Raw Data)

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This report contains a total of 150 pages

Columbia Analytical Services, Inc.

DATA PACKAGE SIGNATURE PAGE

This Data Package consists of:

☑ This signature page and the following Reportable Data:

- ☑ R1 Field Chain-of-Custody:
- ☑ R2 Cross Reference by Field ID # to Laboratory ID # in alphanumeric order;
- ☑ R3 Test Reports (Analytical Data Sheets) for each environmental sample that includes:
  - a) all items listed in NELAC 5.13,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☑ R4 Surrogate Recovery Data (for organic procedures only) including:
  - a) surrogate spiking amounts,
  - b) concentration of surrogate measured in sample,
  - c) calculated %R, and
  - d) the laboratory's surrogate QC acceptance criteria.
- ☑ R5 Test Reports for Blank Samples;
- ☑ R6 Laboratory Control Sample (LCS) Data including:
  - a) LCS spiking amounts,
  - b) concentration of each analyte measured in LCS,
  - c) calculated %R for each analyte, and
  - d) the laboratory's LCS QC acceptance criteria
- ☑ R7 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Data including:
  - a) samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) concentration of each MS/MSD analyte measured in sample,
  - d) calculated %Rs and %RPDs, and
  - e) the laboratory's MS/MSD QC acceptance criteria
- ☑ R8 Analytical Duplicate Recovery and Precision, if applicable, including:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated %RPD, and
  - c) the laboratory's QC acceptance criteria for analytical duplicates.
- ☑ R9 Method Quantitation Limit (MQL) for each analyte;
- ☑ R10 If required for the project, the validation results for non-reference methods;

☑ the completed Laboratory Review Checklist; and

☑ an Exception Report for each item in the Laboratory Review Checklist noted with "No" or "Not Reviewed (NR)".

Release Statement: "I am the laboratory manager, or his/her designee, and I am responsible for the release of this data package. I affirm that this data package has been reviewed and is complete and technically compliant with the requirements of the methods used, except where noted in the attached Exception Report. I further affirm to the best of my knowledge that all problems/anomalies observed by this laboratory, or if applicable, any and all subcontracted laboratories, that might affect the quality of the data have been identified in the Laboratory Review Checklist, and no information or data has been withheld that would affect the quality of the data."

Joe Wiegel
Name (printed)

Joe Wiegel
Signature

1/14/03
Date

Lab Director
Official Title (printed)

Columbia Analytical Services, Inc.

TNRCC
LABORATORY REVIEW CHECKLIST – Chain of Custody Information

Laboratory Name:	CAS - Jacksonville	Date:	Jan. 14, 03
Project Name/Number:	Former Martin Quarry/8439-000.00	Laboratory SDG Number:	J2300038
Project Manager Name:	Joe Wiegel	Batch Number(s):	J2300038

#[1]	Analysis[2]	Description	Yes	No	NA[3]	NR[4]	ER #[5]
		CHAIN-OF-CUSTODY (C-O-C)					
		1) Were all samples included on a completed C-O-C?	☒	☐	☐	☐	
		2) Did the samples requiring chemical preservation arrive at the laboratory preserved?	☒	☐	☐	☐	
		3) Were samples requiring thermal preservation within temperature specs at log-in?	☒	☐	☐	☐	
R1	OI	4) Were the samples in the appropriate containers?	☒	☐	☐	☐	
		SAMPLE AND QUALITY CONTROL (QC) IDENTIFICATION					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	☒	☐	☐	☐	
R2	OI	2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	☒	☐	☐	☐	

1 Items identified by the letter "R" should be submitted to TNRCC in the *Data Package*. Items identified by the letter "S" should be retained and made available to the TNRCC upon request for a period of three years after the data are submitted.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3 NA = Not applicable;
4 NR = Not Reviewed;
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked.

TNRCC
Exception Reports – Chain of Custody Information

Laboratory Name:	CAS - Jacksonville	Date:	Jan. 14, 03
Project Name/Number:	Former Martin Quarry/8439-000.00	Laboratory SDG Number:	J2300038
Project Manager Name:	Joe Wiegel	Batch Number(s):	J2300038

ER#	Description

Columbia Analytical Services, Inc.

TNRCC
LABORATORY REVIEW CHECKLIST – Metals

Laboratory Name:	CAS - Jacksonville	Date:	Jan. 14, 03
Project Name/Number:	Former Martin Quarry/8429-0000.00	Laboratory SDG Number:	J2300038
Data Reviewer Name:	Joe Wiegel	Batch Number(s):	J2300038

#[1]	Analysis[2]	Description	Yes	No	NA[3]	NR[4]	ER #[5]
		TEST REPORTS					
		1) Were samples prepared and analyzed within holding times?	☒	☐	☐	☐	
		2) Were reported results within calibration range?	☒	☐	☐	☐	
		3) Were all calculations verified?	☒	☐	☐	☐	
		4) Were all analyte identifications verified?	☒	☐	☐	☐	
		5) Were sample quantitation limits reported for all analytes not detected?	☒	☐	☐	☐	
		6) If required for the project, were the tentatively identified compounds reported?	☒	☐	☐	☐	
R3	OI	7) Were results reported on a dry weight basis?	☒	☐	☐	☐	
		SURROGATE RECOVERY DATA					
		1) Were surrogates added prior to extraction?	☐	☐	☒	☐	
R4	O	2) Were surrogate percent recoveries in all samples within the laboratory QC acceptance criteria?	☐	☐	☒	☐	
		TEST REPORTS FOR BLANK SAMPLES					
		1) Were appropriate type(s) of blanks analyzed?	☒	☐	☐	☐	
		2) Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	☒	☐	☐	☐	
R5	OI	3) Were blanks free of detected compounds?	☐	☒	☐	☐	ER5-3
		LABORATORY CONTROL SAMPLES (LCSs)					
		1) Was each LCS prepared from a source external to the calibration standards?	☒	☐	☐	☐	
		2) Were all project-required analytes included in the LCS?	☒	☐	☐	☐	
		3) Was each LCS taken through the entire analytical procedure, including preparation and, if applicable, cleanup procedures?	☒	☐	☐	☐	
		4) Were LCSs analyzed at the required frequency?	☒	☐	☐	☐	
R6	OI	5) Were LCS percent recoveries within the laboratory QC acceptance criteria?	☒	☐	☐	☐	
		MATRIX SPIKE (MS) and MATRIX SPIKE DUPLICATE (MSD) DATA					
		1) Were all project-required analytes included in the MS and MSD?	☒	☐	☐	☐	
		2) Were MS/MSD analyzed at the appropriate frequency?	☒	☐	☐	☐	
		3) Were MS percent recoveries within the laboratory QC acceptance criteria?	☒	☐	☐	☐	
R7	OI	4) Were MSD percent recoveries and relative percent differences (RPDs) within the laboratory QC acceptance criteria?	☒	☐	☐	☐	
		ANALYTICAL DUPLICATE DATA					
		1) Were appropriate analytical duplicates analyzed for each matrix?	☒	☐	☐	☐	
		2) Were analytical duplicates analyzed at the appropriate frequency?	☒	☐	☐	☐	
R8	OI	3)Were RPDs or relative standard deviations within the laboratory QC acceptance criteria?	☒	☐	☐	☐	
		METHOD QUANTITATION LIMITS (MQLs)					
R9	OI	1) Is the concentration of the lowest non-zero calibration standard in the calibration curve reported?	☒	☐	☐	☐	
		VALIDATION RESULTS FOR NON-REFERENCE METHODS					
R10	OI	1) Were all samples prepared and analyzed using a Reference Method?	☒	☐	☐	☐	
		OTHER PROBLEMS/ANOMALIES					
R11	OI	1) Are all known problems, anomalies or special conditions (e.g., use of minimum analytical limits) associated with the data noted in the Laboratory Review Checklist and Exception Reports?	☒	☐	☐	☐	

Reviewed by: Int. [illegible] **Date:** 1/14/03

Columbia Analytical Services, Inc.

TNRCC
LABORATORY REVIEW CHECKLIST – Metals

Laboratory Name:	CAS - Jacksonville	Date:	Jan. 14, 03
Project Name/Number:	Former Martin Quarry/8429-0000.00	Laboratory SDG Number:	J2300038
Data Reviewer Name:	Joe Wiegel	Batch Number(s):	J2300038

#[1]	Analysis[2]	Description	Yes	No	NA[3]	NR[4]	ER #[5]
		INITIAL CALIBRATION (ICAL) AND ICAL VERIFICATIONS (ICV)					
		1) Were response factors (RFs) and/or relative response factors (RRFs) within the method required QC acceptance criteria?	☒	☐	☐	☐	
		2) Were percent RSDs or correlation coefficient criteria met?	☒	☐	☐	☐	
		3) Were the number of standards recommended in the method used for all analytes?	☒	☐	☐	☐	
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	☒	☐	☐	☐	
		5) Are ICV data available for all instruments used?	☒	☐	☐	☐	
S1	OI	6) Has the calibration curve been verified using a NIST-traceable second source?	☒	☐	☐	☐	
		CONTINUING CALIBRATION VERIFICATION (CCV)					
		1) Was the CCV analyzed at the method-required frequency?	☒	☐	☐	☐	
		2) Were percent differences within the method-required QC acceptance criteria?	☒	☐	☐	☐	
S2	OI	3) Was the ICAL curve verified for each analyte of interest?	☒	☐	☐	☐	
		MASS SPECTRAL TUNING					
		1) Was the appropriate compound for the method used for tuning?	☐	☐	☒	☐	
S3	O	2) Were ion abundance data within the method-required QC acceptance criteria?	☐	☐	☒	☐	
		INTERNAL STANDARD (IS)					
		1) Were IS area counts within the method-required QC acceptance criteria?	☒	☐	☐	☐	
S4	OI	2) Were IS retention times within the method-required QC acceptance criteria?	☒	☐	☐	☐	
		RAW DATA					
		1) Were the raw data (e.g., chromatograms, spectral data) reviewed by an analyst?	☒	☐	☐	☐	
S5	OI	2) Were all data associated with manual integrations flagged on the quantitation reports?	☐	☐	☒	☐	
		DUAL COLUMN CONFIRMATION					
		1) Did dual column confirmation results meet the method-required QC acceptance criteria?	☐	☐	☒	☐	
S6	O	2) Were all percent differences less than 25%?	☐	☐	☒	☐	
		TENTATIVELY IDENTIFIED COMPOUNDS (TICs)					
S7	O	1) TICs were requested, were the mass spectra and TIC data reviewed?	☐	☐	☒	☐	
		INTER-ELEMENT CORRECTION SOLUTION (ICS) RESULTS					
		1) Were percent recoveries within method acceptance criteria?	☒	☐	☐	☐	
S8	I	2) Were the absolute values for all analytes less than the IDL?	☒	☐	☐	☐	
		SERIAL DILUTIONS, POST DIGESTION SPIKES, AND METHOD OF STANDARD ADDITIONS					
S9	I	1) Were percent differences, recoveries, and linearity within the QC acceptance criteria specified in the method?	☒	☐	☐	☐	
		VALIDATION RESULTS FOR NON-REFERENCE METHODS					
S10	OI	1) Are all non-Reference Methods documented and validated?	☒	☐	☐	☐	
		METHOD DETECTION LIMIT (MDL) STUDIES					
S11	OI	1) Are MDL studies for each analyte in a given matrix current, on file, less than a year old?	☒	☐	☐	☐	
		STANDARDS TRACEABILITY					
S12	OI	1) Are all standards used in the analyses NIST-traceable?	☒	☐	☐	☐	
		DOCUMENTATION OF WATER AND REAGENTS QUALITY					
S13	OI	1) Is documentation of the quality of water and reagents used in the analyses on file?	☒	☐	☐	☐	

Reviewed by: Int. JW **Date:** 1/14/03

Columbia Analytical Services, Inc.

TNRCC LABORATORY REVIEW CHECKLIST – Metals			
Laboratory Name:	CAS - Jacksonville	Date:	Jan. 14, 03
Project Name/Number:	Former Martin Quarry/8429-0000.00	Laboratory SDG Number:	J2300038
Data Reviewer Name:	Joe Wiegel	Batch Number(s):	J2300038

#[1]	Analysis[2]	Description	Yes	No	NA[3]	NR[4]	ER #[5]
		COMPOUND/ANALYTE IDENTIFICATION PROCEDURES					
S14	OI	1) Are the procedures for compound identification documented?	☒	☐	☐	☐	
		DEMONSTRATION OF ANALYST CAPABILITY					
		1) Was demonstration of capability conducted according to NELAC Appendix 5C?	☒	☐	☐	☐	
		2) Is documentation of the analyst's demonstration of capability on file?	☒	☐	☐	☐	
S15	OI	3) Is documentation of the analyst's proficiency up-to-date and on file?	☒	☐	☐	☐	
		PROFICIENCY TEST REPORTS					
S16	OI	1) Are proficiency testing or inter-laboratory comparison results on file?	☒	☐	☐	☐	
		LABORATORY STANDARD OPERATING PROCEDURES (SOPs):					
S17	OI	1) Are laboratory SOPs current and on file for each method performed?	☒	☐	☐	☐	

1 Items identified by the letter "R" should be submitted to TNRCC in the *Data Package*. Items identified by the letter "S" should be retained and made available to the TNRCC upon request for a period of three years after the data are submitted.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3 NA = Not applicable;
4 NR = Not Reviewed;
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked.

Reviewed by: Int: JW **Date:** 1/14/03

Columbia Analytical Services, Inc.

TNRCC EXCEPTION REPORT – Metals			
Laboratory Name:	CAS - Jacksonville	Date:	Jan. 14, 03
Project Name/Number:	Former Martin Quarry/8429-0000.00	Laboratory SDG Number:	J2300038
Data Reviewer Name:	Joe Wiegel	Batch Number(s):	J2300038

ER#	Description
ER5-3	The Method Blank contained low levels of Chromium above the Method Detection Limit (MDL) but less than the Method Reporting Limit (MRL). All sample results for Chromium are greater than ten times the amount detected in the blank. It is the opinion of Columbia Analytical Services that the quality of the sample data is not significantly affected.

Reviewed by: Int. _____ **Date:** 1/14/03

SAMPLE CROSS-REFERENCE

J2300038

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J2300038-001	HA-1	1/7/2003	10:08
J2300038-002	HA-2	1/7/2003	10:14
J2300038-003	HA-3	1/7/2003	10:19
J2300038-004	HA-4	1/7/2003	10:24
J2300038-005	HA-5	1/7/2003	10:30
J2300038-006	HA-6	1/7/2003	10:42
J2300038-007	HA-7	1/7/2003	10:40
J2300038-008	HA-8	1/7/2003	10:48
J2300038-009	HA-9 MS	1/7/2003	10:54
J2300038-009	HA-9 MSD	1/7/2003	10:54
J2300038-009	HA-9	1/7/2003	10:54
J2300038-010	Duplicate	1/7/2003	10:48
J2300038-011	MW-1	1/7/2003	09:00

Data Qualifiers

Inorganic Data

- * The result is an outlier. See case narrative.
- # The control limit criteria are not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimated amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- Z Too many colonies were present (TNTC). The numeric value represents the filtration volume.
- i The MRL/MDL has been elevated due to matrix interference.
- X See case narrative.

Metals Data

- * The result is an outlier. See case narrative.
- # The control limit criteria are not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The reported value is estimated because of the presence of matrix interference.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The result was determined by Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data

- * The result is an outlier. See case narrative.
- # The control limit criteria are not applicable. See case narrative.
- A The tentatively identified compound is a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Petroleum Hydrocarbon Specific

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

Acronyms

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

Chain of Custody and Sample Receipt Documentation

Columbia Analytical Services INC.
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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

8540 Baycenter Rd. • Jacksonville, FL 32256 • (904) 739-2277 • 800-695-7222 x06 • FAX (904) 739-2011

J2300038

Project Name: Former MARTIN Quarry
Project Number: 8439-0000.00
Project Manager: Bill GREEN
Report CC:
Company/Address: 4611 50th, Lubbock, TX 79414
Phone #: (806) 785-7280
FAX#: (806) 792-9346
Sampler's Signature:
Sampler's Printed Name: BRENT Hogan

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

NUMBER OF CONTAINERS: 4 PCB, Total Metals

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX		
HA-1		1-7	1008	Soil	1	X
HA-2		1-7	1014		1	X
HA-3		1-7	1019		1	X
HA-4		1-7	1024		1	X
HA-5		1-7	1030		1	X
HA-6		1-7	1042		1	X
HA-7		1-7	1040		1	X
HA-8		1-7	1048		1	X
HA-9 MS/MSD		1-7	1054		1	X
Duplicate		1-7	1048	Soil	1	X

SPECIAL INSTRUCTIONS/COMMENTS
Disregard Comments on JAR —
Run All Samples.
7 Day TAT

See QAPP ☐

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ STANDARD
REQUESTED FAX DATE _____
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Speicalized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: 2.4 CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature:	Signature:	Signature:	Signature:	Signature:	Signature:
Printed Name: BRENT Hogan	Printed Name: R.M. DUNGAN	Printed Name:	Printed Name: Faith Machado	Printed Name:	Printed Name:
Firm: DBSA	Firm: DBSA	Firm:	Firm: TLAS	Firm:	Firm:
Date/Time: 1-7-03 1600	Date/Time: 1-7-03 1540	Date/Time:	Date/Time: 1/7/03 0955	Date/Time:	Date/Time:

Distribution: White - Return with Originator; Yellow - Lab Copy; Pink - Retain; Client

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PAGE 2 OF 2

SR #

CAS Contact

Project Name: Former Martin Quarry	Project Number: 8439.0000.00
Project Manager: Bill Green	Report CC:
Company/Address: 4611 50th, Lubbock, TX 79414	
Phone #: (806) 785 7280	FAX#: (806) 792-9346
Sampler's Signature:	Sampler's Printed Name: Brent Hogan

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

NUMBER OF CONTAINERS: Total Metals

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	Total Metals	REMARKS/ ALTERNATE DESCRIPTION
MW-1		1-7	0900	Soil	1	X	

SPECIAL INSTRUCTIONS/COMMENTS
Disregard comments on TAR
Run All Samples.
7 Day TAT

See QAPP ☐

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ STANDARD
REQUESTED FAX DATE _____
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Specialized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Brent Hogan	Printed Name: R.M. Dunbar	Printed Name	Printed Name	Printed Name	Printed Name
Firm: DBSA	Firm: DBSA	Firm	Firm	Firm	Firm
Date/Time: 1-7-03 1600	Date/Time: 1-7-03 1540	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

SOP C-100-07

Columbia Analytical Services

JACKSONVILLE LABORATORY
CONDITION UPON RECEIPT FORM

Client: DB Stephens - Bill Green **Project name:** Former Martin Guitar

Date received: 11/8/03 0455 **Service request number:** J3310038

Received by: PM **CUR completed by:** PM

Cooler/Shipping Information:

Courier: ☐ CAS ☐ Client ☐ UPS ☐ Airborne ☒ FedEx ☐ Other (describe):

Type: ☒ Cooler ☐ Box ☐ Other (describe)

Cooler temperature: Identify the cooler and document the temperature blank or ice water measurement

Cooler ID	1				
Temp (°C)	2.9				
Temp taken from	☒ Temp blank ☐ Sample bottle	☐ Temp blank ☐ Sample bottle	☐ Temp blank ☐ Sample bottle	☐ Temp blank ☐ Sample bottle	☐ Temp blank ☐ Sample bottle
Temp measured with	☒ IR gun ☐ Thermometer (enter ID):	☐ IR gun ☐ Thermometer (enter ID):	☐ IR gun ☐ Thermometer (enter ID):	☐ IR gun ☐ Thermometer (enter ID):	☐ IR gun ☐ Thermometer (enter ID):

Other Information:

Any "NO" responses or discrepancies should be explained in the "Comments" section below or an NCM if so required. If an NCM was initiated, write the NCM number in the appropriate space.

CHECKLIST	YES	NO	NA	NCM #
1. Were custody seals on shipping container(s) intact? **If "No", NCM required.**			✓	
2. Were custody papers properly included with samples?	✓			
3. Were custody papers properly filled out (ink, signed, match labels)?	✓			
4. Did all bottles arrive in good condition (unbroken)?	✓			
5. Were all bottle labels complete (sample #, date, signed, analysis, preservatives)?	✓			
6. Did the sample labels agree with the chain of custody?	✓			
7. Were correct bottles used for the tests indicated?	✓			
8. Were proper sample preservation techniques indicated on the label?	✓			
9. Were samples received within holding times? **If "No," NCM required.**	✓			
10. Were all VOA vials checked for the presence of air bubbles? **If "No", NCM required.**			✓	
11. Were there air bubbles present in the VOA vials? **If "Yes", NCM required.**			✓	
12. Were samples in direct contact with wet ice? If "No," check one: ☐ NO ICE ☐ BLUE ICE	✓			
13. Was the cooler temperature less than 6°C?	✓			
14. Were sample pHs checked and recorded by Sample control? Checks are on reverse side of form. *NOTE: VOA samples are checked by laboratory analysts.*			✓	
15. Were the sample containers provided by CAS?	✓			
16. Were samples accepted into the laboratory?	✓			

Comments:

Columbia Analytical Services

Jacksonville Laboratory
Condition Upon Receipt - Sample pH

SR #: J8300038 Date: 1/8/03 Initials: PM

A check mark in any space under the appropriate column headings for the selected sample indicates that the pH was checked and met the required pH criterion listed in the column heading.

	Bottle Code																									
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
	40-mL	40-mL	125-mL	250-mL	500-mL	1-L	250-mL	1-L	2-oz	4-oz	8-oz	16-oz	5 g	100-mL	250-mL	500-mL	1-L	1-L	250-mL	500-mL	1-L	250-mL	250-mL	1.75-L	500-mL	Misc.
Container	G	G	P	P	P	P	G	G	G	G	G	G	ENC	P	P	P	P	G	P	P	P	G	P	P	P	Misc.
Pres.	HCl		HCl											Sodium Thiosulfate	H2SO4	H2SO4	H2SO4	H2SO4	HNO3	HNO3	HNO3	HNO3	NaOH	NaOH	ZnAcetate NaOH	
Req. pH	<2	N/A	<2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<2	<2	<2	<2	<2	<2	<2	<2	>12	>12	>9	N/A
Sample #	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-001											1															
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-037																										
-038																										
-039																										
-040																										

For aqueous samples with multiple containers, only 1 bottle is checked for pH
NOTE: VOA pH checks are performed by the analytical area, not sample control

16

Summary Package

Inorganic Analysis:
Metals

Summary Package

Sample and QC Results

Columbia Analytical Services, Inc.

TOTAL METALS
- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Contract: Daniel B Stephens & Associates, Inc. SDG No.: J2300038

Lab Code: JAX Case No.: 8439-0000.00 SAS No.:

SOW No.: 6020/7471A

Sample No.	Lab Sample ID.
HA-1	J2300038-001
HA-2	J2300038-002
HA-3	J2300038-003
HA-4	J2300038-004
HA-5	J2300038-005
HA-6	J2300038-006
HA-7	J2300038-007
HA-8	J2300038-008
HA-9	J2300038-009
HA-9S	J2300038-009S
HA-9SD	J2300038-009SD
Duplicate	J2300038-010
MW-1	J2300038-011

Were ICP interelement corrections applied? Yes/No NO

Were ICP background corrections applied? Yes/No NO

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Joe Wiegel Name: Joe Wiegel

Date: 1/14/03 Title: Lab Director

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-1

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-001

Level (low/med): LOW Date Received: 01/08/2003

Solids: 87.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	7.820			MS
7440-39-3	Barium	443			MS
7440-43-9	Cadmium	3.200			MS
7440-47-3	Chromium	24.9	J-	FD-I	MS
7439-92-1	Lead	44.6			MS
7439-97-6	Mercury	0.018	~~B~~	J	CV
7782-49-2	Selenium	0.935	~~B~~	J	MS
7440-22-4	Silver	0.072	~~B~~	J	MS

LR
1/23/02

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-2

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-002

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 88.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	5.370			MS
7440-39-3	Barium	1000			MS
7440-43-9	Cadmium	4.850			MS
7440-47-3	Chromium	21.8	J-	FD-I	MS
7439-92-1	Lead	112			MS
7439-97-6	Mercury	0.020	~~B~~	J	CV
7782-49-2	Selenium	1.320	~~B~~	J	MS
7440-22-4	Silver	0.067	~~B~~	J	MS

LP 1/28/03

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-4

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-004

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 91.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	4.460			MS
7440-39-3	Barium	204			MS
7440-43-9	Cadmium	0.430	~~B~~	J	MS
7440-47-3	Chromium	19.3	J-	FD-I	MS
7439-92-1	Lead	27.8			MS
7439-97-6	Mercury	0.016	~~B~~	J	CV
7782-49-2	Selenium	0.637	~~B~~	J	MS
7440-22-4	Silver	0.065	~~B~~	J	MS

LR 1/23/03

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-5

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-005

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 88.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	5.100			MS
7440-39-3	Barium	474			MS
7440-43-9	Cadmium	166			MS
7440-47-3	Chromium	22.4	J-	FD-I	MS
7439-92-1	Lead	850			MS
7439-97-6	Mercury	0.020	~~B~~	J	CV
7782-49-2	Selenium	3.640			MS
7440-22-4	Silver	0.070	~~B~~	J	MS

LR
1/23/03

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-6

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-006

Level (low/med): LOW Date Received: 01/08/2003

Solids: 91.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	6.090			MS
7440-39-3	Barium	121			MS
7440-43-9	Cadmium	0.092	U		MS
7440-47-3	Chromium	18.0	J-~~FD~~-I		MS
7439-92-1	Lead	15.8			MS
7439-97-6	Mercury	0.018	~~B~~	J	CV
7782-49-2	Selenium	0.773	~~B~~	J	MS
7440-22-4	Silver	0.040	~~B~~	J	MS

LR 1/23/03

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
HA-7

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-007

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 89.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	5.700			MS
7440-39-3	Barium	495			MS
7440-43-9	Cadmium	0.935			MS
7440-47-3	Chromium	124	J-	FD-I	MS
7439-92-1	Lead	211			MS
7439-97-6	Mercury	0.024	~~B~~	J	CV
7782-49-2	Selenium	0.704	~~B~~	J	MS
7440-22-4	Silver	0.074	~~B~~	J	MS

LR 1/28/03

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-8

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-008

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 90.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.990			MS
7440-39-3	Barium	204			MS
7440-43-9	Cadmium	0.164	~~B~~	J	MS
7440-47-3	Chromium	33.1	J-	FD-I	MS
7439-92-1	Lead	20.1			MS
7439-97-6	Mercury	0.017	~~B~~	J	CV
7782-49-2	Selenium	0.773	~~B~~	J	MS
7440-22-4	Silver	0.052	~~B~~	J	MS

LR 1/23/03

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
HA-9

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-009

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 90.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	4.280			MS
7440-39-3	Barium	333			MS
7440-43-9	Cadmium	0.474	~~B~~	J	MS
7440-47-3	Chromium	19.1	J-	FD-I	MS
7439-92-1	Lead	32.6			MS
7439-97-6	Mercury	0.024	~~B~~	J	CV
7782-49-2	Selenium	0.623	~~B~~	J	MS
7440-22-4	Silver	0.061	~~B~~	J	MS

LR 1/22/03

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

Duplicate

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-010

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 89.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	4.170			MS
7440-39-3	Barium	244			MS
7440-43-9	Cadmium	0.552	~~B~~	J	MS
7440-47-3	Chromium	19.7	J-FD-I		MS
7439-92-1	Lead	29.6			MS
7439-97-6	Mercury	0.021	~~B~~	J	CV
7782-49-2	Selenium	0.839	~~B~~	J	MS
7440-22-4	Silver	0.054	~~B~~	J	MS

LR 1/23/03

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MW-1

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-011

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 95.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	12.8			MS
7440-39-3	Barium	198			MS
7440-43-9	Cadmium	0.088	U		MS
7440-47-3	Chromium	17.1	J-FD-I		MS
7439-92-1	Lead	8.430			MS
7439-97-6	Mercury	0.053			CV
7782-49-2	Selenium	0.456	~~B~~	J	MS
7440-22-4	Silver	0.046	~~B~~	J	MS

LR 1/28/03

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

TOTAL METALS
- 2a -
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Initial Calibration Source: INORGANIC / ENVIRONMENTAL

Continuing Calibration Source: CPI / ULTRA / INORGANIC

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	50	48.7	97	25	23.6	94	23.5	94	MS
Barium	200	207	104	25	24.8	99	24.9	100	MS
Cadmium	25	25.5	102	25	24.9	100	25.0	100	MS
Chromium	20	20.9	104	25	24.6	98	24.7	99	MS
Lead	50	50.2	100	25	24.9	100	25.1	101	MS
Mercury	5.0	5.06	101	5.0	5.15	103	5.18	104	CV
Selenium	50	49.4	99	25	24.4	98	24.1	96	MS
Silver	25	25.8	103	25	25.0	100	24.9	100	MS

TOTAL METALS
- 2a -
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Initial Calibration Source:

Continuing Calibration Source: CPI / ULTRA / INORGANIC

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Arsenic				25	23.6	94	23.7	95	MS
Barium				25	25.0	100	25.0	100	MS
Cadmium				25	25.1	100	24.9	100	MS
Chromium				25	24.6	98	24.7	99	MS
Lead				25	25.0	100	24.6	98	MS
Mercury				5.0	5.14	103	4.76	95	CV
Selenium				25	23.7	95	24.5	98	MS
Silver				25	25.1	100	24.7	99	MS

TOTAL METALS
- 2a -
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Initial Calibration Source:

Continuing Calibration Source: CPI / ULTRA / INORGANIC

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Arsenic				25	23.9	96	23.8	95	MS
Barium				25	24.9	100	25.2	101	MS
Cadmium				25	24.8	99	25.0	100	MS
Chromium				25	24.6	98	24.8	99	MS
Lead				25	25.3	101	25.1	100	MS
Selenium				25	24.5	98	23.9	96	MS
Silver				25	24.6	98	25.0	100	MS

TOTAL METALS
- 2b -
CRDL STANDARD FOR AA AND ICP

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG No.: J2300038

AA CRDL Standard Source:

ICP CRDL Standard Source: CPI / ULTRA / INORGANIC

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic				0.50	0.61	121		
Barium				2.0	2.23	112		
Cadmium				0.50	0.59	118		
Chromium				2.0	2.40	120		
Lead				1.0	1.00	100		
Mercury	0.50	0.463	93					
Selenium				2.0	2.30	115		
Silver				0.50	0.52	104		

TOTAL METALS
- 3 -
BLANKS

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Arsenic	0.400	U	0.400	U	0.400	U	0.400	U	0.400	U	MS
Barium	0.190	U	0.190	U	0.190	U	0.190	U	0.190	U	MS
Cadmium	0.085	U	0.085	U	0.09	U	0.085	U	0.085	U	MS
Chromium	0.061	U	0.295	B	0.294	B	0.302	B	0.514	B	MS
Lead	0.068	U	0.068	U	0.07	U	0.068	U	0.068	U	MS
Mercury	-0.050	B	-0.060	B	-0.060	B	-0.060	B	0.004	U	CV
Selenium	0.300	U	0.300	U	0.300	U	0.300	U	0.300	U	MS
Silver	0.021	U	0.021	U	0.02	U	0.021	U	0.021	U	MS

TOTAL METALS
- 3 -
BLANKS

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Arsenic			0.400	U	0.400	U	0.400	U			MS
Barium			0.190	U	0.190	U	0.190	U			MS
Cadmium			0.085	U	0.09	U	0.085	U			MS
Chromium			0.264	B	0.320	B	0.340	B			MS
Lead			0.068	U	0.07	U	0.068	U			MS
Mercury			-0.050	B							CV
Selenium			0.300	U	0.300	U	0.300	U			MS
Silver			0.021	U	0.02	U	0.021	U			MS

TOTAL METALS

- 4 -

ICP INTERFERENCE CHECK SAMPLE

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

ICP ID Number: Excell ICPMS ICS Source: INORGANIC

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Arsenic		20	-0.040	22.8	114			
Barium		20	0.110	21.4	107			
Cadmium		20	0.129	19.9	100			
Chromium		20	1.470	22.2	111			
Lead		20	0.662	21.7	109			
Selenium		20	-0.250	21.8	109			
Silver		20	0.031	19.2	96			

TOTAL METALS

- 5a -

SPIKE SAMPLE RECOVERY

SAMPLE NO.

HA-9S

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 90.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Arsenic	75 - 125	219		4.280		221	97		MS
Barium	75 - 125	557		333		187	120		MS
Cadmium	75 - 125	211		0.474	B	221	95		MS
Chromium	75 - 125	240		19.1		221	100		MS
Lead	75 - 125	463		32.6		442	97		MS
Mercury	75 - 125	0.567		0.024	B	0.664	82		CV
Selenium	75 - 125	215		0.623	B	221	97		MS
Silver	75 - 125	106		0.061	B	111	96		MS

Comments:

TOTAL METALS
- 5a -
SPIKE SAMPLE RECOVERY

SAMPLE NO.

HA-9SD

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 90.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Arsenic	75 - 125	213		4.280		221	94		MS
Barium	75 - 125	492		333		187	85		MS
Cadmium	75 - 125	213		0.474	B	221	96		MS
Chromium	75 - 125	233		19.1		221	97		MS
Lead	75 - 125	466		32.6		443	98		MS
Mercury	75 - 125	0.564		0.024	B	0.639	85		CV
Selenium	75 - 125	212		0.623	B	221	96		MS
Silver	75 - 125	105		0.061	B	111	95		MS

Comments:

TOTAL METALS

-7-

LABORATORY CONTROL SAMPLE

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Solid LCS Source: CPI

Aqueous LCS Source: CPI

Analyte	Aqueous mg/L True	Aqueous mg/L Found	Aqueous mg/L %R	Solid (mg/kg) True	Solid (mg/kg) Found	C	Limits		%R
Arsenic				200	191		80.0	120	96
Barium				169	179		80.0	120	106
Cadmium				200	191		80.0	120	96
Chromium				200	190		80.0	120	95
Lead				400	391		80.0	120	98
Mercury				0.600	0.518		80.0	120	86
Selenium				200	192		80.0	120	96
Silver				100	94.9		80.0	120	95

TOTAL METALS
- 9 -
ICP SERIAL DILUTIONS

SAMPLE NO.

HA-9L

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Arsenic	3.89		4.27		10		MS
Barium	303		310		3		MS
Cadmium	0.431	B	0.425	U			MS
Chromium	17.4		19.7		13		MS
Lead	29.6		30.9		4		MS
Mercury	0.221	B	0.215	U			CV
Selenium	0.566	B	1.50	U			MS
Silver	0.055	B	0.105	U			MS

TOTAL METALS
- 13 -
PREPARATION LOG

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Method: CV

Sample No.	Preparation Date	Weight (grams)	Volume (mL)
Duplicate	1/9/03	0.10	10
HA-1	1/9/03	0.10	10
HA-2	1/9/03	0.10	10
HA-3	1/9/03	0.10	10
HA-4	1/9/03	0.10	10
HA-5	1/9/03	0.10	10
HA-6	1/9/03	0.10	10
HA-7	1/9/03	0.11	10
HA-8	1/9/03	0.11	10
HA-9	1/9/03	0.10	10
HA-9S	1/9/03	0.10	10
HA-9SD	1/9/03	0.10	10
LCSS	1/9/03	0.10	10
MW-1	1/9/03	0.11	10
PBS	1/9/03	0.10	10

TOTAL METALS
- 14 -
ANALYSIS RUN LOG

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG No.: J2300038

Instrument ID Number: Cetac Hg Analyzer Method: CV

Start Date: 1/10/2003 End Date: 1/10/2003

Sample ID.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calibration Zero	1.00	12:39																X									
Standard #1	1.00	12:40																X									
Standard #2	1.00	12:42																X									
Standard #3	1.00	12:43																X									
Standard #4	1.00	12:44																X									
Standard #5	1.00	12:46																X									
ICV1	1.00	12:47																X									
ICB1	1.00	12:49																X									
CRDL1	1.00	12:50																X									
ZZZZZZ	1.00	12:51																									
PBS	1.00	12:53																X									
LCSS	1.00	12:54																X									
HA-9	1.00	12:55																X									
ZZZZZZ	1.00	12:57																									
HA-9S	1.00	12:58																X									
HA-9SD	1.00	13:01																X									
HA-9L	5.00	13:02																X									
HA-9AS	1.00	13:04	98.0															X									
CCV1	1.00	13:05																X									
CCB1	1.00	13:06																X									
HA-1	1.00	13:08																X									
HA-2	1.00	13:09																X									
HA-3	1.00	13:11																X									
HA-4	1.00	13:12																X									
HA-5	1.00	13:13																X									
HA-6	1.00	13:15																X									
HA-7	1.00	13:16																X									
HA-8	1.00	13:17																X									
Duplicate	1.00	13:19																X									
MW-1	1.00	13:20																X									
CCV2	1.00	13:21																X									
CCB2	1.00	13:23																X									
ZZZZZZ	1.00	13:24																									

* - Denotes additional elements (other than the standard elements) are represented on another Form 14

Columbia Analytical Services, Inc.

TOTAL METALS
- 14 -
ANALYSIS RUN LOG

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG No.: J2300038

Instrument ID Number: Cetac Hg Analyzer Method: CV

Start Date: 1/10/2003 End Date: 1/10/2003

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	13:26																									
ZZZZZZ	1.00	13:27																									
ZZZZZZ	1.00	13:28																									
ZZZZZZ	1.00	13:30																									
ZZZZZZ	1.00	13:31																									
ZZZZZZ	1.00	13:33																									
ZZZZZZ	1.00	13:34																									
ZZZZZZ	1.00	13:35																									
ZZZZZZ	1.00	13:37																									
CCV3	1.00	13:38																X									
CCB3	1.00	13:39																X									
ZZZZZZ	1.00	13:41																									
ZZZZZZ	1.00	13:42																									
ZZZZZZ	1.00	13:44																									
ZZZZZZ	5.00	13:45																									
ZZZZZZ	1.00	13:46																									
ZZZZZZ	1.00	13:48																									
ZZZZZZ	1.00	13:49																									
ZZZZZZ	1.00	13:50																									
CCV4	1.00	13:52																X									
CCB4	1.00	13:55																X									

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Columbia Analytical Services, Inc.

TOTAL METALS
- 14 -
ANALYSIS RUN LOG

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG No.: J2300038

Instrument ID Number: Excell ICPMS Method: MS

Start Date: 1/9/2003 End Date: 1/10/2003

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
cal blank	1.00	20:58				X	X		X		X				X						X	X					
cal std 1 25 ppb	1.00	21:03				X	X		X		X				X						X	X					
cal std 2 50ppb	1.00	21:08				X	X		X		X				X						X	X					
ICV1	1.00	21:14				X	X		X		X				X						X	X					
ICB1	1.00	21:19				X	X		X		X				X						X	X					
CRDL1	1.00	21:24				X	X		X		X				X						X						
ZZZZZZ	1.00	21:29																									
ICS-A1	1.00	21:35				X	X		X		X				X						X	X					
ICS-AB1	1.00	21:40				X	X		X		X				X						X	X					
ZZZZZZ	1.00	21:45																									
ZZZZZZ	1.00	21:50																									
ZZZZZZ	1.00	21:55																									
CRDL1	1.00	22:00																				X					
CCV1	1.00	22:05				X	X		X		X				X						X	X					
CCB1	1.00	22:10				X	X		X		X				X						X	X					
PBS	10.00	22:15				X	X		X		X				X						X	X					
LCSS	10.00	22:20				X	X		X		X				X						X	X					
HA-9	10.00	22:25				X	X		X		X				X						X	X					
ZZZZZZ	10.00	22:30																									
HA-9S	10.00	22:35				X	X		X		X				X						X	X					
HA-9SD	10.00	22:40				X	X		X		X				X						X	X					
CCV2	1.00	22:45				X	X		X		X				X						X	X					
CCB2	1.00	22:50				X	X		X		X				X						X	X					
HA-9L	50.00	22:55				X	X		X		X				X						X	X					
HA-9AS	10.00	23:00				X	X		X		X				X						X	X					
HA-1	10.00	23:05				X	X		X		X				X						X	X					
HA-2	10.00	23:10				X	X		X		X				X						X	X					
HA-3	10.00	23:15				X	X		X		X				X						X	X					
HA-4	10.00	23:20				X	X		X		X				X						X	X					
HA-5	10.00	23:25				X	X		X		X				X						X	X					
HA-6	10.00	23:30				X	X		X		X				X						X	X					
HA-7	10.00	23:35				X	X		X		X				X						X	X					
HA-8	10.00	23:40				X	X		X		X				X						X	X					

* - Denotes additional elements (other than the standard elements) are represented on another Form 14

TOTAL METALS
- 14 -
ANALYSIS RUN LOG

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG No.: J2300038

Instrument ID Number: Excell ICPMS Method: MS

Start Date: 1/9/2003 End Date: 1/10/2003

Sample ID.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV3	1.00	23:45				X	X		X		X				X						X	X					
CCB3	1.00	23:50				X	X		X		X				X						X	X					
Duplicate	10.00	23:55				X	X		X		X				X						X	X					
MW-1	10.00	12:00				X	X		X		X				X						X	X					
CCV4	1.00	12:05				X	X		X		X				X						X	X					
CCB4	1.00	12:10				X	X		X		X				X						X	X					
ZZZZZZ	1.00	12:15																									
ZZZZZZ	1.00	12:20																									
CCV5	1.00	12:24				X	X		X		X				X						X	X					
CCB5	1.00	12:29				X	X		X		X				X						X	X					
ZZZZZZ	1.00	12:34																									
CCV6	1.00	12:39				X	X		X		X				X						X	X					
CCB6	1.00	12:44				X	X		X		X				X						X	X					

* - Denotes additional elements (other than the standard elements) are represented on another Form 14

Inorganic Analysis:
General Chemistry and Physical Parameters

Summary Package

Sample and QC Results

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Daniel B Stephens & Associates, Inc.	**Service Request:**	J2300038
Project:	Former Martin Quarry/8439-0000.00	**Date Collected:**	1/7/2003
Sample Matrix:	Soil	**Date Received:**	1/8/2003

Total Solids

Prep Method:	NONE	Units:	PERCENT
Analysis Method:	160.3	Basis:	Wet
Test Notes:			

Sample Name	Lab Code	Date Analyzed	Result	Result Notes
HA-1	J2300038-001	1/9/2003	87.9	
HA-2	J2300038-002	1/9/2003	88.7	
HA-3	J2300038-003	1/9/2003	87.9	
HA-4	J2300038-004	1/9/2003	91.6	
HA-5	J2300038-005	1/9/2003	88.1	
HA-6	J2300038-006	1/9/2003	91.8	
HA-7	J2300038-007	1/9/2003	89.3	
HA-8	J2300038-008	1/9/2003	90.4	
HA-9	J2300038-009	1/9/2003	90.3	
Duplicate	J2300038-010	1/9/2003	89.9	
MW-1	J2300038-011	1/9/2003	95.6	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Daniel B Stephens & Associates, Inc.	**Service Request:**	J2300038
Project:	Former Martin Quarry/8439-0000.00	**Date Collected:**	1/7/2003
Sample Matrix:	Soil	**Date Received:**	1/8/2003

Duplicate Summary
Total Solids

Prep Method: NONE
Analysis Method: 160.3
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Analyzed	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
HA-9	J2300038-009DUP	1/9/2003	90.3	90.2	90.3	<1	

Validation Package

Inorganic Analysis:
Metals

Validation Package

Sample and QC Results

Columbia Analytical Services, Inc.

TOTAL METALS
- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Contract: Daniel B Stephens & Associates, Inc. SDG No.: J2300038

Lab Code: JAX Case No.: 8439-0000.00 SAS No.:

SOW No.: 6020/7471A

Sample No.	Lab Sample ID.
HA-1	J2300038-001
HA-2	J2300038-002
HA-3	J2300038-003
HA-4	J2300038-004
HA-5	J2300038-005
HA-6	J2300038-006
HA-7	J2300038-007
HA-8	J2300038-008
HA-9	J2300038-009
HA-9S	J2300038-009S
HA-9SD	J2300038-009SD
Duplicate	J2300038-010
MW-1	J2300038-011

Were ICP interelement corrections applied? Yes/No NO

Were ICP background corrections applied? Yes/No NO

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Joe Wiegel Name: Joe Wiegel

Date: 1/14/03 Title: Lab Director

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-1

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-001

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 87.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	7.820			MS
7440-39-3	Barium	443			MS
7440-43-9	Cadmium	3.200			MS
7440-47-3	Chromium	24.9			MS
7439-92-1	Lead	44.6			MS
7439-97-6	Mercury	0.018	B		CV
7782-49-2	Selenium	0.935	B		MS
7440-22-4	Silver	0.072	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-2

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-002

Level (low/med): LOW Date Received: 01/08/2003

Solids: 88.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	5.370			MS
7440-39-3	Barium	1000			MS
7440-43-9	Cadmium	4.850			MS
7440-47-3	Chromium	21.8			MS
7439-92-1	Lead	112			MS
7439-97-6	Mercury	0.020	B		CV
7782-49-2	Selenium	1.320	B		MS
7440-22-4	Silver	0.067	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-3

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-003

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 87.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	4.700			MS
7440-39-3	Barium	904			MS
7440-43-9	Cadmium	12.4			MS
7440-47-3	Chromium	22.5			MS
7439-92-1	Lead	347			MS
7439-97-6	Mercury	0.026	B		CV
7782-49-2	Selenium	1.240	B		MS
7440-22-4	Silver	0.079	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-4

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-004

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 91.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	4.460			MS
7440-39-3	Barium	204			MS
7440-43-9	Cadmium	0.430	B		MS
7440-47-3	Chromium	19.3			MS
7439-92-1	Lead	27.8			MS
7439-97-6	Mercury	0.016	B		CV
7782-49-2	Selenium	0.637	B		MS
7440-22-4	Silver	0.065	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-5

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-005

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 88.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	5.100			MS
7440-39-3	Barium	474			MS
7440-43-9	Cadmium	166			MS
7440-47-3	Chromium	22.4			MS
7439-92-1	Lead	850			MS
7439-97-6	Mercury	0.020	B		CV
7782-49-2	Selenium	3.640			MS
7440-22-4	Silver	0.070	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-6

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-006

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 91.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	6.090			MS
7440-39-3	Barium	121			MS
7440-43-9	Cadmium	0.092	U		MS
7440-47-3	Chromium	18.0			MS
7439-92-1	Lead	15.8			MS
7439-97-6	Mercury	0.018	B		CV
7782-49-2	Selenium	0.773	B		MS
7440-22-4	Silver	0.040	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-7

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-007

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 89.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	5.700			MS
7440-39-3	Barium	495			MS
7440-43-9	Cadmium	0.935			MS
7440-47-3	Chromium	124			MS
7439-92-1	Lead	211			MS
7439-97-6	Mercury	0.024	B		CV
7782-49-2	Selenium	0.704	B		MS
7440-22-4	Silver	0.074	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-8

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-008

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 90.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.990			MS
7440-39-3	Barium	204			MS
7440-43-9	Cadmium	0.164	B		MS
7440-47-3	Chromium	33.1			MS
7439-92-1	Lead	20.1			MS
7439-97-6	Mercury	0.017	B		CV
7782-49-2	Selenium	0.773	B		MS
7440-22-4	Silver	0.052	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

HA-9

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-009

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 90.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	4.280			MS
7440-39-3	Barium	333			MS
7440-43-9	Cadmium	0.474	B		MS
7440-47-3	Chromium	19.1			MS
7439-92-1	Lead	32.6			MS
7439-97-6	Mercury	0.024	B		CV
7782-49-2	Selenium	0.623	B		MS
7440-22-4	Silver	0.061	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

Duplicate

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-010

Level (low/med): LOW Date Received: 01/08/2003

Solids: 89.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	4.170			MS
7440-39-3	Barium	244			MS
7440-43-9	Cadmium	0.552	B		MS
7440-47-3	Chromium	19.7			MS
7439-92-1	Lead	29.6			MS
7439-97-6	Mercury	0.021	B		CV
7782-49-2	Selenium	0.839	B		MS
7440-22-4	Silver	0.054	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

Columbia Analytical Services, Inc.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MW-1

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Lab Sample ID: J2300038-011

Level (low/med): LOW Date Received: 01/08/2003

% Solids: 95.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	12.8			MS
7440-39-3	Barium	198			MS
7440-43-9	Cadmium	0.088	U		MS
7440-47-3	Chromium	17.1			MS
7439-92-1	Lead	8.430			MS
7439-97-6	Mercury	0.053			CV
7782-49-2	Selenium	0.456	B		MS
7440-22-4	Silver	0.046	B		MS

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: COLORLESS Artifacts:

Comments:

TOTAL METALS
- 2a -
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Initial Calibration Source: INORGANIC / ENVIRONMENTAL

Continuing Calibration Source: CPI / ULTRA / INORGANIC

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	50	48.7	97	25	23.6	94	23.5	94	MS
Barium	200	207	104	25	24.8	99	24.9	100	MS
Cadmium	25	25.5	102	25	24.9	100	25.0	100	MS
Chromium	20	20.9	104	25	24.6	98	24.7	99	MS
Lead	50	50.2	100	25	24.9	100	25.1	101	MS
Mercury	5.0	5.06	101	5.0	5.15	103	5.18	104	CV
Selenium	50	49.4	99	25	24.4	98	24.1	96	MS
Silver	25	25.8	103	25	25.0	100	24.9	100	MS

TOTAL METALS
- 2a -
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Initial Calibration Source:

Continuing Calibration Source: CPI / ULTRA / INORGANIC

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic				25	23.6	94	23.7	95	MS
Barium				25	25.0	100	25.0	100	MS
Cadmium				25	25.1	100	24.9	100	MS
Chromium				25	24.6	98	24.7	99	MS
Lead				25	25.0	100	24.6	98	MS
Mercury				5.0	5.14	103	4.76	95	CV
Selenium				25	23.7	95	24.5	98	MS
Silver				25	25.1	100	24.7	99	MS

TOTAL METALS
- 2a -
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Initial Calibration Source:

Continuing Calibration Source: CPI / ULTRA / INORGANIC

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic				25	23.9	96	23.8	95	MS
Barium				25	24.9	100	25.2	101	MS
Cadmium				25	24.8	99	25.0	100	MS
Chromium				25	24.6	98	24.8	99	MS
Lead				25	25.3	101	25.1	100	MS
Selenium				25	24.5	98	23.9	96	MS
Silver				25	24.6	98	25.0	100	MS

TOTAL METALS
- 6 -
DUPLICATES

SAMPLE NO.

HA-9SD

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 90.3 % Solids for Duplicate: 90.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Arsenic		219		213		3		MS
Barium		557		492		12		MS
Cadmium		211		213		1		MS
Chromium		240		233		3		MS
Lead		463		466		1		MS
Mercury		0.567		0.564		1		CV
Selenium		215		212		1		MS
Silver		106		105		1		MS

TOTAL METALS

- 7 -

LABORATORY CONTROL SAMPLE

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Solid LCS Source: CPI

Aqueous LCS Source: CPI

Analyte	Aqueous mg/L True	Aqueous mg/L Found	Aqueous mg/L %R	Solid (mg/kg) True	Solid (mg/kg) Found	C	Limits		%R
Arsenic				200	191		80.0	120	96
Barium				169	179		80.0	120	106
Cadmium				200	191		80.0	120	96
Chromium				200	190		80.0	120	95
Lead				400	391		80.0	120	98
Mercury				0.600	0.518		80.0	120	86
Selenium				200	192		80.0	120	96
Silver				100	94.9		80.0	120	95

TOTAL METALS

- 9 -

ICP SERIAL DILUTIONS

SAMPLE NO.

HA-9L

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Arsenic	3.89		4.27		10		MS
Barium	303		310		3		MS
Cadmium	0.431	B	0.425	U			MS
Chromium	17.4		19.7		13		MS
Lead	29.6		30.9		4		MS
Mercury	0.221	B	0.215	U			CV
Selenium	0.566	B	1.50	U			MS
Silver	0.055	B	0.105	U			MS

TOTAL METALS
-10-
METHOD DETECTION LIMITS

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

ICP ID Number: Date: 10/16/02

Flame AA ID Number: Cetac Hg Analyzer

Furnace AA ID Number:

Analyte	Wave-length	Back-ground	MRL (ug/L)	MDL (ug/L)	M
Mercury	253.70		0.500	0.043	CV

Comments

TOTAL METALS
-10-
METHOD DETECTION LIMITS

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

ICP ID Number: Excell ICPMS Date: 12/9/02

Flame AA ID Number:

Furnace AA ID Number:

Analyte	Mass	Back-ground	MRL (ug/L)	MDL (ug/L)	M
Arsenic	75		0.500	0.400	MS
Barium	137		2.000	0.190	MS
Cadmium	114		0.500	0.085	MS
Chromium	52		2.000	0.061	MS
Lead	208		1.000	0.068	MS
Selenium	82		2.000	0.300	MS
Silver	109		0.500	0.021	MS

Comments

TOTAL METALS
- 12 -
ICP LINEAR RANGES

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

CP ID Number: Excell ICPMS Date: 11/27/02

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Arsenic	15.00	1000.0	MS
Barium	15.00	1000.0	MS
Cadmium	15.00	1000.0	MS
Chromium	15.00	1000.0	MS
Lead	15.00	1000.0	MS
Selenium	15.00	1000.0	MS
Silver	15.00	1000.0	MS

Comments:

TOTAL METALS
- 13 -
PREPARATION LOG

ontract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

ethod: CV

Sample No.	Preparation Date	Weight (grams)	Volume (mL)
Duplicate	1/9/03	0.10	10
HA-1	1/9/03	0.10	10
HA-2	1/9/03	0.10	10
HA-3	1/9/03	0.10	10
HA-4	1/9/03	0.10	10
HA-5	1/9/03	0.10	10
HA-6	1/9/03	0.10	10
HA-7	1/9/03	0.11	10
HA-8	1/9/03	0.11	10
HA-9	1/9/03	0.10	10
HA-9S	1/9/03	0.10	10
HA-9SD	1/9/03	0.10	10
LCSS	1/9/03	0.10	10
MW-1	1/9/03	0.11	10
PBS	1/9/03	0.10	10

TOTAL METALS
- 13 -
PREPARATION LOG

ontract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG NO.: J2300038

ethod: MS

Sample No.	Preparation Date	Weight (grams)	Volume (mL)
Duplicate	1/8/03	0.50	50
HA-1	1/8/03	0.50	50
HA-2	1/8/03	0.50	50
HA-3	1/8/03	0.51	50
HA-4	1/8/03	0.50	50
HA-5	1/8/03	0.50	50
HA-6	1/8/03	0.50	50
HA-7	1/8/03	0.51	50
HA-8	1/8/03	0.50	50
HA-9	1/8/03	0.50	50
HA-9S	1/8/03	0.50	50
HA-9SD	1/8/03	0.50	50
LCSS	1/8/03	0.50	50
MW-1	1/8/03	0.50	50
PBS	1/8/03	0.50	50

Columbia Analytical Services, Inc.

TOTAL METALS
- 14 -
ANALYSIS RUN LOG

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG No.: J2300038

Instrument ID Number: Cetac Hg Analyzer Method: CV

Start Date: 1/10/2003 End Date: 1/10/2003

Sample ID.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calibration Zero	1.00	12:39																X									
Standard #1	1.00	12:40																X									
Standard #2	1.00	12:42																X									
Standard #3	1.00	12:43																X									
Standard #4	1.00	12:44																X									
Standard #5	1.00	12:46																X									
ICV1	1.00	12:47																X									
ICB1	1.00	12:49																X									
CRDL1	1.00	12:50																X									
ZZZZZZ	1.00	12:51																									
PBS	1.00	12:53																X									
LCSS	1.00	12:54																X									
HA-9	1.00	12:55																X									
ZZZZZZ	1.00	12:57																									
HA-9S	1.00	12:58																X									
HA-9SD	1.00	13:01																X									
HA-9L	5.00	13:02																X									
HA-9AS	1.00	13:04	98.0															X									
CCV1	1.00	13:05																X									
CCB1	1.00	13:06																X									
HA-1	1.00	13:08																X									
HA-2	1.00	13:09																X									
HA-3	1.00	13:11																X									
HA-4	1.00	13:12																X									
HA-5	1.00	13:13																X									
HA-6	1.00	13:15																X									
HA-7	1.00	13:16																X									
HA-8	1.00	13:17																X									
Duplicate	1.00	13:19																X									
MW-1	1.00	13:20																X									
CCV2	1.00	13:21																X									
CCB2	1.00	13:23																X									
ZZZZZZ	1.00	13:24																									

* - Denotes additional elements (other than the standard elements) are represented on another Form 14

TOTAL METALS
- 14 -
ANALYSIS RUN LOG

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG No.: J2300038

Instrument ID Number: Cetac Hg Analyzer Method: CV

Start Date: 1/10/2003 End Date: 1/10/2003

Sample ID.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	13:26																									
ZZZZZZ	1.00	13:27																									
ZZZZZZ	1.00	13:28																									
ZZZZZZ	1.00	13:30																									
ZZZZZZ	1.00	13:31																									
ZZZZZZ	1.00	13:33																									
ZZZZZZ	1.00	13:34																									
ZZZZZZ	1.00	13:35																									
ZZZZZZ	1.00	13:37																									
CCV3	1.00	13:38																X									
CCB3	1.00	13:39																X									
ZZZZZZ	1.00	13:41																									
ZZZZZZ	1.00	13:42																									
ZZZZZZ	1.00	13:44																									
ZZZZZZ	5.00	13:45																									
ZZZZZZ	1.00	13:46																									
ZZZZZZ	1.00	13:48																									
ZZZZZZ	1.00	13:49																									
ZZZZZZ	1.00	13:50																									
CCV4	1.00	13:52																X									
CCB4	1.00	13:55																X									

* - Denotes additional elements (other than the standard elements) are represented on another Form 14

TOTAL METALS
- 14 -
ANALYSIS RUN LOG

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG No.: J2300038

Instrument ID Number: Excell ICPMS Method: MS

Start Date: 1/9/2003 End Date: 1/10/2003

Sample ID.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
cal blank	1.00	20:58				X	X		X		X				X						X	X					
cal std 1 25 ppb	1.00	21:03				X	X		X		X				X						X	X					
cal std 2 50ppb	1.00	21:08				X	X		X		X				X						X	X					
ICV1	1.00	21:14				X	X		X		X				X						X	X					
ICB1	1.00	21:19				X	X		X		X				X						X	X					
CRDL1	1.00	21:24				X	X		X		X				X						X						
ZZZZZZ	1.00	21:29																									
ICS-A1	1.00	21:35				X	X		X		X				X						X	X					
ICS-AB1	1.00	21:40				X	X		X		X				X						X	X					
ZZZZZZ	1.00	21:45																									
ZZZZZZ	1.00	21:50																									
ZZZZZZ	1.00	21:55																									
CRDL1	1.00	22:00																				X					
CCV1	1.00	22:05				X	X		X		X				X						X	X					
CCB1	1.00	22:10				X	X		X		X				X						X	X					
PBS	10.00	22:15				X	X		X		X				X						X	X					
LCSS	10.00	22:20				X	X		X		X				X						X	X					
HA-9	10.00	22:25				X	X		X		X				X						X	X					
ZZZZZZ	10.00	22:30																									
HA-9S	10.00	22:35				X	X		X		X				X						X	X					
HA-9SD	10.00	22:40				X	X		X		X				X						X	X					
CCV2	1.00	22:45				X	X		X		X				X						X	X					
CCB2	1.00	22:50				X	X		X		X				X						X	X					
HA-9L	50.00	22:55				X	X		X		X				X						X	X					
HA-9AS	10.00	23:00				X	X		X		X				X						X	X					
HA-1	10.00	23:05				X	X		X		X				X						X	X					
HA-2	10.00	23:10				X	X		X		X				X						X	X					
HA-3	10.00	23:15				X	X		X		X				X						X	X					
HA-4	10.00	23:20				X	X		X		X				X						X	X					
HA-5	10.00	23:25				X	X		X		X				X						X	X					
HA-6	10.00	23:30				X	X		X		X				X						X	X					
HA-7	10.00	23:35				X	X		X		X				X						X	X					
HA-8	10.00	23:40				X	X		X		X				X						X	X					

* - Denotes additional elements (other than the standard elements) are represented on another Form 14

TOTAL METALS
- 14 -
ANALYSIS RUN LOG

Contract: Daniel B Stephens & Associates, Inc.

Lab Code: JAX Case No.: 8439-0000 SAS No.: SDG No.: J2300038

Instrument ID Number: Excell ICPMS Method: MS

Start Date: 1/9/2003 End Date: 1/10/2003

Sample ID.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV3	1.00	23:45				X	X		X		X				X						X	X					
CCB3	1.00	23:50				X	X		X		X				X						X	X					
Duplicate	10.00	23:55				X	X		X		X				X						X	X					
MW-1	10.00	12:00				X	X		X		X				X						X	X					
CCV4	1.00	12:05				X	X		X		X				X						X	X					
CCB4	1.00	12:10				X	X		X		X				X						X	X					
ZZZZZZ	1.00	12:15																									
ZZZZZZ	1.00	12:20																									
CCV5	1.00	12:24				X	X		X		X				X						X	X					
CCB5	1.00	12:29				X	X		X		X				X						X	X					
ZZZZZZ	1.00	12:34																									
CCV6	1.00	12:39				X	X		X		X				X						X	X					
CCB6	1.00	12:44				X	X		X		X				X						X	X					

* - Denotes additional elements (other than the standard elements) are represented on another Form 14

Inorganic Analysis:
Metals

Validation Package

Raw Data

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		cal blank			Mean	SD	%RSD
TimeStamp		1/9/03 20:58					
Aluminum	27	0.018	-0.021	0.003	0	0.02	7307000
Antimony	121	-0.008	0.007	0	0	0.007	5836
Antimony	123	0.054	-0.041	-0.012	0	0.049	17950
Arsenic	75	0.01	0.016	-0.027	0	0.024	10620
Barium	135	0.069	-0.015	-0.057	-0.001	0.064	7139
Barium	137	0.013	-0.013	0	0	0.013	3439
Beryllium	9	0.013	-0.015	0.002	0	0.014	12020
Boron	11	0.159	-0.128	-0.029	0.001	0.146	24260
Cadmium	111	0.003	-0.008	0.004	0	0.007	2179
Cadmium	112	0.004	0.003	-0.007	0	0.006	5530
Cadmium	114	-0.005	0.007	-0.002	0	0.006	5655
Chromium	52	-0.019	0.005	0.013	0	0.017	24730
Cobalt	59	0.008	-0.002	-0.006	0	0.008	52910
Copper	63	-0.02	0.012	0.008	0	0.017	72260
Copper	65	0.005	-0.004	0	0	0.004	91470
Lead	206	0.002	0.005	-0.008	0	0.007	35090
Lead	207	0.008	0	-0.008	0	0.008	175800
Lead	208	0.006	-0.001	-0.005	0	0.006	289700
Lithium	7	0	0	0	0	0	0
Manganese	55	0.002	0.002	-0.004	0	0.004	112600
Molybdenum	95	0	-0.002	0.002	0	0.002	16550
Molybdenum	97	0.004	0	-0.005	0	0.004	26850
Molybdenum	98	-0.003	0.003	0	0	0.003	28640
Nickel	60	-0.003	0.002	0.001	0	0.002	577100
Nickel	62	0.054	0	-0.055	0	0.055	15280
Selenium	78	-0.103	0.059	0.039	-0.002	0.088	5262
Selenium	82	0.148	-0.061	-0.103	-0.005	0.134	2515
Silver	107	-0.005	0.006	-0.002	0	0.006	17190
Silver	109	0.002	0.003	-0.005	0	0.004	41110
Strontium	86	-0.046	0.051	-0.009	-0.001	0.049	3446
Strontium	88	0.001	0	-0.001	0	0.001	69990
Thallium	203	0	-0.005	0.005	0	0.005	67180
Thallium	205	-0.001	-0.001	0.002	0	0.001	38030
Tin	118	-0.003	-0.015	0.017	0	0.016	11920
Titanium	48	0.01	0.018	-0.03	0	0.026	5465
Titanium	49	0.003	-0.002	-0.002	0	0.003	122500
Uranium	238	-0.003	0.002	0.002	0	0.003	137500
Vanadium	51	0.008	0.014	-0.022	0	0.019	153700
Zinc	66	-0.01	0.003	0.007	0	0.009	52720
Zinc	67	0.03	-0.2	0.072	-0.032	0.146	452
Zinc	68	0.027	-0.02	-0.008	0	0.024	13730
Internal Standard Factors:							
Lithium	6	1.033	0.953	1.018	1.033	n/a	n/a
Scandium	45	1.017	1.002	0.982	1.017	n/a	n/a
Indium	115	0.995	1.006	0.999	0.995	n/a	n/a
Terilium	128	0.996	1.007	0.997	0.996	n/a	n/a
Terilium	130	0.991	1.004	1.006	0.991	n/a	n/a
Lutetium	175	0.989	0.994	1.017	0.989	n/a	n/a
Bismuth	209	0.994	1.007	0.999	0.994	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		cal std 1 25 ppb			Mean	SD	%RSD
TimeStamp		1/9/03 21:04					
Aluminum	27	131.9	125	119.4	125.4	6.257	4.988
Antimony	121	25.26	25.04	25.18	25.16	0.114	0.453
Antimony	123	24.27	25.25	25.49	25	0.649	2.595
Arsenic	75	25.33	25.07	24.78	25.06	0.273	1.091
Barium	135	25.32	24.29	26.07	25.23	0.892	3.538
Barium	137	25.71	25.12	25.2	25.34	0.323	1.273
Beryllium	9	24.6	25.89	25.82	25.43	0.725	2.851
Boron	11	124.7	123.5	126.4	124.9	1.491	1.194
Cadmium	111	25.57	25.27	25.5	25.45	0.16	0.627
Cadmium	112	25.06	25.3	25.27	25.21	0.131	0.518
Cadmium	114	25.19	25.24	25.05	25.16	0.101	0.401
Chromium	52	25.2	24.66	24.94	24.94	0.268	1.076
Cobalt	59	26.52	24.35	25.72	25.53	1.099	4.305
Copper	63	25.66	23.51	26.56	25.24	1.564	6.195
Copper	65	24.38	25.16	25.99	25.18	0.807	3.205
Lead	206	25.06	24.77	25.6	25.14	0.417	1.66
Lead	207	25.28	24.96	24.79	25.01	0.252	1.008
Lead	208	24.93	25.07	25	25	0.073	0.29
Lithium	7	0	0	0	0	0	0
Manganese	55	25.68	25.49	24.34	25.17	0.724	2.877
Molybdenum	95	25.55	25.18	25.21	25.32	0.207	0.817
Molybdenum	97	25.15	25.08	25.75	25.33	0.367	1.45
Molybdenum	98	24.97	25.2	25.38	25.19	0.204	0.809
Nickel	60	25.59	25.02	24.38	25	0.603	2.413
Nickel	62	25.26	24.61	25.41	25.09	0.423	1.688
Selenium	78	24.94	25.86	24.69	25.16	0.618	2.455
Selenium	82	25.8	25.09	24.68	25.19	0.567	2.252
Silver	107	25.32	26.09	25.26	25.55	0.465	1.818
Silver	109	25.39	26.06	24.92	25.45	0.571	2.242
Strontium	86	24.92	25.15	25.92	25.33	0.525	2.071
Strontium	88	25.51	25.07	25.08	25.22	0.25	0.991
Thallium	203	24.89	24.5	25.46	24.95	0.486	1.947
Thallium	205	25.14	25.62	26.03	25.6	0.447	1.747
Tin	118	25.26	24.97	26.02	25.42	0.545	2.145
Titanium	48	25.3	26.34	26.18	25.94	0.558	2.153
Titanium	49	26.06	25.52	25.23	25.6	0.418	1.633
Uranium	238	25.62	24.62	25.16	25.13	0.5	1.989
Vanadium	51	24.71	24.3	25.81	24.94	0.783	3.14
Zinc	66	49.5	50.39	49.54	49.81	0.504	1.013
Zinc	67	52.83	51.09	52.08	52	0.873	1.679
Zinc	68	51.83	49.26	51.31	50.8	1.358	2.673
Internal Standard Factors:							
Lithium	6	1.035	1.055	1.038	1.035	n/a	n/a
Scandium	45	1.098	1.087	1.109	1.098	n/a	n/a
Indium	115	1.072	1.084	1.09	1.072	n/a	n/a
Terilium	128	1.094	1.098	1.09	1.094	n/a	n/a
Terilium	130	1.092	1.11	1.11	1.092	n/a	n/a
Lutetium	175	1.052	1.037	1.04	1.052	n/a	n/a
Bismuth	209	1.059	1.034	1.065	1.059	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		cal std 2 50ppb			Mean	SD	%RSD
TimeStamp		1/9/03 21:09					
Aluminum	27	240.7	245.9	266.8	251.1	13.79	5.49
Antimony	121	49.23	49.53	50.19	49.65	0.488	0.983
Antimony	123	49.5	50.75	50.51	50.25	0.664	1.322
Arsenic	75	49.89	50.27	49.74	49.97	0.274	0.548
Barium	135	50.23	49.66	49.17	49.69	0.531	1.07
Barium	137	48.91	48.34	49.55	48.93	0.605	1.237
Beryllium	9	49.51	46.25	48.19	47.98	1.639	3.415
Boron	11	246.8	252.8	251.2	250.3	3.083	1.232
Cadmium	111	49.48	49.86	49.24	49.53	0.314	0.633
Cadmium	112	50.1	49.59	49.27	49.65	0.42	0.845
Cadmium	114	49.88	49.94	49.16	49.66	0.438	0.881
Chromium	52	50.85	46.44	48.54	48.61	2.207	4.54
Cobalt	59	49.43	46.51	50.45	48.8	2.048	4.198
Copper	63	51.02	48.16	49.42	49.53	1.435	2.897
Copper	65	50.09	49.41	49.5	49.67	0.372	0.75
Lead	206	49.93	49.26	50.41	49.86	0.576	1.155
Lead	207	50.85	49.17	49.84	49.95	0.846	1.693
Lead	208	50.82	49.33	49.74	49.96	0.768	1.538
Lithium	7	0	0	0	0	0	0
Manganese	55	50.28	45.75	49.38	48.47	2.4	4.951
Molybdenum	95	49.98	49.09	49.82	49.63	0.475	0.957
Molybdenum	97	50.53	49.31	49.81	49.88	0.615	1.232
Molybdenum	98	50.44	48.88	49.17	49.5	0.829	1.674
Nickel	60	51.94	48.19	50.97	50.37	1.945	3.862
Nickel	62	50.03	48.23	51.23	49.83	1.509	3.029
Selenium	78	49.03	50.02	50.56	49.87	0.774	1.552
Selenium	82	48.56	50.78	49.57	49.64	1.11	2.236
Silver	107	50.36	50.03	50.11	50.17	0.171	0.341
Silver	109	50.39	50.31	49.61	50.1	0.424	0.847
Strontium	86	48.93	48.51	50.53	49.32	1.065	2.158
Strontium	88	50.16	49.42	49.67	49.75	0.375	0.753
Thallium	203	50.17	49.07	49.22	49.49	0.595	1.203
Thallium	205	49.53	49.66	49.11	49.43	0.289	0.586
Tin	118	49.52	49.9	50.65	50.02	0.578	1.155
Titanium	48	50.61	49.05	51.03	50.23	1.043	2.077
Titanium	49	51.39	49.81	51.16	50.79	0.854	1.681
Uranium	238	49.56	50.28	50.05	49.96	0.366	0.733
Vanadium	51	51.06	47.11	50.74	49.64	2.196	4.425
Zinc	66	99.6	100.3	97.87	99.26	1.247	1.257
Zinc	67	99.33	99.45	98.34	99.04	0.611	0.617
Zinc	68	100.6	96.17	95.83	97.52	2.64	2.707
Internal Standard Factors:							
Lithium	6	1.066	1.023	1.056	1.066	n/a	n/a
Scandium	45	1.14	1.086	1.16	1.14	n/a	n/a
Indium	115	1.1	1.115	1.11	1.1	n/a	n/a
Terilium	128	1.123	1.131	1.133	1.123	n/a	n/a
Terilium	130	1.132	1.127	1.136	1.132	n/a	n/a
Lutetium	175	1.072	1.063	1.079	1.072	n/a	n/a
Bismuth	209	1.098	1.075	1.073	1.098	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		ICV			Mean	SD	%RSD
TimeStamp		1/9/03 21:14					
Aluminum	27	209.9	218.9	210.9	213.2	4.965	2.328
Antimony	121	52.97	53.4	52.17	52.85	0.626	1.185
Antimony	123	52.98	52.27	52.91	52.72	0.39	0.739
Arsenic	75	49.6	48.62	47.94	48.72	0.839	1.722
Barium	135	198.6	203.4	199.9	200.6	2.515	1.253
Barium	137	207.6	207.3	205.5	206.8	1.1	0.532
Beryllium	9	5.054	5.095	5.459	5.203	0.223	4.289
Boron	11	63.65	62.16	65.34	63.72	1.59	2.495
Cadmium	111	26.24	26.06	25.12	25.81	0.6	2.324
Cadmium	112	27.13	27.29	26.51	26.98	0.41	1.521
Cadmium	114	25.67	25.77	24.91	25.45	0.47	1.846
Chromium	52	20.22	21.38	20.94	20.85	0.587	2.814
Cobalt	59	50.67	52.1	54.12	52.3	1.731	3.311
Copper	63	26.06	26.85	27.31	26.74	0.632	2.364
Copper	65	25.6	26.35	25.94	25.96	0.374	1.441
Lead	206	50.85	50.23	49.99	50.36	0.445	0.883
Lead	207	50.84	50.3	50.57	50.57	0.27	0.534
Lead	208	50.48	49.91	50.07	50.15	0.299	0.595
Lithium	7	0	0	0	0	0	0
Manganese	55	50.42	51.78	53.03	51.74	1.304	2.521
Molybdenum	95	50.9	50.76	50.99	50.88	0.115	0.226
Molybdenum	97	50.3	51.64	50.69	50.88	0.691	1.359
Molybdenum	98	50.36	50.41	50.55	50.44	0.102	0.202
Nickel	60	50.31	52.42	52.2	51.64	1.158	2.242
Nickel	62	53.34	54.04	52.98	53.45	0.534	1
Selenium	78	50.24	49.48	50.4	50.04	0.495	0.989
Selenium	82	49.78	49.35	49.09	49.41	0.346	0.7
Silver	107	25.88	26.36	25.71	25.99	0.339	1.306
Silver	109	25.67	26	25.66	25.78	0.194	0.751
Strontium	86	51.81	52.43	51.97	52.07	0.318	0.61
Strontium	88	50.55	52.01	52.3	51.62	0.94	1.82
Thallium	203	50.31	49.85	50.67	50.28	0.413	0.821
Thallium	205	50.65	50.36	51.16	50.72	0.407	0.803
Tin	118	50.53	49.85	49.6	49.99	0.477	0.954
Titanium	48	53.59	53.25	54.63	53.83	0.721	1.339
Titanium	49	56.28	52.13	53.37	53.93	2.131	3.952
Uranium	238	0.026	0.021	0.024	0.024	0.003	11.3
Vanadium	51	53.56	54.01	55.01	54.2	0.738	1.362
Zinc	66	50.14	51.11	49.89	50.38	0.645	1.28
Zinc	67	60.18	55.59	58.55	58.11	2.327	4.004
Zinc	68	49.88	49.8	51.13	50.27	0.746	1.485
Internal Standard Factors:							
Lithium	6	1.096	1.088	1.124	1.096	n/a	n/a
Scandium	45	1.156	1.181	1.179	1.156	n/a	n/a
Indium	115	1.125	1.133	1.118	1.125	n/a	n/a
Terilium	128	1.172	1.161	1.15	1.172	n/a	n/a
Terilium	130	1.12	1.129	1.127	1.12	n/a	n/a
Lutetium	175	1.061	1.072	1.071	1.061	n/a	n/a
Bismuth	209	1.057	1.087	1.097	1.057	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		ICB			Mean	SD	%RSD
TimeStamp		1/9/03 21:19					
Aluminum	27	-0.075	-0.035	-0.019	-0.043	0.029	66.62
Antimony	121	0.358	0.263	0.157	0.259	0.1	38.71
Antimony	123	0.323	0.24	0.177	0.247	0.073	29.76
Arsenic	75	0.028	-0.023	0.051	0.018	0.038	206.4
Barium	135	-0.033	-0.015	-0.096	-0.048	0.043	88.12
Barium	137	0.022	0.022	0.043	0.029	0.012	42.69
Beryllium	9	0	-0.01	-0.014	-0.008	0.007	86.92
Boron	11	0.873	0.458	0.423	0.585	0.25	42.78
Cadmium	111	-0.019	-0.066	-0.053	-0.046	0.025	53.5
Cadmium	112	-0.001	0	0.006	0.002	0.004	250.1
Cadmium	114	0.004	-0.004	-0.002	-0.001	0.004	511.7
Chromium	52	-0.023	0	0.001	-0.007	0.014	183.6
Cobalt	59	0.05	0.059	0.029	0.046	0.016	34.21
Copper	63	-0.006	-0.035	-0.025	-0.022	0.015	67.65
Copper	65	0.018	0.001	0.023	0.014	0.011	81.86
Lead	206	0.002	0.015	0.004	0.007	0.007	101.3
Lead	207	0.019	0.008	-0.003	0.008	0.011	138
Lead	208	0.006	0.013	0.009	0.009	0.003	34.31
Lithium	7	0	0	0	0	0	0
Manganese	55	-0.002	-0.002	-0.005	-0.003	0.002	56.88
Molybdenum	95	0.068	0.094	0.047	0.07	0.023	33.69
Molybdenum	97	0.109	0.041	0.034	0.061	0.041	67.8
Molybdenum	98	0.13	0.056	0.07	0.085	0.039	46.01
Nickel	60	0.002	0.004	-0.006	0	0.005	12640
Nickel	62	0.031	-0.036	-0.103	-0.036	0.067	187.2
Selenium	78	0.413	0.308	0.24	0.32	0.087	27.23
Selenium	82	0.067	-0.138	0.116	0.015	0.135	908
Silver	107	-0.001	-0.005	0.001	-0.002	0.003	157.3
Silver	109	-0.001	0.004	-0.002	0	0.003	851.4
Strontium	86	0.045	-0.006	-0.009	0.01	0.031	307.6
Strontium	88	0.005	0.007	0.009	0.007	0.002	27.52
Thallium	203	0.061	0.018	0.065	0.048	0.026	53.61
Thallium	205	0.061	0.05	0.038	0.049	0.012	23.66
Tin	118	0.1	0.081	0.063	0.081	0.019	23.05
Titanium	48	0.01	0.018	0.015	0.014	0.004	28.3
Titanium	49	-0.081	-0.201	0.076	-0.069	0.139	202.4
Uranium	238	0.001	0.001	-0.002	0	0.002	1699
Vanadium	51	-0.065	0.048	0.014	-0.001	0.058	4468
Zinc	66	0.017	-0.021	-0.041	-0.015	0.03	198.3
Zinc	67	0.063	-0.002	0.031	0.031	0.032	105.1
Zinc	68	0.027	-0.019	0.021	0.009	0.025	262.2
Internal Standard Factors:							
Lithium	6	1.051	1.02	0.984	1.051	n/a	n/a
Scandium	45	1.067	1.078	1.055	1.067	n/a	n/a
Indium	115	1.034	1.035	1.006	1.034	n/a	n/a
Terilium	128	1.04	1.036	1.034	1.04	n/a	n/a
Terilium	130	1.03	1.04	1.035	1.03	n/a	n/a
Lutetium	175	1.041	1.025	1.024	1.041	n/a	n/a
Bismuth	209	1.06	1.049	1.027	1.06	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		MRL			Mean	SD	%RSD
TimeStamp		1/9/03 21:25					
Aluminum	27	13.03	12.81	12.55	12.8	0.238	1.857
Antimony	121	1.398	1.273	1.308	1.326	0.064	4.86
Antimony	123	1.391	1.317	1.371	1.359	0.038	2.829
Arsenic	75	0.586	0.625	0.604	0.605	0.019	3.18
Barium	135	2.182	2.549	2.09	2.274	0.243	10.68
Barium	137	2.38	2.215	2.083	2.226	0.149	6.699
Beryllium	9	1.125	1.049	1.215	1.13	0.083	7.356
Boron	11	2.934	2.922	2.617	2.824	0.18	6.365
Cadmium	111	0.591	0.507	0.581	0.56	0.046	8.203
Cadmium	112	0.659	0.614	0.67	0.648	0.03	4.632
Cadmium	114	0.61	0.555	0.603	0.59	0.03	5.119
Chromium	52	2.361	2.389	2.453	2.401	0.047	1.97
Cobalt	59	1.144	1.086	1.084	1.105	0.034	3.074
Copper	63	2.354	2.39	2.451	2.398	0.049	2.042
Copper	65	2.344	2.303	2.371	2.339	0.034	1.467
Lead	206	1.127	1.141	1.073	1.114	0.036	3.209
Lead	207	0.993	1.018	0.961	0.991	0.029	2.921
Lead	208	1.001	1.013	0.979	0.998	0.018	1.774
Lithium	7	0	0	0	0	0	0
Manganese	55	1.186	1.122	1.167	1.158	0.033	2.858
Molybdenum	95	1.621	1.688	1.612	1.64	0.041	2.513
Molybdenum	97	1.608	1.577	1.614	1.6	0.02	1.259
Molybdenum	98	1.706	1.668	1.703	1.692	0.021	1.264
Nickel	60	2.205	2.202	2.355	2.254	0.088	3.885
Nickel	62	2.242	2.312	2.055	2.203	0.133	6.043
Selenium	78	2.796	2.196	2.799	2.597	0.347	13.38
Selenium	82	2.038	2.42	2.448	2.302	0.229	9.945
Silver	107	0.232	0.206	0.224	0.221	0.013	5.916
Silver	109	0.232	0.236	0.25	0.239	0.009	3.892
Strontium	86	2.139	2.167	2.135	2.147	0.017	0.803
Strontium	88	2.034	2.055	2.053	2.047	0.011	0.56
Thallium	203	1.176	1.119	1.087	1.127	0.045	4.017
Thallium	205	1.134	1.126	1.117	1.125	0.009	0.769
Tin	118	2.013	2.082	2.067	2.054	0.036	1.761
Titanium	48	2.117	2.202	2.208	2.176	0.051	2.345
Titanium	49	1.835	2.19	2.332	2.119	0.256	12.09
Uranium	238	0.002	0.003	0	0.002	0.001	74.38
Vanadium	51	2.266	2.333	2.274	2.291	0.037	1.599
Zinc	66	11.66	11.03	11.71	11.47	0.378	3.298
Zinc	67	11.65	10.94	11.44	11.34	0.362	3.194
Zinc	68	11.52	11.13	11.87	11.51	0.368	3.199
Internal Standard Factors:							
Lithium	6	1.024	1.014	1.04	1.024	n/a	n/a
Scandium	45	1.034	1.009	1.034	1.034	n/a	n/a
Indium	115	1.017	1.026	1.02	1.017	n/a	n/a
Terilium	128	1.033	1.029	1.036	1.033	n/a	n/a
Terilium	130	1.027	1.031	1.041	1.027	n/a	n/a
Lutetium	175	1.02	1.013	1.034	1.02	n/a	n/a
Bismuth	209	1.041	1.009	1.05	1.041	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		MRL 1/2			Mean	SD	%RSD
TimeStamp		1/9/03 21:30					
Aluminum	27	6.613	6.847	7.047	6.836	0.217	3.172
Antimony	121	0.653	0.635	0.697	0.662	0.032	4.837
Antimony	123	0.542	0.693	0.628	0.621	0.076	12.21
Arsenic	75	0.246	0.302	0.348	0.298	0.051	17.13
Barium	135	1.167	1.063	1.391	1.207	0.168	13.88
Barium	137	1.286	1.241	1.15	1.226	0.07	5.676
Beryllium	9	0.59	0.551	0.527	0.556	0.032	5.738
Boron	11	1.26	1.105	1.092	1.152	0.093	8.106
Cadmium	111	0.228	0.247	0.289	0.255	0.031	12.14
Cadmium	112	0.299	0.335	0.334	0.323	0.021	6.441
Cadmium	114	0.26	0.291	0.292	0.281	0.018	6.482
Chromium	52	1.414	1.335	1.388	1.379	0.04	2.913
Cobalt	59	0.564	0.559	0.539	0.554	0.013	2.391
Copper	63	1.166	1.147	1.256	1.19	0.058	4.873
Copper	65	1.299	1.203	1.293	1.265	0.054	4.235
Lead	206	0.525	0.551	0.525	0.534	0.015	2.767
Lead	207	0.511	0.491	0.518	0.507	0.014	2.713
Lead	208	0.51	0.514	0.518	0.514	0.004	0.833
Lithium	7	0	0	0	0	0	0
Manganese	55	0.572	0.544	0.577	0.564	0.018	3.127
Molybdenum	95	0.749	0.833	0.869	0.817	0.062	7.535
Molybdenum	97	0.804	0.799	0.911	0.838	0.063	7.57
Molybdenum	98	0.833	0.808	0.818	0.82	0.012	1.505
Nickel	60	1.097	1.05	1.104	1.084	0.029	2.683
Nickel	62	1.1	1.153	1.242	1.165	0.071	6.131
Selenium	78	1.476	1.53	1.652	1.553	0.09	5.805
Selenium	82	0.944	1.207	1.447	1.199	0.252	20.98
Silver	107	0.117	0.096	0.137	0.117	0.021	17.67
Silver	109	0.111	0.131	0.14	0.127	0.015	11.61
Strontium	86	1.075	0.984	1.161	1.073	0.089	8.27
Strontium	88	1.054	1.032	1.04	1.042	0.011	1.093
Thallium	203	0.526	0.588	0.64	0.585	0.057	9.759
Thallium	205	0.566	0.549	0.565	0.56	0.01	1.718
Tin	118	1.018	0.977	1.14	1.045	0.085	8.112
Titanium	48	1.152	1.144	1.05	1.115	0.057	5.084
Titanium	49	1.073	1.038	1.399	1.17	0.2	17.06
Uranium	238	0.002	0.002	0.003	0.002	0	17.94
Vanadium	51	1.157	1.099	1.159	1.138	0.034	2.991
Zinc	66	5.504	6.04	6.011	5.852	0.301	5.148
Zinc	67	5.765	6.069	6.011	5.948	0.161	2.713
Zinc	68	6.07	6.181	6.245	6.165	0.089	1.442
Internal Standard Factors:							
Lithium	6	1.016	0.993	0.977	1.016	n/a	n/a
Scandium	45	0.999	0.975	0.985	0.999	n/a	n/a
Indium	115	1.019	1.016	1.03	1.019	n/a	n/a
Terilium	128	1.039	1.064	1.047	1.039	n/a	n/a
Terilium	130	1.055	1.053	1.057	1.055	n/a	n/a
Lutetium	175	1.029	1.037	1.03	1.029	n/a	n/a
Bismuth	209	1.037	1.046	1.073	1.037	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		ICSA			Mean	SD	%RSD
TimeStamp		1/9/03 21:35					
Aluminum	27	54430	54800	56420	55220	1058	1.916
Antimony	121	0.732	0.775	0.775	0.761	0.025	3.295
Antimony	123	0.758	0.721	0.729	0.736	0.02	2.656
Arsenic	75	-0.092	0.031	-0.066	-0.042	0.065	153.4
Barium	135	0.037	0.088	0.099	0.075	0.033	43.98
Barium	137	0.143	0.114	0.073	0.11	0.036	32.42
Beryllium	9	0.019	0.022	0.035	0.025	0.008	33.28
Boron	11	2.705	3.323	3.013	3.014	0.309	10.24
Cadmium	111	0.792	0.642	0.758	0.731	0.079	10.82
Cadmium	112	0.52	0.428	0.53	0.493	0.056	11.43
Cadmium	114	0.134	0.092	0.16	0.129	0.034	26.69
Chromium	52	1.49	1.476	1.446	1.471	0.022	1.52
Cobalt	59	0.217	0.206	0.245	0.223	0.02	9.078
Copper	63	1.971	1.922	1.871	1.921	0.05	2.614
Copper	65	1.452	1.441	1.418	1.437	0.018	1.224
Lead	206	0.694	0.625	0.722	0.68	0.05	7.321
Lead	207	0.625	0.698	0.633	0.652	0.04	6.087
Lead	208	0.661	0.655	0.67	0.662	0.008	1.204
Lithium	7	0	0	0	0	0	0
Manganese	55	1.252	1.415	1.473	1.38	0.114	8.292
Molybdenum	95	1072	1142	1096	1103	35.36	3.206
Molybdenum	97	1149	1166	1164	1160	9.686	0.835
Molybdenum	98	1084	1103	1107	1098	12.21	1.112
Nickel	60	1.14	0.973	1.118	1.077	0.09	8.387
Nickel	62	2.171	2.248	2.552	2.324	0.202	8.677
Selenium	78	0.155	0.14	0.055	0.117	0.054	46.28
Selenium	82	-0.284	-0.044	-0.412	-0.247	0.187	75.71
Silver	107	0.039	0.038	0.022	0.033	0.01	29.63
Silver	109	0.029	0.027	0.036	0.031	0.005	15.1
Strontium	86	1.319	1.274	1.281	1.291	0.024	1.854
Strontium	88	1.043	1.138	1.125	1.102	0.052	4.69
Thallium	203	0.06	0.027	0.047	0.045	0.017	37.83
Thallium	205	0.017	0.008	0.001	0.009	0.008	94.71
Tin	118	0.154	0.161	0.173	0.163	0.01	6.087
Titanium	48	1440	1474	1442	1452	18.87	1.3
Titanium	49	1202	1225	1201	1209	13.34	1.103
Uranium	238	0.005	0.004	0.014	0.007	0.006	78.68
Vanadium	51	0.061	0.018	-0.031	0.016	0.046	290.7
Zinc	66	4.268	4.172	4.266	4.235	0.055	1.293
Zinc	67	9.361	9.471	8.961	9.264	0.268	2.892
Zinc	68	3.703	3.946	3.978	3.876	0.15	3.882
Internal Standard Factors:							
Lithium	6	1.239	1.256	1.244	1.239	n/a	n/a
Scandium	45	1.321	1.362	1.346	1.321	n/a	n/a
Indium	115	1.272	1.27	1.282	1.272	n/a	n/a
Terilium	128	1.428	1.429	1.453	1.428	n/a	n/a
Terilium	130	1.433	1.43	1.448	1.433	n/a	n/a
Lutetium	175	1.249	1.235	1.231	1.249	n/a	n/a
Bismuth	209	1.411	1.414	1.439	1.411	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		ICSAB			Mean	SD	%RSD
TimeStamp		1/9/03 21:40					
Aluminum	27	49750	49650	49240	49550	269.3	0.544
Antimony	121	20.54	21.02	21.06	20.87	0.291	1.397
Antimony	123	21.22	21.36	21.55	21.38	0.164	0.767
Arsenic	75	22.89	22.51	23.05	22.81	0.276	1.21
Barium	135	20.82	21.05	21.01	20.96	0.12	0.572
Barium	137	21.63	21.05	21.54	21.41	0.314	1.466
Beryllium	9	18.38	18.59	18.46	18.48	0.102	0.554
Boron	11	100.3	102.7	103.2	102.1	1.562	1.531
Cadmium	111	20.31	20.31	21.13	20.58	0.473	2.299
Cadmium	112	19.1	19.13	18.71	18.98	0.232	1.22
Cadmium	114	19.86	19.73	20.07	19.89	0.172	0.863
Chromium	52	21.87	22.42	22.21	22.17	0.275	1.24
Cobalt	59	21.7	22.35	21.98	22.01	0.327	1.486
Copper	63	19.32	20.03	20.79	20.05	0.735	3.667
Copper	65	19.38	20.38	20.1	19.95	0.515	2.579
Lead	206	21.6	22.02	21.03	21.55	0.497	2.306
Lead	207	21.47	22.86	20.52	21.62	1.181	5.463
Lead	208	21.73	22.21	21.19	21.71	0.512	2.356
Lithium	7	0	0	0	0	0	0
Manganese	55	21.62	22.55	21.48	21.89	0.581	2.656
Molybdenum	95	1056	1064	1048	1056	7.844	0.743
Molybdenum	97	1097	1101	1090	1096	5.737	0.523
Molybdenum	98	1034	1048	1032	1038	8.633	0.832
Nickel	60	20.7	21.62	21.23	21.18	0.46	2.169
Nickel	62	23.16	22.1	21.58	22.28	0.807	3.622
Selenium	78	22.83	22.6	21.85	22.43	0.511	2.28
Selenium	82	22.57	21.56	21.2	21.78	0.709	3.256
Silver	107	19.56	19.81	19.24	19.54	0.286	1.466
Silver	109	18.93	19.21	19.47	19.2	0.267	1.389
Strontium	86	22.27	23.42	23.48	23.06	0.681	2.952
Strontium	88	22.64	23.09	22.89	22.87	0.229	1.002
Thallium	203	22.44	21.82	22.05	22.1	0.316	1.428
Thallium	205	21.57	22.23	21.76	21.85	0.343	1.571
Tin	118	0.443	0.46	0.428	0.444	0.016	3.653
Titanium	48	1326	1363	1318	1336	23.7	1.774
Titanium	49	1120	1194	1120	1145	43.11	3.766
Uranium	238	24.21	24.56	23.94	24.23	0.315	1.299
Vanadium	51	23.96	24.23	23.34	23.85	0.455	1.908
Zinc	66	44.64	43.63	44.95	44.41	0.692	1.557
Zinc	67	51.21	50.79	50.91	50.97	0.219	0.429
Zinc	68	43.91	45.52	43.54	44.32	1.056	2.382
Internal Standard Factors:							
Lithium	6	1.192	1.143	1.161	1.192	n/a	n/a
Scandium	45	1.34	1.402	1.334	1.34	n/a	n/a
Indium	115	1.256	1.264	1.263	1.256	n/a	n/a
Terilium	128	1.425	1.403	1.426	1.425	n/a	n/a
Terilium	130	1.409	1.413	1.406	1.409	n/a	n/a
Lutetium	175	1.216	1.195	1.204	1.216	n/a	n/a
Bismuth	209	1.338	1.341	1.268	1.338	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		CCB1			Mean	SD	%RSD
TimeStamp		1/9/03 22:10					
Aluminum	27	1.914	1.601	1.344	1.62	0.285	17.6
Antimony	121	0.596	0.325	0.155	0.359	0.223	62.03
Antimony	123	0.581	0.25	0.211	0.347	0.203	58.5
Arsenic	75	-0.063	-0.023	0.114	0.009	0.093	997.2
Barium	135	-0.053	0.017	-0.125	-0.054	0.071	132.6
Barium	137	0.005	0.016	0.032	0.018	0.014	79.6
Beryllium	9	0.01	0.011	-0.006	0.005	0.009	197.2
Boron	11	1.056	0.47	0.082	0.536	0.49	91.47
Cadmium	111	-0.029	-0.036	-0.034	-0.033	0.003	10.52
Cadmium	112	0.002	-0.004	-0.001	-0.001	0.003	262
Cadmium	114	-0.008	-0.009	0.002	-0.005	0.006	119.2
Chromium	52	0.358	0.285	0.24	0.295	0.06	20.3
Cobalt	59	-0.003	-0.003	-0.007	-0.004	0.003	62.51
Copper	63	-0.05	-0.053	-0.06	-0.055	0.005	9.405
Copper	65	-0.057	-0.02	-0.025	-0.034	0.02	60.05
Lead	206	-0.019	-0.008	-0.022	-0.016	0.008	47.11
Lead	207	-0.015	-0.017	-0.015	-0.016	0.001	5.992
Lead	208	-0.011	-0.016	-0.014	-0.014	0.002	17.24
Lithium	7	0	0	0	0	0	0
Manganese	55	-0.006	-0.001	-0.008	-0.005	0.004	77.76
Molybdenum	95	0.146	0.077	0.07	0.098	0.042	42.89
Molybdenum	97	0.189	0.142	0.078	0.136	0.056	40.81
Molybdenum	98	0.144	0.11	0.101	0.118	0.023	19.44
Nickel	60	-0.04	-0.033	-0.036	-0.036	0.004	10.23
Nickel	62	-0.111	0.05	-0.062	-0.041	0.083	202.8
Selenium	78	0.34	0.186	0.408	0.311	0.114	36.51
Selenium	82	-0.057	-0.014	0.387	0.105	0.245	232.7
Silver	107	-0.007	-0.006	-0.002	-0.005	0.003	54.11
Silver	109	0.002	0.003	-0.007	-0.001	0.005	734.6
Strontium	86	-0.047	0.05	-0.007	-0.001	0.049	4555
Strontium	88	0.002	0.003	0.01	0.005	0.004	77.56
Thallium	203	-0.029	0.001	-0.028	-0.018	0.017	92.73
Thallium	205	-0.005	-0.011	-0.039	-0.018	0.018	99.14
Tin	118	0.039	0.063	-0.024	0.026	0.045	173.1
Titanium	48	0.11	0.055	0.086	0.084	0.028	33.15
Titanium	49	-0.151	-0.193	0.129	-0.071	0.175	245.3
Uranium	238	0.004	0.005	0.001	0.003	0.002	68.54
Vanadium	51	-0.039	-0.022	-0.093	-0.051	0.037	71.48
Zinc	66	-0.091	-0.085	-0.107	-0.095	0.011	11.85
Zinc	67	-0.008	0.012	-0.006	-0.001	0.011	1827
Zinc	68	-0.098	-0.066	-0.076	-0.08	0.016	20.36
Internal Standard Factors:							
Lithium	6	1.107	1.082	1.017	1.107	n/a	n/a
Scandium	45	1.149	1.128	1.1	1.149	n/a	n/a
Indium	115	1.108	1.104	1.084	1.108	n/a	n/a
Terilium	128	1.127	1.12	1.11	1.127	n/a	n/a
Terilium	130	1.133	1.121	1.107	1.133	n/a	n/a
Lutetium	175	1.087	1.081	1.074	1.087	n/a	n/a
Bismuth	209	1.122	1.114	1.108	1.122	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		MBS7-0108 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 22:15					
Aluminum	27	1.53	1.218	1.108	1.285	0.219	17.02
Antimony	121	0.04	0.044	0.002	0.029	0.023	79.49
Antimony	123	0.039	-0.041	0.036	0.011	0.045	395.9
Arsenic	75	0.011	-0.019	0.062	0.018	0.041	229.3
Barium	135	0.013	-0.026	-0.068	-0.027	0.04	150.9
Barium	137	0.028	0.029	-0.003	0.018	0.018	101.8
Beryllium	9	-0.003	-0.006	0.012	0.001	0.01	963.4
Boron	11	-0.299	-0.329	-0.421	-0.35	0.064	18.19
Cadmium	111	-0.008	-0.053	-0.066	-0.042	0.031	72.6
Cadmium	112	0.059	0.068	0.059	0.062	0.005	8.221
Cadmium	114	-0.007	0.008	-0.014	-0.004	0.012	275.4
Chromium	52	0.547	0.516	0.477	0.514	0.035	6.79
Cobalt	59	-0.028	-0.026	-0.027	-0.027	0.001	4.276
Copper	63	-0.054	-0.036	-0.052	-0.047	0.009	19.82
Copper	65	0.001	-0.004	-0.021	-0.008	0.011	140.2
Lead	206	0.015	0.016	0.028	0.02	0.007	36.42
Lead	207	0.045	0.027	0.009	0.027	0.018	67.73
Lead	208	0.027	0.016	0.019	0.021	0.006	27.15
Lithium	7	0	0	0	0	0	0
Manganese	55	0.011	-0.009	0.002	0.001	0.01	684.7
Molybdenum	95	0.057	0.055	0.037	0.05	0.011	21.68
Molybdenum	97	0.019	0.052	0.001	0.024	0.026	108.4
Molybdenum	98	0.04	0.042	0.034	0.039	0.004	10.73
Nickel	60	-0.005	-0.013	-0.005	-0.008	0.005	61.49
Nickel	62	0.106	-0.058	0.024	0.024	0.082	343
Selenium	78	0.06	0.515	0.266	0.28	0.228	81.2
Selenium	82	0.312	0.389	0.055	0.252	0.175	69.48
Silver	107	-0.002	0	0	-0.001	0.001	194.8
Silver	109	0.002	0	-0.003	0	0.003	567
Strontium	86	-0.042	0.119	-0.033	0.015	0.09	600.9
Strontium	88	0.005	0.003	0.008	0.005	0.003	49.2
Thallium	203	-0.069	-0.06	-0.031	-0.054	0.02	36.99
Thallium	205	-0.058	-0.055	-0.067	-0.06	0.006	9.993
Tin	118	1.265	1.186	1.263	1.238	0.045	3.65
Titanium	48	0.126	0.106	0.084	0.105	0.021	20.24
Titanium	49	-0.65	-0.629	-0.782	-0.687	0.083	12.06
Uranium	238	0.002	-0.004	-0.001	-0.001	0.003	276.9
Vanadium	51	0.218	-1.346	-0.595	-0.575	0.782	136.1
Zinc	66	0.248	0.273	0.283	0.268	0.018	6.808
Zinc	67	1.42	1.349	1.537	1.436	0.095	6.623
Zinc	68	0.386	0.297	0.297	0.327	0.051	15.71
Internal Standard Factors:							
Lithium	6	1.111	1.124	1.053	1.111	n/a	n/a
Scandium	45	1.308	1.263	1.261	1.308	n/a	n/a
Indium	115	1.185	1.195	1.196	1.185	n/a	n/a
Terilium	128	1.253	1.253	1.266	1.253	n/a	n/a
Terilium	130	1.279	1.269	1.254	1.279	n/a	n/a
Lutetium	175	1.132	1.141	1.133	1.132	n/a	n/a
Bismuth	209	1.176	1.151	1.15	1.176	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		LCS7-0108 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 22:20					
Aluminum	27	368	350.9	368	362.3	9.879	2.727
Antimony	121	358.4	360.9	363.1	360.8	2.324	0.644
Antimony	123	358.1	366.5	370.8	365.1	6.471	1.772
Arsenic	75	189.6	192.6	189.7	190.6	1.737	0.911
Barium	135	173.5	170.8	172.9	172.4	1.413	0.82
Barium	137	177.9	180.1	178.6	178.9	1.124	0.628
Beryllium	9	183	180.4	189	184.1	4.411	2.395
Boron	11	386.5	391.9	367	381.8	13.09	3.43
Cadmium	111	190.7	189.6	189.9	190.1	0.555	0.292
Cadmium	112	206.3	205.6	202.5	204.8	1.997	0.975
Cadmium	114	190.9	190.4	190.9	190.7	0.288	0.151
Chromium	52	186.3	191.7	192.3	190.1	3.302	1.737
Cobalt	59	188	200.8	197.5	195.4	6.642	3.399
Copper	63	183.6	193.2	193.7	190.2	5.689	2.992
Copper	65	193.4	197	199.5	196.6	3.076	1.564
Lead	206	415.3	421.4	418.8	418.5	3.067	0.733
Lead	207	377.4	378.1	376.4	377.3	0.871	0.231
Lead	208	386.7	392.6	393.6	391	3.771	0.964
Lithium	7	0	0	0	0	0	0
Manganese	55	185.7	196.4	195	192.3	5.794	3.012
Molybdenum	95	197.1	202.3	199	199.5	2.633	1.32
Molybdenum	97	199.6	202.4	200.7	200.9	1.433	0.713
Molybdenum	98	197	196.7	200.3	198	1.997	1.009
Nickel	60	197.4	205.6	197.5	200.2	4.69	2.343
Nickel	62	192.1	213.7	194.4	200.1	11.86	5.929
Selenium	78	192.1	194.2	189.9	192.1	2.108	1.097
Selenium	82	191.4	193.6	191.2	192.1	1.341	0.698
Silver	107	97.02	95.69	96.69	96.47	0.695	0.721
Silver	109	93.86	96.97	93.91	94.91	1.782	1.877
Strontium	86	188.2	194.9	197.6	193.6	4.856	2.509
Strontium	88	186.2	187.8	188.6	187.5	1.203	0.642
Thallium	203	458	464.6	462.7	461.8	3.426	0.742
Thallium	205	479.6	482	478.2	480	1.915	0.399
Tin	118	448.6	451.5	447.9	449.3	1.887	0.42
Titanium	48	1005	1075	1046	1042	35.35	3.392
Titanium	49	998.7	1027	1043	1023	22.33	2.183
Uranium	238	0.003	0	0	0.001	0.002	172.7
Vanadium	51	197.9	207.4	209.5	204.9	6.154	3.003
Zinc	66	195.8	195.4	195.7	195.6	0.227	0.116
Zinc	67	198.7	204.8	197	200.1	4.093	2.045
Zinc	68	187.2	197.6	191	191.9	5.268	2.745
Internal Standard Factors:							
Lithium	6	1.111	1.082	1.13	1.111	n/a	n/a
Scandium	45	1.235	1.266	1.262	1.235	n/a	n/a
Indium	115	1.129	1.13	1.121	1.129	n/a	n/a
Terilium	128	1.243	1.253	1.232	1.243	n/a	n/a
Terilium	130	1.231	1.24	1.243	1.231	n/a	n/a
Lutetium	175	1.123	1.124	1.13	1.123	n/a	n/a
Bismuth	209	1.094	1.095	1.099	1.094	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-009 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 22:25					
Aluminum	27	11350	11340	10710	11140	363.9	3.268
Antimony	121	3.688	2.286	1.61	2.528	1.06	41.93
Antimony	123	3.648	2.316	1.694	2.553	0.998	39.11
Arsenic	75	4.029	3.971	3.657	3.886	0.2	5.146
Barium	135	298.5	300.7	299.4	299.5	1.074	0.359
Barium	137	300.5	305.8	301.3	302.5	2.856	0.944
Beryllium	9	0.83	0.72	0.826	0.792	0.063	7.935
Boron	11	20.43	19.47	18.25	19.38	1.089	5.618
Cadmium	111	0.505	0.564	0.589	0.553	0.043	7.781
Cadmium	112	0.665	0.732	0.719	0.705	0.036	5.083
Cadmium	114	0.43	0.418	0.444	0.431	0.013	3.058
Chromium	52	17.83	17.8	16.46	17.36	0.779	4.485
Cobalt	59	9.038	9.053	8.98	9.024	0.038	0.426
Copper	63	21.52	22.9	21.01	21.81	0.983	4.507
Copper	65	21.09	22.58	21.27	21.65	0.816	3.767
Lead	206	28.45	29.04	28.74	28.74	0.294	1.023
Lead	207	29.09	29.33	30.19	29.53	0.576	1.952
Lead	208	29.32	29.76	29.7	29.59	0.24	0.811
Lithium	7	0	0	0	0	0	0
Manganese	55	394.6	414.9	389.1	399.5	13.61	3.407
Molybdenum	95	1.523	1.629	1.483	1.545	0.075	4.88
Molybdenum	97	1.377	1.179	1.363	1.306	0.111	8.47
Molybdenum	98	1.414	1.288	1.265	1.322	0.08	6.078
Nickel	60	25.32	25.15	23.65	24.7	0.92	3.724
Nickel	62	25.9	25.29	23.6	24.93	1.19	4.774
Selenium	78	0.585	0.386	0.596	0.522	0.118	22.61
Selenium	82	0.96	0.614	0.123	0.566	0.421	74.38
Silver	107	0.051	0.052	0.067	0.057	0.009	15.31
Silver	109	0.049	0.064	0.052	0.055	0.008	14.5
Strontium	86	65.88	65	65.68	65.52	0.462	0.705
Strontium	88	65.95	66.15	63.94	65.35	1.227	1.877
Thallium	203	0.667	0.501	0.465	0.544	0.108	19.79
Thallium	205	0.6	0.491	0.419	0.503	0.091	18.14
Tin	118	3.982	3.483	3.33	3.598	0.341	9.478
Titanium	48	180.3	185	178.4	181.3	3.381	1.865
Titanium	49	132.4	133.6	133.6	133.2	0.671	0.504
Uranium	238	0.827	0.834	0.863	0.841	0.019	2.297
Vanadium	51	21.39	24.48	20.87	22.24	1.952	8.776
Zinc	66	48.78	45.73	48.39	47.63	1.659	3.482
Zinc	67	58.17	55.48	57.62	57.09	1.425	2.497
Zinc	68	44.71	46.32	45.01	45.34	0.857	1.891
Internal Standard Factors:							
Lithium	6	1.184	1.183	1.138	1.184	n/a	n/a
Scandium	45	1.34	1.372	1.306	1.34	n/a	n/a
Indium	115	1.252	1.257	1.251	1.252	n/a	n/a
Terilium	128	1.31	1.344	1.331	1.31	n/a	n/a
Terilium	130	1.248	1.251	1.263	1.248	n/a	n/a
Lutetium	175	1.156	1.146	1.146	1.156	n/a	n/a
Bismuth	209	1.192	1.21	1.22	1.192	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-009DUP 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 22:30					
Aluminum	27	11040	11470	10700	11070	383.8	3.467
Antimony	121	0.838	0.674	0.51	0.674	0.164	24.31
Antimony	123	0.641	0.65	0.51	0.6	0.078	13.02
Arsenic	75	3.684	3.413	3.373	3.49	0.169	4.843
Barium	135	299.8	295.1	286.2	293.7	6.913	2.354
Barium	137	302.4	298.6	289	296.7	6.928	2.335
Beryllium	9	0.837	0.794	0.825	0.819	0.022	2.713
Boron	11	17.37	17.43	16.73	17.18	0.39	2.268
Cadmium	111	0.677	0.611	0.495	0.595	0.092	15.54
Cadmium	112	0.579	0.574	0.617	0.59	0.023	3.965
Cadmium	114	0.41	0.32	0.378	0.37	0.045	12.27
Chromium	52	17.69	18.29	16.92	17.63	0.686	3.892
Cobalt	59	9.278	9.336	9.157	9.257	0.091	0.988
Copper	63	20.26	20.9	19.52	20.23	0.693	3.427
Copper	65	20.66	20.9	20.79	20.78	0.117	0.566
Lead	206	28.59	29.01	29.06	28.89	0.263	0.911
Lead	207	28.85	29.09	29.52	29.15	0.343	1.175
Lead	208	29.85	29.58	29.59	29.67	0.153	0.516
Lithium	7	0	0	0	0	0	0
Manganese	55	371.1	377	375.3	374.5	3.043	0.813
Molybdenum	95	1.386	1.275	1.164	1.275	0.111	8.695
Molybdenum	97	1.198	1.132	1.227	1.186	0.049	4.094
Molybdenum	98	1.205	1.082	1.139	1.142	0.062	5.386
Nickel	60	23.63	24.32	23.9	23.95	0.348	1.454
Nickel	62	25.3	24.29	24.04	24.54	0.667	2.716
Selenium	78	1.033	0.755	0.53	0.773	0.252	32.55
Selenium	82	0.887	0.518	0.534	0.646	0.208	32.22
Silver	107	0.057	0.056	0.072	0.062	0.009	14.38
Silver	109	0.059	0.048	0.053	0.054	0.005	9.806
Strontium	86	62.73	64.4	59.48	62.2	2.503	4.023
Strontium	88	63.34	63.74	60.31	62.46	1.874	3.001
Thallium	203	0.264	0.171	0.194	0.21	0.048	22.91
Thallium	205	0.22	0.231	0.227	0.226	0.006	2.579
Tin	118	3.095	2.872	2.847	2.938	0.136	4.637
Titanium	48	178.4	189.2	174.6	180.8	7.58	4.193
Titanium	49	140.2	140.6	130.2	137	5.889	4.298
Uranium	238	0.766	0.764	0.786	0.772	0.012	1.595
Vanadium	51	21.57	25.41	22.58	23.19	1.989	8.579
Zinc	66	45.6	47.42	47.44	46.82	1.054	2.252
Zinc	67	57.34	57.59	57.49	57.47	0.127	0.22
Zinc	68	46.11	42.94	44.45	44.5	1.589	3.571
Internal Standard Factors:							
Lithium	6	1.19	1.174	1.136	1.19	n/a	n/a
Scandium	45	1.361	1.416	1.303	1.361	n/a	n/a
Indium	115	1.307	1.281	1.258	1.307	n/a	n/a
Terilium	128	1.357	1.342	1.354	1.357	n/a	n/a
Terilium	130	1.289	1.275	1.279	1.289	n/a	n/a
Lutetium	175	1.176	1.169	1.157	1.176	n/a	n/a
Bismuth	209	1.183	1.191	1.193	1.183	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-009S 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 22:35					
Aluminum	27	11210	11220	11330	11260	67.52	0.6
Antimony	121	284.2	286.3	285.8	285.4	1.057	0.37
Antimony	123	285.2	292.5	290.5	289.4	3.795	1.311
Arsenic	75	199.3	196.7	197.7	197.9	1.345	0.68
Barium	135	495.4	493.2	483.9	490.8	6.121	1.247
Barium	137	503.7	509.6	500	504.4	4.859	0.963
Beryllium	9	180.5	191.6	178.3	183.5	7.114	3.878
Boron	11	349	377.6	380.4	369	17.37	4.709
Cadmium	111	194.5	189.6	187.6	190.6	3.566	1.871
Cadmium	112	207	207.8	203.1	206	2.521	1.224
Cadmium	114	192.2	190.3	188.9	190.5	1.678	0.881
Chromium	52	222.4	222.8	206.1	217.1	9.549	4.398
Cobalt	59	199.1	207	196.9	201	5.285	2.629
Copper	63	222.7	222.7	196.3	213.9	15.22	7.114
Copper	65	214.3	207.1	194.3	205.2	10.14	4.939
Lead	206	438.6	445.3	444.9	442.9	3.764	0.85
Lead	207	398.3	403.5	398.3	400	3.014	0.754
Lead	208	419.3	419.3	419.1	419.2	0.123	0.029
Lithium	7	0	0	0	0	0	0
Manganese	55	645.4	636.8	590.7	624.3	29.41	4.711
Molybdenum	95	204.8	204.4	195.7	201.6	5.159	2.559
Molybdenum	97	201.1	204	194.6	199.9	4.802	2.402
Molybdenum	98	199.7	196.6	189	195.1	5.512	2.826
Nickel	60	228.3	220.8	213.6	220.9	7.366	3.335
Nickel	62	233.5	244.3	212.2	230	16.32	7.097
Selenium	78	192.8	198.2	194.3	195.1	2.796	1.433
Selenium	82	192.6	194.6	195.3	194.2	1.409	0.726
Silver	107	96.35	96.19	95.02	95.85	0.729	0.76
Silver	109	98.24	93.99	95.95	96.06	2.13	2.217
Strontium	86	260.9	263.6	254.7	259.7	4.586	1.766
Strontium	88	246.8	250.6	247	248.1	2.17	0.874
Thallium	203	448.9	458	457.1	454.6	5.026	1.105
Thallium	205	468.9	474.9	485.2	476.3	8.231	1.728
Tin	118	446	455.1	455.2	452.1	5.274	1.166
Titanium	48	953.6	939	854.5	915.7	53.52	5.845
Titanium	49	879.9	908.4	816.7	868.3	46.94	5.406
Uranium	238	0.741	0.732	0.715	0.729	0.013	1.809
Vanadium	51	232.3	227.9	208.2	222.8	12.84	5.765
Zinc	66	223.7	223.8	238.3	228.6	8.406	3.677
Zinc	67	237.1	249.8	248.6	245.2	6.996	2.854
Zinc	68	231.2	220.1	223.6	225	5.67	2.52
Internal Standard Factors:							
Lithium	6	1.119	1.196	1.125	1.119	n/a	n/a
Scandium	45	1.43	1.435	1.304	1.43	n/a	n/a
Indium	115	1.239	1.238	1.225	1.239	n/a	n/a
Terilium	128	1.376	1.381	1.38	1.376	n/a	n/a
Terilium	130	1.267	1.263	1.256	1.267	n/a	n/a
Lutetium	175	1.16	1.159	1.155	1.16	n/a	n/a
Bismuth	209	1.107	1.113	1.092	1.107	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-009SD 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 22:40					
Aluminum	27	9887	10340	10150	10130	228.5	2.256
Antimony	121	285.3	287.5	280.6	284.5	3.523	1.238
Antimony	123	285.5	289.2	280.6	285.1	4.327	1.518
Arsenic	75	190.7	193.7	192.9	192.4	1.508	0.784
Barium	135	431.4	439.7	434.9	435.3	4.152	0.954
Barium	137	443.5	449.4	440.9	444.6	4.353	0.979
Beryllium	9	183.7	176.5	185.8	182	4.92	2.703
Boron	11	358.1	372.3	382.5	371	12.27	3.307
Cadmium	111	192.1	191.9	187.3	190.4	2.748	1.443
Cadmium	112	207	202.7	201.8	203.9	2.771	1.359
Cadmium	114	192.8	194.7	188.7	192.1	3.063	1.595
Chromium	52	204.5	216.3	210.1	210.3	5.89	2.801
Cobalt	59	190.5	195.3	194.5	193.4	2.552	1.319
Copper	63	211.4	207	207.9	208.8	2.326	1.114
Copper	65	211.1	213.3	210.2	211.5	1.607	0.759
Lead	206	439.5	455.1	445.3	446.6	7.87	1.762
Lead	207	399.2	407.3	406.4	404.3	4.461	1.103
Lead	208	417.1	423.1	422	420.7	3.163	0.752
Lithium	7	0	0	0	0	0	0
Manganese	55	559.3	592.6	575.7	575.8	16.66	2.893
Molybdenum	95	202.2	198.3	197.1	199.2	2.658	1.334
Molybdenum	97	198	200.5	196.6	198.4	2.004	1.01
Molybdenum	98	194	196.3	192.8	194.4	1.798	0.925
Nickel	60	215.4	219.7	216.1	217.1	2.332	1.074
Nickel	62	217.1	219.6	224.6	220.4	3.804	1.726
Selenium	78	191.3	193.4	192.5	192.4	1.061	0.551
Selenium	82	192.7	189.7	190.9	191.1	1.473	0.771
Silver	107	96.91	96.18	93.65	95.58	1.714	1.793
Silver	109	94.77	95.19	94.19	94.72	0.503	0.531
Strontium	86	249.3	252.2	251.2	250.9	1.456	0.58
Strontium	88	244.4	250.7	241.7	245.6	4.641	1.889
Thallium	203	453.1	462.8	457.8	457.9	4.868	1.063
Thallium	205	479.7	485.2	480.5	481.8	2.966	0.616
Tin	118	455.7	457.2	447.8	453.6	5.055	1.115
Titanium	48	781.4	806.5	789.3	792.4	12.84	1.62
Titanium	49	729	739.5	765.7	744.7	18.88	2.535
Uranium	238	0.701	0.777	0.745	0.741	0.038	5.171
Vanadium	51	206.2	220.1	214.5	213.6	7.001	3.277
Zinc	66	235.9	228.5	225.7	230	5.268	2.29
Zinc	67	242	241.2	243.7	242.3	1.285	0.53
Zinc	68	225.4	228.6	235.6	229.9	5.213	2.268
Internal Standard Factors:							
Lithium	6	1.17	1.127	1.193	1.17	n/a	n/a
Scandium	45	1.352	1.414	1.385	1.352	n/a	n/a
Indium	115	1.238	1.243	1.228	1.238	n/a	n/a
Terilium	128	1.373	1.374	1.379	1.373	n/a	n/a
Terilium	130	1.264	1.283	1.271	1.264	n/a	n/a
Lutetium	175	1.176	1.151	1.156	1.176	n/a	n/a
Bismuth	209	1.107	1.141	1.124	1.107	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		CCV2			Mean	SD	%RSD
TimeStamp		1/9/03 22:45					
Aluminum	27	123.3	119.6	130.1	124.3	5.357	4.309
Antimony	121	26.5	26.31	26.79	26.53	0.239	0.9
Antimony	123	26.83	26.82	27.01	26.89	0.105	0.392
Arsenic	75	23.56	24.06	23.01	23.55	0.526	2.236
Barium	135	24.48	25.16	24.94	24.86	0.342	1.376
Barium	137	24.5	24.62	25.53	24.88	0.564	2.266
Beryllium	9	24.37	24.38	24.53	24.43	0.094	0.383
Boron	11	130	122.3	136.5	129.6	7.09	5.472
Cadmium	111	25.24	25.68	24.88	25.27	0.399	1.579
Cadmium	112	25.19	25.05	24.77	25	0.211	0.844
Cadmium	114	24.84	25.3	24.97	25.04	0.238	0.951
Chromium	52	25.5	24.11	24.53	24.71	0.711	2.879
Cobalt	59	26.01	24.13	24.34	24.83	1.03	4.147
Copper	63	25.24	24.57	25.17	25	0.37	1.481
Copper	65	25.4	23.92	24.84	24.72	0.746	3.018
Lead	206	24.93	25.73	24.81	25.16	0.501	1.991
Lead	207	25.07	25.2	24.51	24.93	0.366	1.469
Lead	208	25.41	25.43	24.62	25.15	0.465	1.847
Lithium	7	0	0	0	0	0	0
Manganese	55	25.48	24.56	23.84	24.63	0.819	3.325
Molybdenum	95	25.84	24.4	24.54	24.93	0.79	3.171
Molybdenum	97	25.45	24.3	24.85	24.87	0.575	2.311
Molybdenum	98	25.27	24.46	24.56	24.76	0.438	1.769
Nickel	60	25.73	23.44	25.93	25.03	1.383	5.524
Nickel	62	25.2	24.58	25.5	25.09	0.47	1.873
Selenium	78	24.02	24.55	24.38	24.32	0.269	1.107
Selenium	82	24.03	24.76	23.4	24.06	0.678	2.817
Silver	107	25.71	25.58	25.31	25.54	0.204	0.798
Silver	109	25.28	24.91	24.47	24.89	0.403	1.62
Strontium	86	25.67	23.74	25.36	24.93	1.037	4.161
Strontium	88	25.32	24.4	24.81	24.85	0.462	1.861
Thallium	203	25.12	25.37	25.13	25.2	0.143	0.566
Thallium	205	25.56	25.78	25.1	25.48	0.343	1.344
Tin	118	26.05	26.57	26.34	26.32	0.259	0.983
Titanium	48	25.36	23.83	25.02	24.74	0.806	3.259
Titanium	49	26.37	25.23	25.41	25.67	0.614	2.393
Uranium	238	24.18	23.34	23.39	23.63	0.473	2.002
Vanadium	51	26.58	22.94	23.78	24.43	1.904	7.796
Zinc	66	48.34	47.43	46.79	47.52	0.778	1.637
Zinc	67	49.27	52.33	52.09	51.23	1.701	3.32
Zinc	68	48.87	49.09	48.5	48.82	0.3	0.616
Internal Standard Factors:							
Lithium	6	1.188	1.161	1.191	1.188	n/a	n/a
Scandium	45	1.392	1.291	1.331	1.392	n/a	n/a
Indium	115	1.243	1.24	1.238	1.243	n/a	n/a
Terilium	128	1.258	1.265	1.251	1.258	n/a	n/a
Terilium	130	1.288	1.267	1.268	1.288	n/a	n/a
Lutetium	175	1.169	1.154	1.172	1.169	n/a	n/a
Bismuth	209	1.095	1.09	1.068	1.095	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		CCB2			Mean	SD	%RSD
TimeStamp		1/9/03 22:50					
Aluminum	27	1.92	1.719	1.73	1.79	0.113	6.337
Antimony	121	1.208	0.98	0.74	0.976	0.234	24.01
Antimony	123	1.285	0.861	0.727	0.957	0.291	30.43
Arsenic	75	-0.098	-0.022	0.243	0.041	0.179	435.5
Barium	135	0.013	0.006	0.029	0.016	0.012	75.31
Barium	137	0.026	0.022	0.043	0.03	0.012	38.16
Beryllium	9	0.008	0.018	0.041	0.023	0.017	74.79
Boron	11	2.252	2.046	1.132	1.81	0.596	32.93
Cadmium	111	-0.016	-0.019	-0.03	-0.022	0.008	35.3
Cadmium	112	0.021	0.027	0.037	0.028	0.008	27.91
Cadmium	114	0.007	-0.005	0.002	0.001	0.006	500.2
Chromium	52	0.274	0.291	0.317	0.294	0.022	7.331
Cobalt	59	0.042	0.023	0.009	0.024	0.017	68.32
Copper	63	-0.03	-0.06	-0.056	-0.049	0.016	33.28
Copper	65	0.021	-0.035	-0.028	-0.014	0.031	216.2
Lead	206	0.039	0.028	0.009	0.025	0.015	59.45
Lead	207	0.013	0.01	0.008	0.01	0.002	20.47
Lead	208	0.028	0.013	0.014	0.019	0.009	46.02
Lithium	7	0	0	0	0	0	0
Manganese	55	0.048	0.025	0.019	0.031	0.015	49.14
Molybdenum	95	0.166	0.085	0.14	0.13	0.041	31.52
Molybdenum	97	0.103	0.11	0.071	0.095	0.021	21.98
Molybdenum	98	0.123	0.107	0.096	0.109	0.014	12.63
Nickel	60	-0.011	-0.036	-0.027	-0.025	0.012	49.85
Nickel	62	-0.085	-0.052	0.038	-0.033	0.064	192.8
Selenium	78	0.171	0.217	-0.008	0.127	0.119	93.75
Selenium	82	-0.153	-0.259	0.744	0.111	0.551	498
Silver	107	0.005	0.005	0.007	0.006	0.001	13.25
Silver	109	0.009	-0.004	-0.001	0.001	0.007	580.2
Strontium	86	0.023	-0.06	0.03	-0.002	0.05	2206
Strontium	88	0.031	0.021	0.027	0.026	0.005	20.17
Thallium	203	0.251	0.15	0.149	0.183	0.058	31.76
Thallium	205	0.203	0.187	0.154	0.181	0.025	13.94
Tin	118	0.381	0.401	0.281	0.354	0.064	18.1
Titanium	48	0.158	0.425	0.118	0.234	0.167	71.47
Titanium	49	-0.104	0.054	0.375	0.108	0.244	225.1
Uranium	238	-0.001	0.001	-0.002	0	0.001	286.9
Vanadium	51	-0.058	-0.021	-0.008	-0.029	0.026	88.06
Zinc	66	-0.073	0.035	-0.037	-0.025	0.055	218.3
Zinc	67	-0.076	0.073	0.016	0.004	0.075	1813
Zinc	68	0.014	-0.047	-0.063	-0.032	0.041	126.1
Internal Standard Factors:							
Lithium	6	1.067	1.112	1.106	1.067	n/a	n/a
Scandium	45	1.209	1.143	1.178	1.209	n/a	n/a
Indium	115	1.146	1.146	1.13	1.146	n/a	n/a
Terilium	128	1.18	1.17	1.15	1.18	n/a	n/a
Terilium	130	1.19	1.167	1.157	1.19	n/a	n/a
Lutetium	175	1.124	1.116	1.097	1.124	n/a	n/a
Bismuth	209	1.042	1.055	1.048	1.042	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-009SL			Mean	SD	%RSD
TimeStamp		1/9/03 22:55					
Aluminum	27	2155	2310	2377	2280	114	4.999
Antimony	121	0.341	0.383	0.362	0.362	0.021	5.721
Antimony	123	0.375	0.368	0.299	0.347	0.042	12.15
Arsenic	75	0.909	0.76	0.894	0.854	0.082	9.564
Barium	135	61.16	61.45	61.17	61.26	0.167	0.273
Barium	137	60.92	63.8	61.26	61.99	1.57	2.533
Beryllium	9	0.195	0.281	0.198	0.224	0.049	21.74
Boron	11	3.636	3.592	3.797	3.675	0.108	2.933
Cadmium	111	0.092	0.094	0.072	0.086	0.012	14.23
Cadmium	112	0.14	0.116	0.152	0.136	0.018	13.53
Cadmium	114	0.065	0.091	0.073	0.076	0.013	17.62
Chromium	52	3.686	4.094	4.057	3.946	0.225	5.712
Cobalt	59	2.066	2.123	2.21	2.133	0.073	3.41
Copper	63	4.326	4.707	4.606	4.546	0.198	4.347
Copper	65	4.366	4.803	4.286	4.485	0.278	6.203
Lead	206	6.074	6.264	6.2	6.179	0.097	1.566
Lead	207	6.199	6.229	6.009	6.146	0.119	1.938
Lead	208	6.222	6.139	6.201	6.188	0.043	0.703
Lithium	7	0	0	0	0	0	0
Manganese	55	80.98	87.98	80.21	83.06	4.281	5.154
Molybdenum	95	0.4	0.32	0.355	0.358	0.04	11.17
Molybdenum	97	0.238	0.294	0.283	0.272	0.03	10.88
Molybdenum	98	0.321	0.27	0.263	0.284	0.032	11.21
Nickel	60	5.14	5.445	5.318	5.301	0.154	2.895
Nickel	62	5.55	4.722	5.606	5.292	0.495	9.349
Selenium	78	0.632	0.225	0.28	0.379	0.221	58.22
Selenium	82	0.333	0.073	0.41	0.272	0.177	65.02
Silver	107	0.009	0.018	0.015	0.014	0.005	33.41
Silver	109	0.017	0.009	0.006	0.011	0.005	49.23
Strontium	86	13	13.72	13.05	13.26	0.402	3.034
Strontium	88	12.83	13.62	13.42	13.29	0.413	3.106
Thallium	203	0.168	0.089	0.11	0.122	0.041	33.68
Thallium	205	0.13	0.131	0.103	0.121	0.016	13.23
Tin	118	0.793	0.794	0.828	0.805	0.02	2.468
Titanium	48	39.11	41.4	39.82	40.11	1.17	2.917
Titanium	49	27.55	29.9	27.81	28.42	1.287	4.529
Uranium	238	0.161	0.151	0.165	0.159	0.007	4.583
Vanadium	51	4.36	4.526	4.875	4.587	0.263	5.733
Zinc	66	10.51	10.11	10.63	10.42	0.274	2.633
Zinc	67	12.81	12.2	11.77	12.26	0.523	4.269
Zinc	68	9.711	9.946	9.236	9.631	0.361	3.754
Internal Standard Factors:							
Lithium	6	1.1	1.146	1.164	1.1	n/a	n/a
Scandium	45	1.186	1.255	1.224	1.186	n/a	n/a
Indium	115	1.154	1.148	1.156	1.154	n/a	n/a
Terilium	128	1.208	1.18	1.188	1.208	n/a	n/a
Terilium	130	1.184	1.164	1.156	1.184	n/a	n/a
Lutetium	175	1.09	1.083	1.08	1.09	n/a	n/a
Bismuth	209	1.057	1.029	1.056	1.057	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-009AS 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 23:00					
Aluminum	27	11160	10830	11550	11180	363.7	3.252
Antimony	121	46.64	47.46	47.5	47.2	0.483	1.024
Antimony	123	47.27	47.2	47.86	47.44	0.363	0.766
Arsenic	75	53.67	55.04	53.66	54.12	0.795	1.468
Barium	135	339.8	328.5	336.7	335	5.814	1.736
Barium	137	341.4	341.1	342.2	341.6	0.555	0.163
Beryllium	9	48.27	46.95	49.16	48.13	1.111	2.309
Boron	11	258.7	250.2	272.2	260.4	11.13	4.274
Cadmium	111	48.32	48.54	48.44	48.43	0.11	0.227
Cadmium	112	49.23	48.91	49.49	49.21	0.29	0.59
Cadmium	114	48.53	48.6	48.92	48.68	0.21	0.431
Chromium	52	65.3	65.96	64.75	65.34	0.605	0.926
Cobalt	59	55.82	56.81	53.67	55.43	1.609	2.902
Copper	63	69.96	67.84	68.33	68.71	1.11	1.616
Copper	65	71.16	64.93	71.46	69.18	3.685	5.327
Lead	206	78.83	81.17	77.66	79.22	1.786	2.255
Lead	207	76.97	78.74	77.12	77.61	0.981	1.265
Lead	208	77.06	80.06	78.61	78.58	1.501	1.91
Lithium	7	0	0	0	0	0	0
Manganese	55	442.4	424.1	440.5	435.7	10.08	2.315
Molybdenum	95	50.52	52.01	51.62	51.39	0.772	1.502
Molybdenum	97	51.01	51.58	50.83	51.14	0.394	0.77
Molybdenum	98	51.07	50.78	50.81	50.89	0.157	0.309
Nickel	60	71.07	74.41	74.02	73.17	1.827	2.497
Nickel	62	76.22	78.12	72.66	75.67	2.773	3.664
Selenium	78	48.94	48.32	49.35	48.87	0.52	1.064
Selenium	82	47.37	50.52	48.72	48.87	1.58	3.233
Silver	107	48.81	49.61	48.25	48.89	0.684	1.399
Silver	109	48.07	47.61	48.89	48.19	0.647	1.343
Strontium	86	112.3	111.9	107.5	110.6	2.692	2.435
Strontium	88	110.8	110.6	109.8	110.4	0.516	0.468
Thallium	203	50.25	50.82	49.71	50.26	0.556	1.107
Thallium	205	50.38	51.01	50.46	50.62	0.344	0.68
Tin	118	52.93	52.97	52.61	52.83	0.196	0.372
Titanium	48	225.3	232.3	233.5	230.4	4.418	1.918
Titanium	49	178.9	186.3	184	183.1	3.771	2.06
Uranium	238	51.08	49.82	48.34	49.75	1.373	2.761
Vanadium	51	72.58	70.04	72.29	71.64	1.388	1.938
Zinc	66	140.9	137.3	143	140.4	2.873	2.046
Zinc	67	149.3	157	148.4	151.6	4.762	3.142
Zinc	68	134.3	138.2	136	136.2	1.989	1.461
Internal Standard Factors:							
Lithium	6	1.173	1.117	1.163	1.173	n/a	n/a
Scandium	45	1.322	1.344	1.335	1.322	n/a	n/a
Indium	115	1.259	1.251	1.252	1.259	n/a	n/a
Terilium	128	1.324	1.359	1.365	1.324	n/a	n/a
Terilium	130	1.263	1.278	1.265	1.263	n/a	n/a
Lutetium	175	1.164	1.181	1.162	1.164	n/a	n/a
Bismuth	209	1.137	1.156	1.134	1.137	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-001 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 23:05					
Aluminum	27	12310	12460	11350	12040	600.5	4.987
Antimony	121	1.43	1.182	0.858	1.156	0.287	24.82
Antimony	123	1.457	1.279	1.03	1.256	0.215	17.08
Arsenic	75	7.422	6.744	6.658	6.941	0.419	6.035
Barium	135	383.4	377	383.9	381.4	3.814	1
Barium	137	391.7	398.9	388.6	393.1	5.27	1.341
Beryllium	9	0.926	0.949	1.007	0.961	0.041	4.296
Boron	11	22.58	22.24	20.16	21.66	1.308	6.04
Cadmium	111	2.87	3.023	2.829	2.907	0.102	3.526
Cadmium	112	2.987	2.904	2.912	2.934	0.046	1.568
Cadmium	114	2.849	2.862	2.815	2.842	0.024	0.851
Chromium	52	22.89	21.88	21.66	22.14	0.652	2.947
Cobalt	59	7.928	7.977	7.524	7.81	0.249	3.182
Copper	63	22.48	21.46	21.44	21.79	0.595	2.731
Copper	65	21.43	23.15	22.17	22.25	0.862	3.874
Lead	206	38.99	38.47	38.82	38.76	0.263	0.678
Lead	207	40.35	37.96	39.12	39.15	1.195	3.052
Lead	208	40.17	39.03	39.59	39.6	0.573	1.447
Lithium	7	0	0	0	0	0	0
Manganese	55	542.5	543.8	531.7	539.3	6.609	1.225
Molybdenum	95	1.907	1.818	1.834	1.853	0.048	2.579
Molybdenum	97	1.846	1.808	1.646	1.767	0.106	6.013
Molybdenum	98	1.759	1.731	1.681	1.724	0.039	2.271
Nickel	60	22.64	21	22.03	21.89	0.826	3.774
Nickel	62	23.57	21.93	20.88	22.13	1.354	6.117
Selenium	78	0.786	1.178	0.912	0.959	0.2	20.89
Selenium	82	0.871	1.104	0.515	0.83	0.296	35.69
Silver	107	0.073	0.064	0.063	0.067	0.005	8.151
Silver	109	0.054	0.069	0.068	0.064	0.008	12.89
Strontium	86	121.3	122.6	117	120.3	2.915	2.423
Strontium	88	119.9	116.8	117.9	118.2	1.572	1.33
Thallium	203	0.168	0.153	0.172	0.164	0.01	6.074
Thallium	205	0.182	0.176	0.145	0.168	0.02	11.67
Tin	118	3.386	3.404	3.299	3.363	0.056	1.673
Titanium	48	333.9	315.7	342.3	330.6	13.64	4.125
Titanium	49	155.3	150.2	146.8	150.7	4.258	2.825
Uranium	238	0.963	0.951	0.955	0.956	0.006	0.656
Vanadium	51	41.55	42.28	39.67	41.16	1.345	3.267
Zinc	66	44.77	45.72	45.38	45.29	0.484	1.068
Zinc	67	59.84	55.87	58.97	58.23	2.087	3.583
Zinc	68	41.48	43.22	40.98	41.89	1.177	2.809
Internal Standard Factors:							
Lithium	6	1.136	1.14	1.203	1.136	n/a	n/a
Scandium	45	1.316	1.254	1.242	1.316	n/a	n/a
Indium	115	1.224	1.223	1.232	1.224	n/a	n/a
Terilium	128	1.318	1.305	1.302	1.318	n/a	n/a
Terilium	130	1.199	1.21	1.203	1.199	n/a	n/a
Lutetium	175	1.133	1.116	1.126	1.133	n/a	n/a
Bismuth	209	1.143	1.125	1.133	1.143	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-002 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 23:10					
Aluminum	27	11790	12070	12540	12140	379.8	3.13
Antimony	121	0.567	0.481	0.521	0.523	0.043	8.234
Antimony	123	0.528	0.414	0.515	0.485	0.062	12.81
Arsenic	75	4.907	4.725	4.656	4.762	0.13	2.722
Barium	135	856.8	874.1	876.2	869	10.66	1.227
Barium	137	886	888.2	899	891.1	6.942	0.779
Beryllium	9	0.914	0.838	0.89	0.881	0.039	4.38
Boron	11	20.42	18.09	19.79	19.44	1.208	6.217
Cadmium	111	3.93	4.202	4.508	4.213	0.289	6.867
Cadmium	112	4.289	4.373	4.259	4.307	0.059	1.364
Cadmium	114	4.319	4.161	4.414	4.298	0.128	2.972
Chromium	52	18.7	19.87	19.5	19.35	0.596	3.079
Cobalt	59	8.611	8.962	9.643	9.072	0.525	5.785
Copper	63	20.38	21.28	21.13	20.93	0.48	2.295
Copper	65	21.2	20.37	21.31	20.96	0.517	2.466
Lead	206	100	96.26	97.71	97.99	1.887	1.926
Lead	207	99.62	95.79	98.82	98.07	2.019	2.059
Lead	208	100.9	98.49	98.88	99.42	1.29	1.298
Lithium	7	0	0	0	0	0	0
Manganese	55	569.1	576.9	594.5	580.2	13.03	2.247
Molybdenum	95	1.165	1.186	1.16	1.17	0.014	1.203
Molybdenum	97	1.125	0.968	0.842	0.978	0.142	14.5
Molybdenum	98	1.02	0.967	1.009	0.998	0.028	2.814
Nickel	60	22.54	22.55	23.4	22.83	0.495	2.166
Nickel	62	21.83	24.38	23.18	23.13	1.274	5.506
Selenium	78	0.484	0.846	1.024	0.785	0.276	35.1
Selenium	82	1.588	1.33	0.6	1.173	0.512	43.67
Silver	107	0.058	0.066	0.067	0.064	0.005	8.243
Silver	109	0.074	0.047	0.056	0.059	0.014	23.35
Strontium	86	87.56	89.51	91.43	89.5	1.934	2.161
Strontium	88	86.74	91.63	89.27	89.21	2.446	2.742
Thallium	203	0.168	0.153	0.143	0.155	0.013	8.115
Thallium	205	0.143	0.143	0.118	0.135	0.014	10.71
Tin	118	3.03	3.047	2.853	2.976	0.107	3.601
Titanium	48	250.5	243.9	256.2	250.2	6.16	2.462
Titanium	49	163.5	157.9	160.2	160.5	2.809	1.75
Uranium	238	0.931	0.896	0.918	0.915	0.017	1.883
Vanadium	51	28.5	28.48	28.78	28.58	0.166	0.581
Zinc	66	52.94	55.8	55	54.58	1.476	2.704
Zinc	67	78.5	80.72	79.68	79.64	1.111	1.394
Zinc	68	51.67	52.1	49.92	51.23	1.154	2.252
Internal Standard Factors:							
Lithium	6	1.188	1.127	1.178	1.188	n/a	n/a
Scandium	45	1.312	1.331	1.339	1.312	n/a	n/a
Indium	115	1.248	1.254	1.274	1.248	n/a	n/a
Terilium	128	1.346	1.327	1.354	1.346	n/a	n/a
Terilium	130	1.121	1.118	1.12	1.121	n/a	n/a
Lutetium	175	1.17	1.148	1.182	1.17	n/a	n/a
Bismuth	209	1.178	1.135	1.141	1.178	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-003 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 23:15					
Aluminum	27	11630	12290	11980	11970	331.9	2.773
Antimony	121	0.447	0.36	0.396	0.401	0.044	10.98
Antimony	123	0.354	0.307	0.411	0.357	0.052	14.6
Arsenic	75	4.459	4.219	3.941	4.207	0.259	6.154
Barium	135	807.4	781.5	799.3	796.1	13.26	1.666
Barium	137	804	804.4	818.6	809	8.338	1.031
Beryllium	9	0.944	0.97	1.02	0.978	0.038	3.934
Boron	11	24.91	25.65	22.94	24.5	1.403	5.725
Cadmium	111	11.52	11.53	11.15	11.4	0.215	1.888
Cadmium	112	10.97	10.55	10.92	10.81	0.228	2.11
Cadmium	114	10.86	10.96	11.41	11.08	0.295	2.668
Chromium	52	19.85	19.83	20.71	20.13	0.504	2.502
Cobalt	59	8.554	8.168	9.301	8.675	0.576	6.641
Copper	63	20.02	19.48	20.72	20.07	0.626	3.117
Copper	65	19.91	19.77	21.07	20.25	0.713	3.522
Lead	206	309.8	309.5	304.4	307.9	3.053	0.992
Lead	207	313.7	311.4	305.3	310.1	4.349	1.402
Lead	208	311.3	318.7	302.4	310.8	8.162	2.626
Lithium	7	0	0	0	0	0	0
Manganese	55	463.7	454.3	486.1	468	16.31	3.485
Molybdenum	95	1.302	1.224	1.142	1.222	0.08	6.521
Molybdenum	97	1.106	0.939	1.168	1.071	0.118	11.04
Molybdenum	98	0.93	0.999	1.043	0.991	0.057	5.727
Nickel	60	23.64	23.51	24.38	23.84	0.472	1.979
Nickel	62	24.14	23.84	23.43	23.8	0.356	1.495
Selenium	78	0.772	0.922	1.286	0.994	0.264	26.58
Selenium	82	1.353	0.86	1.119	1.111	0.247	22.2
Silver	107	0.068	0.089	0.093	0.083	0.014	16.29
Silver	109	0.066	0.063	0.084	0.071	0.011	15.78
Strontium	86	85.95	78.9	82.87	82.57	3.535	4.281
Strontium	88	83.39	80.53	84.74	82.89	2.15	2.594
Thallium	203	0.14	0.157	0.146	0.148	0.009	5.927
Thallium	205	0.118	0.116	0.131	0.122	0.008	6.743
Tin	118	3.417	3.246	3.233	3.299	0.103	3.113
Titanium	48	240.5	237.3	243.1	240.3	2.915	1.213
Titanium	49	186.5	178.6	197.1	187.4	9.313	4.969
Uranium	238	0.766	0.792	0.814	0.791	0.024	3.039
Vanadium	51	27.87	26.98	27.83	27.56	0.501	1.817
Zinc	66	113.9	115.8	112	113.9	1.916	1.682
Zinc	67	141.1	133.3	135	136.5	4.1	3.004
Zinc	68	110.9	108.6	110.9	110.1	1.316	1.195
Internal Standard Factors:							
Lithium	6	1.177	1.212	1.227	1.177	n/a	n/a
Scandium	45	1.35	1.337	1.408	1.35	n/a	n/a
Indium	115	1.282	1.259	1.3	1.282	n/a	n/a
Terilium	128	1.381	1.391	1.359	1.381	n/a	n/a
Terilium	130	1.168	1.151	1.148	1.168	n/a	n/a
Lutetium	175	1.166	1.171	1.182	1.166	n/a	n/a
Bismuth	209	1.149	1.15	1.144	1.149	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-004 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 23:20					
Aluminum	27	11230	11340	10170	10910	645.5	5.915
Antimony	121	0.266	0.302	0.339	0.302	0.037	12.14
Antimony	123	0.248	0.246	0.319	0.271	0.042	15.41
Arsenic	75	4.045	4.101	4.13	4.092	0.044	1.065
Barium	135	184.4	181.4	181.5	182.5	1.704	0.934
Barium	137	190.6	186.4	185.6	187.5	2.659	1.418
Beryllium	9	0.811	0.826	0.847	0.828	0.018	2.199
Boron	11	18.75	19.85	16.83	18.48	1.526	8.258
Cadmium	111	0.679	0.619	0.714	0.671	0.048	7.129
Cadmium	112	0.769	0.682	0.694	0.715	0.047	6.555
Cadmium	114	0.423	0.35	0.413	0.395	0.039	9.994
Chromium	52	17.74	17.78	17.68	17.73	0.053	0.3
Cobalt	59	10.46	10.79	11.07	10.78	0.303	2.815
Copper	63	22.74	22.04	22	22.26	0.417	1.874
Copper	65	23.04	22.53	22.2	22.59	0.421	1.864
Lead	206	24.51	24.83	25.93	25.09	0.742	2.956
Lead	207	24.42	25.54	25.35	25.1	0.601	2.395
Lead	208	25.25	25.66	25.78	25.56	0.278	1.088
Lithium	7	0	0	0	0	0	0
Manganese	55	392.6	365.3	383	380.3	13.86	3.644
Molybdenum	95	1.217	1.276	1.293	1.262	0.04	3.155
Molybdenum	97	1.002	1.192	1.055	1.083	0.098	9.055
Molybdenum	98	1.104	1.114	1.135	1.117	0.016	1.423
Nickel	60	24.15	24.68	24.21	24.35	0.287	1.18
Nickel	62	24.7	24.34	24.16	24.4	0.277	1.137
Selenium	78	0.42	0.587	0.539	0.515	0.086	16.72
Selenium	82	0.532	0.891	0.333	0.585	0.283	48.31
Silver	107	0.067	0.072	0.043	0.06	0.016	25.68
Silver	109	0.077	0.061	0.042	0.06	0.018	29.27
Strontium	86	60.93	61.36	60.27	60.85	0.549	0.903
Strontium	88	61.82	61.68	60.21	61.24	0.891	1.455
Thallium	203	0.135	0.097	0.123	0.118	0.02	16.47
Thallium	205	0.099	0.064	0.093	0.085	0.018	21.47
Tin	118	2.886	3.153	3.164	3.068	0.157	5.132
Titanium	48	197.4	190.8	187.2	191.8	5.183	2.702
Titanium	49	146.2	140.1	134.2	140.2	5.995	4.277
Uranium	238	0.736	0.715	0.723	0.725	0.01	1.414
Vanadium	51	22.8	23.06	22.77	22.88	0.158	0.691
Zinc	66	44.72	46.76	44.73	45.4	1.175	2.588
Zinc	67	51.71	53.94	52.68	52.78	1.117	2.117
Zinc	68	44.73	43.45	41.57	43.25	1.591	3.679
Internal Standard Factors:							
Lithium	6	1.179	1.169	1.19	1.179	n/a	n/a
Scandium	45	1.389	1.365	1.37	1.389	n/a	n/a
Indium	115	1.286	1.301	1.285	1.286	n/a	n/a
Terilium	128	1.382	1.385	1.379	1.382	n/a	n/a
Terilium	130	1.322	1.344	1.327	1.322	n/a	n/a
Lutetium	175	1.177	1.199	1.191	1.177	n/a	n/a
Bismuth	209	1.151	1.151	1.144	1.151	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-005 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 23:25					
Aluminum	27	13090	13240	13070	13130	90.07	0.686
Antimony	121	0.474	0.491	0.427	0.464	0.033	7.099
Antimony	123	0.38	0.409	0.429	0.406	0.025	6.103
Arsenic	75	4.725	4.637	4.185	4.515	0.29	6.419
Barium	135	412.5	410	407.1	409.9	2.724	0.664
Barium	137	419	419.2	420.6	419.6	0.839	0.2
Beryllium	9	0.859	0.922	0.872	0.884	0.033	3.741
Boron	11	19.67	22.19	21.59	21.15	1.317	6.226
Cadmium	111	143.6	141.9	140.5	142	1.561	1.099
Cadmium	112	140.2	137.9	138.2	138.7	1.242	0.895
Cadmium	114	148.5	145.9	146.2	146.9	1.423	0.969
Chromium	52	19.81	20	19.63	19.81	0.182	0.919
Cobalt	59	7.952	8.443	8.815	8.403	0.433	5.155
Copper	63	20.8	20.62	21.87	21.09	0.676	3.207
Copper	65	21.17	19.87	20.73	20.59	0.662	3.215
Lead	206	787.6	792.6	797.3	792.5	4.847	0.612
Lead	207	730.7	726.1	738.9	731.9	6.509	0.889
Lead	208	751.3	752.3	751.3	751.6	0.566	0.075
Lithium	7	0	0	0	0	0	0
Manganese	55	427	451.5	455.9	444.8	15.58	3.503
Molybdenum	95	1.05	1.021	1.172	1.081	0.081	7.451
Molybdenum	97	0.918	1.02	0.972	0.97	0.051	5.263
Molybdenum	98	0.856	1.025	0.977	0.953	0.087	9.122
Nickel	60	20.98	21.24	21.45	21.23	0.235	1.107
Nickel	62	21.37	21.46	22.89	21.91	0.852	3.889
Selenium	78	2.922	3.586	3.292	3.267	0.333	10.18
Selenium	82	3.45	3.305	2.911	3.222	0.279	8.659
Silver	107	0.05	0.067	0.064	0.06	0.009	15.54
Silver	109	0.068	0.055	0.063	0.062	0.006	10.35
Strontium	86	79.84	82.2	83.23	81.76	1.735	2.122
Strontium	88	83.96	82.06	82.35	82.79	1.021	1.233
Thallium	203	0.108	0.128	0.093	0.11	0.018	16.1
Thallium	205	0.084	0.085	0.093	0.088	0.005	5.672
Tin	118	2.729	2.85	2.918	2.832	0.096	3.382
Titanium	48	263.5	246.8	271.7	260.7	12.69	4.866
Titanium	49	156.8	158.5	167.9	161.1	5.961	3.701
Uranium	238	0.713	0.696	0.65	0.686	0.033	4.743
Vanadium	51	29.49	29	30.8	29.76	0.93	3.125
Zinc	66	232.1	228	222.6	227.5	4.777	2.099
Zinc	67	240.9	238.1	237.2	238.7	1.938	0.812
Zinc	68	223.3	227.5	231.7	227.5	4.176	1.836
Internal Standard Factors:							
Lithium	6	1.11	1.185	1.136	1.11	n/a	n/a
Scandium	45	1.332	1.348	1.414	1.332	n/a	n/a
Indium	115	1.225	1.238	1.228	1.225	n/a	n/a
Terilium	128	1.363	1.371	1.345	1.363	n/a	n/a
Terilium	130	1.248	1.24	1.249	1.248	n/a	n/a
Lutetium	175	1.175	1.162	1.171	1.175	n/a	n/a
Bismuth	209	1.074	1.088	1.087	1.074	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-006 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 23:30					
Aluminum	27	10360	10260	9412	10010	522.8	5.221
Antimony	121	0.306	0.316	0.279	0.3	0.019	6.435
Antimony	123	0.33	0.262	0.337	0.31	0.042	13.41
Arsenic	75	5.758	5.819	5.372	5.649	0.242	4.292
Barium	135	112.5	110.8	110.1	111.1	1.206	1.085
Barium	137	112.1	111.9	112.8	112.3	0.497	0.442
Beryllium	9	0.969	0.922	0.898	0.93	0.036	3.919
Boron	11	13.84	15	13.18	14.01	0.922	6.58
Cadmium	111	0.188	0.148	0.183	0.173	0.022	12.6
Cadmium	112	0.172	0.196	0.183	0.184	0.012	6.544
Cadmium	114	-0.106	-0.072	-0.044	-0.074	0.031	41.96
Chromium	52	17.37	16.67	16.1	16.71	0.637	3.812
Cobalt	59	11.21	11.02	11.34	11.19	0.164	1.465
Copper	63	23.37	21.87	22.43	22.56	0.755	3.349
Copper	65	22.1	21.65	23.28	22.34	0.84	3.758
Lead	206	14.91	14.81	13.49	14.4	0.789	5.48
Lead	207	14.84	14.62	14.1	14.52	0.38	2.617
Lead	208	14.99	14.75	14.22	14.65	0.394	2.691
Lithium	7	0	0	0	0	0	0
Manganese	55	317.2	299.1	309	308.4	9.092	2.948
Molybdenum	95	1.438	1.411	1.494	1.448	0.042	2.91
Molybdenum	97	1.393	1.337	1.167	1.299	0.118	9.066
Molybdenum	98	1.41	1.269	1.312	1.33	0.073	5.452
Nickel	60	25.26	24.36	23.79	24.47	0.743	3.036
Nickel	62	26.02	25.33	25.03	25.46	0.507	1.992
Selenium	78	0.634	0.49	0.429	0.518	0.105	20.33
Selenium	82	0.836	0.817	0.499	0.717	0.189	26.34
Silver	107	0.074	0.045	0.038	0.052	0.019	36.36
Silver	109	0.029	0.038	0.045	0.037	0.008	20.67
Strontium	86	61.25	56.45	60.13	59.28	2.51	4.234
Strontium	88	60.4	57.37	59.68	59.15	1.584	2.678
Thallium	203	0.1	0.09	0.074	0.088	0.013	14.86
Thallium	205	0.082	0.085	0.071	0.079	0.007	9.466
Tin	118	2.594	2.605	2.498	2.566	0.059	2.304
Titanium	48	204.7	181.5	187.4	191.2	12.05	6.304
Titanium	49	141.5	128.1	130.6	133.4	7.106	5.328
Uranium	238	0.802	0.83	0.781	0.804	0.025	3.077
Vanadium	51	21.69	19.92	22.05	21.22	1.14	5.373
Zinc	66	41.44	41.46	39.37	40.76	1.197	2.937
Zinc	67	46.26	43.79	45.41	45.15	1.258	2.787
Zinc	68	38.32	37.47	37.65	37.81	0.448	1.183
Internal Standard Factors:							
Lithium	6	1.238	1.226	1.202	1.238	n/a	n/a
Scandium	45	1.376	1.323	1.339	1.376	n/a	n/a
Indium	115	1.274	1.282	1.286	1.274	n/a	n/a
Terilium	128	1.369	1.362	1.361	1.369	n/a	n/a
Terilium	130	1.336	1.33	1.33	1.336	n/a	n/a
Lutetium	175	1.186	1.167	1.163	1.186	n/a	n/a
Bismuth	209	1.167	1.181	1.123	1.167	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-007 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 23:35					
Aluminum	27	12970	12120	13670	12920	779.9	6.036
Antimony	121	0.31	0.336	0.311	0.319	0.015	4.599
Antimony	123	0.277	0.364	0.319	0.32	0.044	13.67
Arsenic	75	5.396	5.205	4.863	5.155	0.27	5.244
Barium	135	443.2	436.3	446.8	442.1	5.36	1.213
Barium	137	443.8	444	455.3	447.7	6.581	1.47
Beryllium	9	1.093	1.104	1.237	1.145	0.08	7.009
Boron	11	21.71	21.47	23.82	22.33	1.289	5.774
Cadmium	111	0.917	0.957	1.067	0.98	0.078	7.911
Cadmium	112	1.013	0.972	0.903	0.963	0.056	5.795
Cadmium	114	0.811	0.881	0.843	0.845	0.035	4.139
Chromium	52	111.5	111	114.7	112.4	2.013	1.791
Cobalt	59	8.419	8.894	9.972	9.095	0.796	8.749
Copper	63	21.9	21.26	21.69	21.62	0.327	1.514
Copper	65	20.95	20.46	21.32	20.91	0.431	2.061
Lead	206	192.6	193.3	186.8	190.9	3.579	1.874
Lead	207	194.2	193.5	192.7	193.5	0.75	0.388
Lead	208	191.3	192	190.1	191.1	0.941	0.492
Lithium	7	0	0	0	0	0	0
Manganese	55	462.7	466.1	493.5	474.1	16.93	3.571
Molybdenum	95	1.629	1.686	1.837	1.718	0.107	6.245
Molybdenum	97	1.566	1.612	1.629	1.602	0.033	2.045
Molybdenum	98	1.585	1.585	1.578	1.583	0.004	0.239
Nickel	60	66.75	65.4	69	67.05	1.82	2.715
Nickel	62	66.79	67.61	70.7	68.37	2.064	3.018
Selenium	78	0.737	0.891	0.875	0.835	0.085	10.14
Selenium	82	0.657	0.714	0.536	0.636	0.091	14.29
Silver	107	0.069	0.066	0.069	0.068	0.002	2.715
Silver	109	0.076	0.055	0.071	0.067	0.011	16.8
Strontium	86	92.26	90.72	91.94	91.64	0.811	0.885
Strontium	88	90.32	89.24	90.09	89.88	0.569	0.633
Thallium	203	0.092	0.162	0.102	0.119	0.038	31.9
Thallium	205	0.095	0.119	0.111	0.108	0.012	11.49
Tin	118	2.934	2.971	2.944	2.95	0.019	0.647
Titanium	48	282	281.7	291	284.9	5.268	1.849
Titanium	49	156.4	161	155.7	157.7	2.873	1.822
Uranium	238	0.878	0.874	0.919	0.891	0.025	2.781
Vanadium	51	28.11	30.25	27.64	28.67	1.393	4.859
Zinc	66	101.6	106	107.3	105	3.024	2.881
Zinc	67	120.8	127	123.1	123.6	3.177	2.57
Zinc	68	105.2	105.4	105.6	105.4	0.203	0.193
Internal Standard Factors:							
Lithium	6	1.241	1.158	1.284	1.241	n/a	n/a
Scandium	45	1.398	1.358	1.409	1.398	n/a	n/a
Indium	115	1.264	1.26	1.278	1.264	n/a	n/a
Terilium	128	1.368	1.357	1.342	1.368	n/a	n/a
Terilium	130	1.23	1.246	1.233	1.23	n/a	n/a
Lutetium	175	1.205	1.181	1.179	1.205	n/a	n/a
Bismuth	209	1.159	1.169	1.158	1.159	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-008 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 23:40					
Aluminum	27	11980	11520	11560	11690	251.6	2.153
Antimony	121	0.22	0.317	0.367	0.301	0.075	24.84
Antimony	123	0.205	0.242	0.257	0.235	0.027	11.38
Arsenic	75	3.465	3.697	3.683	3.615	0.13	3.597
Barium	135	179.6	180.5	181	180.4	0.706	0.392
Barium	137	182.5	185.2	185.8	184.5	1.771	0.96
Beryllium	9	0.885	0.891	0.999	0.925	0.064	6.964
Boron	11	16.37	16.14	16.42	16.31	0.153	0.936
Cadmium	111	0.358	0.373	0.373	0.368	0.009	2.386
Cadmium	112	0.365	0.364	0.408	0.379	0.025	6.653
Cadmium	114	0.152	0.14	0.156	0.149	0.008	5.519
Chromium	52	28.97	29.62	31.42	30	1.266	4.22
Cobalt	59	10.1	9.988	10.47	10.19	0.25	2.451
Copper	63	20.38	21.42	21.76	21.19	0.718	3.388
Copper	65	20.73	21.34	21.79	21.29	0.533	2.503
Lead	206	18.13	17.9	17.86	17.96	0.144	0.804
Lead	207	18.22	18.14	18.26	18.21	0.059	0.325
Lead	208	18.21	18.34	18.14	18.23	0.102	0.557
Lithium	7	0	0	0	0	0	0
Manganese	55	314.5	316	323.2	317.9	4.663	1.467
Molybdenum	95	1.201	1.214	1.122	1.179	0.05	4.236
Molybdenum	97	1.16	1.197	1.088	1.148	0.055	4.824
Molybdenum	98	1.107	1.164	1.148	1.139	0.029	2.562
Nickel	60	30.57	32.28	32.37	31.74	1.015	3.197
Nickel	62	30.62	31.91	31.64	31.39	0.676	2.153
Selenium	78	0.415	0.794	0.678	0.629	0.194	30.88
Selenium	82	0.788	0.508	0.805	0.7	0.167	23.83
Silver	107	0.062	0.054	0.069	0.062	0.008	12.47
Silver	109	0.047	0.05	0.045	0.047	0.003	5.369
Strontium	86	56.19	58.5	57.43	57.37	1.154	2.011
Strontium	88	56.4	57.73	57.09	57.07	0.663	1.161
Thallium	203	0.096	0.083	0.122	0.1	0.02	19.59
Thallium	205	0.085	0.073	0.093	0.084	0.01	11.95
Tin	118	2.637	2.57	2.785	2.664	0.11	4.121
Titanium	48	174.6	176.8	192	181.1	9.444	5.214
Titanium	49	125.9	140.9	144	136.9	9.691	7.076
Uranium	238	0.685	0.675	0.693	0.684	0.009	1.299
Vanadium	51	21.29	21.6	23.27	22.05	1.062	4.817
Zinc	66	46.87	47.41	47	47.1	0.283	0.6
Zinc	67	53.89	55.18	54.4	54.49	0.649	1.191
Zinc	68	42.04	44.03	44.01	43.36	1.143	2.637
Internal Standard Factors:							
Lithium	6	1.251	1.24	1.265	1.251	n/a	n/a
Scandium	45	1.289	1.349	1.411	1.289	n/a	n/a
Indium	115	1.278	1.275	1.283	1.278	n/a	n/a
Terilium	128	1.373	1.365	1.378	1.373	n/a	n/a
Terilium	130	1.323	1.322	1.322	1.323	n/a	n/a
Lutetium	175	1.181	1.2	1.18	1.181	n/a	n/a
Bismuth	209	1.169	1.153	1.165	1.169	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		CCV3			Mean	SD	%RSD
TimeStamp		1/9/03 23:45					
Aluminum	27	120	136.8	128.3	128.3	8.401	6.546
Antimony	121	23.45	24.33	24.81	24.2	0.69	2.852
Antimony	123	23.36	24.55	25.7	24.54	1.172	4.777
Arsenic	75	23.76	23.28	23.67	23.57	0.256	1.085
Barium	135	24.52	25.15	24.66	24.77	0.328	1.326
Barium	137	24.96	25.23	24.64	24.95	0.294	1.177
Beryllium	9	24.65	23.95	23.7	24.1	0.495	2.055
Boron	11	124.1	142.2	125.6	130.6	10.04	7.684
Cadmium	111	24.49	25.15	24.86	24.83	0.329	1.323
Cadmium	112	24.43	25.24	25.11	24.93	0.432	1.732
Cadmium	114	24.64	25.39	25.23	25.09	0.398	1.588
Chromium	52	25.59	24.93	23.44	24.65	1.099	4.458
Cobalt	59	26.4	24.66	23.4	24.82	1.505	6.063
Copper	63	25.58	25.15	24.07	24.94	0.777	3.115
Copper	65	25.06	24.44	25.64	25.05	0.601	2.401
Lead	206	26.1	24.8	24.68	25.19	0.788	3.128
Lead	207	25.52	24.47	25.26	25.08	0.543	2.167
Lead	208	25.37	24.78	24.95	25.03	0.304	1.216
Lithium	7	0	0	0	0	0	0
Manganese	55	26.33	23.47	24.79	24.86	1.431	5.757
Molybdenum	95	24.81	24.42	25.16	24.79	0.368	1.482
Molybdenum	97	24.81	24.53	24.71	24.68	0.144	0.582
Molybdenum	98	24.83	24.58	24.46	24.62	0.19	0.772
Nickel	60	25.29	24.3	23.64	24.41	0.831	3.403
Nickel	62	26.68	25.48	24.86	25.67	0.923	3.596
Selenium	78	24.45	23.5	25.09	24.34	0.798	3.277
Selenium	82	23.72	23.15	24.34	23.73	0.594	2.503
Silver	107	25.06	25.46	25.34	25.29	0.206	0.813
Silver	109	24.62	25.71	24.96	25.1	0.559	2.226
Strontium	86	26.13	24.89	24.96	25.33	0.696	2.747
Strontium	88	25.05	25.09	24.75	24.96	0.185	0.739
Thallium	203	25.96	25.64	25.44	25.68	0.262	1.018
Thallium	205	26.65	25.28	25.48	25.8	0.738	2.859
Tin	118	25.03	25.03	24.84	24.97	0.107	0.429
Titanium	48	26.47	24.87	24.94	25.43	0.902	3.548
Titanium	49	25.12	25.13	24.02	24.75	0.639	2.58
Uranium	238	24.53	23.5	23.92	23.99	0.518	2.16
Vanadium	51	24.03	24.74	24.19	24.32	0.375	1.543
Zinc	66	48.07	46.89	49.31	48.09	1.208	2.512
Zinc	67	51.34	49.32	47.61	49.42	1.868	3.78
Zinc	68	48.55	45.81	45.46	46.61	1.692	3.63
Internal Standard Factors:							
Lithium	6	1.129	1.154	1.11	1.129	n/a	n/a
Scandium	45	1.344	1.258	1.271	1.344	n/a	n/a
Indium	115	1.189	1.2	1.196	1.189	n/a	n/a
Terilium	128	1.212	1.199	1.2	1.212	n/a	n/a
Terilium	130	1.23	1.209	1.202	1.23	n/a	n/a
Lutetium	175	1.157	1.133	1.139	1.157	n/a	n/a
Bismuth	209	1.13	1.097	1.084	1.13	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		CCB3			Mean	SD	%RSD
TimeStamp		1/9/03 23:50					
Aluminum	27	2.775	2.499	2.394	2.556	0.197	7.698
Antimony	121	0.628	0.446	0.257	0.444	0.186	41.87
Antimony	123	0.588	0.391	0.279	0.419	0.156	37.25
Arsenic	75	-0.033	0.034	0.007	0.003	0.033	1283
Barium	135	-0.026	0.022	-0.007	-0.004	0.024	645.5
Barium	137	0.091	0.021	0.06	0.057	0.035	61.82
Beryllium	9	-0.012	-0.01	0.001	-0.007	0.007	98.91
Boron	11	1.116	0.665	0.417	0.733	0.354	48.38
Cadmium	111	-0.072	-0.035	-0.008	-0.038	0.032	83.03
Cadmium	112	0.005	-0.003	0.002	0.001	0.004	354.6
Cadmium	114	-0.005	0.003	0.001	0	0.004	849.5
Chromium	52	0.321	0.217	0.366	0.302	0.076	25.35
Cobalt	59	-0.007	-0.011	-0.012	-0.01	0.003	28.16
Copper	63	-0.05	-0.025	-0.06	-0.045	0.018	40.74
Copper	65	-0.022	-0.015	-0.01	-0.016	0.006	37.92
Lead	206	0.016	0.013	-0.013	0.005	0.016	300.8
Lead	207	0.021	0.019	-0.006	0.011	0.015	131.4
Lead	208	0.018	0.014	0	0.011	0.01	91.76
Lithium	7	0	0	0	0	0	0
Manganese	55	0.078	0.049	0.04	0.056	0.02	35.7
Molybdenum	95	0.049	0.024	0.018	0.03	0.016	53.44
Molybdenum	97	0.018	0.043	-0.002	0.02	0.023	114.8
Molybdenum	98	0.057	0.044	0.02	0.04	0.019	47.25
Nickel	60	-0.025	-0.026	-0.029	-0.027	0.002	6.818
Nickel	62	-0.029	-0.037	-0.115	-0.06	0.047	78.37
Selenium	78	0.505	0.287	-0.009	0.261	0.258	98.72
Selenium	82	-0.195	0.35	0.185	0.114	0.279	246.1
Silver	107	-0.002	-0.007	-0.009	-0.006	0.004	65
Silver	109	0.002	-0.005	-0.004	-0.002	0.004	173.5
Strontium	86	0.069	0.029	0.076	0.058	0.026	44.33
Strontium	88	0.037	0.029	0.024	0.03	0.007	21.65
Thallium	203	0.048	0.034	0.026	0.036	0.011	31.38
Thallium	205	0.061	0.037	0.008	0.036	0.027	75.26
Tin	118	0.035	0.037	0.031	0.035	0.003	8.669
Titanium	48	0.075	0.059	0.094	0.076	0.017	22.96
Titanium	49	-0.214	0.197	0	-0.006	0.206	3630
Uranium	238	0.002	0	-0.002	0	0.002	825.6
Vanadium	51	-0.011	-0.073	-0.037	-0.04	0.031	77.25
Zinc	66	-0.073	-0.072	-0.08	-0.075	0.004	5.892
Zinc	67	0.035	0.001	-0.098	-0.021	0.069	334.6
Zinc	68	-0.039	-0.081	-0.022	-0.047	0.03	63.87
Internal Standard Factors:							
Lithium	6	1.119	1.116	1.173	1.119	n/a	n/a
Scandium	45	1.23	1.135	1.188	1.23	n/a	n/a
Indium	115	1.155	1.128	1.11	1.155	n/a	n/a
Terilium	128	1.151	1.13	1.131	1.151	n/a	n/a
Terilium	130	1.17	1.153	1.13	1.17	n/a	n/a
Lutetium	175	1.125	1.105	1.088	1.125	n/a	n/a
Bismuth	209	1.051	1.021	1.03	1.051	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: Vaughn
Lot: _____

Sample Name:		00038-010 1/10			Mean	SD	%RSD
TimeStamp		1/9/03 23:55					
Aluminum	27	11790	10970	11330	11370	411.5	3.62
Antimony	121	0.412	0.389	0.381	0.394	0.016	4.117
Antimony	123	0.339	0.429	0.323	0.364	0.057	15.64
Arsenic	75	3.99	3.735	3.615	3.78	0.191	5.061
Barium	135	220.4	218.8	220.8	220	1.082	0.492
Barium	137	225	219.4	218.1	220.8	3.642	1.649
Beryllium	9	0.911	0.946	0.937	0.931	0.018	1.961
Boron	11	16.38	16.01	17.16	16.52	0.588	3.559
Cadmium	111	0.543	0.754	0.691	0.663	0.108	16.34
Cadmium	112	0.668	0.675	0.731	0.691	0.035	5.027
Cadmium	114	0.47	0.482	0.549	0.5	0.043	8.546
Chromium	52	18.61	17.76	17.05	17.81	0.783	4.398
Cobalt	59	10.47	10.63	10.46	10.52	0.094	0.895
Copper	63	22.04	21.7	21.39	21.71	0.327	1.508
Copper	65	22.23	21.31	20.59	21.38	0.824	3.855
Lead	206	25.56	26.29	26.78	26.21	0.616	2.349
Lead	207	26.03	26.9	27.01	26.65	0.535	2.008
Lead	208	26.57	26.98	26.93	26.83	0.222	0.827
Lithium	7	0	0	0	0	0	0
Manganese	55	336.1	320.5	310.2	322.3	13.05	4.048
Molybdenum	95	1.2	1.154	1.091	1.148	0.054	4.727
Molybdenum	97	1.2	1.096	1.193	1.163	0.058	5.001
Molybdenum	98	1.104	1.081	1.073	1.086	0.016	1.498
Nickel	60	25.91	25.6	25.59	25.7	0.182	0.708
Nickel	62	27.02	25.97	24.66	25.88	1.179	4.556
Selenium	78	0.513	0.353	0.84	0.569	0.248	43.67
Selenium	82	0.857	0.612	0.812	0.76	0.13	17.14
Silver	107	0.048	0.049	0.061	0.052	0.007	13.62
Silver	109	0.032	0.064	0.05	0.049	0.016	32.69
Strontium	86	63.29	60.94	62.3	62.18	1.176	1.891
Strontium	88	63.11	61.74	60.81	61.89	1.159	1.872
Thallium	203	0.062	0.107	0.095	0.088	0.023	26.23
Thallium	205	0.084	0.091	0.103	0.093	0.009	10.21
Tin	118	2.581	2.539	2.704	2.608	0.086	3.29
Titanium	48	181.6	182	182.8	182.1	0.606	0.333
Titanium	49	129.4	131.8	133.8	131.7	2.204	1.674
Uranium	238	0.733	0.752	0.764	0.75	0.016	2.13
Vanadium	51	25.23	22.02	22.31	23.19	1.772	7.644
Zinc	66	49.71	48.18	46.2	48.03	1.757	3.658
Zinc	67	56.34	53.84	55.47	55.21	1.27	2.299
Zinc	68	46.02	44.54	43.35	44.64	1.337	2.995
Internal Standard Factors:							
Lithium	6	1.219	1.238	1.21	1.219	n/a	n/a
Scandium	45	1.398	1.348	1.326	1.398	n/a	n/a
Indium	115	1.274	1.276	1.266	1.274	n/a	n/a
Terilium	128	1.362	1.365	1.364	1.362	n/a	n/a
Terilium	130	1.293	1.29	1.265	1.293	n/a	n/a
Lutetium	175	1.181	1.191	1.186	1.181	n/a	n/a
Bismuth	209	1.128	1.161	1.168	1.128	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: VPUSEY
Lot: _____

Sample Name:		CCV4			Mean	SD	%RSD
TimeStamp		1/10/03 0:05					
Aluminum	27	130.8	124.4	128	127.7	3.183	2.492
Antimony	121	23.77	24.79	25.61	24.73	0.924	3.737
Antimony	123	24.03	25.39	25.38	24.93	0.783	3.141
Arsenic	75	23.83	22.96	24.18	23.66	0.625	2.641
Barium	135	25.04	24.85	25.14	25.01	0.144	0.576
Barium	137	25.24	24.62	25.15	25.01	0.334	1.337
Beryllium	9	24.67	24.74	25.43	24.95	0.42	1.682
Boron	11	130	122.4	127.9	126.7	3.918	3.091
Cadmium	111	24.78	25.02	25.37	25.05	0.295	1.179
Cadmium	112	25.06	25.21	25.29	25.19	0.116	0.46
Cadmium	114	24.16	25.1	25.52	24.92	0.697	2.797
Chromium	52	24.97	23.39	25.77	24.71	1.208	4.887
Cobalt	59	25.19	24.44	26.23	25.29	0.898	3.551
Copper	63	25.87	25.14	27.4	26.14	1.155	4.417
Copper	65	25.02	23.99	25.63	24.88	0.828	3.329
Lead	206	24.17	25.07	24.28	24.51	0.491	2.002
Lead	207	24.25	25.03	24.54	24.6	0.396	1.609
Lead	208	24.44	24.96	24.48	24.63	0.292	1.186
Lithium	7	0	0	0	0	0	0
Manganese	55	25.85	24.71	26.69	25.75	0.996	3.868
Molybdenum	95	24.94	24.89	25.69	25.18	0.447	1.775
Molybdenum	97	25.08	25.01	25.16	25.08	0.073	0.291
Molybdenum	98	24.98	24.98	25.15	25.04	0.101	0.403
Nickel	60	24.78	25.29	26.18	25.42	0.708	2.787
Nickel	62	25.82	27.95	25.64	26.47	1.288	4.864
Selenium	78	24.71	24.5	24.89	24.7	0.192	0.779
Selenium	82	25.11	24	24.39	24.5	0.562	2.292
Silver	107	24.98	25.31	25.4	25.23	0.22	0.873
Silver	109	24.95	24.45	24.83	24.74	0.262	1.057
Strontium	86	25.75	25.31	26.32	25.79	0.505	1.958
Strontium	88	25.33	24.84	26.31	25.5	0.749	2.937
Thallium	203	24.67	25.46	24.72	24.95	0.441	1.767
Thallium	205	24.72	25.44	24.96	25.04	0.369	1.473
Tin	118	25.41	25.77	26.16	25.78	0.374	1.45
Titanium	48	25.23	23.83	26.27	25.11	1.222	4.865
Titanium	49	26	22.61	25.96	24.86	1.946	7.829
Uranium	238	23.38	22.97	23.1	23.15	0.209	0.904
Vanadium	51	24.72	25.09	28.23	26.01	1.929	7.414
Zinc	66	47.17	48.29	48.14	47.87	0.605	1.264
Zinc	67	47.97	53.24	52.46	51.22	2.843	5.549
Zinc	68	47.13	50.09	48.53	48.58	1.478	3.042
Internal Standard Factors:							
Lithium	6	1.201	1.138	1.162	1.201	n/a	n/a
Scandium	45	1.281	1.255	1.349	1.281	n/a	n/a
Indium	115	1.185	1.198	1.208	1.185	n/a	n/a
Terilium	128	1.202	1.194	1.22	1.202	n/a	n/a
Terilium	130	1.215	1.213	1.21	1.215	n/a	n/a
Lutetium	175	1.132	1.153	1.14	1.132	n/a	n/a
Bismuth	209	1.039	1.043	1.007	1.039	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: VPUSEY
Lot: _____

Sample Name:		CCB4			Mean	SD	%RSD
TimeStamp		1/10/03 0:10					
Aluminum	27	3.399	2.65	2.516	2.855	0.476	16.66
Antimony	121	0.64	0.43	0.269	0.446	0.186	41.62
Antimony	123	0.697	0.404	0.263	0.455	0.222	48.76
Arsenic	75	0.079	0.032	-0.063	0.016	0.072	451.6
Barium	135	0.002	0.013	-0.047	-0.011	0.032	304.4
Barium	137	0.054	0.033	0.026	0.038	0.014	38.53
Beryllium	9	0.028	-0.007	0.024	0.015	0.019	127.8
Boron	11	1.332	0.748	0.275	0.785	0.529	67.41
Cadmium	111	-0.007	-0.016	-0.052	-0.025	0.024	94.25
Cadmium	112	-0.005	-0.004	0.018	0.003	0.013	413.7
Cadmium	114	-0.027	-0.001	-0.02	-0.016	0.014	85.89
Chromium	52	0.275	0.235	0.281	0.264	0.025	9.426
Cobalt	59	-0.013	-0.01	-0.016	-0.013	0.003	26.25
Copper	63	-0.032	-0.086	-0.063	-0.06	0.027	45.33
Copper	65	-0.027	-0.045	-0.026	-0.033	0.011	33.38
Lead	206	0.01	-0.01	-0.006	-0.002	0.01	554.5
Lead	207	0	-0.011	-0.02	-0.01	0.01	98.59
Lead	208	0.011	-0.008	-0.009	-0.002	0.011	582.1
Lithium	7	0	0	0	0	0	0
Manganese	55	0.029	0.027	0.014	0.023	0.008	36.54
Molybdenum	95	0.063	0.037	0.018	0.039	0.022	56.57
Molybdenum	97	0.031	0.047	0.039	0.039	0.008	20.73
Molybdenum	98	0.064	0.04	0.023	0.042	0.02	48.39
Nickel	60	-0.021	-0.036	-0.014	-0.024	0.011	47.57
Nickel	62	-0.101	-0.094	-0.061	-0.085	0.021	25.13
Selenium	78	0.579	0.011	0.394	0.328	0.289	88.19
Selenium	82	0.157	0.127	-0.157	0.042	0.173	409.1
Silver	107	-0.002	-0.007	-0.003	-0.004	0.002	60.3
Silver	109	0.001	-0.005	-0.005	-0.003	0.004	101.6
Strontium	86	0.002	0.099	0.082	0.061	0.052	85.71
Strontium	88	0.032	0.037	0.026	0.032	0.006	18.19
Thallium	203	0.061	0.012	-0.021	0.017	0.041	236.1
Thallium	205	0.039	0	-0.003	0.012	0.023	195.2
Tin	118	0.025	0.029	0.014	0.023	0.008	33.93
Titanium	48	0.08	0.07	0.072	0.074	0.005	7.264
Titanium	49	-0.023	0.097	-0.207	-0.045	0.153	343.5
Uranium	238	0.003	0.004	0	0.002	0.002	75.7
Vanadium	51	-0.065	-0.068	-0.07	-0.068	0.003	3.793
Zinc	66	-0.063	-0.047	-0.094	-0.068	0.024	35.46
Zinc	67	0.056	-0.081	-0.008	-0.011	0.069	640
Zinc	68	-0.062	-0.069	-0.082	-0.071	0.01	14.02
Internal Standard Factors:							
Lithium	6	1.178	1.191	1.168	1.178	n/a	n/a
Scandium	45	1.215	1.209	1.195	1.215	n/a	n/a
Indium	115	1.163	1.149	1.148	1.163	n/a	n/a
Terilium	128	1.179	1.159	1.156	1.179	n/a	n/a
Terilium	130	1.188	1.177	1.162	1.188	n/a	n/a
Lutetium	175	1.123	1.105	1.129	1.123	n/a	n/a
Bismuth	209	1.066	1.046	1.045	1.066	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: VPUSEY
Lot: _____

Sample Name:		03945-004 1/10			Mean	SD	%RSD
TimeStamp		1/10/03 0:15					
Aluminum	27	2229	2131	2161	2173	50.07	2.304
Antimony	121	0.141	0.115	0.063	0.106	0.04	37.4
Antimony	123	0.208	0.169	0.058	0.145	0.078	53.89
Arsenic	75	-0.101	-0.107	0.188	-0.007	0.168	2507
Barium	135	11.63	12.43	12.26	12.11	0.418	3.457
Barium	137	11.62	12.27	11.98	11.96	0.327	2.738
Beryllium	9	0.05	0.075	0.072	0.065	0.014	21.07
Boron	11	0.683	0.486	0.506	0.559	0.109	19.43
Cadmium	111	0.101	0.025	-0.047	0.026	0.074	279.3
Cadmium	112	0.082	0.079	0.084	0.082	0.003	3.228
Cadmium	114	-0.044	-0.035	-0.05	-0.043	0.008	18.07
Chromium	52	3.522	3.402	3.913	3.612	0.267	7.403
Cobalt	59	0.103	0.085	0.108	0.099	0.012	12.06
Copper	63	0.566	0.641	0.638	0.615	0.042	6.897
Copper	65	0.605	0.708	0.643	0.652	0.052	7.995
Lead	206	3.593	3.479	3.558	3.543	0.059	1.657
Lead	207	3.768	3.563	3.795	3.709	0.127	3.419
Lead	208	3.804	3.56	3.745	3.703	0.127	3.438
Lithium	7	0	0	0	0	0	0
Manganese	55	1.286	1.314	1.374	1.325	0.045	3.385
Molybdenum	95	0.483	0.459	0.443	0.462	0.02	4.392
Molybdenum	97	0.412	0.391	0.419	0.407	0.015	3.628
Molybdenum	98	0.419	0.429	0.37	0.406	0.032	7.778
Nickel	60	0.578	0.599	0.634	0.604	0.029	4.728
Nickel	62	0.567	0.682	0.623	0.624	0.058	9.224
Selenium	78	0.695	0.397	0.44	0.511	0.161	31.6
Selenium	82	0.103	-0.336	0.543	0.104	0.44	424.5
Silver	107	0.015	0.004	-0.006	0.004	0.01	231.6
Silver	109	-0.001	0.005	0	0.001	0.003	271.7
Strontium	86	26.59	26.97	28.09	27.22	0.78	2.868
Strontium	88	26.32	26.87	26.74	26.65	0.286	1.072
Thallium	203	-0.024	-0.073	-0.026	-0.041	0.027	66.98
Thallium	205	-0.037	-0.037	-0.049	-0.041	0.007	16.63
Tin	118	1.353	1.471	1.357	1.394	0.067	4.822
Titanium	48	27.41	25.9	28.13	27.15	1.14	4.199
Titanium	49	22.18	21.12	27.64	23.65	3.503	14.81
Uranium	238	0.591	0.593	0.554	0.579	0.022	3.747
Vanadium	51	3.922	4.018	4.285	4.075	0.188	4.618
Zinc	66	0.741	0.802	0.868	0.804	0.064	7.929
Zinc	67	3.321	3.241	3.121	3.228	0.101	3.116
Zinc	68	0.342	0.23	0.278	0.283	0.056	19.75
Internal Standard Factors:							
Lithium	6	1.157	1.125	1.192	1.157	n/a	n/a
Scandium	45	1.25	1.277	1.307	1.25	n/a	n/a
Indium	115	1.165	1.167	1.149	1.165	n/a	n/a
Terilium	128	1.235	1.225	1.184	1.235	n/a	n/a
Terilium	130	1.208	1.208	1.205	1.208	n/a	n/a
Lutetium	175	1.113	1.104	1.12	1.113	n/a	n/a
Bismuth	209	1.062	1.045	1.031	1.062	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: VPUSEY
Lot: _____

Sample Name:		03945-005 1/10			Mean	SD	%RSD
TimeStamp		1/10/03 0:20					
Aluminum	27	949	1022	1039	1003	47.79	4.763
Antimony	121	-0.004	-0.003	0.012	0.002	0.009	539
Antimony	123	0.057	0.05	-0.036	0.024	0.052	221.2
Arsenic	75	0.122	-0.011	0.068	0.06	0.067	112
Barium	135	6.723	6.691	6.996	6.803	0.168	2.466
Barium	137	6.932	6.893	7.067	6.964	0.091	1.309
Beryllium	9	0.083	0.058	0.069	0.07	0.012	17.23
Boron	11	0.183	0.253	0.373	0.27	0.096	35.56
Cadmium	111	0.006	0.015	-0.008	0.004	0.011	256.2
Cadmium	112	0.074	0.093	0.071	0.079	0.012	14.56
Cadmium	114	-0.01	-0.003	0	-0.005	0.005	117.1
Chromium	52	2.4	2.355	2.493	2.416	0.071	2.931
Cobalt	59	0.067	0.056	0.069	0.064	0.007	10.79
Copper	63	0.762	0.664	0.778	0.735	0.062	8.415
Copper	65	0.685	0.7	0.683	0.689	0.009	1.295
Lead	206	1.341	1.32	1.406	1.355	0.045	3.316
Lead	207	1.266	1.336	1.345	1.316	0.043	3.28
Lead	208	1.343	1.356	1.423	1.374	0.043	3.123
Lithium	7	0	0	0	0	0	0
Manganese	55	1.189	1.151	1.233	1.191	0.041	3.447
Molybdenum	95	0.197	0.176	0.208	0.194	0.016	8.449
Molybdenum	97	0.147	0.143	0.212	0.167	0.039	23.15
Molybdenum	98	0.155	0.162	0.136	0.151	0.014	8.972
Nickel	60	0.578	0.577	0.603	0.586	0.015	2.486
Nickel	62	0.562	0.508	0.661	0.577	0.078	13.46
Selenium	78	0.588	0.629	0.362	0.526	0.144	27.4
Selenium	82	0.795	0.402	0.852	0.683	0.245	35.83
Silver	107	0	0	0	0	0	93.45
Silver	109	0.005	-0.004	0	0	0.004	1859
Strontium	86	8.675	8.572	7.927	8.392	0.406	4.833
Strontium	88	8.171	8.058	7.938	8.056	0.117	1.447
Thallium	203	-0.051	-0.047	-0.058	-0.052	0.005	10.38
Thallium	205	-0.05	-0.042	-0.059	-0.05	0.009	16.96
Tin	118	1.472	1.472	1.406	1.45	0.038	2.622
Titanium	48	16.9	15.39	15.96	16.08	0.765	4.754
Titanium	49	15.17	11.31	11.33	12.6	2.223	17.64
Uranium	238	0.559	0.542	0.546	0.549	0.009	1.651
Vanadium	51	2.192	1.893	2.861	2.315	0.496	21.41
Zinc	66	0.548	0.563	0.599	0.57	0.026	4.59
Zinc	67	2.124	2.185	2.348	2.219	0.116	5.212
Zinc	68	0.328	0.457	0.36	0.382	0.068	17.7
Internal Standard Factors:							
Lithium	6	1.112	1.136	1.158	1.112	n/a	n/a
Scandium	45	1.207	1.159	1.201	1.207	n/a	n/a
Indium	115	1.165	1.149	1.154	1.165	n/a	n/a
Terilium	128	1.207	1.203	1.202	1.207	n/a	n/a
Terilium	130	1.182	1.203	1.192	1.182	n/a	n/a
Lutetium	175	1.112	1.09	1.11	1.112	n/a	n/a
Bismuth	209	1.066	1.056	1.059	1.066	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: VPUSEY
Lot: _____

Sample Name:		CCV5			Mean	SD	%RSD
TimeStamp		1/10/03 0:24					
Aluminum	27	139.8	131.3	129.5	133.5	5.46	4.089
Antimony	121	23.35	24.74	25.04	24.38	0.9	3.691
Antimony	123	23.37	24.84	24.44	24.22	0.757	3.127
Arsenic	75	24.22	23.35	24.07	23.88	0.464	1.941
Barium	135	25.51	24.62	25.27	25.13	0.458	1.824
Barium	137	24.88	25.31	24.38	24.86	0.468	1.883
Beryllium	9	24.66	23.9	25.83	24.8	0.973	3.922
Boron	11	147	125.1	138.1	136.7	11.02	8.06
Cadmium	111	24.36	24.93	24.91	24.73	0.32	1.293
Cadmium	112	24.53	24.57	24.22	24.44	0.19	0.779
Cadmium	114	24.83	24.92	24.71	24.82	0.107	0.43
Chromium	52	25.14	23.71	24.96	24.61	0.777	3.156
Cobalt	59	24.45	23.55	25.9	24.63	1.185	4.811
Copper	63	25.22	23.71	24.11	24.35	0.783	3.218
Copper	65	25.05	24.01	24.79	24.61	0.542	2.202
Lead	206	24.74	26.06	25.71	25.5	0.685	2.685
Lead	207	25.07	25.47	24.85	25.13	0.316	1.259
Lead	208	25.08	25.55	25.28	25.31	0.233	0.922
Lithium	7	0	0	0	0	0	0
Manganese	55	25.52	23.5	24.75	24.59	1.016	4.133
Molybdenum	95	24.61	24.69	24.24	24.51	0.241	0.983
Molybdenum	97	24.88	24.65	25.11	24.88	0.231	0.927
Molybdenum	98	24.22	24.41	24.8	24.48	0.297	1.215
Nickel	60	25.28	24.68	26.07	25.34	0.7	2.761
Nickel	62	24.67	24.37	24.56	24.53	0.153	0.622
Selenium	78	24.61	23.82	24.49	24.31	0.426	1.755
Selenium	82	24.36	24.13	24.85	24.45	0.368	1.507
Silver	107	24.26	25.15	24.84	24.75	0.451	1.822
Silver	109	24.19	24.76	24.86	24.6	0.36	1.461
Strontium	86	25.68	25.08	25.74	25.5	0.367	1.44
Strontium	88	25.42	25.01	25.28	25.24	0.212	0.838
Thallium	203	25.22	25.18	25.57	25.32	0.215	0.848
Thallium	205	25	25.58	25.74	25.44	0.388	1.525
Tin	118	24.66	25.7	25.25	25.2	0.52	2.062
Titanium	48	25.46	24.5	26.01	25.32	0.767	3.028
Titanium	49	23.69	23.71	23.12	23.51	0.337	1.435
Uranium	238	23.89	23.77	23.9	23.85	0.073	0.306
Vanadium	51	26.75	23.24	25.14	25.05	1.757	7.013
Zinc	66	45.69	48.77	49.74	48.07	2.117	4.404
Zinc	67	46.58	49.08	49.57	48.41	1.605	3.315
Zinc	68	46.88	47.08	48.69	47.55	0.994	2.09
Internal Standard Factors:							
Lithium	6	1.151	1.109	1.179	1.151	n/a	n/a
Scandium	45	1.256	1.2	1.238	1.256	n/a	n/a
Indium	115	1.127	1.142	1.128	1.127	n/a	n/a
Terilium	128	1.143	1.143	1.154	1.143	n/a	n/a
Terilium	130	1.142	1.151	1.169	1.142	n/a	n/a
Lutetium	175	1.084	1.109	1.096	1.084	n/a	n/a
Bismuth	209	1.03	1.044	1.028	1.03	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: VPUSEY
Lot: _____

Sample Name:		CCB5			Mean	SD	%RSD
TimeStamp		1/10/03 0:29					
Aluminum	27	1.741	1.672	1.744	1.719	0.04	2.34
Antimony	121	0.634	0.432	0.299	0.455	0.169	37.01
Antimony	123	0.623	0.378	0.313	0.438	0.163	37.29
Arsenic	75	0.065	-0.007	0.062	0.04	0.041	102
Barium	135	-0.014	-0.061	-0.025	-0.033	0.025	74.76
Barium	137	0.016	0.026	0.05	0.031	0.018	57.7
Beryllium	9	0.022	0.028	0.004	0.018	0.013	71.52
Boron	11	1.066	0.647	0.514	0.743	0.288	38.76
Cadmium	111	-0.035	-0.025	-0.029	-0.029	0.005	16.97
Cadmium	112	0.001	0.01	0.003	0.005	0.005	103.3
Cadmium	114	0.001	-0.021	-0.005	-0.008	0.011	129.1
Chromium	52	0.33	0.275	0.355	0.32	0.041	12.79
Cobalt	59	0	-0.004	-0.004	-0.003	0.002	78.09
Copper	63	-0.068	-0.042	-0.036	-0.049	0.017	35.57
Copper	65	-0.013	-0.033	-0.008	-0.018	0.013	71.82
Lead	206	0.007	-0.005	0.007	0.003	0.007	227.7
Lead	207	-0.007	-0.014	0.003	-0.006	0.009	145.5
Lead	208	0.002	-0.008	0.006	0	0.007	3387
Lithium	7	0	0	0	0	0	0
Manganese	55	0.009	0.018	0.01	0.012	0.005	37.94
Molybdenum	95	0.062	0.082	0.033	0.059	0.025	42.1
Molybdenum	97	0.057	0.02	0.012	0.03	0.024	79.58
Molybdenum	98	0.084	0.042	0.029	0.052	0.029	55.5
Nickel	60	-0.022	-0.037	-0.03	-0.029	0.008	25.97
Nickel	62	0.074	0.033	-0.02	0.029	0.047	162.4
Selenium	78	0.25	0.287	0.435	0.324	0.098	30.11
Selenium	82	0.184	-0.042	0.318	0.154	0.182	118.8
Silver	107	-0.001	0.001	-0.003	-0.001	0.002	294.2
Silver	109	0	0.005	0.006	0.004	0.003	88.1
Strontium	86	0.141	-0.039	0.023	0.042	0.091	218.6
Strontium	88	0.032	0.021	0.027	0.027	0.005	19.87
Thallium	203	0.032	-0.008	0.008	0.011	0.02	180.8
Thallium	205	0.031	-0.006	0.002	0.009	0.019	216.2
Tin	118	0.055	0.004	0.043	0.034	0.027	78.04
Titanium	48	0.085	0.067	0.057	0.07	0.014	19.97
Titanium	49	-0.151	-0.214	-0.07	-0.145	0.072	49.66
Uranium	238	0.005	0.004	0.005	0.005	0	7.812
Vanadium	51	0.027	-0.047	-0.032	-0.017	0.039	225.9
Zinc	66	-0.096	-0.076	-0.063	-0.078	0.017	21.28
Zinc	67	-0.124	0.05	-0.082	-0.052	0.091	174.9
Zinc	68	-0.024	-0.048	-0.015	-0.029	0.017	58.19
Internal Standard Factors:							
Lithium	6	1.08	1.127	1.107	1.08	n/a	n/a
Scandium	45	1.155	1.165	1.155	1.155	n/a	n/a
Indium	115	1.111	1.093	1.083	1.111	n/a	n/a
Terilium	128	1.124	1.122	1.102	1.124	n/a	n/a
Terilium	130	1.127	1.121	1.105	1.127	n/a	n/a
Lutetium	175	1.094	1.071	1.085	1.094	n/a	n/a
Bismuth	209	1.022	1.012	1.038	1.022	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: VPUSEY
Lot: _____

Sample Name:		UNDIG LCS AG			Mean	SD	%RSD
TimeStamp		1/10/03 0:34					
Aluminum	27	239.9	254.3	261.8	252	11.14	4.42
Antimony	121	44.47	45.65	46.13	45.42	0.855	1.882
Antimony	123	45.06	46.44	46.88	46.13	0.954	2.068
Arsenic	75	51.3	49.65	48.29	49.74	1.508	3.032
Barium	135	47.68	49.65	48.34	48.56	1.002	2.064
Barium	137	48.13	49.42	47.26	48.27	1.087	2.251
Beryllium	9	44.44	47.73	45.7	45.96	1.659	3.61
Boron	11	239.3	270.1	271.7	260.4	18.23	7
Cadmium	111	43.58	44.25	44.07	43.96	0.349	0.794
Cadmium	112	45.09	44.28	43.34	44.24	0.875	1.977
Cadmium	114	44.2	43.84	44.24	44.09	0.218	0.494
Chromium	52	49.36	50.79	48.88	49.68	0.992	1.997
Cobalt	59	49.54	49.63	48.15	49.11	0.826	1.683
Copper	63	47.93	48.98	48.87	48.6	0.575	1.184
Copper	65	49.28	48.19	46.66	48.04	1.313	2.734
Lead	206	49.95	49.88	50.16	50	0.146	0.291
Lead	207	48.09	49.26	50.88	49.41	1.403	2.839
Lead	208	48.71	49.72	51	49.81	1.146	2.301
Lithium	7	0	0	0	0	0	0
Manganese	55	47.74	50.31	48.87	48.97	1.287	2.627
Molybdenum	95	49.05	48.33	48.28	48.55	0.431	0.889
Molybdenum	97	48.67	48.32	49.51	48.83	0.609	1.247
Molybdenum	98	47.46	48.28	48.67	48.13	0.617	1.283
Nickel	60	48.9	50.13	47.37	48.8	1.384	2.836
Nickel	62	49.33	50.84	51	50.39	0.919	1.823
Selenium	78	47.53	48.22	47	47.58	0.613	1.289
Selenium	82	47.51	46.64	45.64	46.6	0.937	2.012
Silver	107	36.7	37.09	36.94	36.91	0.198	0.535
Silver	109	36.82	36.35	35.99	36.39	0.417	1.146
Strontium	86	50.01	48.05	47.96	48.67	1.158	2.379
Strontium	88	48.92	49.01	48.61	48.85	0.209	0.428
Thallium	203	49.35	50.26	49.59	49.74	0.472	0.949
Thallium	205	49.27	50.55	50.11	49.98	0.648	1.297
Tin	118	48.78	48.4	48.08	48.42	0.35	0.722
Titanium	48	50.47	51.75	49.05	50.42	1.352	2.681
Titanium	49	50.6	50.25	49.79	50.21	0.407	0.81
Uranium	238	44.27	46.03	45.17	45.16	0.877	1.942
Vanadium	51	48.98	49.92	50.74	49.88	0.882	1.769
Zinc	66	97.95	99.57	94.45	97.32	2.615	2.687
Zinc	67	98.79	101.5	98.41	99.56	1.676	1.683
Zinc	68	98.53	95.92	96.61	97.02	1.35	1.392
Internal Standard Factors:							
Lithium	6	1.046	1.12	1.155	1.046	n/a	n/a
Scandium	45	1.175	1.218	1.216	1.175	n/a	n/a
Indium	115	1.109	1.108	1.118	1.109	n/a	n/a
Terilium	128	1.326	1.313	1.328	1.326	n/a	n/a
Terilium	130	1.307	1.33	1.33	1.307	n/a	n/a
Lutetium	175	1.097	1.111	1.099	1.097	n/a	n/a
Bismuth	209	1.025	1.033	1.054	1.025	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: VPUSEY
Lot: _____

Sample Name:		CCV6			Mean	SD	%RSD
TimeStamp		1/10/03 0:39					
Aluminum	27	122.1	127	122	123.7	2.835	2.292
Antimony	121	24.67	25.25	25.23	25.05	0.329	1.313
Antimony	123	24.59	25.64	25.03	25.09	0.525	2.093
Arsenic	75	24.1	23.06	24.15	23.77	0.617	2.598
Barium	135	25.53	25.62	25.21	25.45	0.216	0.847
Barium	137	25.34	25.36	24.88	25.19	0.269	1.067
Beryllium	9	26.41	25.77	24.61	25.6	0.913	3.569
Boron	11	131.3	131.8	131.9	131.7	0.338	0.257
Cadmium	111	24.65	25.26	25.22	25.04	0.341	1.362
Cadmium	112	24.97	25.13	25.02	25.04	0.079	0.316
Cadmium	114	25.44	25.12	24.52	25.03	0.465	1.857
Chromium	52	25.07	24.4	24.97	24.81	0.362	1.458
Cobalt	59	25.16	24.63	23.82	24.54	0.678	2.762
Copper	63	25.33	24.71	24	24.68	0.666	2.697
Copper	65	25.25	24.29	23.62	24.39	0.822	3.371
Lead	206	25.75	25.28	24.92	25.32	0.415	1.638
Lead	207	24.98	24.86	25.24	25.03	0.192	0.766
Lead	208	25.21	25.09	24.98	25.09	0.118	0.469
Lithium	7	0	0	0	0	0	0
Manganese	55	24.28	24.42	25.1	24.6	0.44	1.789
Molybdenum	95	25.22	25.86	24.84	25.31	0.519	2.052
Molybdenum	97	25.14	24.79	24.69	24.87	0.234	0.94
Molybdenum	98	25.26	25.54	24.81	25.2	0.367	1.457
Nickel	60	25.07	25.18	24.98	25.08	0.103	0.409
Nickel	62	25.43	26.5	25.23	25.72	0.681	2.649
Selenium	78	23.42	24.11	23.74	23.76	0.343	1.442
Selenium	82	24.48	23.68	23.64	23.93	0.472	1.972
Silver	107	24.9	25.07	25.06	25.01	0.095	0.381
Silver	109	25.03	25.36	24.46	24.95	0.46	1.842
Strontium	86	25.38	25.21	24.6	25.06	0.409	1.631
Strontium	88	25	25.34	25.21	25.18	0.17	0.674
Thallium	203	25.53	25.71	24.93	25.39	0.409	1.612
Thallium	205	25.01	25.33	25.3	25.21	0.178	0.705
Tin	118	25.28	26.05	25.58	25.64	0.385	1.503
Titanium	48	24.94	25.62	25.48	25.35	0.36	1.42
Titanium	49	23.54	24.53	24.21	24.09	0.507	2.103
Uranium	238	22.63	22.9	23.47	23	0.425	1.85
Vanadium	51	25.15	24.51	24.63	24.76	0.34	1.374
Zinc	66	48.1	47.02	45.26	46.79	1.431	3.057
Zinc	67	49.93	48.68	47.18	48.6	1.379	2.837
Zinc	68	48.77	46.95	45.96	47.23	1.423	3.014
Internal Standard Factors:							
Lithium	6	1.167	1.178	1.119	1.167	n/a	n/a
Scandium	45	1.236	1.246	1.25	1.236	n/a	n/a
Indium	115	1.14	1.143	1.127	1.14	n/a	n/a
Terilium	128	1.135	1.132	1.153	1.135	n/a	n/a
Terilium	130	1.146	1.149	1.135	1.146	n/a	n/a
Lutetium	175	1.107	1.106	1.095	1.107	n/a	n/a
Bismuth	209	1.021	1.014	1.009	1.021	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: VPUSEY
Lot: _____

Sample Name:		CCB6			Mean	SD	%RSD
TimeStamp		1/10/03 0:44					
Aluminum	27	2.27	2.129	2.121	2.173	0.084	3.843
Antimony	121	0.793	0.529	0.401	0.575	0.2	34.76
Antimony	123	0.799	0.465	0.349	0.538	0.234	43.45
Arsenic	75	-0.015	-0.01	0.104	0.026	0.067	253.9
Barium	135	0.017	0.073	0.014	0.035	0.033	95.43
Barium	137	0.03	0.055	0.058	0.048	0.015	32.08
Beryllium	9	0.019	0.008	0.023	0.017	0.007	44.03
Boron	11	1.995	1.085	0.745	1.275	0.646	50.67
Cadmium	111	0.03	-0.053	-0.029	-0.017	0.043	244.9
Cadmium	112	0.013	0.003	0	0.006	0.007	120.1
Cadmium	114	0.008	-0.013	0.001	-0.002	0.011	694.2
Chromium	52	0.342	0.362	0.315	0.34	0.024	6.956
Cobalt	59	0.012	0.009	-0.009	0.004	0.011	273.2
Copper	63	-0.047	-0.077	-0.041	-0.055	0.019	35.05
Copper	65	-0.007	-0.044	-0.036	-0.029	0.019	66.49
Lead	206	0.013	0.001	-0.011	0.001	0.012	1355
Lead	207	0.001	-0.007	-0.004	-0.003	0.004	134.7
Lead	208	0.005	0.001	-0.001	0.001	0.003	217.8
Lithium	7	0	0	0	0	0	0
Manganese	55	0.011	0.011	0.008	0.01	0.002	15.78
Molybdenum	95	0.077	0.057	0.067	0.067	0.01	15.08
Molybdenum	97	0.047	0.05	0.048	0.048	0.002	3.836
Molybdenum	98	0.064	0.044	0.036	0.048	0.015	30.37
Nickel	60	-0.034	-0.034	-0.026	-0.031	0.005	14.53
Nickel	62	-0.085	-0.096	-0.118	-0.1	0.017	16.97
Selenium	78	0.422	0.042	0.696	0.387	0.329	84.92
Selenium	82	0.182	-0.018	0.184	0.116	0.116	99.89
Silver	107	0.016	0.001	-0.001	0.005	0.009	168.9
Silver	109	0.004	0.013	0.001	0.006	0.007	112.4
Strontium	86	-0.028	0.315	0.014	0.1	0.187	186.5
Strontium	88	0.049	0.031	0.039	0.04	0.009	21.94
Thallium	203	0.048	-0.01	-0.02	0.006	0.037	638.9
Thallium	205	0.029	0.007	-0.009	0.009	0.019	212.2
Tin	118	0.129	0.024	0.013	0.055	0.064	116.6
Titanium	48	0.078	0.075	0.07	0.074	0.004	5.606
Titanium	49	-0.044	-0.186	-0.11	-0.114	0.071	62.44
Uranium	238	0.009	0.011	0.008	0.009	0.002	18.71
Vanadium	51	0.034	0.029	0.009	0.024	0.013	54.13
Zinc	66	0.017	-0.004	-0.023	-0.003	0.02	628
Zinc	67	-0.052	-0.13	-0.048	-0.077	0.046	60.25
Zinc	68	-0.083	-0.055	-0.043	-0.06	0.02	33.9
Internal Standard Factors:							
Lithium	6	1.13	1.119	1.12	1.13	n/a	n/a
Scandium	45	1.157	1.142	1.165	1.157	n/a	n/a
Indium	115	1.104	1.097	1.089	1.104	n/a	n/a
Terilium	128	1.119	1.113	1.111	1.119	n/a	n/a
Terilium	130	1.118	1.109	1.097	1.118	n/a	n/a
Lutetium	175	1.067	1.085	1.077	1.067	n/a	n/a
Bismuth	209	1.028	1.006	1.003	1.028	n/a	n/a

Instrument ID: Thermo Elemental Excell
Experiment: 10903C
Units: µg/L (ppb)

Method: EPA 6020/200.8
Analyst: VPUSEY
Lot: _____

Sample Name:
TimeStamp

Aluminum	27
Antimony	121
Antimony	123
Arsenic	75
Barium	135
Barium	137
Beryllium	9
Boron	11
Cadmium	111
Cadmium	112
Cadmium	114
Chromium	52
Cobalt	59
Copper	63
Copper	65
Lead	206
Lead	207
Lead	208
Lithium	7
Manganese	55
Molybdenum	95
Molybdenum	97
Molybdenum	98
Nickel	60
Nickel	62
Selenium	78
Selenium	82
Silver	107
Silver	109
Strontium	86
Strontium	88
Thallium	203
Thallium	205
Tin	118
Titanium	48
Titanium	49
Uranium	238
Vanadium	51
Zinc	66
Zinc	67
Zinc	68

Internal Standard Factors:

Lithium	6
Scandium	45
Indium	115
Terilium	128
Terilium	130
Lutetium	175
Bismuth	209

CETAC Hg Analysis Report - 03011000.DB - Friday, January 10, 2003, 1:56:59 PM

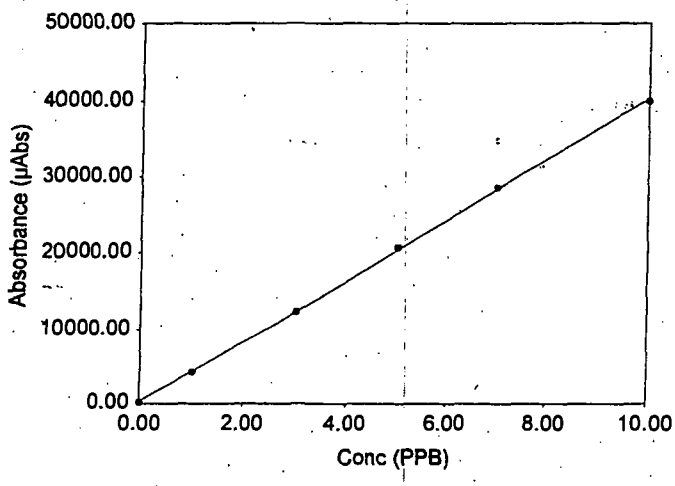
HG210240

Analyst	JGAMMONS
Date Started	Friday, January 10, 2003, 12:39:27
Worksheet	01/10/03R1
Comment	245.1/7470/7471

* All concentrations are dilution corrected.

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
Calibration Zero	10-Jan-2003, 12:39	0.00	6.82	144.00	153	150	143	131	
Standard #1	10-Jan-2003, 12:40	1.00	0.31	4170.00	4156	4165	4183	4181	
Standard #2	10-Jan-2003, 12:42	3.00	0.33	12300.00	12220	12260	12307	12301	
Standard #3	10-Jan-2003, 12:43	5.00	0.16	20700.00	20648	20689	20712	20645	
Standard #4	10-Jan-2003, 12:44	7.00	0.11	28500.00	28459	28483	28514	28440	
Standard #5	10-Jan-2003, 12:46	10.00	0.24	40000.00	39848	39986	40082	39996	

Calibration Data



Int.	283.561
Slope	4000.427
Correlation	0.99986

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
ICV 1	10-Jan-2003, 12:47	5.06	0.20	20500.00	20526	20556	20572	20481	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
ICB 1	10-Jan-2003, 12:49	-0.05	5.92	80.60	93	85	79	65	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
MRL 1	10-Jan-2003, 12:50	0.46	0.45	2130.00	2123	2133	2142	2138	
MRL 2	10-Jan-2003, 12:51	0.16	0.15	942.00	941	943	942	943	
MBS-1-010903	10-Jan-2003, 12:53	0.02	2.84	371.00	374	369	369	372	
LCSS-1-010903	10-Jan-2003, 12:54	5.18	0.20	21000.00	20977	21000	21054	21062	
0038-009	10-Jan-2003, 12:55	0.22	1.35	1170.00	1184	1173	1165	1155	
0038-009DUP	10-Jan-2003, 12:57	0.17	0.90	948.00	953	953	947	940	
0038-009S	10-Jan-2003, 12:58	5.12	0.17	20800.00	20802	20795	20794	20728	
0038-009SD	10-Jan-2003, 13:01	5.30	0.17	21500.00	21437	21483	21523	21495	
0038-009SL	10-Jan-2003, 13:02	-0.03	4.02	168.00	175	167	165	166	
0038-009AS	10-Jan-2003, 13:04	5.14	0.14	20800.00	20861	20860	20866	20806	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
CCV1	10-Jan-2003, 13:05	5.15	0.11	20900.00	20904	20900	20896	20853	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
CCB1	10-Jan-2003, 13:06	-0.06	3.17	61.50	71	62	57	56	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
0038-001	10-Jan-2003, 13:08	0.16	1.09	926.00	916	933	929	926	
0038-002	10-Jan-2003, 13:09	0.18	0.86	1000.00	1006	1004	1000	993	
0038-003	10-Jan-2003, 13:11	0.23	0.57	1190.00	1186	1185	1192	1196	
0038-004	10-Jan-2003, 13:12	0.15	0.14	878.00	879	877	878	879	
0038-005	10-Jan-2003, 13:13	0.18	0.35	997.00	997	995	995	1000	
0038-006	10-Jan-2003, 13:15	0.18	0.22	989.00	989	988	991	987	
0038-007	10-Jan-2003, 13:16	0.23	0.60	1210.00	1202	1202	1207	1214	
0038-008	10-Jan-2003, 13:17	0.16	0.79	937.00	930	937	942	939	
0038-010	10-Jan-2003, 13:19	0.19	0.43	1050.00	1048	1050	1045	1043	
0038-011	10-Jan-2003, 13:20	0.54	0.28	2440.00	2441	2439	2439	2428	

CETAC Hg Analysis Report - 03011000.DB - Friday, January 10, 2003, 1:57:00 PM

Analyst	JGAMMONS
Date Started	Friday, January 10, 2003, 13:21:59
Worksheet	01/10/03R1
Comment	245.1/7470/7471
	* All concentrations are dilution corrected.

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
CVV2	10-Jan-2003, 13:21	5.18	0.39	21000.00	20927	20992	21083	21100	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
CCB2	10-Jan-2003, 13:23	-0.06	2.81	55.80	64	57	53	49	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
03945-004	10-Jan-2003, 13:24	0.20	0.33	1090.00	1088	1091	1092	1086	
03945-005	10-Jan-2003, 13:26	0.19	0.27	1060.00	1061	1060	1063	1058	
03989-001	10-Jan-2003, 13:27	1.05	0.28	4470.00	4486	4474	4470	4458	
04005-001	10-Jan-2003, 13:28	0.11	0.24	740.00	741	740	739	741	
HIGHSTD	10-Jan-2003, 13:30	7.06	0.43	28500.00	28379	28504	28637	28628	
MRL3	10-Jan-2003, 13:31	0.47	0.36	2150.00	2153	2146	2157	2142	
MRL4	10-Jan-2003, 13:33	0.14	0.22	841.00	840	841	842	839	
MBS-2-010903	10-Jan-2003, 13:34	0.00	13.40	302.00	305	303	299	302	
LCSS-2-010903	10-Jan-2003, 13:35	4.94	0.29	20000.00	19980	20013	20082	20100	
03956-001	10-Jan-2003, 13:37	0.94	0.08	4060.00	4063	4063	4060	4056	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
CCV3	10-Jan-2003, 13:38	5.14	0.22	20900.00	20801	20854	20896	20896	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
CCB3	10-Jan-2003, 13:39	-0.06	3.45	52.40	61	57	46	45	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
03956-001DUP	10-Jan-2003, 13:41	1.72	0.26	7150.00	7129	7144	7159	7169	
03956-001S	10-Jan-2003, 13:42	5.59	0.25	22600.00	22590	22605	22651	22714	
03956-001SD	10-Jan-2003, 13:44	5.82	0.95	23600.00	23351	23433	23628	23847	
03956-001SL	10-Jan-2003, 13:45	0.12	3.96	755.00	732	749	762	776	
03956-001AS	10-Jan-2003, 13:46	5.32	0.93	21600.00	21298	21535	21704	21729	
HIGHSTD	10-Jan-2003, 13:48	6.61	0.52	26700.00	26560	26653	26754	26878	
MRL5	10-Jan-2003, 13:49	0.40	0.92	1870.00	1886	1877	1863	1853	
MRL6	10-Jan-2003, 13:50	0.14	1.77	854.00	839	854	858	863	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
CCV4	10-Jan-2003, 13:52	4.76	0.33	19300.00	19254	19313	19357	19401	

Sample ID	Analysis Time	Conc (PPB)	%RSD	Avg. µAbs	Readings				Flags
CCB4	10-Jan-2003, 13:55	-0.05	2.64	100.00	98	104	104	94	

Inorganic Analysis:
Metals

Validation Package

Sample Prep and Screen Data

Columbia Analytical Services, Inc.
Jacksonville, Florida

JM221316

Metals Digestion Log
Soil

re

Service Request Numbers : J23000038 3945

Analysis for : FLAA / ICP and ICP-MS / GFAA | Method Number: 3050B

	Sample Number	Initial Wt. (g)	Final Vol (mL)	Matrix	Initial Color / Texture	Final Color / Clarity	Spike Added (mL)	Comments / Artifacts
Y10 1	MBS 47 01/8	0.500	50	Teflonchip	White C	Colorless C		
(IV) 2	LCSS 47 01/8	0.500					0.2	
3	J23000038-9	0.503		Soil	BRN C	LT.yel C		
4	-9 Dup	0.500					0.2	
5	-9S	0.501					0.2	
6	-9SD	0.500						
7	-1	0.505						
8	-2	0.500						
9	-3	0.509						
10	-4	0.501						
11	-5	0.502						
12	-6	0.505						
13	-7	0.506						
14	-8	0.501						
15	-10	0.504						
16	-11	0.504						
12mHCl Y10 17	3945-4	0.545		Sediment		LT.BRN C		
18	-5	0.547		Sediment		LT.BRN C		
19								
20								
21								
22								
23								
24								
25								
26								
27								

Reagent	Standard ID #
HNO_3	MET-1= 27B
HCl	21C
H_2O_2	25E

Standard	Standard ID #
ICP Spike A	MET-1-25F, 24D, 24E
ICP Spike B	
ICP-MS Spike	

Hot Block Temp ✓ (90-95 deg. C)

Texture: Fine Medium Course Clarity: Clear Cloudy Opaque

Analyst: JKG	Date: 1/8/03 Time: 500p	Page Number
Reviewed By:	Date:	

Columbia Analytical Services, Inc.
Jacksonville, Florida

Metals Digestion Log
Mercury Soil

JM221339

Service Request Numbers : D0038, 3945, 3989, 4005

Analysis for : CVAA | Method Number: SW846 - 7471A

	Sample Number	Initial Wt. (g)	Final Vol (mL)	Matrix	Initial Color / Texture	Final Color / Clarity	Spike Added (mL)	Comments / Artifacts
1	MBS 1 1/9	0.100	10	Tetlon dish	White C	Colorless C		
2	LCSS 1 1/9	0.100					0.5	
3	J2300038-9	0.102		Soil	BRN	LT.BRN C		
4	-9Dup	0.103					~~0.5~~	JKG 1/9/03
5	-9S	0.100					0.5	
6	-9SD	0.104					0.5	
7	-1	0.101						
8	-2	0.103						
9	-3	0.100						
10	-4	0.100						
11	-5	0.103						
12	-6	0.105						
13	-7	0.107						
14	-8	0.109						
15	-10	0.102						
16	-11	0.107						
17	3945-4	0.109		Sediment		Colorless C		
18	3945-5	0.100		Sediment				
19	3989-1	0.100		Paper				
20	4005	0.100		Paper				
21								
22								
23								
24								
25								
26								
27								

Reagent / Std.	Standard ID #
HNO_3	
HCl	
$KMNO_4$	MET-3-886
NaCl Hydroxylamine	
100 ppb Hg	MET-3-880

Time In:	330
Temperature In:	95
Time Out:	4:02
Temperature Out:	95°

Acceptable Temperature (90-95 C)

Clarity: Clear Cloudy Opaque
Texture: Fine Medium Course

Analyst:	JKG	Date:	1/9/03
Reviewed By:	JM	Date:	1/10/03

r:gfa\bench\Hgdig2.xls

Inorganic Analysis:
General Chemistry and Physical Parameters

Validation Package

Sample and QC Results

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Daniel B Stephens & Associates, Inc.	**Service Request:**	J2300038
Project:	Former Martin Quarry/8439-0000.00	**Date Collected:**	1/7/2003
Sample Matrix:	Soil	**Date Received:**	1/8/2003

Total Solids

Prep Method:	NONE	Units:	PERCENT
Analysis Method:	160.3	Basis:	Wet
Test Notes:			

Sample Name	Lab Code	Date Analyzed	Result	Result Notes
HA-1	J2300038-001	1/9/2003	87.9	
HA-2	J2300038-002	1/9/2003	88.7	
HA-3	J2300038-003	1/9/2003	87.9	
HA-4	J2300038-004	1/9/2003	91.6	
HA-5	J2300038-005	1/9/2003	88.1	
HA-6	J2300038-006	1/9/2003	91.8	
HA-7	J2300038-007	1/9/2003	89.3	
HA-8	J2300038-008	1/9/2003	90.4	
HA-9	J2300038-009	1/9/2003	90.3	
Duplicate	J2300038-010	1/9/2003	89.9	
MW-1	J2300038-011	1/9/2003	95.6	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Daniel B Stephens & Associates, Inc.	**Service Request:**	J2300038
Project:	Former Martin Quarry/8439-0000.00	**Date Collected:**	1/7/2003
Sample Matrix:	Soil	**Date Received:**	1/8/2003

Duplicate Summary
Total Solids

Prep Method: NONE
Analysis Method: 160.3
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Analyzed	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
HA-9	J2300038-009DUP	1/9/2003	90.3	90.2	90.3	<1	

Inorganic Analysis:
General Chemistry and Physical Parameters

Validation Package

Raw Data

COLUMBIA ANALYTICAL SERVICES, INC. JG015239

ervice request: 030109D 0038-(1-11)

Analysis For: Total Solids Method: EPA METHOD 160.3 MODIFIED

Pan ID	Sample ID:	Wet Weight (g)	Tare (g)	Tare + Dry Wt.(g)	Dry Weight (g)	% Total Solids	% Moisture
1	0038-1	6.9884	1.2639	7.4056	6.1417	87.9	12.1
2	DUP-1	6.1146	1.2555	6.6148	5.3593	87.6	12.4
3	0038-2	6.4939	1.2569	7.014	5.7571	88.7	11.3
4	0038-3	7.5997	1.274	7.9565	6.6825	87.9	12.1
5	0038-4	7.5207	1.2514	8.1393	6.8879	91.6	8.4
6	0038-5	8.9599	1.2567	9.1478	7.8911	88.1	11.9
7	0038-6	11.212	1.2588	11.5518	10.293	91.8	8.2
8	0038-7	7.4843	1.2595	7.9401	6.6806	89.3	10.7
9	0038-8	8.6508	1.255	9.0714	7.8164	90.4	9.6
10	0038-9	10.8643	1.258	11.0652	9.8072	90.3	9.7
11	DUP-9	11.2336	1.2594	11.387	10.1276	90.2	9.8
12	0038-10	8.7179	1.2613	9.0989	7.8376	89.9	10.1
13	0038-11	8.2997	1.2569	9.1934	7.9365	95.6	4.4

Oven Temp : 105 Time In : 1248 hrs time out: 1/10/03 @ 1010 hrs

Comments:

alyst: daniel lashbrook Date: 01/09/03 @1210 hrs

COLUMBIA ANALYTICAL SERVICES, INC.

rvice request: 030109D 0038 - (1-11)

Analysis For: Total Solids Method: EPA METHOD 160.3 MODIFIED

Pan ID	Sample ID:	Wet Weight (g)	Tare (g)	Tare + Dry Wt.(g)	Dry Weight (g)	% Total Solids	% Moisture
1	0038-1				0	#DIV/0!	#DIV/0!
2	DUP-1				0	#DIV/0!	#DIV/0!
3	0038-2				0	#DIV/0!	#DIV/0!
4	0038-3				0	#DIV/0!	#DIV/0!
5	0038-4				0	#DIV/0!	#DIV/0!
6	0038-5				0	#DIV/0!	#DIV/0!
7	0038-6				0	#DIV/0!	#DIV/0!
8	0038-7				0	#DIV/0!	#DIV/0!
9	0038-8				0	#DIV/0!	#DIV/0!
10	0038-9				0	#DIV/0!	#DIV/0!
11	DUP-9				0	#DIV/0!	#DIV/0!
12	0038-10				0	#DIV/0!	#DIV/0!
13	0038-11				0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!
					0	#DIV/0!	#DIV/0!

Oven Temp : 105 Time In : 1248 Time Out: 1010 1-10-03

Comments:

alyst: DL Date: 1-9-03 @ 1210 hrs