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Rico Surface Water Sampling
Supplemental Surface Water Quality Monitoring
Rico, Colorado
Data Summary Report

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Rico, Colorado
Surface Water Sampling Report
April 2011 Sampling Event

1.0 Introduction

In accordance with the Rico Sampling and Analysis Plan for Supplemental Surface Water Quality Monitoring at Rico, CO prepared by AECOM, dated November 2010, the surface water sampling event was completed on April 15th and 16th, 2011. Sampling was completed by Anderson Engineering Co. Inc., by technicians who are familiar with the Rico sites and the BP Control of Work Management System. Surface water samples were collected from prescribed locations within the St. Louis settling pond system and at the system discharge (002) to the Dolores River (collectively referred to as the St. Louis pond system), and previously sampled locations along the Dolores River above, at and below the St. Louis pond system. Figure 1 and Figure 2 (see Appendix A) illustrate the location of the various sampling stations. Sample results are summarized and laboratory analytical results are attached with quality control documentation.

2.0 Field Sampling

2.1 Sampling Frequency

The sampling period represented by this sampling event is for the month of April of 2011. Sampling will be performed on a monthly basis until at least April of 2012

2.2 Water Quality and Flow Measurement Sampling Locations

Samples were collected from the locations described on Table 1 and shown on Figure 1 and Figure 2 in Appendix A.

The Dolores River was sampled above the St. Louis pond system, and below the adit outfalls downstream of the reclaimed Silver Swan Mine area. The river was also sampled at the USGS gaging station downstream of the Silver Swan site.

TABLE 1 - Sample Location Summary

SITE ID	SITE DESCRIPTION
DR-4-SW	Dolores River below Silver Swan
DR-1	Dolores River above St. Louis settling pond system
DR-2	Dolores River immediately above the St. Louis settling pond system outfall
DR-3	St. Louis tunnel discharge at adit
DR-4	Discharge of Pond 15
DR-5	Discharge of Pond 8
DR-6	St. Louis settling pond system outfall to the Dolores River
DR-7	Dolores River below St. Louis settling pond system outfall
DR-G	Dolores River at USGS gaging station #09165000

2.3 Sampling Station Descriptions

The sampling requirements and stations are described in detail below:

DR-4-SW. Dolores River below Silver Swan. Sampling/flow measurement location is on the Dolores River below the Silver Swan site just downstream of a bend in the river and below a cemetery on the east bank. Flow measurements was collected by flowmeter.

DR-1. Dolores River above St. Louis settling ponds system. The sampling/flow measurement location is on the Dolores River approximately 50 feet upstream of the Rico Ranger Station. Flow measurements was collected by flowmeter.

DR-2. Dolores River immediately above the St. Louis settling pond system outfall. Sampling/flow measurement location is on the Dolores just above the 002 discharge outfall, and upstream of the hot tub discharge. The site is located directly adjacent to the thermal discharge which supplies the hot tub. Flow measurement was collected by flowmeter.

DR-3. St. Louis tunnel discharge at adit entrance. Sampling location is at the inlet of the flume, just before the throat. Flow measurement by an installed 9" flume at the sampling location.

DR-4. Discharge of Pond 15. Flow measurement was collected by flowmeter.

DR-5. Discharge of Pond 8. Flow measurement was collected by flowmeter.

DR-6. St. Louis settling ponds system outfall to the Dolores River (Outfall 002). Flow measurement by installed 9" flume.

DR-7. Dolores River below St. Louis settling ponds system outfall. Sampling/flow measurement location is located just off the entrance road to the St. Louis ponds site where the Dolores River is adjacent to the entrance road. The site is located approximately 75 feet downstream from a large bend in the river that first brings the Dolores adjacent to the entrance road. Flow measurements was collected by flowmeter.

DR-G. Located at the USGS gauging station #09165000. Flow measurements was collected by flowmeter.

3.0 Sampling and Analysis Parameters and Methods

All samples were collected as grab samples. Samples were collected from well-mixed locations, which are representative of conditions within the flow stream. Lab-certified plastic bottles were used to collect sample water for analyses. Clean hands, dirty hands procedures were followed throughout the sampling. For quality control purposes, one duplicate sample and one field blank was included with the water samples being submitted to the laboratory for analysis.

Sample water for dissolved metals analysis and potentially dissolved metals analysis was first collected in a clean plastic bottle, and within ten minutes, filtered through a 0.45µm filter into a sample bottle containing nitric acid preservative. Sample water for total recoverable metals analysis was collected without filtration in a sample bottle containing nitric acid preservative. Sample water for dissolved cyanide analysis was filtered through a 0.45µm filter into a sample bottle containing sodium hydroxide preservative. Sample water for total cyanide analysis was collected without filtration into a sample bottle containing sodium hydroxide preservative.

Water samples were collected at each sampling location in clean plastic, 500 mL bottles containing no preservative. These samples were laboratory analyzed for alkalinity, hardness, TDS, TSS, salinity, and sulfate. Salinity was analyzed in the lab as conductivity, and calculations were afterwards performed to obtain the salinity as dissolved solids in mg/L.

Field parameters were measured at the time of sample collection. Field measurement data for pH, temperature, conductivity, and dissolved oxygen were recorded in the field log book. An EXTECH Instruments ExStik EC500 field instrument was used to determine field ph, electrical conductivity, and temperature. An EXTECH Instruments ExStik DO600 field instrument was used to determine field dissolved oxygen. The field instrument was calibrated prior to use with equipment calibration and maintenance standard solutions and consistent with manufacturer's instructions. Weather parameters including temperature and precipitation were obtained and documented. Field parameters for the two Parshall flumes for entire month of April 2011 were collected on a weekly basis, and are shown in Table 10 of Appendix B.

All sample bottles were labeled to identify sample number, date and time of collection, type of analysis, and appropriate preservative. In addition, sample analysis/chain of custody forms were completed and processed at the time of sample collection. Original chain of custody forms are signed, dated, and placed in the sample container prior to sealing the container for shipment.

Water samples were kept in cooled containers and sent to the analytical laboratory. Samples were submitted to ALS Laboratories (formerly DataChem) for analysis by analytical procedures listed on Table 2. Analysis was performed according to methods specified in 40 CFR, Part 136 or other methods approved by the EPA. Laboratory methods and reporting limits for all parameters are presented in Table 2. Laboratory results and supporting documentation including quality assurance results are contained in the Appendix C and Appendix D of this report.

TABLE 2 - Analytical Procedures Summary

Parameter	Detection Limit (MDL)	Method
Field Parameters		
pH (s.u.)	+/- 0.01 pH	EPA 150.2
Temperature (°C)	+/- 1°C	Standard Method 2550
Electrical Conductivity (µmhos/cm)	+/- 2% Full Scale	EPA 120.1
Dissolved Oxygen	+/- 2% Full Scale	SM 4500-OG
Non-Metals		
Alkalinity (mg/L as $CaCO_3$)	RL – 20 mg/L	EPA 310.1
Hardness (mg/L as $CaCO_3$)	RL – 0.5 mg/L	SM 2340 B
Total Dissolved Solids (mg/L as TDS)	RL – 5.0 mg/L	SM 2540C
Total Suspended Solids (mg/L as TSS)	RL – 5.0 mg/L	SM 2540D
Cyanide (µg/L as CN)	RL – 0.005 mg/L	EPA 335.4
Salinity	RL – 6 mg/L	SM 2510B (calculated)
Sulfate (mg/L as SO4)	RL – 1 mg/L	EPA 300.0
Total and Dissolved Metals		
Aluminum (µg/L as Al)	2 µg/L	EPA 200.8
Antimony (µg/L as Sb)	0.05 µg/L	EPA 200.8
Arsenic (µg/L as As)	0.25 µg/L	EPA 200.8
Barium (µg/L as Ba)	0.15 µg/L	EPA 200.8
Beryllium (µg/L as Be)	0.1 µg/L	EPA 200.8
Cadmium (µg/L as Cd)	0.04 µg/L	EPA 200.8
Calcium (µg/L as Ca)	7.1 µg/L	EPA 200.7
Chromium (ug/l as Cr)	0.25 ug/L	EPA 200.8
Copper (µg/L as Cu)	0.25 µg/L	EPA 200.8
Iron (µg/L as Fe)	6 µg/L	EPA 200.7
Lead (µg/L as Pb)	0.05 µg/L	EPA 200.8
Magnesium (µg/L as Mg)	10 µg/L	EPA 200.7
Manganese (µg/L as Mn)	0.25 µg/L	EPA 200.8
Mercury (µg/L as Hg)	0.049 µg/L	SW 7470A
Nickel (µg/L as Ni)	0.25 µg/L	EPA 200.8
Potassium (µg/L as K)	63.4 µg/L	EPA 200.7
Selenium (ug/l as Se)	0.25 ug/L	EPA 200.8
Silver (ug/L as Ag)	0.25 ug/L	EPA 200.8
Sodium (µg/L as Na)	14.2 µg/L	EPA 200.7
Thallium (µg/L as Tl)	0.25 ug/L	EPA 200.8
Vanadium (µg/L as V)	0.05 ug/L	EPA 200.8
Zinc (µg/L as Zn)	1.5 µg/L	EPA 200.7

4.0 Flow Measurement Methods

Flows were measured at the river sampling locations where accessible. The flow measurements obtained this sampling period are described in Section 2.3. Flow velocity was measured for sampling locations DR-1, DR-2, DR-3, DR-4, DR-5, DR-6, DR-7, DR-4-SW, and DR-G. Cross-sectional areas could be safely obtained at all river sample locations (DR-1, DR-2, DR-7, DR-4-SW, AND DR-G) and at the discharge spillway of pond 8 (DR-5). Refer to Figures 3 through 8 in Appendix E for these cross sections. The flowrates are presented on Table 3 in Appendix B. Weekly flowrates at the two Parshall flumes were collected for the entire month of April 2011 and are shown in Table 10 of Appendix B.

Flowrates collected during this sampling event were taken by use of a Marsh-McBirney Flow-Mate Model 2000 portable flow meter using the six-tenths-depth method. This method uses the velocity at six-tenths of the depth as the mean velocity. This method is generally reliable between depths from 0.3 feet to 2.5 feet. Stream sections were selected with the desired characteristics of parallel flows, smooth streambed with minimal obstructions, a straight channel, and a flat streambed. The stream section, perpendicular to the flow was measured in feet. The width of the section was determined and divided into several vertical sections. Flow measurements of velocity (by the six-tenths-depth method) and water depth were measured at each vertical section using the Marsh-McBirney flow meter and wading rod assembly. The flow meter was set to the 10 second fixed period average mode. A minimum of three velocity readings were recorded at each vertical section. Flows were calculated for each stream section using the water depth, horizontal distance, and averaged velocity data.

The St. Louis tunnel flow (DR-3) and St. Louis pond discharge (DR-6) currently have Parshall flumes installed. Flow measurements were determined for the parshall flumes and are shown on Table 3 in Appendix B.

5.0 Analytical Results

The results of the laboratory analysis are summarized on Table 4 in Appendix B. The data is organized by sample location. The laboratory results report is contained in Appendix C.

6.0 Quality Control

In addition to the standard laboratory Quality Control (QC), field QC samples for this sampling event included a field duplicate and a Field Blank (FB).

6.1 Field QC

A field duplicate water sample was collected from sample location DR-3. During sample collection, the duplicate sample bottles were filled simultaneously from the discharge stream of water. The duplicate sample was submitted to the analytical laboratory with the label of DR-8, so as to serve as a “blind duplicate.”

Table 5 compares the analytical results from DR-3 and DR-8 and presents the Relative Percent Difference (RPD). The RPD for aqueous samples should be +/-20%. All comparative values were within +/-20%.

TABLE 5 - Duplicate of DR-3, Relative Percent Difference (RPD)

Analyte (Total)	DR-3 (ug/L)	DR-8 (ug/L) (Duplicate of DR-3)	RPD (%)
Aluminum	230	190	19.05
Antimony	<3.8	<3.8	0.00
Arsenic	<3.8	<3.8	0.00
Barium	20	19	5.13
Beryllium	<3.8	<3.8	0.00
Cadmium	17	16	6.06
Calcium	260000	270000	3.77
Chromium	<3.8	<3.8	0.00
Copper	24	22	8.70
Iron	3700	3700	0.00
Lead	<3.8	<3.8	0.00
Magnesium	21000	22000	4.65
Manganese	1900	1800	5.41
Mercury	<0.1	<0.1	0.00
Nickel	6.4	6	6.45
Potassium	<3000	<3000	0.00
Selenium	<6.3	<6.3	0.00
Silver	<3.8	<3.8	0.00
Sodium	12000	12000	0.00
Thallium	<3.8	<3.8	0.00
Vanadium	<2.5	<2.5	0.00
Zinc	3300	3500	5.88
Alkalinity (mg/L)	100	120	18.18
Hardness (mg/L)	760	770	1.31
TDS (mg/L)	1000	1000	0.00
TSS (mg/L)	<50	<50	0.00
Cyanide	<10	<10	0.00
Salinity	768	768	0.00
Sulfate (mg/L)	630	640	1.57

A Field Blank (FB) was collected by pouring distilled water through the filtering manifold after the first day of sampling and decontaminating the equipment. The FB was analyzed for the same constituents as the other samples. The FB had below detectable concentrations for all metals. The pH was neutral, the Electrical Conductivity (EC) was non-detectable, and it showed a low level of alkalinity.

6.2 Laboratory QC

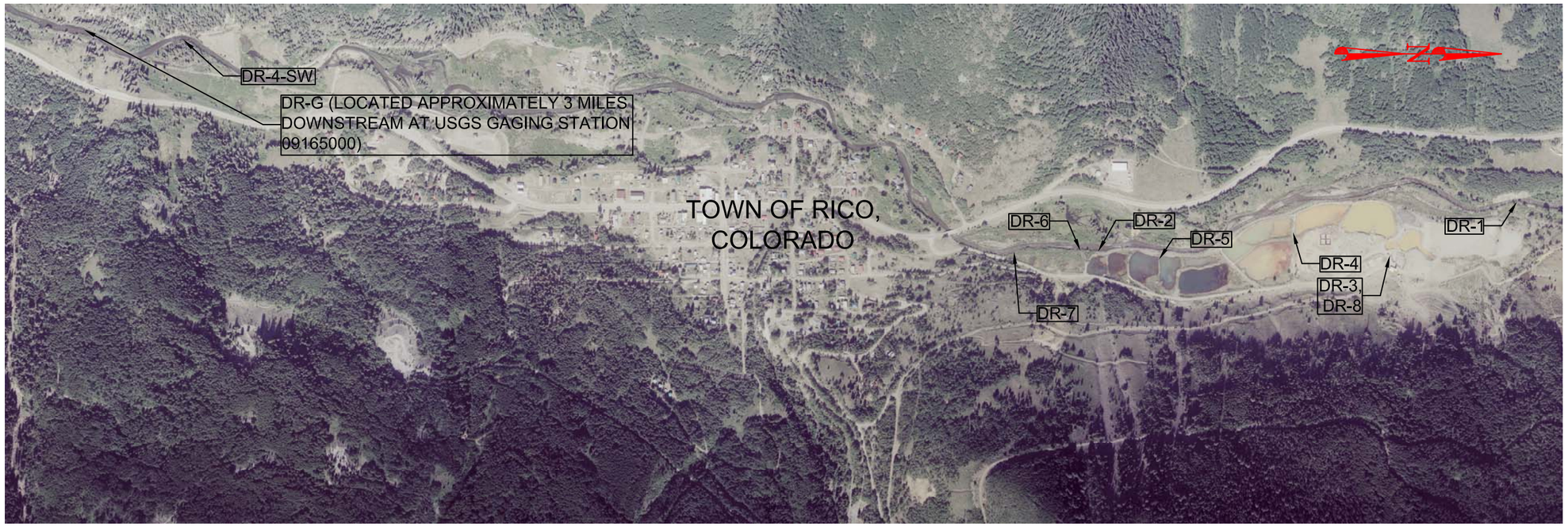
The laboratory control sample (LCS), method blank, matrix spike, and matrix spike duplicate sample results were all within the established limits of concentration, percent recovery, and relative percent difference, with several minor exceptions under the following:

- Matrix QC- matrix spikes for calcium, magnesium, and zinc were flagged. The sample result was greater than 4 times the spike added. Matrix Spike Duplicates for calcium, magnesium, and zinc were also flagged for the same reason
- The RPD between sample 1111003001 (DR-4-SW) and the Matrix Duplicate was not within the control limits for unknown reasons.

QC results are summarized in Tables 6 through 9 In Appendix B with the Laboratory results presented in Appendix D. Details regarding laboratory QC results are explained in the ALS Laboratory Group Case Narrative, also included in Appendix D.

Appendix A

Sampling Location Maps



General Notes

Scale in Feet
0 500 1000

No.	Revision/Issue	Date

ATLANTIC RICHFIELD COMPANY

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DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

RICO SURFACE WATER SAMPLING

SURFACE WATER SAMPLING LOCATIONS

RICO, CO

Project	Figure
Date 09-FEB-2011	1
Scale 1" = 1000'	

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General Notes

Scale in Feet
0 175 350

No.	Revision/Issue	Date

ATLANTIC RICHFIELD COMPANY

ANDERSON
ENGINEERING COMPANY, INC.

DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

RICO SURFACE WATER SAMPLING

ST. LOUIS POND AREA SAMPLING LOCATIONS

RICO, CO

Project	Figure
Date 09-FEB-2011	2
Scale 1" = 350'	

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Appendix B

Sampling Field Data and Information

TABLE 3 - Sampling Field Data and Station Information Summary

	Field Measurements				GPS Location		Sampling Information					
Sample Location	pH	Temp (°C)	EC (mS/cm)	Dissolved Oxygen (ppm)	Latitude	Longitude	Time	Date	By	Stream Cross section area (ft^2)	Flowrate (cfs)	**Comments**
DR-4-SW	7.12	8.4	0.307	1.11	37°40'49.4" N	108°02'09.0" W	6:05 PM	4/15/2011	M. DeFriez, S. Cosper	35.3	84.4	Dolores River below Silver Swan (~100 ft).
DR-1	7.90	8.7	0.483	1.31	37°42'37.6" N	108°01'56.0" W	1:20 PM	4/15/2011	M. DeFriez, S. Cosper	39.7	90.0	Dolores River above St. Louis settling pond system (approximately 800 ft north of northern edge of Pond 18)
DR-2	7.72	10.4	0.263	1.07	37°42'03.96" N	108°01'49.89" W	4:00 PM	4/15/2011	M. DeFriez, S. Cosper	49.8	62.3	Dolores River, approximately 150 ft north of system outfall
DR-3	6.82	15.2	1.194	0.64	37°42'27.5" N	108°01'50.3" W	8:55 AM	4/16/2011	M. DeFriez, S. Cosper	NA	1.15	St Louis adit discharge. Parshall Flume, depth = 6.25" deep
DR-4	7.61	10.6	1.209	0.94	37°42'19.7" N	108°01'52.7" W	10:10 AM	4/16/2011	M. DeFriez, S. Cosper	0.27	1.41	Pond 15 discharge
DR-5	7.55	12.1	1.24	0.99	37°42'08.8" N	108°01'49.7" W	3:20 PM	4/15/2011	M. DeFriez, S. Cosper	2.49	1.52	Pond 8 was discharging at multiple small locations as well as the spillway. Flow velocity measurements were collected at the spillway and at two other flow paths. Due to the shallow water and multiple paths, accurate flow estimates could not be determined for this sampling location and period.
										0.33	0.58	
										0.67	0.67	
DR-6	6.98	9.2	1.281	1.20	37°42'02.4" N	108°01'50.2" W	11:05 AM	4/16/2011	M. DeFriez, S. Cosper	NA	1.10	Outfall to Dolores River. Parchal Flume, depth = 6.125" deep
DR-7	7.46	9.9	0.341	1.09	37°41'57.12" N	108°01'49.63" W	5:00 PM	4/15/2011	M. DeFriez, S. Cosper	54.4	55.4	Dolores River, approximately 500 ft below St. Louis settling pond system outfall
DR-8	6.82	15.2	1.194	0.64	37°42'27.5" N	108°01'50.3" W	9:10 AM	4/16/2011	M. DeFriez, S. Cosper	NA	1.15	DR-8 is a duplicate sample of DR-3. See comments for DR-3.
DR-G	7.65	8.1	0.318	1.21	37°38'19.8" N	108°03'36.5" W	7:30 PM	4/15/2011	M. DeFriez, S. Cosper	34.5	82.4	Dolores River at USGS gauging station #09165000
FB	7.00	4.8	0	1.22	N/A	N/A	9:30 AM	4/16/2011	M. DeFriez, S. Cosper	NA	NA	Field blank

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TABLE 4 - Analytical Sampling Results Summary

DR-4-SW: Delores River below Silver Swan

			Metals (µg/L)																						Non-Metals (mg/L, unless otherwise indicated)							Field Parameters			
Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness (as CaCO3)	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
DR-4-SW	4/15/11	Total	620	<3.8	<3.8	64	<3.8	<3.8	52000	<3.8	<3.8	370	<3.8	7500	130	<0.10	<3.8	<3000	<6.3	<3.8	3900	<3.8	<2.5	100	120	160	150	<50	<10	211.2	60	7.12	8.4	0.307	1.11
DR-4-SW D	4/15/11	Dissolved	<50	<3.8	<3.8	57	<3.8	<3.8	53000	<3.8	<3.8	<50	<3.8	7400	99	<0.10	<3.8	<3000	<6.3	<3.8	4100	<3.8	<2.5	86	-	-	-	-	-	-	-	-	-	-	-

DR-1: Delores River above St. Louis settling pond system

Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
DR-1	4/15/11	Total	510	<3.8	<3.8	69	<3.8	<3.8	37000	<3.8	<3.8	100	<3.8	5900	16	<0.10	<3.8	<3000	<6.3	<3.8	3300	<3.8	<2.5	<20	85	110	130	<50	<10	153.6	28	7.9	8.7	0.483	1.31
DR-1 D	4/15/11	Dissolved	71	<3.8	<3.8	61	<3.8	<3.8	37000	<3.8	<3.8	<50	<3.8	6000	7.9	<0.10	<3.8	<3000	<6.3	<3.8	3400	<3.8	<2.5	<20	-	-	-	-	<10	-	-	-	-	-	-

DR-2: Delores River immediately above the St. Louis settling pond system outfall

Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
DR-2	4/15/11	Total	550	<3.8	<3.8	68	<3.8	<3.8	40000	<3.8	<3.8	200	<3.8	6100	63	<0.10	<3.8	<3000	<6.3	<3.8	3400	<3.8	<2.5	<20	90	120	140	<50	<10	160	37	7.72	10.4	0.263	1.07
DR-2 D	4/15/11	Dissolved	64	<3.8	<3.8	58	<3.8	<3.8	37000	<3.8	<3.8	<50	<3.8	5600	49	<0.10	<3.8	<3000	<6.3	<3.8	3200	<3.8	<2.5	<20	-	-	-	-	<10	-	-	-	-	-	-

DR-3: St. Louis tunnel discharge at adit

Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
DR-3	4/16/11	Total	230	<3.8	<3.8	20	<3.8	17	260000	<3.8	24	3700	<3.8	21000	1900	<0.10	6.4	<3000	<6.3	<3.8	12000	<3.8	<2.5	3300	100	760	1000	<50	<10	768	630	6.82	15.2	1.194	0.64
DR-3 D	4/16/11	Dissolved	70	<3.8	<3.8	19	<3.8	15	260000	<3.8	<3.8	1100	<3.8	21000	1700	<0.10	6	<3000	<6.3	<3.8	12000	<3.8	<2.5	3200	-	-	-	-	<10	-	-	-	-	-	-

DR-4: Discharge of Pond 15

Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
DR-4	4/16/11	Total	210	<3.8	<3.8	19	<3.8	14	260000	<3.8	18	2500	<3.8	21000	1700	<0.10	5.9	<3000	<6.3	<3.8	12000	<3.8	<2.5	3000	110	760	1100	<50	<10	768	670	7.61	10.6	1.209	0.94
DR-4 D	4/16/11	Dissolved	<50	<3.8	<3.8	18	<3.8	13	270000	<3.8	<3.8	<50	<3.8	22000	1700	<0.10	6.4	<3000	<6.3	<3.8	12000	<3.8	<2.5	2700	-	-	-	-	<10	-	-	-	-	-	-

DR-5: Discharge of Pond 8

Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
DR-5	4/15/11	Total	110	<3.8	<3.8	19	<3.8	12	260000	<3.8	12	1600	<3.8	22000	1600	<0.10	5.7	<3000	<6.3	<3.8	12000	<3.8	<2.5	2400	130	780	1100	<50	<10	832	620	7.55	12.1	1.240	0.99
DR-5 D	4/15/11	Dissolved	59	<3.8	<3.8	18	<3.8	11	270000	<3.8	<3.8	<50	<3.8	22000	1500	<0.10	5.7	<3000	<6.3	<3.8	12000	<3.8	<2.5	2100	-	-	-	-	<10	-	-	-	-	-	-

DR-6: St. Louis settling pond system outfall to the Delores River (Outfall 002)

Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
DR-6	4/16/11	Total	71	<3.8	<3.8	19	<3.8	9.7	270000	<3.8	5.4	760	<3.8	24000	1500	<0.10	5.4	<3000	<6.3	<3.8	14000	<3.8	<2.5	2000	170	830	1100	<50	<10	832	670	6.98	9.2	1.281	1.20
DR-6 D	4/16/11	Dissolved	<50	<3.8	<3.8	19	<3.8	9.4	270000	<3.8	<3.8	50	<3.8	25000	1500	<0.10	5.7	<3000	<6.3	<3.8	14000	<3.8	<2.5	1900	-	-	-	-	<10	-	-	-	-	-	-

DR-7: Delores River below St. Louis settling pond system outfall

Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
DR-7	4/15/11	Total	460	<3.8	<3.8	64	<3.8	<3.8	48000	<3.8	6.1	280	<3.8	6900	110	<0.10	<3.8	<3000	<6.3	<3.8	4100	<3.8	<2.5	52	97	150	190	<50	<10	198.4	57	7.46	9.9	0.341	1.09
DR-7 D	4/15/11	Dissolved	<50	<3.8	<3.8	58	<3.8	<3.8	50000	<3.8	<3.8	<50	<3.8	7300	94	<0.10	<3.8	<3000	<6.3	<3.8	4300	<3.8	<2.5	39	-	-	-	-	<10	-	-	-	-	-	-

DR-8: St. Louis tunnel discharge at adit (Duplicate of DR-3)

Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
DR-8	4/16/11	Total	190	<3.8	<3.8	19	<3.8	16	270000	<3.8	22	3700	<3.8	22000	1800	<0.10	6	<3000	<6.3	<3.8	12000	<3.8	<2.5	3500	120	770	1000	<50	<10	768	640	6.82	15.2	1.194	0.64
DR-8 D	4/16/11	Dissolved	<50	<3.8	<3.8	18	<3.8	14	260000	<3.8	<3.8	1000	<3.8	21000	1700	<0.10	5.7	<3000	<6.3	<3.8	12000	<3.8	<2.5	3200	-	-	-	-	<10	-	-	-	-	-	-

DR-G: Delores River at USGS gaging station #09165000

Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
DR-G	4/15/11	Total	420	<3.8	<3.8	82	<3.8	<3.8	53000	<3.8	<3.8	280	<3.8	7300	58	<0.10	<3.8	<3000	<6.3	<3.8	3700	<3.8	<2.5	68	130	160	210	<50	<10	198.4	45	7.65	8.1	0.318	1.21
DR-G D	4/15/11	Dissolved	<50	<3.8	<3.8	79	<3.8	<3.8	51000	<3.8	<3.8	<50	<3.8	7100	49	<0.10	<3.8	<3000	<6.3	<3.8	3500	<3.8	<2.5	25	-	-	-	-	<10	-	-	-	-	-	-

FB: Field Blank

Field Sample ID	Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide (µg/L)	Salinity (mg/L)	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)
FB	4/16/11	Total	<50	<3.8	<3.8	<3.8	<3.8	<3.8	<100	<3.8	<3.8	<50	<3.8	<100	<3.8	<0.10	<3.8	<3000	<6.3	<3.8	<200	<3.8	<2.5	<20	<10	<10	<50	<50	<10	6.4	<0.10	7.00	4.8	0.0	1.22
FB D	4/16/11	Dissolved	<50	<3.8	<3.8	<3.8	<3.8	<3.8	120	<3.8	<3.8	<50	<3.8	<100	<3.8	<0.10	<3.8	<3000	<6.3	<3.8	<200	<3.8	<2.5	<20	-	-	-	-	<10	-	-	-	-	-	-

ANDERSON
ENGINEERING COMPANY INC.

Rico Colorado Surface Water Sampling QC Results - April 2011 Sampling
Results in ug/L (unless otherwise indicated)

TABLE 6 - Lab Preparation Blanks

Description	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity (mg/L)	Hardness (mg/l)	TDS (mg/L)	TSS (mg/L)	Cyanide	Sulfate (mg/L)
QC Sample	MB-215972	MB-215972	MB-215972	MB-215972	MB-215972	MB-215972	MB-215318	MB-215972	MB-215972	MB-215318	MB-215972	MB-215318	MB-215972	MB-215236	MB-215972	MB-215318	MB-215972	MB-215972	MB-215318	MB-215972	MB-215972	MB-215318	MB-215770	MB-215962	MB-215635	MB-215639	MB-215582	MB-215907
Date	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	4/23/2011	5/3/2011	4/22/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	4/25/2011	4/26/2011	4/25/2011	4/25/2011	4/24/2011	4/26/2011
Time	12:04	12:04	12:04	12:04	12:04	12:04	16:42	12:04	12:04	16:42	12:04	16:42	12:04	15:47	12:04	16:42	12:04	12:04	16:42	12:04	12:04	16:42	15:28	0:00	16:30	16:30	17:30	7:40
Result	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MDL	-	-	-	-	-	-	31.6	-	-	24.3	-	6.58	-	-	-	311	-	-	194	-	-	1.59	-	-	-	-	5	-
RL	50	3.75	3.75	3.75	3.75	3.75	100	3.75	3.75	50	3.75	100	3.75	0.1	3.75	3000	6.25	3.75	200	3.75	2.5	20	10	10	50	50	10	0.1
QC Sample	MB-215975	MB-215975	MB-215975	MB-215975	MB-215975	MB-215975	MB-215551	MB-215975	MB-215975	MB-215551	MB-215975	MB-215551	MB-215975	MB-215248	MB-215975	MB-215551	MB-215975	MB-215975	MB-215551	MB-215975	MB-215975	MB-215551	-	-	-	-	-	-
Date	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	4/23/2011	5/3/2011	4/22/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	-	-	-	-	-	-
Time	12:08	12:08	12:08	12:08	12:08	12:08	19:49	12:08	12:08	19:49	12:08	19:49	12:08	16:28	12:08	19:49	12:08	12:08	19:49	12:08	12:08	19:49	-	-	-	-	-	-
Result	ND	ND	ND	ND	ND	ND	47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-
MDL	-	-	-	-	-	-	31.6	-	-	24.3	-	6.58	-	-	-	311	-	-	194	-	-	1.59	-	-	-	-	-	-
RL	50	3.75	3.75	3.75	3.75	3.75	100	3.75	3.75	50	3.75	100	3.75	0.1	3.75	3000	6.25	3.75	200	3.75	2.5	20	-	-	-	-	-	-

** - Sample result is greater than 4 times the spike added

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Rico Colorado Surface Water Sampling QC Results - April 2011 Sampling
Results in ug/L (unless otherwise indicated)

TABLE 7 - Laboratory Control Sample

Description	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity (mg/L)	Hardness (mg/l)	TDS (mg/L)	TSS (mg/L)	Cyanide	Sulfate (mg/L)
QC Sample	LCS-215973	LCS-215973	LCS-215973	LCS-215973	LCS-215973	LCS-215973	LCS-215319	LCS-215973	LCS-215973	LCS-215319	LCS-215973	LCS-215319	LCS-215973	LCS-215237	LCS-215973	LCS-215319	LCS-215973	LCS-215973	LCS-215319	LCS-215973	LCS-215973	LCS-215319	LCS-215771	LCS-215963	LCS-215636	LCS-215640	LCS-215577	LCS-215908
Date	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	4/23/2011	5/3/2011	4/22/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	4/25/2011	4/26/2011	4/25/2011	4/25/2011	4/24/2011	4/26/2011
Time	12:21	12:21	12:21	12:21	12:21	12:21	16:48	12:21	12:21	16:48	12:21	16:48	12:21	15:48	12:21	16:48	12:21	12:21	16:48	12:21	12:21	16:48	15:28	0:00	16:30	16:30	17:30	7:52
Result	298	254	268	264	252	273	2120	266	275	1010	269	2090	265	5.17	270	9970	261	259	10500	274	264	512	209	99.7	714	485	108	5.38
Target	250	250	250	250	250	250	2000	250	250	1000	250	2000	250	5	250	10000	250	250	10000	250	250	500	200	100	744	500	99	5
% Recovery	119	102	107	106	101	109	106	107	110	101	108	105	106	103	108	99.7	104	104	105	110	106	102	105	99.7	96	97	109	108
QC Limits	67.9 / 140.1	78.5 / 118.8	77.3 / 120.6	78.4 / 121.5	75.6 / 123.2	79.1 / 119.8	86.1 / 114.2	76.9 / 120.5	79.6 / 120.3	85.3 / 116.2	80.3 / 117.3	86 / 106	74 / 121.3	91.5 / 110.3	76.4 / 123.3	81.8 / 111.9	75.4 / 123.1	67.2 / 127.9	85.6 / 109.4	78.1 / 123.2	74.2 / 122	85.1 / 105.7	80.9 / 119.5	80 / 120	91.8 / 105.8	73.7 / 110.6	84.8 / 113.8	90.9 / 113.5
QC Sample	LCS-215976	LCS-215976	LCS-215976	LCS-215976	LCS-215976	LCS-215976	LCS-215552	LCS-215976	LCS-215976	LCS-215552	LCS-215976	LCS-215552	LCS-215976	LCS-215249	LCS-215976	LCS-215552	LCS-215976	LCS-215976	LCS-215552	LCS-215976	LCS-215976	LCS-215552	-	-	-	-	LCS-215579	-
Date	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	4/23/2011	5/3/2011	4/22/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	-	-	-	-	4/24/2011	-
Time	12:25	12:25	12:25	12:25	12:25	12:25	19:55	12:25	12:25	19:55	12:25	19:55	12:25	16:30	12:25	19:55	12:25	12:25	19:55	12:25	12:25	19:55	-	-	-	-	17:30	-
Result	235	227	239	236	225	243	2050	239	245	993	241	2030	236	4.9	241	9480	235	221	9890	245	237	496	-	-	-	-	300	-
Target	250	250	250	250	250	250	2000	250	250	1000	250	2000	250	5	250	10000	250	250	10000	250	250	500	-	-	-	-	300	-
% Recovery	93.9	90.7	95.7	94.5	90.1	97.1	102	95.6	98	99.3	96.6	102	94.5	98	96.3	94.8	94	88.4	98.9	97.8	94.9	99.2	-	-	-	-	100	-
QC Limits	67.9 / 140.1	78.5 / 118.8	77.3 / 120.6	78.4 / 121.5	75.6 / 123.2	79.1 / 119.8	86.1 / 114.2	76.9 / 120.5	79.6 / 120.3	85.3 / 116.2	80.3 / 117.3	86 / 106	74 / 121.3	91.5 / 110.3	76.4 / 123.3	81.8 / 111.9	75.4 / 123.1	67.2 / 127.9	85.6 / 109.4	78.1 / 123.2	74.2 / 122	85.1 / 105.7	-	-	-	-	84.8 / 113.8	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LCS-215580	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4/24/2011	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17:30	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47.6	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	95.2	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84.8 / 113.8	-

** - Sample result is greater than 4 times the spike added

ANDERSON
ENGINEERING COMPANY INC.

Rico Colorado Surface Water Sampling QC Results - April 2011 Sampling
Results in ug/L (unless otherwise indicated)

TABLE 8 - Matrix Spike - Matrix Spike Duplicate

Description	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity (mg/L)	Hardness (mg/l)	TDS (mg/L)	TSS (mg/L)	Cyanide	Sulfate (mg/L)
Original Result	-	ND	ND	69	ND	ND	52000	ND	ND	370	ND	7500	16	ND	ND	690	ND	ND	3900	ND	ND	100	120	-	-	-	-	60
QC Sample (MS)	-	MS-216496	MS-216496	MS-216496	MS-216496	MS-216496	MS-215321	MS-216496	MS-216496	MS-215321	MS-216496	MS-215321	MS-216496	MS-215240	MS-216496	MS-215321	MS-216496	MS-216496	MS-215321	MS-216496	MS-216496	MS-215321	MS-215773	-	-	-	-	MS-215909
Date	-	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	4/23/2011	5/3/2011	4/22/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	4/25/2011	-	-	-	-	4/26/2011
Time	-	12:43	12:43	12:43	12:43	12:43	17:16	12:43	12:43	17:16	12:43	17:16	12:43	16:02	12:43	17:16	12:43	12:43	17:16	12:43	12:43	17:16	15:29	-	-	-	-	8:05
Result	-	199	101	595	50.8	49.3	55900	214	214	1350	108	9600	230	1.03	215	11000	53	52.2	14500	52.8	216	589	216	-	-	-	-	80.7
Target	-	200	100	500	50	50	2000	200	200	1000	100	2000	200	1	200	10000	50	50	10000	50	200	500	100	-	-	-	-	20
% Rec	-	99.7	101	105	102	98.6	**182	107	107	97.6	108	106	107	103	108	110	106	104	105	106	108	97	92.6	-	-	-	-	106
QC Limits	-	78.5 / 118.8	77.3 / 120.6	78.4 / 121.5	75.6 / 123.2	79.1 / 119.8	75 / 125	76.9 / 120.5	79.6 / 120.3	75 / 125	80.3 / 117.3	75 / 125	74 / 121.3	75 / 125	76.4 / 123.3	75 / 125	75.4 / 123.1	67.2 / 127.9	75 / 125	78.1 / 123.2	74.2 / 122	75 / 125	80.9 / 119.5	-	-	-	-	90.9 / 113.5
QC Sample (MSD)	-	MSD-216497	MSD-216497	MSD-216497	MSD-216497	MSD-216497	MSD-215322	MSD-216497	MSD-216497	MSD-215322	MSD-216497	MSD-215322	MS-216497	MSD-215241	MSD-216497	MSD-215322	MSD-216497	MSD-216497	MSD-215322	MSD-216497	MSD-216497	MSD-215322	-	-	-	-	-	MSD-215910
Date	-	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	4/23/2011	5/3/2011	4/22/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	-	-	-	-	-	4/26/2011
Time	-	13:00	13:00	13:00	13:00	13:00	17:21	13:00	13:00	17:21	13:00	17:21	13:00	16:03	13:00	17:21	13:00	13:00	17:21	13:00	13:00	17:21	-	-	-	-	-	8:17
Result	-	198	101	595	51.5	49.8	53200	215	215	1310	108	9290	233	1.02	216	10700	53.5	52.6	13800	52.8	217	582	-	-	-	-	-	80.8
% Rec	-	99.1	101	105	103	99.6	**47.4	107	108	93.5	108	90.8	109	102	108	107	107	105	98.6	106	109	95.5	-	-	-	-	-	106
RPD	-	0.654	0.647	0.113	1.5	0.956	4.94	0.421	0.604	3.08	0.16	3.32	1.33	1.01	0.431	2.64	0.969	0.902	4.66	0.126	0.527	1.27	-	-	-	-	-	0.114
QC Limits	-	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 38.7	0 / 20	0 / 20	0 / 20	0 / 18.7	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 14.4	-	-	-	-	-	0 / 15.1
Original Result	-	ND	ND	79	ND	ND	260000	ND	ND	1000	ND	21000	49	ND	ND	1400	ND	ND	12000	ND	ND	3200	-	-	-	-	-	-
QC Sample (MS)	-	MS-215982	MS-215982	MS-215982	MS-215982	MS-215982	MS-215554	MS-215982	MS-215982	MS-215554	MS-215982	MS-215554	MS-215982	MS-215244	MS-215982	MS-215554	MS-215982	MS-215982	MS-215554	MS-215982	MS-215982	MS-215554	-	-	-	-	-	-
Date	-	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	4/23/2011	5/3/2011	4/22/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	-	-	-	-	-	-
Time	-	15:04	15:04	15:04	15:04	15:04	20:12	15:04	15:04	20:12	15:04	20:12	15:04	16:17	15:04	20:12	15:04	15:04	20:12	15:04	15:04	20:12	-	-	-	-	-	-
Result	-	197	91.4	565	46.8	45.6	253000	194	195	1910	99.5	22600	242	1.01	194	11000	48.9	47.7	21100	49.9	196	3520	-	-	-	-	-	-
Target	-	200	100	500	50	50	2000	200	200	1000	100	2000	200	1	200	10000	50	50	10000	50	200	500	-	-	-	-	-	-
% Rec	-	98.6	91.4	97.2	93.6	91.3	**-479	97.1	97.3	89.5	99.5	**59.4	96.3	100	97.2	110	97.8	95.3	90	99.7	98.1	**58.4	-	-	-	-	-	-
QC Limits	-	78.5 / 118.8	77.3 / 120.6	78.4 / 121.5	75.6 / 123.2	79.1 / 119.8	75 / 125	76.9 / 120.5	79.6 / 120.3	75 / 125	80.3 / 117.3	75 / 125	74 / 121.3	75 / 125	76.4 / 123.3	75 / 125	75.4 / 123.1	67.2 / 127.9	75 / 125	78.1 / 123.2	74.2 / 122	75 / 125	-	-	-	-	-	-
QC Sample (MSD)	-	MSD-215983	MSD-215983	MSD-215983	MSD-215983	MSD-215983	MSD-215555	MSD-215983	MSD-215983	MSD-215555	MSD-215983	MSD-215555	MSD-215983	MSD-215245	MSD-215983	MSD-215555	MSD-215983	MSD-215983	MSD-215555	MSD-215983	MSD-215983	MSD-215555	-	-	-	-	-	-
Date	-	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	4/23/2011	5/3/2011	4/22/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	-	-	-	-	-	-
Time	-	15:09	15:09	15:09	15:09	15:09	20:29	15:09	15:09	20:29	15:09	20:29	15:09	16:18	15:09	20:29	15:09	15:09	20:29	15:09	15:09	20:29	-	-	-	-	-	-
Result	-	186	86.5	532	43.8	43.3	247000	182	183	1920	94.4	22000	227	1.01	183	11000	46	45	20800	46.7	185	3440	-	-	-	-	-	-
% Rec	-	93.1	86.5	90.5	87.6	86.7	**-765	91	91.6	90.4	94.4	**31.4	89.3	101	91.6	110	91.9	90	87.5	93.4	92.4	**42.6	-	-	-	-	-	-
RPD	-	5.75	5.55	6.06	6.66	5.14	2.28	6.53	6.02	0.486	5.24	2.52	6.04	0.218	5.99	0.109	6.18	5.79	1.18	6.54	6.07	2.28	-	-	-	-	-	-
QC Limits	-	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 38.7	0 / 20	0 / 20	0 / 20	0 / 18.7	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 14.4	-	-	-	-	-	-

** - Sample result is greater than 4 times the spike added

ANDERSON
ENGINEERING COMPANY INC.

Rico Colorado Surface Water Sampling QC Results - April 2011 Sampling
Results in ug/L (unless otherwise indicated)

TABLE 9 - Matrix Duplicate

Description	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity (mg/L)	Hardness (mg/l)	TDS (mg/L)	TSS (mg/L)	Cyanide	Sulfate (mg/L)
Original Result	510	ND	ND	69	ND	ND	52000	ND	ND	370	ND	7500	16	-	ND	690	ND	ND	3900	ND	ND	100	120	160	150	ND	-	-
QC Sample	MD-216495	MD-216495	MD-216495	MD-216495	MD-216495	MD-216495	MD-215320	MD-216495	MD-216495	MD-215320	MD-216495	MD-215320	MD-216495	-	MD-216495	MD-215320	MD-216495	MD-216495	MD-215320	MD-216495	MD-216495	MD-215320	MD-215772	MD-215964	MD-215637	MD-215641	-	-
Date	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	4/23/2011	5/3/2011	-	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	4/25/2011	4/26/2011	4/25/2011	4/25/2011	-	-
Time	12:38	12:38	12:38	12:38	12:38	12:38	17:10	12:38	12:38	17:10	12:38	17:10	12:38	-	12:38	17:10	12:38	12:38	17:10	12:38	12:38	17:10	15:29	0:00	16:30	16:30	-	-
Result	514	ND	ND	70.2	ND	ND	54200	ND	ND	370	ND	7620	16.1	-	ND	764	ND	ND	4120	ND	ND	106	112	153	206	ND	-	-
RPD	0.725	NA	NA	1.78	NA	NA	4.18	NA	NA	0.105	NA	1.58	0.584	-	NA	10.2	NA	NA	5.37	NA	NA	5.63	6.64	4.41	*31.5	NA	-	-
QC Limits	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 38.7	0 / 20	0 / 20	0 / 20	-	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 14.4	0 / 12.9	0 / 20	0 / 20	0 / 20	-	-
														-														
Original Result	ND	ND	ND	79	ND	ND	260000	ND	ND	1000	ND	21000	49	-	ND	1400	ND	ND	12000	ND	ND	3200	-	-	-	-	-	-
QC Sample	MD-215981	MD-215981	MD-215981	MD-215981	MD-215981	MD-215981	MD-215553	MD-215981	MD-215981	MD-215553	MD-215981	MD-215553	MD-215981	-	MD-215981	MD-215553	MD-215981	MD-215981	MD-215553	MD-215981	MD-215981	MD-215553	-	-	-	-	-	-
Date	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	4/23/2011	5/3/2011	-	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	5/3/2011	5/3/2011	4/23/2011	-	-	-	-	-	-
Time	15:00	15:00	15:00	15:00	15:00	15:00	20:06	15:00	15:00	20:06	15:00	20:06	15:00	-	15:00	20:06	15:00	15:00	20:06	15:00	15:00	20:06	-	-	-	-	-	-
Result	111	ND	ND	78.3	ND	ND	257000	ND	ND	1010	ND	21000	48.5	-	ND	1380	ND	ND	11800	ND	ND	3150	-	-	-	-	-	-
RPD	NA	NA	NA	0.936	NA	NA	1.14	NA	NA	0.678	NA	0.071	1.02	-	NA	1.32	NA	NA	1.44	NA	NA	1.55	-	-	-	-	-	-
QC Limits	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 38.7	0 / 20	0 / 20	0 / 20	-	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 20	0 / 14.4	-	-	-	-	-	-

* - The RPD between sample 1111003001 (DR-4-SW) and the MD was not within the control limits for unknown reasons.
** - Sample result is greater than 4 times the spike added

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TABLE 10 - Weekly Field Data and Flume Flows for the Month of April 2011

	St. Louis Adit Discharge (North Flume)						Pond System Outfall to Dolores River (South Flume)					
Date	pH	Temp (°C)	Electical Conductivity (mS)	DO (ppm)	Water Level (in)	Flow, Q (cfs)	pH	Temp (°C)	Electical Conductivity (mS)	DO (ppm)	Water Level (in)	Flow, Q (cfs)
8-Apr-11	6.63	15.1	1.301	-	7	1.36	6.69	6.9	1.382	-	6.5	1.21
15-Apr-11	6.82	15.2	1.194	0.64	6.25	1.15	6.98	9.2	1.281	1.2	6.125	1.11
19-Apr-11	-	-	-	-	7.2	1.42	-	-	-	-	7.56	1.53
26-Apr-11	6.88	17.7	1.241	0.63	6.84	1.31	6.8	7.7	1.217	1.12	7.92	1.64

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Appendix C

Laboratory Analytical Reports

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Report Date: May 06, 2011

Mark DeFriez
Anderson Engineering Company
977 West 2100 South
Salt Lake City, UT 84119

Phone: 801-972-6222

E-mail: mdefriez@andersoneng.com

Workorder: **1111003**
Project ID: **Rico Water Sampling**
Purchase Order: NA

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
DR-4-SW	1111003001	04/18/11	04/19/11	
DR-1	1111003002	04/18/11	04/19/11	
DR-2	1111003003	04/18/11	04/19/11	
DR-3	1111003004	04/18/11	04/19/11	
DR-4	1111003005	04/18/11	04/19/11	
DR-5	1111003006	04/18/11	04/19/11	
DR-6	1111003007	04/18/11	04/19/11	
DR-7	1111003008	04/18/11	04/19/11	
DR-8	1111003009	04/18/11	04/19/11	
DR-G	1111003010	04/18/11	04/19/11	
FB	1111003011	04/18/11	04/19/11	
DR-4-SW D	1111003012	04/18/11	04/19/11	
DR-1 D	1111003013	04/18/11	04/19/11	
DR-2 D	1111003014	04/18/11	04/19/11	
DR-3 D	1111003015	04/18/11	04/19/11	
DR-4 D	1111003016	04/18/11	04/19/11	
DR-5 D	1111003017	04/18/11	04/19/11	
DR-6 D	1111003018	04/18/11	04/19/11	
DR-7 D	1111003019	04/18/11	04/19/11	
DR-8 D	1111003020	04/18/11	04/19/11	
DR-G D	1111003021	04/18/11	04/19/11	
FB D	1111003022	04/18/11	04/19/11	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-4-SW**
Lab ID: 1111003001
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 120.1

Preparation: Not Applicable

Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**330**	2.0	**1**	

Analysis Method - EPA 130.2

Preparation: Not Applicable

Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	**160**	10	**1**	

Analysis Method - EPA 160.1

Preparation: Not Applicable

Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	**150**	50	**1**	

Analysis Method - EPA 160.2

Preparation: Not Applicable

Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	**1**	

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 5:05:11 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**52000**	100	**1**	
Iron	**370**	50	**1**	
Magnesium	**7500**	100	**1**	
Sodium	**3900**	200	**1**	
Zinc	**100**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 7:10:24 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**620**	50	**2.5**	

Results Continued on Next Page

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-4-SW**
Lab ID: 1111003001
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 7:10:24 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**130**	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**110**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**64**	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 300.0

Preparation: Not Applicable

Analysis: EPA 300.0, Water
Batch: EIC/1165 (HBN: 65242)
Analyzed: 4/26/2011 8:41:44 AM

Instr ID: IC01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	**60**	1.0	**10**	

Analysis Method - EPA 310.2

Preparation: Not Applicable

Analysis: EPA 310.2, Water
Batch: EWC/3114 (HBN: 65195)
Analyzed: 4/25/2011 3:29:35 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	**120**	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Results Continued on Next Page

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-4-SW** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003001 | Media: 500 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL
Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 3:49:46 PM
Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	1	

Sample ID: **DR-1** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003002 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - EPA 120.1

Preparation: Not Applicable
Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**240**	2.0	1	

Analysis Method - EPA 130.2

Preparation: Not Applicable
Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	**110**	10	1	

Analysis Method - EPA 160.1

Preparation: Not Applicable
Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	**130**	50	1	

Analysis Method - EPA 160.2

Preparation: Not Applicable
Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	1	

Results Continued on Next Page

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-1**
Lab ID: 1111003002
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 5:38:01 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**37000**	100	**1**	
Iron	**100**	50	**1**	
Magnesium	**5900**	100	**1**	
Sodium	**3300**	200	**1**	
Zinc	<20	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 7:14:50 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**510**	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**16**	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	<6.3	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**69**	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 300.0

Preparation: Not Applicable

Analysis: EPA 300.0, Water
Batch: EIC/1165 (HBN: 65242)
Analyzed: 4/26/2011 8:53:13 AM

Instr ID: IC01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	**28**	1.0	**10**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-1**
Lab ID: 1111003002
Sampling Site: NA
Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 310.2

Preparation: Not Applicable
Analysis: EPA 310.2, Water
Batch: EWC/3114 (HBN: 65195)
Analyzed: 4/25/2011 3:30:29 PM
Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	**85**	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable
Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM
Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL
Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 3:50:54 PM
Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

Sample ID: **DR-2**
Lab ID: 1111003003
Sampling Site: NA
Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 120.1

Preparation: Not Applicable
Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**250**	2.0	**1**	

Analysis Method - EPA 130.2

Preparation: Not Applicable
Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	**120**	10	**1**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-2**
Lab ID: 1111003003
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 160.1

Preparation: Not Applicable

Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	**140**	50	**1**	

Analysis Method - EPA 160.2

Preparation: Not Applicable

Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	**1**	

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 5:43:38 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**40000**	100	**1**	
Iron	**200**	50	**1**	
Magnesium	**6100**	100	**1**	
Sodium	**3400**	200	**1**	
Zinc	<20	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 7:52:24 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**550**	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**63**	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-2**	Matrix: Water	Collected: 4/18/2011
Lab ID: 1111003003	Media: 500 mL Nalgene	Received: 4/19/2011
Sampling Site: NA	Sampling Parameter: NA	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep	**Weight/Volume**	**Analysis:** EPA 200.8, Water	**Instr ID:** ICPM03
Batch: EMS/2638 (HBN: 65254)	**Initial:** 50 mL	**Batch:** EMS/2645 (HBN: 65550)	**Percent Solids:** NA
Prepared: 4/28/2011	**Final:** 25 mL	**Analyzed:** 4/29/2011 7:52:24 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Vanadium	<2.5	2.5	**2.5**	
Zinc	**7.5**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**68**	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 300.0

Preparation: Not Applicable	**Analysis:** EPA 300.0, Water	**Instr ID:** IC01
	Batch: EIC/1165 (HBN: 65242)	**Percent Solids:** NA
	Analyzed: 4/26/2011 9:04:43 AM	**Report Basis:** Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	**37**	1.0	**10**	

Analysis Method - EPA 310.2

Preparation: Not Applicable	**Analysis:** EPA 310.2, Water	**Instr ID:** WET01
	Batch: EWC/3114 (HBN: 65195)	**Percent Solids:** NA
	Analyzed: 4/25/2011 3:30:47 PM	**Report Basis:** Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	**90**	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable	**Analysis:** EPA 335.4 w/ Micro Dist, Water	**Instr ID:** WET01
	Batch: EWC/3108 (HBN: 65163)	**Percent Solids:** NA
	Analyzed: 4/24/2011 5:30:00 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep	**Weight/Volume**	**Analysis:** SW 7470A, Water	**Instr ID:** AACV02
Batch: EHG/3751 (HBN: 65052)	**Initial:** 50 mL	**Batch:** EHG/3753 (HBN: 65143)	**Percent Solids:** NA
Prepared: 4/21/2011	**Final:** 50 mL	**Analyzed:** 4/22/2011 3:52:02 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-3**
Lab ID: 1111003004
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 120.1

Preparation: Not Applicable

Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**1200**	2.0	**1**	

Analysis Method - EPA 130.2

Preparation: Not Applicable

Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	**760**	10	**1**	

Analysis Method - EPA 160.1

Preparation: Not Applicable

Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	**1000**	50	**1**	

Analysis Method - EPA 160.2

Preparation: Not Applicable

Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	**1**	

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 5:49:15 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**260000**	100	**1**	
Iron	**3700**	50	**1**	
Magnesium	**21000**	100	**1**	
Sodium	**12000**	200	**1**	
Zinc	**3300**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 7:56:46 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**230**	50	**2.5**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-3**
Lab ID: 1111003004
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 7:56:46 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	**17**	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	**24**	3.8	**2.5**	
Manganese	**1900**	3.8	**2.5**	
Nickel	**6.4**	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**3300**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**20**	3.8	**2.5**	
Uranium	**4.5**	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 300.0

Preparation: Not Applicable

Analysis: EPA 300.0, Water
Batch: EIC/1165 (HBN: 65242)
Analyzed: 4/26/2011 11:43:26 AM

Instr ID: IC01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	**630**	10	**100**	

Analysis Method - EPA 310.2

Preparation: Not Applicable

Analysis: EPA 310.2, Water
Batch: EWC/3114 (HBN: 65195)
Analyzed: 4/25/2011 3:31:05 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	**100**	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-3**
Lab ID: 1111003004
Sampling Site: NA
Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL
Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 3:53:08 PM
Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	1	

Sample ID: **DR-4**
Lab ID: 1111003005
Sampling Site: NA
Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 120.1

Preparation: Not Applicable
Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**1200**	2.0	1	

Analysis Method - EPA 130.2

Preparation: Not Applicable
Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	**760**	10	1	

Analysis Method - EPA 160.1

Preparation: Not Applicable
Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	**1100**	50	1	

Analysis Method - EPA 160.2

Preparation: Not Applicable
Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	1	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-4**
Lab ID: 1111003005
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 5:54:57 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**260000**	100	**1**	
Iron	**2500**	50	**1**	
Magnesium	**21000**	100	**1**	
Sodium	**12000**	200	**1**	
Zinc	**3000**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:01:05 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**210**	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	**14**	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	**18**	3.8	**2.5**	
Manganese	**1700**	3.8	**2.5**	
Nickel	**5.9**	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**2900**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**19**	3.8	**2.5**	
Uranium	**4.1**	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 300.0

Preparation: Not Applicable

Analysis: EPA 300.0, Water
Batch: EIC/1165 (HBN: 65242)
Analyzed: 4/26/2011 11:55:49 AM

Instr ID: IC01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	**670**	10	**100**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-4**
Lab ID: 1111003005
Sampling Site: NA
Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 310.2

Preparation: Not Applicable
Analysis: EPA 310.2, Water
Batch: EWC/3114 (HBN: 65195)
Analyzed: 4/25/2011 3:31:23 PM
Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	**110**	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable
Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM
Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL
Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 3:54:15 PM
Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

Sample ID: **DR-5**
Lab ID: 1111003006
Sampling Site: NA
Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 120.1

Preparation: Not Applicable
Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**1300**	2.0	**1**	

Analysis Method - EPA 130.2

Preparation: Not Applicable
Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	**780**	10	**1**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-5**
Lab ID: 1111003006
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 160.1

Preparation: Not Applicable

Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	**1100**	50	**1**	

Analysis Method - EPA 160.2

Preparation: Not Applicable

Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	**1**	

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 6:11:51 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**260000**	100	**1**	
Iron	**1600**	50	**1**	
Magnesium	**22000**	100	**1**	
Sodium	**12000**	200	**1**	
Zinc	**2400**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:05:26 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**110**	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	**12**	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	**12**	3.8	**2.5**	
Manganese	**1600**	3.8	**2.5**	
Nickel	**5.7**	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-5**
Lab ID: 1111003006
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:05:26 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Vanadium	<2.5	2.5	**2.5**	
Zinc	**2400**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**19**	3.8	**2.5**	
Uranium	**4.0**	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 300.0

Preparation: Not Applicable

Analysis: EPA 300.0, Water
Batch: EIC/1165 (HBN: 65242)
Analyzed: 4/26/2011 12:08:09 PM

Instr ID: IC01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	**620**	10	**100**	

Analysis Method - EPA 310.2

Preparation: Not Applicable

Analysis: EPA 310.2, Water
Batch: EWC/3114 (HBN: 65195)
Analyzed: 4/25/2011 3:31:41 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	**130**	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 3:55:22 PM

Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-6**
Lab ID: 1111003007
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 120.1

Preparation: Not Applicable

Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**1300**	2.0	**1**	

Analysis Method - EPA 130.2

Preparation: Not Applicable

Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	**830**	10	**1**	

Analysis Method - EPA 160.1

Preparation: Not Applicable

Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	**1100**	50	**1**	

Analysis Method - EPA 160.2

Preparation: Not Applicable

Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	**1**	

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 6:17:37 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**270000**	100	**1**	
Iron	**760**	50	**1**	
Magnesium	**24000**	100	**1**	
Sodium	**14000**	200	**1**	
Zinc	**2000**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:09:43 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**71**	50	**2.5**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-6**
Lab ID: 1111003007
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:09:43 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	**9.7**	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	**5.4**	3.8	**2.5**	
Manganese	**1500**	3.8	**2.5**	
Nickel	**5.4**	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**1900**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**19**	3.8	**2.5**	
Uranium	**4.0**	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 300.0

Preparation: Not Applicable

Analysis: EPA 300.0, Water
Batch: EIC/1165 (HBN: 65242)
Analyzed: 4/26/2011 12:20:31 PM

Instr ID: IC01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	**670**	10	**100**	

Analysis Method - EPA 310.2

Preparation: Not Applicable

Analysis: EPA 310.2, Water
Batch: EWC/3114 (HBN: 65195)
Analyzed: 4/25/2011 3:31:59 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	**170**	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-6**
Lab ID: 1111003007
Sampling Site: NA
Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL
Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 3:56:30 PM
Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	1	

Sample ID: **DR-7**
Lab ID: 1111003008
Sampling Site: NA
Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 120.1

Preparation: Not Applicable
Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**310**	2.0	1	

Analysis Method - EPA 130.2

Preparation: Not Applicable
Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	**150**	10	1	

Analysis Method - EPA 160.1

Preparation: Not Applicable
Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	**190**	50	1	

Analysis Method - EPA 160.2

Preparation: Not Applicable
Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	1	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-7**
Lab ID: 1111003008
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 6:23:29 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**48000**	100	**1**	
Iron	**280**	50	**1**	
Magnesium	**6900**	100	**1**	
Sodium	**4100**	200	**1**	
Zinc	**52**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:14:03 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**460**	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	**6.1**	3.8	**2.5**	
Manganese	**110**	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**55**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**64**	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 300.0

Preparation: Not Applicable

Analysis: EPA 300.0, Water
Batch: EIC/1165 (HBN: 65242)
Analyzed: 4/26/2011 10:27:05 AM

Instr ID: IC01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	**57**	1.0	**10**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-7**
Lab ID: 1111003008
Sampling Site: NA
Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 310.2

Preparation: Not Applicable
Analysis: EPA 310.2, Water
Batch: EWC/3114 (HBN: 65195)
Analyzed: 4/25/2011 3:32:53 PM
Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	**97**	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable
Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM
Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL
Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 3:57:37 PM
Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

Sample ID: **DR-8**
Lab ID: 1111003009
Sampling Site: NA
Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 120.1

Preparation: Not Applicable
Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**1200**	2.0	**1**	

Analysis Method - EPA 130.2

Preparation: Not Applicable
Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	**770**	10	**1**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-8**
Lab ID: 1111003009
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 160.1

Preparation: Not Applicable

Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	**1000**	50	**1**	

Analysis Method - EPA 160.2

Preparation: Not Applicable

Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	**1**	

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 6:29:06 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**270000**	100	**1**	
Iron	**3700**	50	**1**	
Magnesium	**22000**	100	**1**	
Sodium	**12000**	200	**1**	
Zinc	**3500**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:18:27 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**190**	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	**16**	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	**22**	3.8	**2.5**	
Manganese	**1800**	3.8	**2.5**	
Nickel	**6.0**	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-8**
Lab ID: 1111003009
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:18:27 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Vanadium	<2.5	2.5	**2.5**	
Zinc	**3200**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**19**	3.8	**2.5**	
Uranium	**4.0**	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 300.0

Preparation: Not Applicable

Analysis: EPA 300.0, Water
Batch: EIC/1165 (HBN: 65242)
Analyzed: 4/26/2011 12:45:15 PM

Instr ID: IC01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	**640**	10	**100**	

Analysis Method - EPA 310.2

Preparation: Not Applicable

Analysis: EPA 310.2, Water
Batch: EWC/3114 (HBN: 65195)
Analyzed: 4/25/2011 3:33:10 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	**120**	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 4:05:04 PM

Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-G**
Lab ID: 1111003010
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 120.1

Preparation: Not Applicable

Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**310**	2.0	**1**	

Analysis Method - EPA 130.2

Preparation: Not Applicable

Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	**160**	10	**1**	

Analysis Method - EPA 160.1

Preparation: Not Applicable

Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	**210**	50	**1**	

Analysis Method - EPA 160.2

Preparation: Not Applicable

Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM

Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	**1**	

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 6:34:57 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**53000**	100	**1**	
Iron	**280**	50	**1**	
Magnesium	**7300**	100	**1**	
Sodium	**3700**	200	**1**	
Zinc	**68**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:35:06 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**420**	50	**2.5**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-G**
Lab ID: 1111003010
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:35:06 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**58**	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**65**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**82**	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 300.0

Preparation: Not Applicable

Analysis: EPA 300.0, Water
Batch: EIC/1165 (HBN: 65242)
Analyzed: 4/26/2011 10:50:49 AM

Instr ID: IC01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	**45**	1.0	**10**	

Analysis Method - EPA 310.2

Preparation: Not Applicable

Analysis: EPA 310.2, Water
Batch: EWC/3114 (HBN: 65195)
Analyzed: 4/25/2011 3:33:28 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	**130**	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-G**
Lab ID: 1111003010
Sampling Site: NA
Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL
Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 4:06:12 PM
Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	1	

Sample ID: **FB**
Lab ID: 1111003011
Sampling Site: NA
Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 120.1

Preparation: Not Applicable
Analysis: EPA 120.1, Water
Batch: EWC/3109 (HBN: 65171)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	umhos/cm	RL	Dilution	Qual.
Conductivity	**10**	2.0	1	

Analysis Method - EPA 130.2

Preparation: Not Applicable
Analysis: EPA 130.2, Water
Batch: EWC/3115 (HBN: 65252)
Analyzed: 4/26/2011
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Hardness (as CaCO3)	<10	10	1	

Analysis Method - EPA 160.1

Preparation: Not Applicable
Analysis: EPA 160.1, Water
Batch: EWC/3110 (HBN: 65172)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Dissolved Solids	<50	50	1	

Analysis Method - EPA 160.2

Preparation: Not Applicable
Analysis: EPA 160.2, Water
Batch: EWC/3111 (HBN: 65173)
Analyzed: 4/25/2011 4:30:00 PM
Instr ID: WET06
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Suspended Solids	<50	50	1	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **FB**
Lab ID: 1111003011
Sampling Site: NA

Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 6:40:33 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	<100	100	1	
Iron	<50	50	1	
Magnesium	<100	100	1	
Sodium	<200	200	1	
Zinc	<20	20	1	
Potassium	<3000	3000	1	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:39:29 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	<50	50	2.5	
Arsenic	<3.8	3.8	2.5	
Beryllium	<3.8	3.8	2.5	
Cadmium	<3.8	3.8	2.5	
Chromium	<3.8	3.8	2.5	
Copper	<3.8	3.8	2.5	
Manganese	<3.8	3.8	2.5	
Nickel	<3.8	3.8	2.5	
Lead	<3.8	3.8	2.5	
Selenium	<6.3	6.3	2.5	
Silver	<3.8	3.8	2.5	
Thallium	<3.8	3.8	2.5	
Vanadium	<2.5	2.5	2.5	
Zinc	<6.3	6.3	2.5	
Antimony	<3.8	3.8	2.5	
Barium	<3.8	3.8	2.5	
Uranium	<2.5	2.5	2.5	
Thorium	<2.5	2.5	2.5	

Analysis Method - EPA 300.0

Preparation: Not Applicable

Analysis: EPA 300.0, Water
Batch: EIC/1165 (HBN: 65242)
Analyzed: 4/26/2011 8:29:46 AM

Instr ID: IC01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Sulfate	<0.10	0.10	1	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **FB**
Lab ID: 1111003011
Sampling Site: NA
Matrix: Water
Media: 500 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 310.2

Preparation: Not Applicable
Analysis: EPA 310.2, Water
Batch: EWC/3114 (HBN: 65195)
Analyzed: 4/25/2011 3:33:47 PM
Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	mg/L	RL	Dilution	Qual.
Total Alkalinity	<10	10	**1**	

Analysis Method - EPA 335.4

Preparation: Not Applicable
Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM
Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL
Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 4:07:19 PM
Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

Sample ID: **DR-4-SW D**
Lab ID: 1111003012
Sampling Site: NA
Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA
Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL
Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 6:46:19 PM
Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**53000**	100	**1**	
Iron	<50	50	**1**	
Magnesium	**7400**	100	**1**	
Sodium	**4100**	200	**1**	
Zinc	**86**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011
Weight/Volume
Initial: 50 mL
Final: 25 mL
Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:43:58 PM
Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	<50	50	**2.5**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-4-SW D**
Lab ID: 1111003012
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:43:58 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**99**	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**83**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**57**	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 4:08:27 PM

Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-1 D**
Lab ID: 1111003013
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 6:51:57 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**37000**	100	**1**	
Iron	<50	50	**1**	
Magnesium	**6000**	100	**1**	
Sodium	**3400**	200	**1**	
Zinc	<20	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:48:24 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**71**	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**7.9**	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	<6.3	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**61**	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-1 D** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003013 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep	**Weight/Volume**	**Analysis:** SW 7470A, Water	**Instr ID:** AACV02
Batch: EHG/3751 (HBN: 65052)	**Initial:** 50 mL	**Batch:** EHG/3753 (HBN: 65143)	**Percent Solids:** NA
Prepared: 4/21/2011	**Final:** 50 mL	**Analyzed:** 4/22/2011 4:09:34 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

Sample ID: **DR-2 D** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003014 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep	**Weight/Volume**	**Analysis:** EPA 200.7 Water	**Instr ID:** ICP08
Batch: EIPX/3070 (HBN: 65070)	**Initial:** 50 mL	**Batch:** EICP/2851 (HBN: 65189)	**Percent Solids:** NA
Prepared: 4/23/2011	**Final:** 50 mL	**Analyzed:** 4/23/2011 6:57:43 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**37000**	100	**1**	
Iron	<50	50	**1**	
Magnesium	**5600**	100	**1**	
Sodium	**3200**	200	**1**	
Zinc	<20	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep	**Weight/Volume**	**Analysis:** EPA 200.8, Water	**Instr ID:** ICPM03
Batch: EMS/2638 (HBN: 65254)	**Initial:** 50 mL	**Batch:** EMS/2645 (HBN: 65550)	**Percent Solids:** NA
Prepared: 4/28/2011	**Final:** 25 mL	**Analyzed:** 4/29/2011 8:52:50 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**64**	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**49**	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-2 D** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003014 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011
Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:52:50 PM
Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Vanadium	<2.5	2.5	**2.5**	
Zinc	<6.3	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**58**	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM
Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 4:10:41 PM
Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

Sample ID: **DR-3 D** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003015 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011
Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 7:03:21 PM
Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**260000**	100	**1**	
Iron	**1100**	50	**1**	
Magnesium	**21000**	100	**1**	
Sodium	**12000**	200	**1**	
Zinc	**3200**	20	**1**	
Potassium	<3000	3000	**1**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-3 D**
Lab ID: 1111003015
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 8:57:15 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**70**	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	**15**	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**1700**	3.8	**2.5**	
Nickel	**6.0**	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**2900**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**19**	3.8	**2.5**	
Uranium	**3.8**	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 4:11:49 PM

Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-4 D**
Lab ID: 1111003016
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 7:20:35 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**270000**	100	**1**	
Iron	<50	50	**1**	
Magnesium	**22000**	100	**1**	
Sodium	**12000**	200	**1**	
Zinc	**2700**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 9:01:34 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	<50	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	**13**	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**1700**	3.8	**2.5**	
Nickel	**6.4**	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**2400**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**18**	3.8	**2.5**	
Uranium	**3.8**	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-4 D** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003016 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep	**Weight/Volume**	**Analysis:** SW 7470A, Water	**Instr ID:** AACV02
Batch: EHG/3751 (HBN: 65052)	**Initial:** 50 mL	**Batch:** EHG/3753 (HBN: 65143)	**Percent Solids:** NA
Prepared: 4/21/2011	**Final:** 50 mL	**Analyzed:** 4/22/2011 4:15:16 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

Sample ID: **DR-5 D** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003017 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep	**Weight/Volume**	**Analysis:** EPA 200.7 Water	**Instr ID:** ICP08
Batch: EIPX/3070 (HBN: 65070)	**Initial:** 50 mL	**Batch:** EICP/2851 (HBN: 65189)	**Percent Solids:** NA
Prepared: 4/23/2011	**Final:** 50 mL	**Analyzed:** 4/23/2011 7:26:27 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**270000**	100	**1**	
Iron	<50	50	**1**	
Magnesium	**22000**	100	**1**	
Sodium	**12000**	200	**1**	
Zinc	**2100**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep	**Weight/Volume**	**Analysis:** EPA 200.8, Water	**Instr ID:** ICPM03
Batch: EMS/2638 (HBN: 65254)	**Initial:** 50 mL	**Batch:** EMS/2645 (HBN: 65550)	**Percent Solids:** NA
Prepared: 4/28/2011	**Final:** 25 mL	**Analyzed:** 4/29/2011 9:05:55 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	**59**	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	**11**	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**1500**	3.8	**2.5**	
Nickel	**5.7**	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-5 D** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003017 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep | **Weight/Volume** | **Analysis:** EPA 200.8, Water | **Instr ID:** ICPM03
Batch: EMS/2638 (HBN: 65254) | **Initial:** 50 mL | **Batch:** EMS/2645 (HBN: 65550) | **Percent Solids:** NA
Prepared: 4/28/2011 | **Final:** 25 mL | **Analyzed:** 4/29/2011 9:05:55 PM | **Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Vanadium	<2.5	2.5	**2.5**	
Zinc	**2000**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**18**	3.8	**2.5**	
Uranium	**3.8**	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable | **Analysis:** EPA 335.4 w/ Micro Dist, Water | **Instr ID:** WET01
Batch: EWC/3108 (HBN: 65163) | **Percent Solids:** NA
Analyzed: 4/24/2011 5:30:00 PM | **Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep | **Weight/Volume** | **Analysis:** SW 7470A, Water | **Instr ID:** AACV02
Batch: EHG/3751 (HBN: 65052) | **Initial:** 50 mL | **Batch:** EHG/3753 (HBN: 65143) | **Percent Solids:** NA
Prepared: 4/21/2011 | **Final:** 50 mL | **Analyzed:** 4/22/2011 4:19:46 PM | **Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

Sample ID: **DR-6 D** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003018 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep | **Weight/Volume** | **Analysis:** EPA 200.7 Water | **Instr ID:** ICP08
Batch: EIPX/3070 (HBN: 65070) | **Initial:** 50 mL | **Batch:** EICP/2851 (HBN: 65189) | **Percent Solids:** NA
Prepared: 4/23/2011 | **Final:** 50 mL | **Analyzed:** 4/23/2011 7:32:19 PM | **Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**270000**	100	**1**	
Iron	**50**	50	**1**	
Magnesium	**25000**	100	**1**	
Sodium	**14000**	200	**1**	
Zinc	**1900**	20	**1**	
Potassium	<3000	3000	**1**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-6 D**
Lab ID: 1111003018
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 9:10:14 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	<50	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	**9.4**	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**1500**	3.8	**2.5**	
Nickel	**5.7**	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**1800**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**19**	3.8	**2.5**	
Uranium	**3.9**	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 4:20:54 PM

Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-7 D**
Lab ID: 1111003019
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 7:38:11 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**50000**	100	**1**	
Iron	<50	50	**1**	
Magnesium	**7300**	100	**1**	
Sodium	**4300**	200	**1**	
Zinc	**39**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 9:14:37 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	<50	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**94**	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**36**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**58**	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-7 D** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003019 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep	**Weight/Volume**	**Analysis:** SW 7470A, Water	**Instr ID:** AACV02
Batch: EHG/3751 (HBN: 65052)	**Initial:** 50 mL	**Batch:** EHG/3753 (HBN: 65143)	**Percent Solids:** NA
Prepared: 4/21/2011	**Final:** 50 mL	**Analyzed:** 4/22/2011 4:22:02 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

Sample ID: **DR-8 D** | Matrix: Water | Collected: 4/18/2011
Lab ID: 1111003020 | Media: 1000 mL Nalgene | Received: 4/19/2011
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep	**Weight/Volume**	**Analysis:** EPA 200.7 Water	**Instr ID:** ICP08
Batch: EIPX/3070 (HBN: 65070)	**Initial:** 50 mL	**Batch:** EICP/2851 (HBN: 65189)	**Percent Solids:** NA
Prepared: 4/23/2011	**Final:** 50 mL	**Analyzed:** 4/23/2011 8:00:47 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**260000**	100	**1**	
Iron	**1000**	50	**1**	
Magnesium	**21000**	100	**1**	
Sodium	**12000**	200	**1**	
Zinc	**3200**	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep	**Weight/Volume**	**Analysis:** EPA 200.8, Water	**Instr ID:** ICPM03
Batch: EMS/2638 (HBN: 65254)	**Initial:** 50 mL	**Batch:** EMS/2645 (HBN: 65550)	**Percent Solids:** NA
Prepared: 4/28/2011	**Final:** 25 mL	**Analyzed:** 4/29/2011 9:31:21 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	<50	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	**14**	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**1700**	3.8	**2.5**	
Nickel	**5.7**	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	

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ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-8 D**
Lab ID: 1111003020
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 9:31:21 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Vanadium	<2.5	2.5	**2.5**	
Zinc	**2800**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**18**	3.8	**2.5**	
Uranium	**4.7**	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 4:23:10 PM

Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

Sample ID: **DR-G D**
Lab ID: 1111003021
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 8:34:41 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**51000**	100	**1**	
Iron	<50	50	**1**	
Magnesium	**7100**	100	**1**	
Sodium	**3500**	200	**1**	
Zinc	**25**	20	**1**	
Potassium	<3000	3000	**1**	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **DR-G D**
Lab ID: 1111003021
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 9:35:42 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	<50	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	**49**	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	**24**	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	**79**	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared: 4/21/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: SW 7470A, Water
Batch: EHG/3753 (HBN: 65143)
Analyzed: 4/22/2011 4:24:18 PM

Instr ID: AACV02
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	**1**	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **FB D**
Lab ID: 1111003022
Sampling Site: NA

Matrix: Water
Media: 1000 mL Nalgene
Sampling Parameter: NA

Collected: 4/18/2011
Received: 4/19/2011

Analysis Method - EPA 200.7

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared: 4/23/2011

Weight/Volume
Initial: 50 mL
Final: 50 mL

Analysis: EPA 200.7 Water
Batch: EICP/2851 (HBN: 65189)
Analyzed: 4/23/2011 8:40:22 PM

Instr ID: ICP08
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Calcium	**120**	100	**1**	
Iron	<50	50	**1**	
Magnesium	<100	100	**1**	
Sodium	<200	200	**1**	
Zinc	<20	20	**1**	
Potassium	<3000	3000	**1**	

Analysis Method - EPA 200.8

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared: 4/28/2011

Weight/Volume
Initial: 50 mL
Final: 25 mL

Analysis: EPA 200.8, Water
Batch: EMS/2645 (HBN: 65550)
Analyzed: 4/29/2011 10:01:03 PM

Instr ID: ICPM03
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Aluminum	<50	50	**2.5**	
Arsenic	<3.8	3.8	**2.5**	
Beryllium	<3.8	3.8	**2.5**	
Cadmium	<3.8	3.8	**2.5**	
Chromium	<3.8	3.8	**2.5**	
Copper	<3.8	3.8	**2.5**	
Manganese	<3.8	3.8	**2.5**	
Nickel	<3.8	3.8	**2.5**	
Lead	<3.8	3.8	**2.5**	
Selenium	<6.3	6.3	**2.5**	
Silver	<3.8	3.8	**2.5**	
Thallium	<3.8	3.8	**2.5**	
Vanadium	<2.5	2.5	**2.5**	
Zinc	<6.3	6.3	**2.5**	
Antimony	<3.8	3.8	**2.5**	
Barium	<3.8	3.8	**2.5**	
Uranium	<2.5	2.5	**2.5**	
Thorium	<2.5	2.5	**2.5**	

Analysis Method - EPA 335.4

Preparation: Not Applicable

Analysis: EPA 335.4 w/ Micro Dist, Water
Batch: EWC/3108 (HBN: 65163)
Analyzed: 4/24/2011 5:30:00 PM

Instr ID: WET01
Percent Solids: NA
Report Basis: Wet

Analyte	ug/L	RL	Dilution	Qual.
Cyanide	<10	10	**1**	

Results Continued on Next Page

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Analytical Results

Workorder: **1111003**

Sample ID: **FB D**	Matrix: Water	Collected: 4/18/2011
Lab ID: 1111003022	Media: 1000 mL Nalgene	Received: 4/19/2011
Sampling Site: NA	Sampling Parameter: NA	

Analysis Method - SW 7470

Preparation: SW 7470A, Water Prep	**Weight/Volume**	**Analysis:** SW 7470A, Water	**Instr ID:** AACV02
Batch: EHG/3751 (HBN: 65052)	**Initial:** 50 mL	**Batch:** EHG/3753 (HBN: 65143)	**Percent Solids:** NA
Prepared: 4/21/2011	**Final:** 50 mL	**Analyzed:** 4/22/2011 4:25:25 PM	**Report Basis:** Wet

Analyte	ug/L	RL	Dilution	Qual.
Mercury	<0.10	0.10	1	

Report Authorization

Analysis Method - EPA 120.1

Rosemary Hanks — Analyst
Penny A. Foote — Peer Review

Analysis Method - EPA 130.2

Rosemary Hanks — Analyst
Penny A. Foote — Peer Review

Analysis Method - EPA 160.1

Rosemary Hanks — Analyst
Penny A. Foote — Peer Review

Analysis Method - EPA 160.2

Rosemary Hanks — Analyst
Penny A. Foote — Peer Review

Analysis Method - EPA 200.7

Whitney Redd — Analyst
Neil A. Edwards — Peer Review

Analysis Method - EPA 200.8

Kristie F. Bitner — Analyst
John T Kershisnik — Peer Review

Analysis Method - EPA 300.0

Thomas T. McKay — Analyst
Thomas J. Masoian — Peer Review

Analysis Method - EPA 310.2

Rosemary Hanks — Analyst
Penny A. Foote — Peer Review

Analysis Method - EPA 335.4

Lance Hellmann — Analyst
Rosemary Hanks — Peer Review

ANALYTICAL REPORT

Client: Anderson Engineering Company
Project Manager: Frank J. Smith

Report Authorization

Analysis Method - SW 7470	
Elijah Gregory	Christopher R. Hansen
Analyst	**Peer Review**

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General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

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ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< This testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Batch Worklist

Batch: EWC/ 3108 **Created:** 4/23/2011 19:57 **Instrument:** **HBN:** 65163
Rule: SW 9012/EPA 335.4, Water **Analyst:** L. Hellmann **Status:** WP

Workorder: 1110249
Workorder: 1111003

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Mx	Type	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	215577	ICV/LCS (99)			3	LCS		S9012MIC3Q	6146		4/25/2011	
2	215578	ICB for HBN 65163 [EWC/3108]			3	ICB		S9012MIC3Q	6146		4/25/2011	
3	215579	HIGH RANGE (300)			3	LCS		S9012MIC3Q	6146		4/25/2011	
4	215580	LOW RANGE (50)			3	LCS		S9012MIC3Q	6146		4/25/2011	
5	215581	RLVS (10)			3	RLVS		S9012MIC3Q	6146		4/25/2011	
6	215582	PBW			3	LMB		S9012MIC3Q	6146		4/25/2011	
7	1110249001	#1			3	SAMPLE	1110249001-J	E335.4MIC3	5956	4/25/2011	4/25/2011	
8	215583	#1(1110249001MS)			3	MS		S9012MIC3Q	6146		4/25/2011	
9	215584	#1(1110249001MSD)			3	MSD		S9012MIC3Q	6146		4/25/2011	
10	1111003001	DR-4-SW			3	SAMPLE	1111003001-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
11	1111003002	DR-1			3	SAMPLE	1111003002-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
12	1111003003	DR-2			3	SAMPLE	1111003003-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
13	215585	CCV (200)			3	CCV		S9012MIC3Q	6146		4/25/2011	
14	215586	CCB for HBN 65163 [EWC/3108]			3	CCB		S9012MIC3Q	6146		4/25/2011	
15	1111003004	DR-3			3	SAMPLE	1111003004-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
16	1111003005	DR-4			3	SAMPLE	1111003005-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
17	1111003006	DR-5			3	SAMPLE	1111003006-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
18	1111003007	DR-6			3	SAMPLE	1111003007-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
19	1111003008	DR-7			3	SAMPLE	1111003008-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
20	1111003009	DR-8			3	SAMPLE	1111003009-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
21	215587	DR-8(1111003009MS)			3	MS		S9012MIC3Q	6146		4/25/2011	
22	215588	DR-8(1111003009MSD)			3	MSD		S9012MIC3Q	6146		4/25/2011	
23	1111003010	DR-G			3	SAMPLE	1111003010-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
24	1111003011	FB			3	SAMPLE	1111003011-D	E335.4MIC3	5956	5/2/2011	4/26/2011	
25	215589	CCV (200)			3	CCV		S9012MIC3Q	6146		4/25/2011	
26	215590	CCB for HBN 65163 [EWC/3108]			3	CCB		S9012MIC3Q	6146		4/25/2011	
27	1111003012	DR-4-SW D			3	SAMPLE	1111003012-B	E335.4MIC3	5956	5/2/2011	4/26/2011	

Batch Worklist

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Mx	Type	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
28	1111003013	DR-1 D			3	SAMPLE	1111003013-B	E335.4MIC3	5956	5/2/2011	4/26/2011	
29	1111003014	DR-2 D			3	SAMPLE	1111003014-B	E335.4MIC3	5956	5/2/2011	4/26/2011	
30	1111003015	DR-3 D			3	SAMPLE	1111003015-B	E335.4MIC3	5956	5/2/2011	4/26/2011	
31	1111003016	DR-4 D			3	SAMPLE	1111003016-B	E335.4MIC3	5956	5/2/2011	4/26/2011	
32	1111003017	DR-5 D			3	SAMPLE	1111003017-B	E335.4MIC3	5956	5/2/2011	4/26/2011	
33	1111003018	DR-6 D			3	SAMPLE	1111003018-B	E335.4MIC3	5956	5/2/2011	4/26/2011	
34	1111003019	DR-7 D			3	SAMPLE	1111003019-B	E335.4MIC3	5956	5/2/2011	4/26/2011	
35	215591	DR-7 D(1111003019MS)			3	MS		S9012MIC3Q	6146		4/25/2011	
36	215592	DR-7 D(1111003019MSD)			3	MSD		S9012MIC3Q	6146		4/25/2011	
37	215593	CCV (100)			3	CCV		S9012MIC3Q	6146		4/25/2011	
38	215594	CCB for HBN 65163 [EWC/3108]			3	CCB		S9012MIC3Q	6146		4/25/2011	
39	1111003020	DR-8 D			3	SAMPLE	1111003020-B	E335.4MIC3	5956	5/2/2011	4/26/2011	
40	1111003021	DR-G D			3	SAMPLE	1111003021-B	E335.4MIC3	5956	5/2/2011	4/26/2011	
41	1111003022	FB D			3	SAMPLE	1111003022-B	E335.4MIC3	5956	5/2/2011	4/26/2011	
42	215595	CCV (200)			3	CCV		S9012MIC3Q	6146		4/25/2011	
43	215596	CCB for HBN 65163 [EWC/3108]			3	CCB		S9012MIC3Q	6146		4/25/2011	

Distillation Physical Description Log

Set ID(s): 1110249, 1111003

ALS Sample #	Matrix	Method **	Prep Date	mL Sample Used	Final Vol of Distillate	pH	PbAc	KI	Init.
ICV/LCSW	0.25 N NaOH	9012 Micro dist	4/23/2011	6mL	6mL	>12	Neg	Neg	LH
ICB/CCB									
Method Blank									
S10/RLVS									
S50/Low Range									
S300/High Range									
1110249001	WATER			6mL		>12			
1110249001 MS									
110249001 MSD									
1111003001									
1111003002									
1111003003									
1111003004									
1111003005									
1111003006									
1111003007									
1111003008									
1111003009									
1111003009 MS									
1111003009 MSD									
1111003010									
1111003011									
1111003012									
1111003013									
1111003014									
1111003015									
1111003016									
1111003017									
1111003018									
1111003019									
1111003019 MS									
1111003019 MSD									
1111003020									
1111003021									
1111003022									

Preparation: A Lachat Micro-dist system was used for the distillation.

The **ICV/LCS** was prepared as 0.50mL of 9,900 ug/L stock [9101] into 50mL of 0.25N NaOH.

T = 0.5mL/50mL x 9,900 ug/L = 99 ug/L

The **MS/MSD** were prepared as 0.120mL of 5,000 ug/L stock [11434] into 6mL of sample.

T = 0.120/6mL x 5,000 ug/L = 100 ug/L

Post-distillation **MSD** was prepared as 0.024mL of 5,000 ug/L stock [11434] into 6mL of sample.

T = 0.024/6mL x 5,000 ug/L = 20 ug/L

The **5,000 ug/L** Solution was prepared as 0.25mL of CN Stock (10857) into 50mL of 0.25 NaOH.

T=0.25mL/50mL x 1,000 mg/mL = 5,000 ug/L

All distilled standards/RLVS were prepared by pipetting the appropriate volume of 5,000 ug/L stock [11434] into 50mL of 0.25N NaOH and adding 6mL to the distillation tube.

Preparation Reagents: 0.25 N NaOH: 11402
Releasing Solution: LH 04/19/11 [3546/95]

File #: 20110424002,20110424004

WorkOrder#	Sample #'s	Analyte/Matrix	Prep Batch ID	Analysis Date/Time	Prep Method
1110249, 1111003	110249001, 1111003001-022	CN/Water	65163	04/24/11 00:45	SW9012/335.4

CONVERSION FACTOR: No conversion factors for waters

ANALYSIS REAGENTS:

Solution	Solution ID	Book/Page/ID #
Chloramine T	LH 04/23/11	3546/96
Pyridine	ALP 04/19/11	3546/95
Phosphate buffer	SA 08/03/10	3546/85
0.25 N NaOH	11402	N/A
CCV200/CCV100	CCV200/CCV100	11436/11437
S500	S500	11435

Account # 8001
Analysis Method: SW9012/335.4
Analysis Date: 04/24/11
Instrument ID: WET01
HBN # 65163
Analyst: Lance Hellmann

ANALYSIS PARAMETERS:
See Raw data.

Dilutions: No dilutions required

Comments: 1111003009 MSD outside acceptance criteria, post-distillation spike performed at 20ug/L.

*Instrument uses S500 to prepare the Calibration Curve.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Set ID: 1111003
Sample ID: see below
Matrix: water
Analyst / Date: Rosemary H. Hanks / 04/26/11
Analyte / Method: Hardness / EPA 130.2
Batch/HBN ID: EWC: 3115 / 65252

SAMPLE PREPARATION/ANALYSIS:
Per SOP, this method is a manual titration (WET06, physical properties).

REAGENTS:

1. Buffer solution: 04/26/11 RHH, ex. 1 month.
2. Erichrome Black indicator: 0.5 g mixed in 100 g NaCl *(prepared before 2001, ex. not determined)*
3. EDTA titrant (1.8615g EDTA, Fisher 716941/500mL DDI): 08/11/10 RHH ex.08/11/11
   (standardized 04/26/11 by RHH as **0.02149N** – see notebook 2006 facing pg. 62)
4. $CaCO_3$, 0.02 N (0.20g $CaCO_3$ Mall IC1600/200mL DDI): 08/11/10 RHH **[8917]**
   RLVS is 0.5 mL/50mL water = 10 mg/L. LCS is 5.0 mL/50mL water = 100 mg/L.

RESULTS:

Sample ID	Sample vol.. mL	mL EDTA	Result mg/L
Blank	50	0	0
LCS/QC	50	4.64	99.714
RLVS	50	0.30	6.447
1111003001	20	2.905	158.5
-001 MD	20	2.85 04/26/11	153.1
-002	20	2.06	110.7
-003	20	2.18	117.1
-004	10	7.04	756.4
-005	10	7.03	755.4
-006	10	7.27	781.2
-007	10	7.75	839.7
-008	20	2.83	152.0
-009	10	7.13	766.1
-010	20	2.94	158.0
-011	50	0	0

CALCULATION:

$$\frac{\text{mL EDTA} \times \text{N, EDTA} \times 50{,}000}{\text{Vol. sample (mL)}} = \text{mg (equivalence } CaCO_3\text{)/L}$$

Analyst Note:
MS/MSD is not applicable to this method.

04/26/11

Set ID:	1111003
Sample ID:	1111003001-011
Matrix:	water
Analyst/Date:	Rosemary H. Hanks / 04/25/11
Analysis/Method:	Alkalinity/ EPA 310.2
Batch/HBN ID:	EWC: 3114 / 65195
Reporting Limit:	10 mg/L

SAMPLE PREPARATION/ANALYSIS:
Per Smart Chem method #2001N-0406W, equivalent to USEPA 310.2 with the following modifications (per WestCo):
1-boiling water not required.
2-color solution made as follows: 13.5mL methyl orange solution combined with 26mL 3.1pH buffer solution used as a single reagent.
3-volumes changed in method parameters as follows: sample, 105µl; reagent, 233µl.
4-read time changed to 108 and standard range from 0 to 400mg/L.

REAGENTS and STANDARDS:
Methyl Orange indicator: 04/25/11 RHH
pH 3.1 buffer: 04/25/11 RHH
1.0 N. HCL: 02/09/10 SA (see notebook 3546 pgs. 79,96)

Stock Std. [11011, 10,000 mg/L]. Check Stock:[11438, 1000 mg/L]
Working Standards and ICV/LCS prepared per analysis

ICV/LCS is 10 mL of check stock. to 50 mL water = 200 mg/L
Rlvs is 0.05 mL of stock standard to 50 mL water = 10 mg/L
MS is 0.1 mL of stock standard to 10 mL sample = 100 mg/L

INSTRUMENT PARAMETERS:
SmartChem, Instr. ID: WET01, see instrument printout for operating parameters.
Plan #: 20110425004

Dilutions: None required.

Sample Calculations:
The results are calculated as optical density by the instrument software and a standard curve prepared by comparing against known concentrations of standards in units of mg/L.

COMMENTS:
None.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

7470A/245.1 Mercury Digestion & Analysis:

Analyst Name: Elijah Gregory Date: 4/22/11

Method Summary Checklist

X	Samples transferred into digestion vessels
X	Standards and QCs spiked into DDI H_2O
X	2.5 mL H_2SO_4 and 1.25 mL HNO_3 added
X	7.5 mL 5% $KMnO_4$ added and 15 min. timed
X	4 mL 5% $K_2S_2O_8$ added
X	Hot block digestion for 2 hours

Name: Christopher Hansen Date: 4/21/2011

Workorders (sample #s)	Account	HBN
1111003 (001-022)	8001	65052
CH 4/21/2011		

Sample poured into digestion vessels: 50 mL
Time first sample poured: 11:00
Measured with: 50mL certified volume
Flat bottom graduated tubes
Predigestion Dilutions: None

Sample	Dilution	Pipette
CH 4/21/2011		

Standards and QCs spiked.

Standard	Spike ID	Pipette	Amount
S0, ICB, CCB, MB	NA	NA	NONE
S0.1, RLVS	11372	QC-2	50 µL
S0.5	↓	Hg-2	250 µL
S1.0, CCVA	↓	↓	500 µL
S5.0, CCV	11371		250 µL
S10.0	↓		500 µL
ICV	11370		250 µL
LCS	↓		250 µL
MS, MSD	11372	↓	500µL

50 mL ASTM Type II H_2O to standards
2.5 mL H_2SO_4: 50125 EMD
1.25 mL HNO_3: K09041 Baker
7.5 mL 5% $KMnO_4$ (notebook entry below)
Book: 3707 Page: 38 Entry#: 30
5% $KMnO_4$ color should persist for 15 minutes.
If not additional 5% $KMnO_4$.
15 minutes: 12:42-12:57
4 mL 5% $K_2S_2O_8$ (notebook entry below)
Book: 3707 Page: 38 Entry#: 27
Hot Block Digestions
(Water in Sample Bottles ~ 91 ± 5 °C)

HB#	Therm.	Hood	Samples
23A	IP-2	23	Calstds, MB1, QC1, 1111003 001-011
23B	IP-8	↓	MB2, QC2, 1111003012-022

2 hour hot block digestion

HB#	Time In	Time Out	Temp. In	Temp. Out
23A	13:13	15:13	91.7 °C	93.3 °C
23B	13:17	15:17	91.1 °C	93.1 °C

Final volume of standards and samples:
50 mL sample + 15.25 mL reagents.

Date/Time hydroxylamine added: 4/22/11 14:40
3 mL 12% NH2OH (notebook entry below)
bk 2243 pg. 88 ent. 3

Analysis reagents information:
Acid carrier/flush: Maker: EM Expires: 4/22/12
5% HNO_3 K04056 Baker / 5% HCl 50196 EMD
$SnCl_2$ reductant: Maker: CRH Expires: 4/19/12
10% $SnCl_2$ C01W059 Alfa Aesar / 7% HCl 50196 EMD

Analysis HBN: 65143
Analysis Start Date/Time: 4/22/11 15:34
Analysis file name: CV2-11005
Correlation Coefficient: 0.99988
Required Dilutions:

Sample	Dilution	Pipette
EG 4/22/11		

A post digestion spike is prepared by mixing 9mL of a selected sample with 1mL of the highest standard. PDS target is 1.0 µg/L mercury above sample. Usually the same sample that was chosen for MS/MSD is used for PDS

Analysis Instrument Information:
Instrument Type: Cold Vapor Atomic Absorption
Instrument Name: CETAC M-7500
Instrument ID: AACV02
Reading Wavelength: 253.7 nm

Conversion: (µg/L result)(dilution factor) = (µg/L final result)

Method Detection Limit (MDL) or Limit of Detection (LOD) calculated from Reporting Limit Verification Standards (RLVS)

Practical Quantitation Limit (PQL) or Limit of Quantitation (LOQ): 0.1 ug/L.

Control Limits: ICV ± 10%; CCV/CCVA ± 20%; MS/MSD ± 25%; PDS ± 15%; LCS ± 20%

This data is scanned and saved as a PDF file named for the analysis HBN and stored in a network folder also named for the analysis HBN.

SOP: IT-SW-7470 Revision 19

Prep Comments: None
CH 4/21/2011

Analysis Comments:
EG 4/22/11

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

Run File #: k11062

WorkOrder ID	Sample #'s	Matrix	Prep Batch #	Prep Date/Time	Analytes	Prep Method
1110249	001	Water	64810	04/23/2011 10:00	Ca, Fe, Mg, Na, K	200.7
1111003	001-022	Water	65070	04/23/2011 09:30	Ca, Fe, Mg, Na, Zn, K	200.7

Conversion Factor(s):

200.7 Water= (µg/L from instrument)(Dilution Factor)(Final Volume 0.05 L/Initial Volume 0.1 L)= 0.5 µg/L

Calibration and QC Standards used:

STD	Std ID#
S0/ICB/CCB	ICP-11-035 (4535/31)
STD1	10700
STD2	11362
STD3	10303
STD4	11068
ICV/CCVA	11061
CCV	10954
ICSA	11221
ICSAB	10798
Rinse	ICP-11-011 (4535/30)
Internal Standard	ICP-11-048 (4535/31)

Analysis Method: 6010B
Analysis Date: 04/23/2011
Instrument ID: ICP08
Analyst: Whitney Redd

ANALYSIS PARAMETERS:
RF Power = 1100 W
Nebulizer Flow = 0.60 L/min
Auxiliary Gas = 0.6 L/min
Coolant Gas = 16 L/min
Pump Rate = 45 rpm

Dilutions: No dilutions were required.

Comments: No problems during analysis, except RLVS 214482 had possible air bubbles during radial analysis.

215714 PDS was made by spiking 40 µl each of STD# 9525 into 8 mL of 1111003001 then mixing.
215715 SD was made by mixing 8 mL of ICP-11-035 (4535/31) with 2 mL of 1111003001.

Start Date/Time: 04/23/11 0930

End Date/Time: 04/23/11 1400

WORKORDER(S)	METHOD/MATRIX	Batch	HBN
1111003	EPA 200.7/WATER	3070	65070

QC ID		QC TYPE	Matrix Source		QC Solution	Pipette ID	Amount	Init.
215317	215550	RLVS	ASTM Type II H2O		10587	WR-22	250 µl	WR
215318	215551	MB	ASTM Type II H2O		NA	NA	NA	
215319	215552	QC	ASTM Type II H2O		9525	WR-22	250 µl	
215320	215553	MD	1111003001	1111003020	NA	NA	NA	
215321	215554	MS	1111003001	1111003020	9525	WR-22	250 µl	
215322	215555	MSD	1111003001	1111003020	9525	WR-22	250 µl	

Method Reagents

1:1. HNO_3 BAKER LOT #:	K09041
1:1 HCl EMD LOT #:	50196

Balance

NA

Prepared By:

Whitney Redd

LAB ID	Amount Sample Used (mL)	Final Sample Volume (mL)	Comments
215317	50	50	
215318			
215319			
1111003001			
215320			
215321			
215322			
1111003002			
1111003003			
1111003004			
1111003005			
1111003006			
1111003007			
1111003008			
1111003009			
1111003010			
1111003011			
1111003012			
1111003013			
1111003014			
1111003015			
1111003016			
1111003017			
1111003018			
1111003019			
215550			
215551			
215552			
1111003020			
215553			

Start Date/Time: 04/23/11 0930

End Date/Time: 04/23/11 1400

215553					
215553					
1111003021					
1111003022					

50 mL of sample were measured and transferred to 100 mL digestion tubes. QCs were prepared as described below. 0.5 mL of 1:1 HCl and 1 mL of 1:1 HNO3 was added to all samples. Samples were covered and put on a hot block at ~95 degrees C until samples were reduced to 10 mL. Using vapor recovery device, samples were refluxed for 30 minutes. Samples were diluted to 50 mL with ASTM Type II H2O and shaken. Samples were transferred to 50 mL tubes for analysis.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Workorder and Sample Information

ALS Set ID	Sample ID	Analytes	Account
1111003	001-022	ICP-MS	8001

Batch Information

Batch HBN:	EMS/2638; 65254
CLP Case:	NA
CLP SDG:	NA
Matrix:	Water
Description Book/Page	NA
Microwave:	NA
Hood:	ICP-MS

QC Information (QC's are prepared by the same method and with the same reagents as samples)

ALS QC ID	Matrix Source	Spike Source	Pipette ID	Spike Volume
215972/975 MB	ASTM Type II water	NA	NA	NA
215973/976 LCS	ASTM Type II water	9943, 9944	2163121/N50978	1.25 mL of each
215974/77 RLVS	ASTM Type II water	10968, 10969	N50978	50 uL of each
216495 MD	1111003002	NA	NA	NA
216496/97 MS/MSD	1111003002	9949, 10518	N50978	0.5 mL of each
215981 MD	1111003021	NA	NA	NA
215982/83 MS/MSD	1111003021	9949, 10518	NA	0.5 mL of each

Spiked by: KB Witness: NA

Balance ID:	NA
Measured With:	Digestion tubes
Digestion Vessel:	50 mL polypropylene tubes
Final Container:	50 mL polypropylene tubes
Amount of Sample:	50 mL
Final Volume:	25 mL

Method Reagents

1 mL of 1:1 HNO_3/1210080 Pipette # 2163121
MS-11-087 (4184/73)
0.5 mL of 1:1 HCl/4210040 Pipette # N50978
Prepared as needed

Sample Preparation Description

ALS SOP: IP-CW-200.8, Rev. 2

Modified Method?	No		If YES explain: NA

Kristie Bitner 04/28/11 10:00 Retrieved samples. Rinsed digestion tubes, watch glasses and caps with ASTM Type II water. Transferred 50 mL aliquots of each sample to separate digestion tubes, with ASTM Type II water used for method QC samples. Covered samples with ribbed watch glasses. Spiked as indicated above. Added 1 mL of 1:1 HNO_3 and 0.5 mL of 1:1 HCl to each sample. Placed samples into a block digester with set point of 123.5°C, ICP-MS. Time in: 12:10. Temperature checked using thermometer 101462975 at 12:25, 93.1 °C. Hot block turned off at 16:30. Kristie Bitner 04/28/11 16:45 Kristie Bitner 04/29/11 08:30 Block digester turned on at 08:30. Watch glasses were replaced with caps and samples returned to the blocke digester at 11:20 and refluxed till 12:03. Samples removed from the block digester at 12:03 and allowed to cool. After cooling, the samples were brought to volume with ASTM Type II water, capped and shook to mix. Kristie Bitner 04/29/11 15:00

Name: Kristie Bitner	Date: 4/29/2011	Method/SOP: See above	

ICP-MS Water **HBN: 65550**

Set ID	Sample #'s	Matrix	Prep Write-up (Bk./Pg.)	Prep Date/Time	Prep Batch/HBN	Analytes
1111003	001-022	Water	HBN 65254	4/28/11 10:00	EMS/2638; 65254	#1

Anlaytes: #1: Al, As, Be, Cd, Cr, Cu, Mn, Ni, Pb, Se, Ag, Tl, V, Zn, Sb, Ba, U, Th
Conversion Factor: Water: (ug/L)(25 mL/50 mL)(5 mL/2 mL) = 1.25 ug/L
QC Conversion Factor: Water: (ug/L)(25 mL/50 mL)(5 mL/2 mL) = 1.25 ug/L

CALIBRATION AND QC STANDARDS UTILIZED:

STD	ID #	Book/Page
S0/ICB/CCB	MS-11-083, 090	4184/73
S2	25X of S50	Horizon
S5	10X of S50	Horizon
S10	5X of S50	Horizon
S50/CCVA	11044	Horizon
S200/CCV	9130(100x)	Horizon
S500	11047	Horizon
S1000	11048	Horizon
S1500	9130(13.33x)	Horizon
S2000	9130(10x)	Horizon
ICV	11050	Horizon
ICV	11399	Horizon
Agilent Tune	MS-11-058	4184/72
Var 200.8 Tune	MS-11-091	4184/72
PA Tune	MS-11-088	4184/73
Rinse Blank	MS-11-084/071	4184/73, 72
ISS	MS-11-89/070	4184/73, 72
X-Cal	MS-11-074	4184/72
Tune	MS-11-016	4184/71

Acount: 8001
Analyst: Kristie Bitner
Prep Method: EPA 200.8 (non drinking water)
Analysis Method: EPA 200.8
Analysis Date: 4/29/2011, 05/03/11
Instrument ID: ICPM03, ICPM02
Results File: MS311048, MS211056
Analysis Batch, HBNs: EMS/2645; 65550

Instrument Parameters: ICPM03

Tuning Parameters:

Plasma Condition:
RF Power: 1550 w
RF Matching: 1.92 v
Smpl Depth: 8 mm
Torch-H: 0.1 mm
Torch-V: 0.1 mm
Carrier gas: 0.65 L/min
Dilution Mode: On
Dilution Gas: 0.4 L/min
Optional Gas: --- %
Nebulizer Pump: 0.1 rps
S/C Temp: 2 °C

Reaction Cell:
Reaction Mode: Off

Ion Lenses:
Extract 1: 0 v
Extract 2: -165 v
Omega Bias: -70 v
Omega Lens: 10 v
Cell Entrance: -40 v
Cell Exit: -50 v
Deflect: 10 v
Plate Bias: -40 v

Octopole Parameters:
OctP RF: 180 v
OctP Bias: -8 v

He Gas: 0.0 mL/Min

Q-Pole Parameters:
AMU Gain: 133
Amu Offset: 127
Axis Gain: 1.0001
Axis Offset: 0.03
QP Bias: -5.0 v

Detector Parameters:
Discriminator: 4.5 mV
Analog HV: 1733 V
Pulse HV: 1087 V

Instrument Parameters: ICPM02

Major
Extraction: -122
Lens 1: 8.2
Focus: 30.0
D1: -32.2
Pole Bias: 5.0
Hexapole Bias: -3.0
Nebuliser: 0.79
Sample Depth: 130

Minor
Lens 2: -43.1
Lens 3: -150.6
Forward Power: 1404
Horizontal: 96
Vertical: 482
D2: -160
DA: -80.0
Cool: 13.0
Auxiliary: 0.90

Global
Standard Resolution: 115
High Resolution: 125
Analogue Detector: 2049
PC Detector: 3382

Dilutions: During prep samples concentrated 2x and samples diluted 2.5x prior to analysis, conversion factor of 1.25.

Comments: Two MB, LCS, RLVS samples were prepared and with this batch. Two matrix duplicates, matrix spikes, matrix spike duplicates, serial dilutions, and post digestion spikes prepared using samples 1111003002 and 1111003021. All QC results are in control except for zinc in serial dilution 217039, unknown reasons.
Serial dilutions prepared by pipetting 1 mL of sample into a polypropylene tube, adding 4 mL of 1% nitric acid, capping and shaking to mix. Post digestion spikes prepared by spiking 50 uL of solutions 9949, 10518, 10519 to 5 mL of sample, capping and shaking to mix.
S2, S5 and S10 were prepared using solutions S0 and S50. S2, S5 and S10 were all prepared just prior to analysis and expire at the end of the next day.
Pipettes R56213M (1-10 mL), 2163121 (1 mL), N50978 (20-500 uL) were used during analysis.
ICSAs and ICSABs were analyzed and passed method criteria.
Standards prepared as follows, all in polypropylene tubes which were capped and shook to mix using S0, MS-11-090(4184/73) as diluent:
S2 ug/L was prepared by taking 9.6 mL(ICP-10G) of S0 and 400 uL(N50978) of S50 and mixing.
S5 ug/L was prepared by taking 9.0 mL(ICP-10G) of S0 and 1 mL(2163121) of S50 and mixing.
S10 ug/L was prepared by taking 8.0 mL(ICP-10G) of S0 and adding 2.0 mL(2163121) of S50 and mixing.
S1500 ug/L was prepared by taking 9.25 mL(ICP-10G) of S0 and adding 0.75 mL(N50978) of solution 9130 and mixing.
S2000 ug/L was prepared by taking 9 mL(ICP-10G) of S0 and adding 1 mL (2163121) of solution 9130 and mixing.
All other standards prepared as indicated in the Horizon LIMS system.
Internal standards added with a "T".
MS311048, MS211056-200.8

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ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Set ID: 1111003, 1111132
Sample ID: see below
Matrix: water
Analyst / Date: Rosemary H. Hanks / 04/25/11 ~~15:30~~ 16:30 04/25/11
Analyte/Method: Conductivity/120.1, TDS/160.1, TSS/160.2
Batch/HBN ID: (cond.) EWC:3109/65171;(tds) EWC:3110/65172;(tss) EWC:3111/65173

Sample Preparation/Analysis:
Per SOP and instrument directions (Conductivity, Orion C-160 – WET06).
Evaporative oven temp. 101°C / 110°C ;Drying oven temp. 187°C / 185 ;Balance ID: 105930

Standards:
[10588] TDS and Conductivity, targets = 744 mg/L and 1404 umhos/cm.
[11084] TSS, target = 500 mg/L. *TSS RLVS prepared as 10 mL to 100 mL DDI water = 50 mg/L.*
Conductivity RLVS prepared as 0.143 mL to 100 mL DDI water = 2.0 umhos/cm.
TDS RLVS prepared as 6.72 mL to 100 mL DDI water = 50 mg/L

Results: (volume in mL, weight in grams, results: Cond.= umhos/cm, TDS/TSS = mg/L)

Sample ID	Beaker ID	Cond	Sample Volume	Tare wt.	+residue	+residue	+residue	Results
(tds)Blank	'BL'	0.52	100	81.9702	81.9715	81.9719		15.
(tss)Blank	a	—		1.4145	1.4142	1.4142		-3
rlvs	.01	2.60		82.7492	82.7537	82.7535		43.
rlvs	b	—		1.4195	1.4242	1.4239		44.
LCS	P	1404		81.5795	81.6509	81.6509		714
LCS	c	—		1.4161	1.4647	1.4646		485
1111003001	0:1	325		79.6333	79.6477	79.6479		146
1111003001	d	—		1.4312	1.4321	1.4319		7.0
1111003001md	S	326		80.9769	80.9973	80.9975		206
1111003001md	e	—		1.4350	1.4355	1.4355		5.0
1111003002	00	235		82.7460	82.7598	82.7594		134
1111003002	f	—		1.4362	1.4363	1.4363		1.0
1111003003	YO	248		80.6343	80.6486	80.6482		139
1111003003	g	—		1.4425	1.4422	1.4423		-2
1111003004	☆	1226		81.0985	81.2001	81.2004		1019
1111003004	h	—		1.4333	1.4341	1.4344		11.
1111003005	☆	1228		74.3354	74.4414	74.4416		1062
1111003005	i	—		1.4384	1.4389	1.4389		5.0
1111003006	LA	1255		76.2867	76.3961	76.3960		1093
1111003006	j	—		1.4212	1.4215	1.4216		4.0
1111003007	(W)	1332		77.1958	77.3040	77.3044		1086
1111003007	k	—		1.4220	1.4219	1.4222		2.0
1111003008	8	307		80.3780	80.3967	80.3970		190
1111003008	L	—		1.4247	1.4248	1.4248		1.0
1111003009	W	1234		81.2867	81.3710	81.3714		1037
1111003009	m	—		1.4228	1.4225	1.4234		6.0
1111003010	XT	305		81.1754	81.1970	81.1966		212
1111003010	n	—		1.4561	1.4559	1.4557		-4
1111003011	Y	19 ~~20.33~~		77.6065	77.6099	77.6101		36
1111003011	o	—		1.4560	1.4555	1.4559		-1
1111132002	DW	—		81.2306	81.2563	81.2563		257
1111132002	p	—		1.4689	1.4688	1.4687		-2

Calculation: $\frac{[(\text{+residue) g.} - \text{(tare wt.) g}] \times 1000 \text{ mg/g}}{\text{Vol. sample (L.)}}$ = mg/L

ALS Workorder ID(s): 1111003; 1110852
ALS Sample #s: 1111003001-011; 1110852001
Account #: 8001 Batch/(HBN)s: EIC/1165; 1166 (65242; 65243)
Preparation Date: 04/26/2011 Analysis Date: 04/26/2011
Method: **EPA 300.0** Instrument LOD: **0.100 mg ion/L**
Analyte(s): Chloride & Sulfate
Sequence: 26apr-300.0 Matrix: **Water**
Reported LOQ: See RLIMS report Reported MDL: See RLIMS report

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SAMPLE PREPARATION: All sample #'s agreed with field ID #'s. Samples were prepared by TTM.
Water: Samples prepared by adding 100µL (IC-1) of 100X anion eluent per 10mL of sample, as a matrix modifier. Samples were filtered with Phenex 0.45µm PES filters prior to analysis. Dilutions were done at the bench or at the instrument.

REAGENTS: Anion Eluent (0.675mM $NaHCO_3$/1.98mM Na_2CO_3)
100X Anion Eluent (6.75mM $NaHCO_3$/19.8mM Na_2CO_3)

STANDARDS: Horizon Standard Solutions 11379($10) & 11380($1) used for CCVs. Standard Solution 11381($0.1) used for RLVS **215911**. All CCV recoveries were within 10%.

CALIBRATION CURVE: Run 01/13/2011.
Raw data can be found in \\Alsltws012\TCCS\mckay\data\IC1\Jan11\12jan-cal.

INSTRUMENT CONDITIONS: Samples were analyzed with a HP 1050 autosampler on a Dionex DX 320.
Instrument ID: IC01 Current Setting: 100mA
Flow Rate: 2.0 mL/min Conductivity: 100µS Full Scale
Columns: Dionex MFC-1 Guard, AG4A Guard, AS4A Separator. Suppressor: ASRS-300

QC DATA **Water:** Horizon QC solution 11382 used for LCS **215908**; target = 5.0mg ion/L. Recoveries were within limits for all analytes. Anion eluent solution was used for MB **215907** and CCBs. All requested analytes were below one-half the instrument LODs.

MS/MSD: The MS and MSD were performed on sample 1111003001. 20µL of Horizon Stock Standard Solution 9515 were added to 10mL of sample preparation, or sample dilution.
D10 spike target = 20.0mg/L.

COMMENTS: 1) Results were reported in mg/L.
2) \\Alsltws012\TCCS\mckay\Notebook\300.0\Water\2011\Apr11\26apr.doc
3) When necessary, samples were diluted in order to obtain a result within the calibration range of the instrument. Detection and reporting limits were raised proportionately.
4) Raw data can be found in \\Alsltws012\TCCS\mckay\data\IC1\Apr11\26apr-300.0 or through NuGenesis\Tree\PrintData\IC\DefaultView.

STANDARD REPORT

Working Standard - AnionsStd10

AnionsStd10					Description - Anions $10
Standard:	11379	**Expires:**	04/26/2011	**Usable:**	Yes
Lab Lot:	04.19.11	**Created By:**	T. McKay	**Amount:**	100 mL
Part ID:		**Create Date:**	04/19/2011	**Validated By:**	
MFG:		**MFG Lot:**		**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	16984-48-8	Fluoride	10 ug/mL
2	16887-00-6	Chloride	10 ug/mL
3	24959-67-9	Bromide	10 ug/mL
4	14797-55-8	Nitrate Ion	10 ug/mL
5	14265-44-2	Phosphate Ion	10 ug/mL
6	14808-79-8	Sulfate	10 ug/mL
7	10028-15-6	Ozone	7.74 ug/mL
8	NO3-N	Nitrate-N	2.258 ug/mL
9	PO4-P	Phosphate-P	3.261 ug/mL
10	14797-65-0	Nitrite Ion	10 ug/mL
11	NO2-N	Nitrite-N	3.043 ug/mL
12	10102-44-0	Nitrogen Dioxide	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume Added	Expires
9515	IC Stock A	IC Stock Solution A	ANION STK	1 mL	9/27/2011
9516	NO2 Stock	NO2 Stock	NO2 STK	1 mL	9/27/2011

STANDARD REPORT

Constituent

Stock Standard - NO2 Stock

NO2 Stock					**Description - Nitrite Stock, Solution B**
Standard:	9516	**Expires:**	9/27/2011	**Usable:**	Yes
Lab Lot:	NO2 STK	**Created By:**	T. McKay	**Amount:**	100 mL
Part ID:	IC-2	**Create Date:**	10/11/2010	**Validated By:**	
MFG:	High Purity	**MFG Lot:**	1001406	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	14797-65-0	Nitrite Ion	1000 ug/mL
2	NO2-N	Nitrite-N	304.3 ug/mL
3	10102-44-0	Nitrogen Dioxide	1000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - IC Stock A

IC Stock A					Description - IC Stock Solution A
Standard:	9515	**Expires:**	9/27/2011	**Usable:**	Yes
Lab Lot:	ANION STK	**Created By:**	T. McKay	**Amount:**	100 mL
Part ID:	IC-2	**Create Date:**	10/11/2010	**Validated By:**	
MFG:	High Purity	**MFG Lot:**	1014014	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	16984-48-8	Fluoride	1000 ug/mL
2	16887-00-6	Chloride	1000 ug/mL
3	24959-67-9	Bromide	1000 ug/mL
4	14797-55-8	Nitrate Ion	1000 ug/mL
5	14265-44-2	Phosphate Ion	1000 ug/mL
6	14808-79-8	Sulfate	1000 ug/mL
7	10028-15-6	Ozone	774 ug/mL
8	NO3-N	Nitrate-N	225.8 ug/mL
9	PO4-P	Phosphate-P	326.1 ug/mL

STANDARD REPORT

Working Standard - AnionsStd1

AnionsStd1					Description - Anions $1
Standard:	11380	**Expires:**	04/26/2011	**Usable:**	Yes
Lab Lot:	04.19.11	**Created By:**	T. McKay	**Amount:**	100 mL
Part ID:		**Create Date:**	04/19/2011	**Validated By:**	
MFG:		**MFG Lot:**		**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	16984-48-8	Fluoride	1 ug/mL
2	16887-00-6	Chloride	1 ug/mL
3	24959-67-9	Bromide	1 ug/mL
4	14797-55-8	Nitrate Ion	1 ug/mL
5	14265-44-2	Phosphate Ion	1 ug/mL
6	14808-79-8	Sulfate	1 ug/mL
7	10028-15-6	Ozone	0.774 ug/mL
8	NO3-N	Nitrate-N	0.226 ug/mL
9	PO4-P	Phosphate-P	0.326 ug/mL
10	14797-65-0	Nitrite Ion	1 ug/mL
11	NO2-N	Nitrite-N	0.304 ug/mL
12	10102-44-0	Nitrogen Dioxide	1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume Added	Expires
9515	IC Stock A	IC Stock Solution A	ANION STK	0.1 mL	9/27/2011
9516	NO2 Stock	NO2 Stock	NO2 STK	0.1 mL	9/27/2011

STANDARD REPORT

Constituent

Stock Standard - NO2 Stock

NO2 Stock					**Description - Nitrite Stock, Solution B**
Standard:	9516	**Expires:**	9/27/2011	**Usable:**	Yes
Lab Lot:	NO2 STK	**Created By:**	T. McKay	**Amount:**	100 mL
Part ID:	IC-2	**Create Date:**	10/11/2010	**Validated By:**	
MFG:	High Purity	**MFG Lot:**	1001406	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	14797-65-0	Nitrite Ion	1000 ug/mL
2	NO2-N	Nitrite-N	304.3 ug/mL
3	10102-44-0	Nitrogen Dioxide	1000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - IC Stock A

IC Stock A					Description - IC Stock Solution A
Standard:	9515	**Expires:**	9/27/2011	**Usable:**	Yes
Lab Lot:	ANION STK	**Created By:**	T. McKay	**Amount:**	100 mL
Part ID:	IC-2	**Create Date:**	10/11/2010	**Validated By:**	
MFG:	High Purity	**MFG Lot:**	1014014	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	16984-48-8	Fluoride	1000 ug/mL
2	16887-00-6	Chloride	1000 ug/mL
3	24959-67-9	Bromide	1000 ug/mL
4	14797-55-8	Nitrate Ion	1000 ug/mL
5	14265-44-2	Phosphate Ion	1000 ug/mL
6	14808-79-8	Sulfate	1000 ug/mL
7	10028-15-6	Ozone	774 ug/mL
8	NO3-N	Nitrate-N	225.8 ug/mL
9	PO4-P	Phosphate-P	326.1 ug/mL

STANDARD REPORT

Working Standard - AnionsStd0.1

AnionsStd0.1					Description - Anions $0.1
Standard:	11381	**Expires:**	04/26/2011	**Usable:**	Yes
Lab Lot:	04.19.11	**Created By:**	T. McKay	**Amount:**	100 mL
Part ID:		**Create Date:**	04/19/2011	**Validated By:**	
MFG:		**MFG Lot:**		**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	16984-48-8	Fluoride	0.1 ug/mL
2	16887-00-6	Chloride	0.1 ug/mL
3	24959-67-9	Bromide	0.1 ug/mL
4	14797-55-8	Nitrate Ion	0.1 ug/mL
5	14265-44-2	Phosphate Ion	0.1 ug/mL
6	14808-79-8	Sulfate	0.1 ug/mL
7	10028-15-6	Ozone	0.0774 ug/mL
8	NO3-N	Nitrate-N	0.0226 ug/mL
9	PO4-P	Phosphate-P	0.0326 ug/mL
10	14797-65-0	Nitrite Ion	0.1 ug/mL
11	NO2-N	Nitrite-N	0.0304 ug/mL
12	10102-44-0	Nitrogen Dioxide	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume Added	Expires
9515	IC Stock A	IC Stock Solution A	ANION STK	0.01 mL	9/27/2011
9516	NO2 Stock	NO2 Stock	NO2 STK	0.01 mL	9/27/2011

STANDARD REPORT

Constituent

Stock Standard - NO2 Stock

NO2 Stock					Description - Nitrite Stock, Solution B
Standard:	9516	**Expires:**	9/27/2011	**Usable:**	Yes
Lab Lot:	NO2 STK	**Created By:**	T. McKay	**Amount:**	100 mL
Part ID:	IC-2	**Create Date:**	10/11/2010	**Validated By:**	
MFG:	High Purity	**MFG Lot:**	1001406	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	14797-65-0	Nitrite Ion	1000 ug/mL
2	NO2-N	Nitrite-N	304.3 ug/mL
3	10102-44-0	Nitrogen Dioxide	1000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - IC Stock A

IC Stock A					Description - IC Stock Solution A
Standard:	9515	**Expires:**	9/27/2011	**Usable:**	Yes
Lab Lot:	ANION STK	**Created By:**	T. McKay	**Amount:**	100 mL
Part ID:	IC-2	**Create Date:**	10/11/2010	**Validated By:**	
MFG:	High Purity	**MFG Lot:**	1014014	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	16984-48-8	Fluoride	1000 ug/mL
2	16887-00-6	Chloride	1000 ug/mL
3	24959-67-9	Bromide	1000 ug/mL
4	14797-55-8	Nitrate Ion	1000 ug/mL
5	14265-44-2	Phosphate Ion	1000 ug/mL
6	14808-79-8	Sulfate	1000 ug/mL
7	10028-15-6	Ozone	774 ug/mL
8	NO3-N	Nitrate-N	225.8 ug/mL
9	PO4-P	Phosphate-P	326.1 ug/mL

STANDARD REPORT

Working Standard - AnionsQCSoln

AnionsQCSoln					Description - Anions QC Solution
Standard:	11382	**Expires:**	04/26/2011	**Usable:**	Yes
Lab Lot:	04.19.11	**Created By:**	T. McKay	**Amount:**	50 mL
Part ID:		**Create Date:**	04/19/2011	**Validated By:**	
MFG:		**MFG Lot:**		**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	16984-48-8	Fluoride	5 ug/mL
2	7664-39-3	Hydrofluoric acid	5.2655 ug/mL
3	14808-79-8	Sulfate	5 ug/mL
4	7783-06-4	Hydrogen sulfide	1.774 ug/mL
5	7664-93-9	Sulfuric acid	5.105 ug/mL
6	7446-09-5	Sulfur Dioxide	3.3345 ug/mL
7	16887-00-6	Chloride	5 ug/mL
8	7647-01-0	Hydrochloric acid	5.142 ug/mL
9	7782-50-5	Chlorine	5 ug/mL
10	10025-85-1	Trichloramine	5.65 ug/mL
11	7790-92-3	Hypochlorous acid	7.4 ug/mL
12	14797-65-0	Nitrite Ion	5 ug/mL
13	10102-44-0	Nitrogen Dioxide	5 ug/mL
14	NO2-N	Nitrite-N	1.5215 ug/mL
15	24959-67-9	Bromide	5 ug/mL
16	10035-10-6	Hydrobromic acid	5.063 ug/mL
17	7726-95-6	Bromine	5 ug/mL
18	14265-44-2	Phosphate Ion	5 ug/mL
19	7664-38-2	Phosphoric acid	5.159 ug/mL
20	PO4-P	Phosphate-P	1.6305 ug/mL
21	14797-55-8	Nitrate Ion	5 ug/mL
22	7697-37-2	Nitric acid	5.0815 ug/mL
23	NO2+NO3	Nitrate-Nitrite	1.129 ug/mL
24	NO2+NO3-N	Nitrate-Nitrite as N	1.129 ug/mL
25	NO3-N	Nitrate-N	1.129 ug/mL
26	10028-15-6	Ozone	3.8705 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume Added	Expires
2214	SO4 QC	Sulfate QC Stock	UltraJ00465	0.25 mL	6/30/2012
3378	F QC Stock	Fluoride QC Stock	UltraJ00150	0.25 mL	3/31/2012
4276	NO3 QC	Nitrate QC Stock	UltraJ00765	0.25 mL	10/31/2012
10278	PO4 QC	Phosphate QC Stock	PO4 QC Stock	0.25 mL	5/31/2014
10279	Cl QC Stock	Chloride QC Stock	Cl QC Stock	0.25 mL	4/30/2014
10280	NO2 QC	Nitrite Check Stock	NO2 QC Stock	0.25 mL	11/30/2011
10281	Br QC Stock	Bromide QC Stock	Br QC Stock	0.25 mL	6/30/2013

STANDARD REPORT

Constituent

Stock Standard - NO3 QC Stock

NO3 QC Stock					Description - Nitrate QC Stock
Standard:	4276	**Expires:**	10/31/2012	**Usable:**	Yes
Lab Lot:	UltraJ00765	**Created By:**	L. Jones	**Amount:**	100 mL
Part ID:	ICC-004	**Create Date:**	6/2/2009	**Validated By:**	H. Martin
MFG:	Ultra Scientific	**MFG Lot:**	J00765	**Validated Date:**	1/5/2011

Pos.	Analyte	Name	Concentration
1	14797-55-8	Nitrate Ion	1000 ug/mL
2	7697-37-2	Nitric acid	1016.3 ug/mL
3	NO2+NO3	Nitrate-Nitrite	225.8 mg/L
4	NO2+NO3-N	Nitrate-Nitrite as N	225.8 mg/L
5	NO3-N	Nitrate-N	225.8 ug/mL
6	10028-15-6	Ozone	774.1 ug/mL

STANDARD REPORT

Constituent

Stock Standard - SO4 QC Stock

SO4 QC Stock					Description - Sulfate QC Stock
Standard:	2214	**Expires:**	6/30/2012	**Usable:**	Yes
Lab Lot:	UltraJ00465	**Created By:**	L. Jones	**Amount:**	100 mL
Part ID:	ICC-006	**Create Date:**	7/15/2008	**Validated By:**	
MFG:	Ultra Scientific	**MFG Lot:**	J00465	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	14808-79-8	Sulfate	1000 ug/mL
2	7783-06-4	Hydrogen sulfide	354.8 ug/mL
3	7664-93-9	Sulfuric acid	1021 ug/mL
4	7446-09-5	Sulfur Dioxide	666.9 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Br QC Stock

Br QC Stock					Description - Bromide QC Stock
Standard:	10281	**Expires:**	6/30/2013	**Usable:**	Yes
Lab Lot:	Br QC Stock	**Created By:**	T. McKay	**Amount:**	125 mL
Part ID:	ICC-001	**Create Date:**	1/4/2011	**Validated By:**	
MFG:	Ultra Scientific	**MFG Lot:**	K00471	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	24959-67-9	Bromide	1000 ug/mL
2	10035-10-6	Hydrobromic acid	1012.6 ug/mL
3	7726-95-6	Bromine	1000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - NO2 QC Stock

NO2 QC Stock					Description - Nitrite Check Stock
Standard:	10280	**Expires:**	11/30/2011	**Usable:**	Yes
Lab Lot:	NO2 QC Stock	**Created By:**	T. McKay	**Amount:**	125 mL
Part ID:	ICC-007	**Create Date:**	1/4/2011	**Validated By:**	
MFG:	Ultra Scientific	**MFG Lot:**	L01119	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	14797-65-0	Nitrite Ion	1000 ug/mL
2	10102-44-0	Nitrogen Dioxide	1000 ug/mL
3	NO2-N	Nitrite-N	304.3 ug/mL

STANDARD REPORT

Constituent

Stock Standard - F QC Stock

F QC Stock					Description - Fluoride QC Stock
Standard:	3378	**Expires:**	3/31/2012	**Usable:**	Yes
Lab Lot:	UltraJ00150	**Created By:**	L. Jones	**Amount:**	100 mL
Part ID:	ICC-003	**Create Date:**	3/18/2009	**Validated By:**	
MFG:	Ultra Scientific	**MFG Lot:**	J00150	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	16984-48-8	Fluoride	1000 ug/mL
2	7664-39-3	Hydrofluoric acid	1053.1 ug/mL

STANDARD REPORT

Constituent

Stock Standard - PO4 QC Stock

PO4 QC Stock					Description - Phosphate QC Stock
Standard:	10278	**Expires:**	5/31/2014	**Usable:**	Yes
Lab Lot:	PO4 QC Stock	**Created By:**	T. McKay	**Amount:**	125 mL
Part ID:	ICC-005	**Create Date:**	1/4/2011	**Validated By:**	
MFG:	Ultra Scientific	**MFG Lot:**	L00478	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	14265-44-2	Phosphate Ion	1000 ug/mL
2	7664-38-2	Phosphoric acid	1031.8 ug/mL
3	PO4-P	Phosphate-P	326.1 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Cl QC Stock

Cl QC Stock					Description - Chloride QC Stock
Standard:	10279	**Expires:**	4/30/2014	**Usable:**	Yes
Lab Lot:	Cl QC Stock	**Created By:**	T. McKay	**Amount:**	125 mL
Part ID:	ICC-002	**Create Date:**	1/4/2011	**Validated By:**	
MFG:	Ultra Scientific	**MFG Lot:**	L00283	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	16887-00-6	Chloride	1000 ug/mL
2	7647-01-0	Hydrochloric acid	1028.4 ug/mL
3	7782-50-5	Chlorine	1000 ug/mL
4	10025-85-1	Trichloramine	1130 ug/mL
5	7790-92-3	Hypochlorous acid	1480 ug/mL

Appendix D

QC Results and Case Narrative

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared By: Whitney Redd

Analysis: EPA 200.7
Batch: EICP/2851 (HBN: 65189)
Analyzed By: Whitney Redd

Blank

MB: 215318
Analyzed: 04/23/2011 16:42
Units: ug/L

Analyte	Result	MDL	RL	
Calcium	ND	31.6	100	
Iron	ND	24.3	50	
Magnesium	ND	6.58	100	
Sodium	ND	194	200	
Zinc	ND	1.59	20	
Potassium	ND	311	3000	

MB: 215551
Analyzed: 04/23/2011 19:49
Units: ug/L

Analyte	Result	MDL	RL	
Calcium	47	31.6	100	
Iron	ND	24.3	50	
Magnesium	ND	6.58	100	
Sodium	ND	194	200	
Zinc	ND	1.59	20	
Potassium	ND	311	3000	

Laboratory Control Sample

LCS: 215319
Analyzed: 04/23/2011 16:48
Units: ug/L

Analyte	Result	Target	% Recovery	QC Limits		
Calcium	2120	2000	106	86.1	114.2	
Iron	1010	1000	101	85.3	116.2	
Magnesium	2090	2000	105	86	106	
Sodium	10500	10000	105	85.6	109.4	
Zinc	512	500	102	85.1	105.7	
Potassium	9970	10000	99.7	81.8	111.9	

LCS: 215552
Analyzed: 04/23/2011 19:55
Units: ug/L

Analyte	Result	Target	% Recovery	QC Limits		
Calcium	2050	2000	102	86.1	114.2	
Iron	993	1000	99.3	85.3	116.2	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared By: Whitney Redd

Analysis: EPA 200.7
Batch: EICP/2851 (HBN: 65189)
Analyzed By: Whitney Redd

Laboratory Control Sample

LCS: 215552
Analyzed: 04/23/2011 19:55
Units: ug/L

Analyte	Result	Target	% Recovery	QC Limits	
Magnesium	2030	2000	102	86	106
Sodium	9890	10000	98.9	85.6	109.4
Zinc	496	500	99.2	85.1	105.7
Potassium	9480	10000	94.8	81.8	111.9

Matrix Spike - Matrix Spike Duplicate

Sample: 1111003001
Analyzed: 04/23/2011 17:05
Units: ug/L

MS: 215321
Analyzed: 04/23/2011 17:16

MSD: 215322
Analyzed: 04/23/2011 17:21

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Calcium	52000	55900	2000	▲ 182	75	125	53200	▲ 47.4	4.94	0	20
Iron	370	1350	1000	97.6	75	125	1310	93.5	3.08	0	38.7
Magnesium	7500	9600	2000	106	75	125	9290	90.8	3.32	0	20
Sodium	3900	14500	10000	105	75	125	13800	98.6	4.66	0	20
Zinc	100	589	500	97	75	125	582	95.5	1.27	0	14.4
Potassium	690	11000	10000	110	75	125	10700	107	2.64	0	20

Sample: 1111003020
Analyzed: 04/23/2011 20:00
Units: ug/L

MS: 215554
Analyzed: 04/23/2011 20:12

MSD: 215555
Analyzed: 04/23/2011 20:29

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Calcium	260000	253000	2000	▲ -479	75	125	247000	▲ -765	2.28	0	20
Iron	1000	1910	1000	89.5	75	125	1920	90.4	0.486	0	38.7
Magnesium	21000	22600	2000	▲ 59.4	75	125	22000	▲ 31.4	2.52	0	20
Sodium	12000	21100	10000	90	75	125	20800	87.5	1.18	0	20
Zinc	3200	3520	500	▲ 58.4	75	125	3440	▲ 42.6	2.28	0	14.4
Potassium	1400	11000	10000	110	75	125	11000	110	0.109	0	20

Matrix Duplicate

Sample: 1111003001
Analyzed: 04/23/2011 17:05
Units: ug/L

MD: 215320
Analyzed: 04/23/2011 17:10

Analyte	Result	Result	RPD	QC Limits	
Calcium	52000	54200	4.18	0	20
Iron	370	370	0.105	0	38.7

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: **1111003**

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared By: Whitney Redd

Analysis: EPA 200.7
Batch: EICP/2851 (HBN: 65189)
Analyzed By: Whitney Redd

Matrix Duplicate

Sample: 1111003001
Analyzed: 04/23/2011 17:05
Units: ug/L

MD: 215320
Analyzed: 04/23/2011 17:10

Analyte	Result	Result	RPD	QC Limits		
Magnesium	7500	7620	1.58	0	20	
Sodium	3900	4120	5.37	0	20	
Zinc	100	106	5.63	0	14.4	
Potassium	690	764	10.2	0	20	

Sample: 1111003020
Analyzed: 04/23/2011 20:00
Units: ug/L

MD: 215553
Analyzed: 04/23/2011 20:06

Analyte	Result	Result	RPD	QC Limits		
Calcium	260000	257000	1.14	0	20	
Iron	1000	1010	0.678	0	38.7	
Magnesium	21000	21000	0.071	0	20	
Sodium	12000	11800	1.44	0	20	
Zinc	3200	3150	1.55	0	14.4	
Potassium	1400	1380	1.32	0	20	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared By: Whitney Redd

Analysis: EPA 200.7
Batch: EICP/2851 (HBN: 65189)
Analyzed By: Whitney Redd

Initial Calibration Verification

ICV: 215738
Analyzed: 04/23/2011 15:12
Units: ug/L
Criteria: ± 10.4%

Analyte	Result	Target	% Rec.
Calcium	2080	2000	104
Iron	1040	1000	104
Magnesium	2070	2000	104
Sodium	10400	10000	104
Zinc	509	500	102
Potassium	10500	10000	105

Continuing Calibration Verification

	CCV: 215740			CCV: 215744			CCV: 215746		
	Analyzed: 04/23/2011 15:23			Analyzed: 04/23/2011 15:47			Analyzed: 04/23/2011 16:54		
	Units: ug/L			Units: ug/L			Units: ug/L		
	Criteria: ± 10.4%			Criteria: ± 10.4%			Criteria: ± 10.4%		
Analyte	Result	Target	% Rec.	Result	Target	% Rec.	Result	Target	% Rec.
Calcium	25900	25000	104	2120	2000	106	26500	25000	106
Iron	25900	25000	103	1060	1000	106	26100	25000	104
Magnesium	25800	25000	103	2110	2000	106	26100	25000	105
Sodium	25700	25000	103	10300	10000	103	26000	25000	104
Zinc	4900	5000	98	505	500	101	4840	5000	96.9
Potassium	25300	25000	101	10300	10000	103	25300	25000	101

	CCV: 215748			CCV: 215750			CCV: 215752		
	Analyzed: 04/23/2011 18:00			Analyzed: 04/23/2011 19:09			Analyzed: 04/23/2011 20:17		
	Units: ug/L			Units: ug/L			Units: ug/L		
	Criteria: ± 10.4%			Criteria: ± 10.4%			Criteria: ± 10.4%		
Analyte	Result	Target	% Rec.	Result	Target	% Rec.	Result	Target	% Rec.
Calcium	25100	25000	100	25900	25000	104	25900	25000	104
Iron	25400	25000	102	26000	25000	104	26200	25000	105
Magnesium	25200	25000	101	25600	25000	102	26000	25000	104
Sodium	24800	25000	99.3	25500	25000	102	25200	25000	101
Zinc	4730	5000	94.7	4790	5000	95.9	4730	5000	94.6
Potassium	24800	25000	99.1	24700	25000	98.7	24700	25000	98.8

CCV: 215756
Analyzed: 04/23/2011 20:57
Units: ug/L
Criteria: ± 10.4%

Analyte	Result	Target	% Rec.
Calcium	25900	25000	104

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	EPA 200.7 Water Prep	**Analysis:**	EPA 200.7
Basis:	ALS Laboratory Group	**Batch:**	EIPX/3070 (HBN: 65070)	**Batch:**	EICP/2851 (HBN: 65189)
		Prepared By:	Whitney Redd	**Analyzed By:**	Whitney Redd

Continuing Calibration Verification

CCV: 215756
Analyzed: 04/23/2011 20:57
Units: ug/L
Criteria: ± 10.4%

Analyte	Result	Target	% Rec.
Iron	26200	25000	105
Magnesium	26000	25000	104
Sodium	24900	25000	99.7
Zinc	4800	5000	96
Potassium	24600	25000	98.3

Initial Calibration Blank

ICB: 215739
Analyzed: 04/23/2011 15:17
Units: ug/L

Analyte	Result	Qual.
Calcium	ND	U
Iron	ND	U
Magnesium	ND	U
Sodium	ND	U
Zinc	ND	U
Potassium	ND	U

Continuing Calibration Blank

CCB: 215741			**CCB:** 215745		**CCB:** 215747		
Analyzed: 04/23/2011 15:29			**Analyzed:** 04/23/2011 15:52		**Analyzed:** 04/23/2011 16:59		
Units: ug/L			**Units:** ug/L		**Units:** ug/L		
Analyte	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	
Calcium	ND	U	38.3	J	ND	U	
Iron	ND	U	ND	U	ND	U	
Magnesium	ND	U	ND	U	ND	U	
Sodium	ND	U	ND	U	ND	U	
Zinc	ND	U	3.11	J	ND	U	
Potassium	ND	U	ND	U	ND	U	

CCB: 215749			**CCB:** 215751		**CCB:** 215753		
Analyzed: 04/23/2011 18:06			**Analyzed:** 04/23/2011 19:14		**Analyzed:** 04/23/2011 20:23		
Units: ug/L			**Units:** ug/L		**Units:** ug/L		
Analyte	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	
Calcium	ND	U	ND	U	ND	U	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared By: Whitney Redd

Analysis: EPA 200.7
Batch: EICP/2851 (HBN: 65189)
Analyzed By: Whitney Redd

Continuing Calibration Blank

CCB: 215749			CCB: 215751		CCB: 215753		
Analyzed: 04/23/2011 18:06			Analyzed: 04/23/2011 19:14		Analyzed: 04/23/2011 20:23		
Units: ug/L			Units: ug/L		Units: ug/L		
Analyte	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	
Iron	ND	U	ND	U	ND	U	
Magnesium	ND	U	ND	U	ND	U	
Sodium	ND	U	ND	U	ND	U	
Zinc	ND	U	5.77	J	2.55	J	
Potassium	ND	U	ND	U	ND	U	

CCB: 215757			
Analyzed: 04/23/2011 21:03			
Units: ug/L			
Analyte	**Result**	**Qual.**	
Calcium	ND	U	
Iron	ND	U	
Magnesium	ND	U	
Sodium	ND	U	
Zinc	2.93	J	
Potassium	ND	U	

Interference Check Sample

ICSA: 215742				ICSAB: 215743			
Analyzed: 04/23/2011 15:34				Analyzed: 04/23/2011 15:40			
Units: ug/L				Units: ug/L			
Criteria: ± 20%				Criteria: ± 20%			
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	
Calcium	490000	500000	98	493000	500000	98.6	
Iron	196000	200000	98.1	196000	200000	97.9	
Magnesium	532000	500000	106	526000	500000	105	
Zinc				902	1000	90.2	

ICSA: 215754				ICSAB: 215755			
Analyzed: 04/23/2011 20:46				Analyzed: 04/23/2011 20:52			
Units: ug/L				Units: ug/L			
Criteria: ± 20%				Criteria: ± 20%			
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	
Calcium	489000	500000	97.8	481000	500000	96.1	
Iron	197000	200000	98.4	194000	200000	97	
Magnesium	531000	500000	106	520000	500000	104	
Zinc				879	1000	87.9	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: **1111003**

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.7 Water Prep
Batch: EIPX/3070 (HBN: 65070)
Prepared By: Whitney Redd

Analysis: EPA 200.7
Batch: EICP/2851 (HBN: 65189)
Analyzed By: Whitney Redd

Serial Dilution

Sample: 1111003001
Analyzed: 04/23/2011 17:05
Units: ug/L

SD: 215715
Analyzed: 04/23/2011 17:32

Analyte	Result	Result	RPD	QC Limits		
Calcium	52200	55800	6.66	0	10	
Iron	374	356	4.92	0	10	
Magnesium	7470	7710	3.15	0	10	
Sodium	3940	4260	7.79	0	10	
Zinc	104	108	4.24	0	10	
Potassium	ND	ND	NA	0	10	

Post Digestion Spike

Sample: 1111003001
Analyzed: 04/23/2011 17:05
Units: ug/L

PDS: 215714
Analyzed: 04/23/2011 17:27

Analyte	Result	Result	Target	% Recovery	QC Limits		
Calcium	52200	54200	2000	96.6	75	125	
Iron	374	1390	1000	102	75	125	
Magnesium	7470	9360	2000	94.5	75	125	
Sodium	3940	14100	10000	101	75	125	
Zinc	104	590	500	97.3	75	125	
Potassium	ND	10700	10000	99.6	75	125	

Comments

None

QC Data Approved and Reviewed by

Whitney Redd	Neil A. Edwards	4/26/2011
Analyst	**Peer Review**	**Date**

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	EPA 130.2
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3115 (HBN: 65252)
		Prepared By:	NA	**Analyzed By:**	Rosemary Hanks

Blank

LMB: 215962
Analyzed: 04/26/2011 00:00
Units: mg/L

Analyte	Result	RL
Hardness (as CaCO3)	ND	10

Laboratory Control Sample

LCS: 215963
Analyzed: 04/26/2011 00:00
Units: mg/L

Analyte	Result	Target	% Recovery	QC Limits	
Hardness (as CaCO3)	99.7	100	99.7	80	120

Matrix Duplicate

Sample: 1111003001
Analyzed: 04/26/2011 00:00
Units: mg/L

MD: 215964
Analyzed: 04/26/2011 00:00

Analyte	Result	Result	RPD	QC Limits	
Hardness (as CaCO3)	160	153	4.41	0	20

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1111003**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	EPA 130.2
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3115 (HBN: 65252)
		Prepared By:	NA	**Analyzed By:**	Rosemary Hanks

Comments

None

QC Data Approved and Reviewed by

Analyst	Peer Review	Date
Rosemary Hanks	Penny A. Foote	4/27/2011

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	SW 7470A, Water Prep	**Analysis:**	SW 7470
Basis:	ALS Laboratory Group	**Batch:**	EHG/3751 (HBN: 65052)	**Batch:**	EHG/3753 (HBN: 65143)
		Prepared By:	Christopher R. Hansen	**Analyzed By:**	Elijah Gregory

Blank

MB: 215236
Analyzed: 04/22/2011 15:47
Units: ug/L

Analyte	Result	RL
Mercury	ND	0.1

MB: 215248
Analyzed: 04/22/2011 16:28
Units: ug/L

Analyte	Result	RL
Mercury	ND	0.1

Laboratory Control Sample

LCS: 215237
Analyzed: 04/22/2011 15:48
Units: ug/L

Analyte	Result	Target	% Recovery	QC Limits	
Mercury	5.17	5	103	91.5	110.3

LCS: 215249
Analyzed: 04/22/2011 16:30
Units: ug/L

Analyte	Result	Target	% Recovery	QC Limits	
Mercury	4.9	5	98	91.5	110.3

Matrix Spike - Matrix Spike Duplicate

Sample: 1111003008
Analyzed: 04/22/2011 15:57
Units: ug/L

MS: 215240
Analyzed: 04/22/2011 16:02

MSD: 215241
Analyzed: 04/22/2011 16:03

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Mercury	ND	1.03	1	103	75	125	1.02	102	1.01	0	18.7

Sample: 1111003016
Analyzed: 04/22/2011 16:15
Units: ug/L

MS: 215244
Analyzed: 04/22/2011 16:17

MSD: 215245
Analyzed: 04/22/2011 16:18

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Mercury	ND	1.01	1	100	75	125	1.01	101	0.218	0	18.7

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: SW 7470A, Water Prep
Batch: EHG/3751 (HBN: 65052)
Prepared By: Christopher R. Hansen

Analysis: SW 7470
Batch: EHG/3753 (HBN: 65143)
Analyzed By: Elijah Gregory

Initial Calibration Verification

ICV: 215231
Analyzed: 04/22/2011 15:41
Units: ug/L
Criteria: ± 10%

Analyte	Result	Target	% Rec.
Mercury	4.68	5	93.7

Continuing Calibration Verification

	CCV: 215234			CCV: 215238			CCV: 215242		
	Analyzed: 04/22/2011 15:45			Analyzed: 04/22/2011 15:59			Analyzed: 04/22/2011 16:12		
	Units: ug/L			Units: ug/L			Units: ug/L		
	Criteria: ± 20%			Criteria: ± 20%			Criteria: ± 20%		
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Mercury	5.1	5	102	0.979	1	97.5	1	1	99.6

	CCV: 215246			CCV: 215250		
	Analyzed: 04/22/2011 16:26			Analyzed: 04/22/2011 16:31		
	Units: ug/L			Units: ug/L		
	Criteria: ± 20%			Criteria: ± 20%		
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Mercury	5.37	5	107	5.37	5	107

Initial Calibration Blank

ICB: 215232
Analyzed: 04/22/2011 15:42
Units: ug/L

Analyte	Result	Qual.
Mercury	ND	U

Continuing Calibration Blank

	CCB: 215235			CCB: 215239			CCB: 215243		
	Analyzed: 04/22/2011 15:46			Analyzed: 04/22/2011 16:00			Analyzed: 04/22/2011 16:14		
	Units: ug/L			Units: ug/L			Units: ug/L		
Analyte	**Result**	**Qual.**		**Result**	**Qual.**		**Result**	**Qual.**	
Mercury	ND	U		0.0397	J		0.039	J	

	CCB: 215247			CCB: 215251		
	Analyzed: 04/22/2011 16:27			Analyzed: 04/22/2011 16:32		
	Units: ug/L			Units: ug/L		
Analyte	**Result**	**Qual.**		**Result**	**Qual.**	
Mercury	ND	U		ND	U	

Symbols and Definitions

* - See Comments section for more information
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RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: **1111003**

Limits:	Historical/Performance	**Preparation:**	SW 7470A, Water Prep	**Analysis:**	SW 7470
Basis:	ALS Laboratory Group	**Batch:**	EHG/3751 (HBN: 65052)	**Batch:**	EHG/3753 (HBN: 65143)
		Prepared By:	Christopher R. Hansen	**Analyzed By:**	Elijah Gregory

Post Digestion Spike

Sample: 1111003008
Analyzed: 04/22/2011 15:57
Units: ug/L

PDS: 215513
Analyzed: 04/22/2011 16:01

Analyte	Result	Result	Target	% Recovery	QC Limits	
Mercury	ND	1.11	1	106	85	115

Sample: 1111003016
Analyzed: 04/22/2011 16:15
Units: ug/L

PDS: 215514
Analyzed: 04/22/2011 16:16

Analyte	Result	Result	Target	% Recovery	QC Limits	
Mercury	ND	1.11	1	107	85	115

Comments

None

QC Data Approved and Reviewed by

Elijah Gregory	Christopher R. Hansen	4/25/2011
Analyst	**Peer Review**	**Date**

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1111003**

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: SW 9012
Batch: EWC/3108 (HBN: 65163)
Analyzed By: Lance Hellmann

Blank

LMB: 215582
Analyzed: 04/24/2011 17:30
Units: ug/L

Analyte	Result	MDL	RL
Cyanide	ND	5	10

Laboratory Control Sample

LCS: 215577
Analyzed: 04/24/2011 17:30
Units: ug/L

Analyte	Result	Target	% Recovery	QC Limits	
Cyanide	108	99	109	84.8	113.8

LCS: 215579
Analyzed: 04/24/2011 17:30
Units: ug/L

Analyte	Result	Target	% Recovery	QC Limits	
Cyanide	300	300	100	84.8	113.8

LCS: 215580
Analyzed: 04/24/2011 17:30
Units: ug/L

Analyte	Result	Target	% Recovery	QC Limits	
Cyanide	47.6	50	95.2	84.8	113.8

Symbols and Definitions

* - See Comments section for more information
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RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	SW 9012
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3108 (HBN: 65163)
		Prepared By:	NA	**Analyzed By:**	Lance Hellmann

Continuing Calibration Verification

CCV: 215585				CCV: 215589			CCV: 215593		
Analyzed: 04/24/2011 17:30				Analyzed: 04/24/2011 17:30			Analyzed: 04/24/2011 17:30		
Units: ug/L				Units: ug/L			Units: ug/L		
Criteria: ± 10%				Criteria: ± 10%			Criteria: ± 10%		
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Cyanide	201	200	101	197	200	98.7	103	100	103

CCV: 215595			
Analyzed: 04/24/2011 17:30			
Units: ug/L			
Criteria: ± 10%			
Analyte	**Result**	**Target**	**% Rec.**
Cyanide	199	200	99.6

Initial Calibration Blank

ICB: 215578		
Analyzed: 04/24/2011 17:30		
Units: ug/L		
Analyte	**Result**	**Qual.**
Cyanide	ND	U

Continuing Calibration Blank

CCB: 215586			CCB: 215590		CCB: 215594		
Analyzed: 04/24/2011 17:30			Analyzed: 04/24/2011 17:30		Analyzed: 04/24/2011 17:30		
Units: ug/L			Units: ug/L		Units: ug/L		
Analyte	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	
Cyanide	ND	U	ND	U	ND	U	

CCB: 215596		
Analyzed: 04/24/2011 17:30		
Units: ug/L		
Analyte	**Result**	**Qual.**
Cyanide	ND	U

Comments

1111003009 MSD outside EPA 335.4 acceptance critria of +/-10%; therefore, a post-distillation spike performed at 20ug/L with recovery of 91.1%.

QC Data Approved and Reviewed by

Lance Hellmann	Rosemary Hanks	4/26/2011
Analyst	**Peer Review**	**Date**

Symbols and Definitions

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	EPA 310.2
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3114 (HBN: 65195)
		Prepared By:	NA	**Analyzed By:**	Rosemary Hanks

Blank

LMB: 215770
Analyzed: 04/25/2011 15:28
Units: mg/L

Analyte	Result	RL
Total Alkalinity	ND	10

Laboratory Control Sample

LCS: 215771
Analyzed: 04/25/2011 15:28
Units: mg/L

Analyte	Result	Target	% Recovery	QC Limits	
Total Alkalinity	209	200	105	80.9	119.5

Matrix Spike

Sample: 1111003001
Analyzed: 04/25/2011 15:29
Units: mg/L

MS: 215773
Analyzed: 04/25/2011 15:30

Analyte	Result	Result	Target	% Recovery	QC Limits	
Total Alkalinity	120	216	100	92.6	80.9	119.5

Matrix Duplicate

Sample: 1111003001
Analyzed: 04/25/2011 15:29
Units: mg/L

MD: 215772
Analyzed: 04/25/2011 15:29

Analyte	Result	Result	RPD	QC Limits	
Total Alkalinity	120	112	6.64	0	12.9

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: **1111003**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	EPA 310.2
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3114 (HBN: 65195)
		Prepared By:	NA	**Analyzed By:**	Rosemary Hanks

Comments

None

QC Data Approved and Reviewed by

Rosemary Hanks	Penny A. Foote	4/28/2011
Analyst	**Peer Review**	**Date**

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	EPA 160.1
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3110 (HBN: 65172)
		Prepared By:	NA	**Analyzed By:**	Rosemary Hanks

Blank

LMB: 215635
Analyzed: 04/25/2011 16:30
Units: mg/L

Analyte	Result	RL
Total Dissolved Solids	ND	50

Laboratory Control Sample

LCS: 215636
Analyzed: 04/25/2011 16:30
Units: mg/L

Analyte	Result	Target	% Recovery	QC Limits	
Total Dissolved Solids	714	744	96	91.8	105.8

Matrix Duplicate

Sample: 1111003001
Analyzed: 04/25/2011 16:30
Units: mg/L

MD: 215637
Analyzed: 04/25/2011 16:30

Analyte	Result	Result	RPD	QC Limits	
Total Dissolved Solids	150	206	*31.5	0	20

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1111003**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	EPA 160.1
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3110 (HBN: 65172)
		Prepared By:	NA	**Analyzed By:**	Rosemary Hanks

Comments

The RPD between the sample 1111003001 and the MD was not within control limits for unknown reasons.

QC Data Approved and Reviewed by

Rosemary Hanks	Penny A. Foote	4/28/2011
Analyst	**Peer Review**	**Date**

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	EPA 160.2
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3111 (HBN: 65173)
		Prepared By:	NA	**Analyzed By:**	Rosemary Hanks

Blank

LMB: 215639
Analyzed: 04/25/2011 16:30
Units: mg/L

Analyte	Result	RL
Total Suspended Solids	ND	50

Laboratory Control Sample

LCS: 215640
Analyzed: 04/25/2011 16:30
Units: mg/L

Analyte	Result	Target	% Recovery	QC Limits	
Total Suspended Solids	485	500	97	73.7	110.6

Matrix Duplicate

Sample: 1111003001
Analyzed: 04/25/2011 16:30
Units: mg/L

MD: 215641
Analyzed: 04/25/2011 16:30

Analyte	Result	Result	RPD	QC Limits	
Total Suspended Solids	ND	ND	NA	0	20

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1111003**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	EPA 160.2
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3111 (HBN: 65173)
		Prepared By:	NA	**Analyzed By:**	Rosemary Hanks

Comments

None

QC Data Approved and Reviewed by

Rosemary Hanks	Penny A. Foote	4/28/2011
Analyst	**Peer Review**	**Date**

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1111003**

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Blank

MB: 215972
Analyzed: 05/03/2011 12:04
Units: ug/L

Analyte	Result	RL	
Aluminum	ND	50	
Arsenic	ND	3.75	
Beryllium	ND	3.75	
Cadmium	ND	3.75	
Chromium	ND	3.75	
Copper	ND	3.75	
Manganese	ND	3.75	
Nickel	ND	3.75	
Lead	ND	3.75	
Selenium	ND	6.25	
Silver	ND	3.75	
Thallium	ND	3.75	
Vanadium	ND	2.5	
Zinc	ND	6.25	
Antimony	ND	3.75	
Barium	ND	3.75	
Uranium	ND	2.5	
Thorium	ND	2.5	

MB: 215975
Analyzed: 05/03/2011 12:08
Units: ug/L

Analyte	Result	RL	
Aluminum	ND	50	
Arsenic	ND	3.75	
Beryllium	ND	3.75	
Cadmium	ND	3.75	
Chromium	ND	3.75	
Copper	ND	3.75	
Manganese	ND	3.75	
Nickel	ND	3.75	
Lead	ND	3.75	
Selenium	ND	6.25	
Silver	ND	3.75	
Thallium	ND	3.75	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1111003**

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Blank

MB: 215975
Analyzed: 05/03/2011 12:08
Units: ug/L

Analyte	Result	RL
Vanadium	ND	2.5
Zinc	ND	6.25
Antimony	ND	3.75
Barium	ND	3.75
Uranium	ND	2.5
Thorium	ND	2.5

Laboratory Control Sample

LCS: 215973
Analyzed: 05/03/2011 12:21
Units: ug/L

Analyte	Result	Target	% Recovery	QC Limits	
Aluminum	298	250	119	67.9	140.1
Arsenic	268	250	107	77.3	120.6
Beryllium	252	250	101	75.6	123.2
Cadmium	273	250	109	79.1	119.8
Chromium	266	250	107	76.9	120.5
Copper	275	250	110	79.6	120.3
Manganese	265	250	106	74	121.3
Nickel	270	250	108	76.4	123.3
Lead	269	250	108	80.3	117.3
Selenium	261	250	104	75.4	123.1
Silver	259	250	104	67.2	127.9
Thallium	274	250	110	78.1	123.2
Vanadium	264	250	106	74.2	122
Zinc	277	250	111	74.5	125.8
Antimony	254	250	102	78.5	118.8
Barium	264	250	106	78.4	121.5
Uranium	273	250	109	1.8	169.7
Thorium	258	250	103	66.4	127

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Laboratory Control Sample

LCS: 215976
Analyzed: 05/03/2011 12:25
Units: ug/L

Analyte	Result	Target	% Recovery	QC Limits		
Aluminum	235	250	93.9	67.9	140.1	
Arsenic	239	250	95.7	77.3	120.6	
Beryllium	225	250	90.1	75.6	123.2	
Cadmium	243	250	97.1	79.1	119.8	
Chromium	239	250	95.6	76.9	120.5	
Copper	245	250	98	79.6	120.3	
Manganese	236	250	94.5	74	121.3	
Nickel	241	250	96.3	76.4	123.3	
Lead	241	250	96.6	80.3	117.3	
Selenium	235	250	94	75.4	123.1	
Silver	221	250	88.4	67.2	127.9	
Thallium	245	250	97.8	78.1	123.2	
Vanadium	237	250	94.9	74.2	122	
Zinc	249	250	99.7	74.5	125.8	
Antimony	227	250	90.7	78.5	118.8	
Barium	236	250	94.5	78.4	121.5	
Uranium	246	250	98.2	1.8	169.7	
Thorium	233	250	93.2	66.4	127	

Matrix Spike - Matrix Spike Duplicate

Sample: 1111003002
Analyzed: 05/03/2011 12:34
Units: ug/L

MS: 216496
Analyzed: 05/03/2011 12:43

MSD: 216497
Analyzed: 05/03/2011 13:00

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Arsenic	ND	101	100	101	77.3	120.6	101	101	0.647	0	20
Beryllium	ND	50.8	50	102	75.6	123.2	51.5	103	1.5	0	20
Cadmium	ND	49.3	50	98.6	79.1	119.8	49.8	99.6	0.956	0	20
Chromium	ND	214	200	107	76.9	120.5	215	107	0.421	0	20
Copper	ND	214	200	107	79.6	120.3	215	108	0.604	0	20
Manganese	16	230	200	107	74	121.3	233	109	1.33	0	20
Nickel	ND	215	200	108	76.4	123.3	216	108	0.431	0	20
Lead	ND	108	100	108	80.3	117.3	108	108	0.16	0	20
Selenium	ND	53	50	106	75.4	123.1	53.5	107	0.969	0	20
Silver	ND	52.2	50	104	67.2	127.9	52.6	105	0.902	0	20

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Matrix Spike - Matrix Spike Duplicate

Sample: 1111003002
Analyzed: 05/03/2011 12:34
Units: ug/L

MS: 216496
Analyzed: 05/03/2011 12:43

MSD: 216497
Analyzed: 05/03/2011 13:00

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Thallium	ND	52.8	50	106	78.1	123.2	52.8	106	0.126	0	20
Vanadium	ND	216	200	108	74.2	122	217	109	0.527	0	20
Zinc	ND	536	500	107	74.5	125.8	538	108	0.404	0	20
Antimony	ND	199	200	99.7	78.5	118.8	198	99.1	0.654	0	20
Barium	69	595	500	105	78.4	121.5	595	105	0.113	0	20
Uranium	ND	216	200	108	1.8	169.7	216	108	0.024	0	20
Thorium	ND	200	200	100	66.4	127	199	99.4	0.683	0	20

Sample: 1111003021
Analyzed: 05/03/2011 14:56
Units: ug/L

MS: 215982
Analyzed: 05/03/2011 15:04

MSD: 215983
Analyzed: 05/03/2011 15:09

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Arsenic	ND	91.4	100	91.4	77.3	120.6	86.5	86.5	5.55	0	20
Beryllium	ND	46.8	50	93.6	75.6	123.2	43.8	87.6	6.66	0	20
Cadmium	ND	45.6	50	91.3	79.1	119.8	43.3	86.7	5.14	0	20
Chromium	ND	194	200	97.1	76.9	120.5	182	91	6.53	0	20
Copper	ND	195	200	97.3	79.6	120.3	183	91.6	6.02	0	20
Manganese	49	242	200	96.3	74	121.3	227	89.3	6.04	0	20
Nickel	ND	194	200	97.2	76.4	123.3	183	91.6	5.99	0	20
Lead	ND	99.5	100	99.5	80.3	117.3	94.4	94.4	5.24	0	20
Selenium	ND	48.9	50	97.8	75.4	123.1	46	91.9	6.18	0	20
Silver	ND	47.7	50	95.3	67.2	127.9	45	90	5.79	0	20
Thallium	ND	49.9	50	99.7	78.1	123.2	46.7	93.4	6.54	0	20
Vanadium	ND	196	200	98.1	74.2	122	185	92.4	6.07	0	20
Zinc	24	508	500	96.7	74.5	125.8	478	90.7	6.08	0	20
Antimony	ND	197	200	98.6	78.5	118.8	186	93.1	5.75	0	20
Barium	79	565	500	97.2	78.4	121.5	532	90.5	6.06	0	20
Uranium	ND	202	200	101	1.8	169.7	191	95.6	5.3	0	20
Thorium	ND	197	200	98.7	66.4	127	186	93.2	5.8	0	20

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Matrix Duplicate

Sample: 1111003002
Analyzed: 05/03/2011 12:34
Units: ug/L

MD: 216495
Analyzed: 05/03/2011 12:38

Analyte	Result	Result	RPD	QC Limits		
Aluminum	510	514	0.725	0	20	
Arsenic	ND	ND	NA	0	20	
Beryllium	ND	ND	NA	0	20	
Cadmium	ND	ND	NA	0	20	
Chromium	ND	ND	NA	0	20	
Copper	ND	ND	NA	0	20	
Manganese	16	16.1	0.584	0	20	
Nickel	ND	ND	NA	0	20	
Lead	ND	ND	NA	0	20	
Selenium	ND	ND	NA	0	20	
Silver	ND	ND	NA	0	20	
Thallium	ND	ND	NA	0	20	
Vanadium	ND	ND	NA	0	20	
Zinc	ND	ND	NA	0	20	
Antimony	ND	ND	NA	0	20	
Barium	69	70.2	1.78	0	20	
Uranium	ND	ND	NA	0	20	
Thorium	ND	ND	NA	0	20	

Sample: 1111003021
Analyzed: 05/03/2011 14:56
Units: ug/L

MD: 215981
Analyzed: 05/03/2011 15:00

Analyte	Result	Result	RPD	QC Limits		
Aluminum	ND	111	NA	0	20	
Arsenic	ND	ND	NA	0	20	
Beryllium	ND	ND	NA	0	20	
Cadmium	ND	ND	NA	0	20	
Chromium	ND	ND	NA	0	20	
Copper	ND	ND	NA	0	20	
Manganese	49	48.5	1.02	0	20	
Nickel	ND	ND	NA	0	20	
Lead	ND	ND	NA	0	20	
Selenium	ND	ND	NA	0	20	
Silver	ND	ND	NA	0	20	
Thallium	ND	ND	NA	0	20	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1111003**

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Matrix Duplicate

Sample: 1111003021
Analyzed: 05/03/2011 14:56
Units: ug/L

MD: 215981
Analyzed: 05/03/2011 15:00

Analyte	Result	Result	RPD	QC Limits		
Vanadium	ND	ND	NA	0	20	
Zinc	24	24.1	0.369	0	20	
Antimony	ND	ND	NA	0	20	
Barium	79	78.3	0.936	0	20	
Uranium	ND	ND	NA	0	20	
Thorium	ND	ND	NA	0	20	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Initial Calibration Verification

ICV: 217051
Analyzed: 04/29/2011 17:28
Units: ug/L
Criteria: ± 10%

Analyte	Result	Target	% Rec.	
Aluminum	257	250	103	
Arsenic	269	250	108	
Beryllium	242	250	96.8	
Cadmium	268	250	107	
Chromium	261	250	104	
Copper	269	250	108	
Manganese	259	250	104	
Nickel	263	250	105	
Lead	262	250	105	
Selenium	268	250	107	
Silver	255	250	102	
Thallium	269	250	107	
Vanadium	252	250	101	
Zinc	271	250	108	
Barium	260	250	104	
Uranium	267	250	107	

ICV: 217052
Analyzed: 04/29/2011 17:32
Units: ug/L
Criteria: ± 10%

Analyte	Result	Target	% Rec.	
Aluminum	507	504	101	
Arsenic	216	200	108	
Beryllium	95.7	99	96.6	
Cadmium	98.8	99.2	99.6	
Chromium	103	98	105	
Copper	105	98.4	107	
Manganese	103	99.8	103	
Nickel	98.7	101	98.1	
Lead	212	200	106	
Selenium	215	206	104	
Silver	102	100	102	
Thallium	213	206	104	
Vanadium	104	100	104	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Initial Calibration Verification

ICV: 217052
Analyzed: 04/29/2011 17:32
Units: ug/L
Criteria: ± 10%

Analyte	Result	Target	% Rec.
Zinc	218	205	106
Barium	106	99.4	106
Uranium	212	200	106

ICV: 217351
Analyzed: 05/03/2011 11:38
Units: ug/L
Criteria: ± 10%

Analyte	Result	Target	% Rec.
Antimony	257	250	103
Thorium	260	250	104

Continuing Calibration Verification

	CCV: 217054			CCV: 217058			CCV: 217061		
Analyzed:	04/29/2011 17:41			04/29/2011 18:36			04/29/2011 19:31		
Units:	ug/L			ug/L			ug/L		
Criteria:	± 10%			± 10%			± 10%		
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Aluminum	54.2	50	108	1050	1000	105	1040	1000	104
Arsenic	50.3	50	101	1050	1000	105	1040	1000	104
Beryllium	47.4	50	94.8	1080	1000	108	1080	1000	108
Cadmium	48.8	50	97.7	1030	1000	103	1040	1000	104
Chromium	51.4	50	103	1030	1000	103	1040	1000	104
Copper	52.5	50	105	1050	1000	105	1050	1000	105
Manganese	51.1	50	102	1040	1000	104	1040	1000	104
Nickel	48.9	50	97.8	1030	1000	104	1050	1000	105
Lead	52.5	50	105	1020	1000	102	1040	1000	104
Selenium	53.7	50	107	1010	1000	101	1010	1000	101
Silver	51.8	50	104	1000	1000	100	1000	1000	100
Thallium	51.2	50	102	1010	1000	101	1030	1000	103
Vanadium	51.9	50	104	1030	1000	103	1030	1000	103
Zinc	50.1	50	100	1040	1000	104	1040	1000	104
Antimony									
Barium	47.1	50	94.2	1000	1000	100	1010	1000	101
Uranium	51.6	50	103	1010	1000	101	1040	1000	104
Thorium									

Symbols and Definitions

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▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Continuing Calibration Verification

CCV: 217063				CCV: 217064			CCV: 217067		
Analyzed: 04/29/2011 20:22				Analyzed: 04/29/2011 20:26			Analyzed: 04/29/2011 21:22		
Units: ug/L				Units: ug/L			Units: ug/L		
Criteria: ± 10%				Criteria: ± 10%			Criteria: ± 10%		
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Aluminum	214	200	107	990	1000	99	992	1000	99.2
Arsenic	211	200	106	1000	1000	100	1010	1000	101
Beryllium	193	200	96.7	1030	1000	103	1050	1000	105
Cadmium	209	200	105	990	1000	99	1000	1000	100
Chromium	200	200	100	987	1000	98.7	990	1000	99
Copper	205	200	103	1000	1000	100	1000	1000	100
Manganese	200	200	100	988	1000	98.8	996	1000	99.6
Nickel	205	200	102	999	1000	99.9	1000	1000	100
Lead	208	200	104	1010	1000	101	1010	1000	101
Selenium	209	200	104	972	1000	97.2	978	1000	97.8
Silver	204	200	102	1010	1000	101	978	1000	97.8
Thallium	204	200	102	1000	1000	100	997	1000	99.7
Vanadium	202	200	101	984	1000	98.4	985	1000	98.5
Zinc	213	200	106	998	1000	99.8	1000	1000	100
Antimony									
Barium	201	200	100	982	1000	98.2	984	1000	98.4
Uranium	204	200	102	1010	1000	101	1020	1000	102
Thorium									

CCV: 217069				CCV: 217070			
Analyzed: 04/29/2011 22:14				Analyzed: 04/29/2011 22:18			
Units: ug/L				Units: ug/L			
Criteria: ± 10%				Criteria: ± 10%			
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	
Aluminum	216	200	108	1000	1000	100	
Arsenic	212	200	106	1010	1000	101	
Beryllium	204	200	102	1060	1000	106	
Cadmium	209	200	105	992	1000	99.2	
Chromium	203	200	101	994	1000	99.4	
Copper	207	200	104	1010	1000	101	
Manganese	203	200	101	996	1000	99.6	
Nickel	208	200	104	1000	1000	100	
Lead	206	200	103	998	1000	99.8	
Selenium	213	200	107	982	1000	98.2	
Silver	201	200	100	967	1000	96.7	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	EPA 200.8, Water Prep	**Analysis:**	EPA 200.8
Basis:	ALS Laboratory Group	**Batch:**	EMS/2638 (HBN: 65254)	**Batch:**	EMS/2645 (HBN: 65550)
		Prepared By:	Kristie F. Bitner	**Analyzed By:**	Kristie F. Bitner

Continuing Calibration Verification

CCV: 217069 **Analyzed:** 04/29/2011 22:14 **Units:** ug/L **Criteria:** ± 10%				**CCV:** 217070 **Analyzed:** 04/29/2011 22:18 **Units:** ug/L **Criteria:** ± 10%			
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	
Thallium	203	200	102	994	1000	99.4	
Vanadium	205	200	102	987	1000	98.7	
Zinc	213	200	106	1010	1000	101	
Antimony							
Barium	199	200	99.7	975	1000	97.5	
Uranium	199	200	99.5	996	1000	99.6	
Thorium							

Continuing Calibration Verification

CCV: 217055 **Analyzed:** 04/29/2011 17:45 **Units:** ug/L **Criteria:** ± 10%				**CCV:** 217066 **Analyzed:** 04/29/2011 21:19 **Units:** ug/L **Criteria:** ± 10%			
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	
Aluminum							
Arsenic	526	500	105	211	200	106	
Beryllium	522	500	104	195	200	97.7	
Cadmium	519	500	104	209	200	105	
Chromium	510	500	102	201	200	101	
Copper	523	500	105	207	200	103	
Manganese	510	500	102	202	200	101	
Nickel	519	500	104	204	200	102	
Lead	514	500	103	209	200	104	
Selenium	521	500	104	210	200	105	
Silver	507	500	101	201	200	100	
Thallium	508	500	102	205	200	103	
Vanadium	504	500	101	203	200	101	
Zinc	526	500	105	214	200	107	
Antimony							
Barium	506	500	101	201	200	101	
Uranium	512	500	102	204	200	102	
Thorium							

Continuing Calibration Verification

Symbols and Definitions

* - See Comments section for more information

▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)

ND - Not Detected

QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: **1111003**

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Continuing Calibration Verification

CCV: 217060
Analyzed: 04/29/2011 19:27
Units: ug/L
Criteria: ± 10%

Analyte	Result	Target	% Rec.	
Aluminum				
Arsenic	220	200	110	
Beryllium	207	200	103	
Cadmium	214	200	107	
Chromium	212	200	106	
Copper	216	200	108	
Manganese	210	200	105	
Nickel	216	200	108	
Lead	212	200	106	
Selenium	218	200	109	
Silver	207	200	104	
Thallium	209	200	104	
Vanadium	212	200	106	
Zinc				
Antimony				
Barium	207	200	104	
Uranium	208	200	104	
Thorium				

Continuing Calibration Verification

CCV: 217057
Analyzed: 04/29/2011 18:32
Units: ug/L
Criteria: ± 10%

Analyte	Result	Target	% Rec.	
Aluminum				
Arsenic				
Beryllium	204	200	102	
Cadmium	217	200	108	
Chromium	210	200	105	
Copper	216	200	108	
Manganese	211	200	105	
Nickel	213	200	107	
Lead	209	200	105	
Selenium	218	200	109	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Continuing Calibration Verification

CCV: 217057
Analyzed: 04/29/2011 18:32
Units: ug/L
Criteria: ± 10%

Analyte	Result	Target	% Rec.	
Silver	207	200	104	
Thallium	206	200	103	
Vanadium	212	200	106	
Zinc				
Antimony				
Barium	206	200	103	
Uranium	205	200	103	
Thorium				

Continuing Calibration Verification

CCV:	217354			CCV:	217368		CCV:	217369	
Analyzed:	05/03/2011 11:55			Analyzed:	05/03/2011 12:47		Analyzed:	05/03/2011 12:51	
Units:	ug/L			Units:	ug/L		Units:	ug/L	
Criteria:	± 10%			Criteria:	± 10%		Criteria:	± 10%	
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Aluminum									
Arsenic									
Beryllium									
Cadmium									
Chromium									
Copper									
Manganese									
Nickel									
Lead									
Selenium									
Silver									
Thallium									
Vanadium									
Zinc									
Antimony	507	500	101	201	200	101	1050	1000	105
Barium									
Uranium									
Thorium	481	500	96.3	196	200	97.9	991	1000	99.1

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: **1111003**

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Continuing Calibration Verification

CCV:	217371			**CCV:**	217375		**CCV:**	217377	
Analyzed:	05/03/2011 13:43			**Analyzed:**	05/03/2011 13:47		**Analyzed:**	05/03/2011 14:38	
Units:	ug/L			**Units:**	ug/L		**Units:**	ug/L	
Criteria:	± 10%			**Criteria:**	± 10%		**Criteria:**	± 10%	
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Aluminum									
Arsenic									
Beryllium									
Cadmium									
Chromium									
Copper									
Manganese									
Nickel									
Lead									
Selenium									
Silver									
Thallium									
Vanadium									
Zinc									
Antimony	201	200	101	1050	1000	105	202	200	101
Barium									
Uranium									
Thorium	196	200	97.8	994	1000	99.4	196	200	97.8

CCV:	217385			**CCV:**	217390		**CCV:**	217391	
Analyzed:	05/03/2011 14:43			**Analyzed:**	05/03/2011 15:34		**Analyzed:**	05/03/2011 15:39	
Units:	ug/L			**Units:**	ug/L		**Units:**	ug/L	
Criteria:	± 10%			**Criteria:**	± 10%		**Criteria:**	± 10%	
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Aluminum									
Arsenic									
Beryllium									
Cadmium									
Chromium									
Copper									
Manganese									
Nickel									
Lead									
Selenium									
Silver									

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	EPA 200.8, Water Prep	**Analysis:**	EPA 200.8
Basis:	ALS Laboratory Group	**Batch:**	EMS/2638 (HBN: 65254)	**Batch:**	EMS/2645 (HBN: 65550)
		Prepared By:	Kristie F. Bitner	**Analyzed By:**	Kristie F. Bitner

Continuing Calibration Verification

CCV:	217385			**CCV:**	217390		**CCV:**	217391	
Analyzed:	05/03/2011 14:43			**Analyzed:**	05/03/2011 15:34		**Analyzed:**	05/03/2011 15:39	
Units:	ug/L			**Units:**	ug/L		**Units:**	ug/L	
Criteria:	± 10%			**Criteria:**	± 10%		**Criteria:**	± 10%	
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Thallium									
Vanadium									
Zinc									
Antimony	1040	1000	104	202	200	101	1040	1000	104
Barium									
Uranium									
Thorium	989	1000	98.9	195	200	97.6	991	1000	99.1

CCV:	217393			**CCV:**	217394		
Analyzed:	05/03/2011 16:18			**Analyzed:**	05/03/2011 16:22		
Units:	ug/L			**Units:**	ug/L		
Criteria:	± 10%			**Criteria:**	± 10%		
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	
Aluminum							
Arsenic							
Beryllium							
Cadmium							
Chromium							
Copper							
Manganese							
Nickel							
Lead							
Selenium							
Silver							
Thallium							
Vanadium							
Zinc							
Antimony	202	200	101	1050	1000	105	
Barium							
Uranium							
Thorium	192	200	96.1	981	1000	98.1	

Continuing Calibration Verification

Symbols and Definitions

* - See Comments section for more information

▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)

ND - Not Detected

QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: **1111003**

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Continuing Calibration Verification

CCV: 217353
Analyzed: 05/03/2011 11:51
Units: ug/L
Criteria: ± 10%

Analyte	Result	Target	% Rec.	
Aluminum				
Arsenic				
Beryllium				
Cadmium				
Chromium				
Copper				
Manganese				
Nickel				
Lead				
Selenium				
Silver				
Thallium				
Vanadium				
Zinc				
Antimony	49.5	50	99.1	
Barium				
Uranium				
Thorium				

Initial Calibration Blank

ICB: 217053
Analyzed: 04/29/2011 17:36
Units: ug/L

Analyte	Result	Qual.	
Aluminum	ND	U	
Arsenic	0.242	J	
Beryllium	0.166	J	
Cadmium	ND	U	
Chromium	ND	U	
Copper	ND	U	
Manganese	ND	U	
Nickel	ND	U	
Lead	ND	U	
Selenium	ND	U	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Initial Calibration Blank

ICB: 217053
Analyzed: 04/29/2011 17:36
Units: ug/L

Analyte	Result	Qual.
Silver	ND	U
Thallium	ND	U
Vanadium	ND	U
Zinc	ND	U
Barium	ND	U
Uranium	ND	U

ICB: 217352
Analyzed: 05/03/2011 11:47
Units: ug/L

Analyte	Result	Qual.
Antimony	ND	U
Thorium	ND	U

Continuing Calibration Blank

	CCB: 217056 Analyzed: 04/29/2011 17:49 Units: ug/L		CCB: 217059 Analyzed: 04/29/2011 18:40 Units: ug/L		CCB: 217062 Analyzed: 04/29/2011 19:35 Units: ug/L	
Analyte	Result	Qual.	Result	Qual.	Result	Qual.
Aluminum	ND	U	ND	U	9.88	J
Arsenic	0.196	J	0.373	J	0.249	J
Beryllium	0.186	J	0.363	J	0.233	J
Cadmium	ND	U	0.154	J	ND	U
Chromium	ND	U	ND	U	ND	U
Copper	ND	U	ND	U	ND	U
Manganese	ND	U	ND	U	ND	U
Nickel	ND	U	0.161	J	ND	U
Lead	ND	U	0.196	J	ND	U
Selenium	ND	U	ND	U	ND	U
Silver	ND	U	0.283	J	ND	U
Thallium	ND	U	0.264	J	0.174	J
Vanadium	ND	U	0.186	J	ND	U
Zinc	ND	U	ND	U	ND	U
Antimony						
Barium	ND	U	ND	U	ND	U

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Continuing Calibration Blank

CCB: 217056			CCB: 217059		CCB: 217062		
Analyzed: 04/29/2011 17:49			Analyzed: 04/29/2011 18:40		Analyzed: 04/29/2011 19:35		
Units: ug/L			Units: ug/L		Units: ug/L		
Analyte	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	
Uranium	ND	U	ND	U	ND	U	
Thorium							

CCB: 217065			CCB: 217068		
Analyzed: 04/29/2011 20:30			Analyzed: 04/29/2011 21:26		
Units: ug/L			Units: ug/L		
Analyte	**Result**	**Qual.**	**Result**	**Qual.**	
Aluminum	ND	U	ND	U	
Arsenic	0.254	J	0.256	J	
Beryllium	0.206	J	0.239	J	
Cadmium	ND	U	ND	U	
Chromium	ND	U	ND	U	
Copper	ND	U	ND	U	
Manganese	ND	U	ND	U	
Nickel	ND	U	ND	U	
Lead	ND	U	ND	U	
Selenium	ND	U	ND	U	
Silver	0.162	J	ND	U	
Thallium	0.174	J	0.179	J	
Vanadium	ND	U	ND	U	
Zinc	0.361	J	ND	U	
Antimony					
Barium	ND	U	ND	U	
Uranium	ND	U	ND	U	
Thorium					

Continuing Calibration Blank

CCB: 217071			
Analyzed: 04/29/2011 22:22			
Units: ug/L			
Analyte	**Result**	**Qual.**	
Aluminum	ND	U	
Arsenic	0.283	J	
Beryllium	0.234	J	
Cadmium	ND	U	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Continuing Calibration Blank

CCB: 217071
Analyzed: 04/29/2011 22:22
Units: ug/L

Analyte	Result	Qual.
Chromium	ND	U
Copper	ND	U
Manganese	ND	U
Nickel	ND	U
Lead	ND	U
Selenium	ND	U
Silver	0.163	J
Thallium	0.191	J
Vanadium	ND	U
Zinc	ND	U
Antimony		
Barium	ND	U
Uranium		
Thorium		

Continuing Calibration Blank

CCB:	217367		CCB:	217370		CCB:	217376	
Analyzed:	05/03/2011 12:00		Analyzed:	05/03/2011 12:55		Analyzed:	05/03/2011 13:51	
Units:	ug/L		Units:	ug/L		Units:	ug/L	
Analyte	**Result**	**Qual.**	**Result**		**Qual.**	**Result**		**Qual.**
Aluminum								
Arsenic								
Beryllium								
Cadmium								
Chromium								
Copper								
Manganese								
Nickel								
Lead								
Selenium								
Silver								
Thallium								
Vanadium								
Zinc								

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Continuing Calibration Blank

CCB: 217367 Analyzed: 05/03/2011 12:00 Units: ug/L			CCB: 217370 Analyzed: 05/03/2011 12:55 Units: ug/L		CCB: 217376 Analyzed: 05/03/2011 13:51 Units: ug/L		
Analyte	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	
Antimony	ND	U	ND	U	0.304	J	
Barium							
Uranium							
Thorium	ND	U	ND	U	ND	U	

CCB: 217386 Analyzed: 05/03/2011 14:47 Units: ug/L			CCB: 217392 Analyzed: 05/03/2011 15:43 Units: ug/L		CCB: 217417 Analyzed: 05/03/2011 16:26 Units: ug/L		
Analyte	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**	
Aluminum							
Arsenic							
Beryllium							
Cadmium							
Chromium							
Copper							
Manganese							
Nickel							
Lead							
Selenium							
Silver							
Thallium							
Vanadium							
Zinc							
Antimony	ND	U	0.446	J	ND	U	
Barium							
Uranium							
Thorium	ND	U	ND	U	ND	U	

Serial Dilution

Sample: 1111003002 Analyzed: 05/03/2011 12:34 Units: ug/L		SD: 217037 Analyzed: 05/03/2011 13:08				
Analyte	**Result**	**Result**	**RPD**	**QC Limits**		
Aluminum	1010	1110	9.25	0	20	
Arsenic	ND	ND	NA	0	23.3	

Symbols and Definitions

* - See Comments section for more information
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RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Serial Dilution

Sample: 1111003002
Analyzed: 05/03/2011 12:34
Units: ug/L

SD: 217037
Analyzed: 05/03/2011 13:08

Analyte	Result	Result	RPD	QC Limits		
Beryllium	ND	ND	NA	0	9.6	
Cadmium	ND	ND	NA	0	8.3	
Chromium	ND	ND	NA	0	9.8	
Copper	ND	ND	NA	0	7.3	
Manganese	31.8	37.4	16.1	0	20	
Nickel	ND	ND	NA	0	20	
Lead	ND	ND	NA	0	10.7	
Selenium	ND	ND	NA	0	30.2	
Silver	ND	ND	NA	0	56.5	
Thallium	ND	ND	NA	0	9.3	
Vanadium	ND	ND	NA	0	10.4	
Zinc	ND	ND	NA	0	12.2	
Antimony	ND	ND	NA	0	39.7	
Barium	139	144	3.99	0	10.2	
Uranium	ND	ND	NA	0	20	
Thorium	ND	ND	NA	0	20	

Sample: 1111003021
Analyzed: 05/03/2011 14:56
Units: ug/L

SD: 217039
Analyzed: 05/03/2011 15:17

Analyte	Result	Result	RPD	QC Limits		
Aluminum	ND	ND	NA	0	20	
Arsenic	ND	ND	NA	0	23.3	
Beryllium	ND	ND	NA	0	9.6	
Cadmium	ND	ND	NA	0	8.3	
Chromium	ND	ND	NA	0	9.8	
Copper	ND	ND	NA	0	7.3	
Manganese	97.7	93.8	4.03	0	20	
Nickel	ND	ND	NA	0	20	
Lead	ND	ND	NA	0	10.7	
Selenium	ND	ND	NA	0	30.2	
Silver	ND	ND	NA	0	56.5	
Thallium	ND	ND	NA	0	9.3	
Vanadium	ND	ND	NA	0	10.4	
Zinc	48.8	75.2	*42.5	0	12.2	

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	EPA 200.8, Water Prep	**Analysis:**	EPA 200.8
Basis:	ALS Laboratory Group	**Batch:**	EMS/2638 (HBN: 65254)	**Batch:**	EMS/2645 (HBN: 65550)
		Prepared By:	Kristie F. Bitner	**Analyzed By:**	Kristie F. Bitner

Serial Dilution

Sample: 1111003021
Analyzed: 05/03/2011 14:56
Units: ug/L

SD: 217039
Analyzed: 05/03/2011 15:17

Analyte	Result	Result	RPD	QC Limits	
Antimony	ND	ND	NA	0	39.7
Barium	158	163	2.98	0	10.2
Uranium	ND	ND	NA	0	20
Thorium	ND	ND	NA	0	20

Post Digestion Spike

Sample: 1111003002
Analyzed: 05/03/2011 12:34
Units: ug/L

PDS: 217036
Analyzed: 05/03/2011 13:04

Analyte	Result	Result	Target	% Recovery	QC Limits	
Arsenic	ND	244	250	97.2	86.6	113.8
Beryllium	ND	124	125	99.3	83.1	120.2
Cadmium	ND	120	125	96.1	90.1	113.3
Chromium	ND	518	500	103	90	112.2
Copper	ND	519	500	104	89.2	114.6
Manganese	31.8	553	500	104	87.3	114.4
Nickel	ND	523	500	104	89.9	114.1
Lead	ND	260	250	104	91.2	111.3
Selenium	ND	128	125	102	75.9	123.6
Silver	ND	124	125	99.1	36.2	154.5
Thallium	ND	130	125	104	92.4	114.8
Vanadium	ND	525	500	105	89	113.5
Zinc	ND	1290	1250	102	88.6	115
Antimony	ND	491	500	98.2	88.3	114
Barium	139	1410	1250	102	88.8	115.7
Uranium	ND	520	500	*104		
Thorium	ND	493	500	98.7	80	120

Sample: 1111003021
Analyzed: 05/03/2011 14:56
Units: ug/L

PDS: 217038
Analyzed: 05/03/2011 15:13

Analyte	Result	Result	Target	% Recovery	QC Limits	
Arsenic	ND	230	250	91.9	86.6	113.8
Beryllium	ND	118	125	93.9	83.1	120.2
Cadmium	ND	115	125	91.6	90.1	113.3

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: **1111003**

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: EPA 200.8, Water Prep
Batch: EMS/2638 (HBN: 65254)
Prepared By: Kristie F. Bitner

Analysis: EPA 200.8
Batch: EMS/2645 (HBN: 65550)
Analyzed By: Kristie F. Bitner

Post Digestion Spike

Sample: 1111003021
Analyzed: 05/03/2011 14:56
Units: ug/L

PDS: 217038
Analyzed: 05/03/2011 15:13

Analyte	Result	Result	Target	% Recovery	QC Limits		
Chromium	ND	481	500	96.2	90	112.2	
Copper	ND	482	500	96	89.2	114.6	
Manganese	97.7	580	500	96.4	87.3	114.4	
Nickel	ND	487	500	97.1	89.9	114.1	
Lead	ND	251	250	100	91.2	111.3	
Selenium	ND	122	125	97	75.9	123.6	
Silver	ND	118	125	94.1	36.2	154.5	
Thallium	ND	126	125	101	92.4	114.8	
Vanadium	ND	492	500	98.3	89	113.5	
Zinc	48.8	1240	1250	95.6	88.6	115	
Antimony	ND	480	500	96	88.3	114	
Barium	158	1380	1250	97.8	88.8	115.7	
Uranium	ND	503	500	*100			
Thorium	ND	485	500	97	80	120	

Comments

200.8: Serial dilution result for zinc in 217039 for sample 1111003021 is not in control at 42.5% RPD, unknown reason. QC limits for uranium for post digestion spike recoveries should be 80-120% with results in control. Serial dilution results calculated using sample values which have not been corrected for concentration factor from sample preparation.

QC Data Approved and Reviewed by

Kristie F. Bitner	John T Kershisnik	5/6/2011
Analyst	**Peer Review**	**Date**

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: 1111003

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	EPA 300.0
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EIC/1165 (HBN: 65242)
		Prepared By:	NA	**Analyzed By:**	Thomas T. McKay

Blank

MB: 215907
Analyzed: 04/26/2011 07:40
Units: mg/L

Analyte	Result	RL
Sulfate	ND	0.1

Laboratory Control Sample

LCS: 215908
Analyzed: 04/26/2011 07:52
Units: mg/L

Analyte	Result	Target	% Recovery	QC Limits	
Sulfate	5.38	5	108	90.9	113.5

Matrix Spike - Matrix Spike Duplicate

Sample:	1111003001	**MS:**	215909
Analyzed:	04/26/2011 08:41	**Analyzed:**	04/26/2011 08:05
Units:	mg/L		

Analyte	**Result**	**Result**	**Target**	**% Rec**	**QC Limits**		**Result**	**% Rec**	**RPD**	**QC Limits**	
Sulfate	60	80.7	20	106	90.9	113.5	80.8	106	0.114	0	15.1

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1111003**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	EPA 300.0
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EIC/1165 (HBN: 65242)
		Prepared By:	NA	**Analyzed By:**	Thomas T. McKay

Comments

None

QC Data Approved and Reviewed by

Thomas T. McKay	Thomas J. Masoian	4/26/2011
Analyst	**Peer Review**	**Date**

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample Batch Report

Analysis Information

Workorder: **1111003**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	SW 9050
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3109 (HBN: 65171)
		Prepared By:	NA	**Analyzed By:**	Rosemary Hanks

Blank

LMB: 215631
Analyzed: 04/25/2011 16:30
Units: umhos/cm

Analyte	Result	RL
Conductivity	ND	2

Laboratory Control Sample

LCS: 215632
Analyzed: 04/25/2011 16:30
Units: umhos/cm

Analyte	Result	Target	% Recovery	QC Limits	
Conductivity	1400	1410	99.6	98.2	101.1

Matrix Duplicate

Sample: 1111003001
Analyzed: 04/25/2011 16:30
Units: umhos/cm

MD: 215633
Analyzed: 04/25/2011 16:30

Analyte	Result	Result	RPD	QC Limits	
Conductivity	330	326	1.22	0	20

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1111003**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	SW 9050
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	EWC/3109 (HBN: 65171)
		Prepared By:	NA	**Analyzed By:**	Rosemary Hanks

Comments

None

QC Data Approved and Reviewed by

Rosemary Hanks	Penny A. Foote	4/28/2011
Analyst	**Peer Review**	**Date**

Symbols and Definitions

* - See Comments section for more information
▲ - Sample result is greater than 4 times the spike added.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected
QC results are not adjusted for moisture correction, where applicable.

Case Narrative

Method: 7470A
Analysis: Mercury
Preparation SOP: IT-SW-7470, Rev. 19
Analysis SOP: IT-SW-7470, Rev. 19
Lot/Release/SDG: NA
ALS Set ID: 1111003

Client: Anderson Engineering Company

Account: 8001
Matrix: Water

General Set Information:

There were twenty two samples in this set. The samples were analysed for mercury in aqueous solution.

Method Summary:

Samples are digested by EPA method 7470A. The digested samples are analyzed for mercury using cold vapor atomic absorption spectroscopy by a CETAC M-7500 AAS.

Sample Preparation:

All samples were prepared in accordance with published procedures. All sample preparation information, including date and time of preparation, reagents used and their lot IDs, and QC information, is recorded in electronic laboratory log books on a secure network drive.

Hold Times:

The hold times were met for the sample preparation and analysis.

Method QC:

Two method blanks (MB) and two laboratory control samples (LCS) were prepared and analyzed with this set. No mercury at or above the reporting limit was detected in the MBs. Mercury recovery of each LCS was within method control limits of ±20%.

Matrix QC: Two matrix spikes (MS) and two matrix spike duplicates (MSD) were prepared and analyzed in the same batch of samples. Mercury recovery in the MS and MSD were within the control limits of ±25% of the target value. The RPD between each MS and MSD pair was within the control limit maximum of 20%. Two post digestion spikes (PDS) were prepared and analyzed in the same batch of samples. Mercury recovery of each PDS was within the control limits of ±15% of the target value.

Instrument QC: Instrument calibration was performed in accordance with published procedures. Instrument calibration verification standards (ICV,CCV,CCVA) were analyzed no less frequently than once for every ten client samples being analyzed. Mercury recovery was within the control limits of ±10% of the target value for ICV and ±20% of the target value for CCV/CCVA. Instrument calibration blank standards (ICB/CCB) were ran after each verification standard. No mercury at or above the reporting limit was detected in any blank standard.

Dilution(s): None.

Flagging Codes: See electronically generated report for code definitions.

NC/CAR and CPR: None required.

Sample Calculation: The analysis instrument produces results in ug/L.The final results are calculated by the following equation; results are reported to two significant figures. Results below the reporting limit of 0.1µg/L are reported as ND (Not Detected).
Result for water samples: (A) x (B) x (C) = (µg/L)

A = Analyte concentration from the instrument determination (µg/L)
B = Dilution performed prior to digestion, if applicable
C = Dilution performed at time of analysis if applicable

eg.: Result of sample 215240 MS: (1.0310µg/L)(1)(1) = (1.0310µg/L) = (1.0µg/L)

Elijah Gregory
Dated April 25 2011

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Case Narrative

Method: EPA 300.0
Analysis: Anions
Analysis SOP: IC-EP-300.0
ALS WO ID(s): 1111003

Client: Anderson Engineering Company
Account: 08001
Matrix: Water
HBN #: 65242

General Set Information: There were 11 field samples in this workorder. The samples were analyzed for sulfate.

Method Summary: Each sample was prepared as noted below and analyzed using a Dionex Model DX 320 Ion Chromatograph equipped with a HP 1050 autosampler and Perkin Elmer Totalchrom Client/Server chromatography software.

Sample Preparation: A 10mL aliquot of each sample was combined with 0.1mL of 100X Anion Eluent as a matrix modifier. All samples were then filtered with Phenex 0.45µm PES filters, prior to being transferred into autosampler vials for analysis.

Holding Times: Holding times were met for all analyses.

Dilutions: When necessary, samples were diluted in order to remove interferences and/or to obtain a result within the calibration range of the instrument. The detection and reporting limits were adjusted accordingly.

Method QC data: The method blank (215907) was less than 1/2 the CRDL. The recoveries for LCS 215908 were within acceptable parameters.

MS/MSD Analysis: The matrix spike (215909) and matrix spike duplicate (215910) were performed on parent sample 1111003001. The recoveries and relative percent differences were within acceptable parameters.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): None.

Sample Calculation: Samples were reported in mg/L. Results were calculated in mg/L by the equation (A)x(B)x(C)

where A = Analyte concentration from the standard curve (mg/L)
B = Dilution performed at time of analysis
C = Conversion factor from ion to element (when necessary)

Miscellaneous Comments: None.

Thomas T. McKay — April 26, 2011
Date

Environmental Division

Case Narrative

Analysis: ICP Metals
Preparation SOP #: IP-CW-200.7, Rev. 4
Analysis SOP #: IP-CW-200.7, Rev. 4
Workorder ID: 1111003

Client: Anderson Engineering Company
Matrix: Water

General Set Information: Twenty two samples were analysed for calcium, iron, magnesium, sodium, zinc, and potassium in water.

Method Summary: A 50-mL aliquot of the sample was digested in a hotplate in the presence of HNO_3 and HCl. The solution was cooled and diluted to volume in 50-mL centrifuge tube. The resulting digest was analysed using an iCAP 6500 Dual View Analyser.

Sample Preparation: All samples were prepared in accordance with published procedures. The samples were prepared at half volume.

Instrument Calibration: Instrument calibration was performed in accordance with published procedures.

Initial and Continuing Calibration Data: Initial and Continuing calibrations were performed in accordance with published procedures.

Dilutions: No dilutions were required.

Method and Sample QC Data: The reagent blank concentrations are less than the Reporting Limit. The LCS results are within control limits.

Matrix Duplicate Analysis: A matrix duplicate was prepared from sample 1111003001. The relative percent differences between the matrix duplicate and the sample are within control limits.

Matrix Spike and Matrix Spike Duplicate Analysis: A matrix spike was prepared from sample 1111003001. The relative percent differences between the matrix spike and matrix spike duplicate results are within control limits.

Post-Digestion Spike analysis: A post digestion spike was done with results within control limits.

Serial Dilution: A serial dilution was done with results within control limits.

NC/CAR: None required.

Flagging Codes: Refer to the report.

Sample Calculation: The final results are calculated in µg/L by the equation (A) x (B) x (C) where:

A = Analyte concentration from instrument determination (µg/L)

$$B = \frac{\text{[Final Volume of Digestate (L)]}}{\text{[Initial Volume of Sample taken for Preparation (L)]}}$$

C = Dilution performed at time of analysis

Miscellaneous Comments: None.

Whitney Redd 7/26/11
Date

Case Narrative

Method:	200.8	**Client:**	Anderson Engineering Company
Analysis:	ICP-MS	**Account:**	8001
Preparation SOP #:	IP-CW-200.8, Rev.2	**Matrix:**	Water
Analysis SOP #:	IP-SW-6020, Rev. 9		
Lot:	NA		
ALS Work Order ID:	1111003		

General Set Information: There are twentytwo field samples in this work order. The samples were analyzed for elements in water by ICP-MS.

Method Summary: A thoroughly mixed 50 mL portion of sample is heated in a block digester in the presence of nitric acid and hydrochloric acid. Samples were reduce to about 20 mL and refluxed for 30 minutes. After refluxing, samples are brought to a 25 mL final volume with ASTM Type II water. Samples are analyzed using an Agilent 7700x and a ThermoElemental X-5 ICP Mass Spectrometer.

Sample Preparation: All samples were prepared in accordance with published procedures.

Hold Times: Samples were prepared and analyzed within method hold times.

Dilutions: Prior to analysis samples were diluted 2.5 times for a total 1.25x conversion factor.

Method QC (MB, LCS): No method analyte was found in the method blank samples at levels above the PQL. One quality control sample was prepared and analyzed with this set. All analytes are within quality control limits.

Matrix QC (MS, MD, MSD): Two matrix duplicates were prepared and analyzed with this work order. The relative percent differences between the sample results and the matrix duplicate results are in control. Two matrix spikes and two matrix spike duplicates were prepared and analyzed with this work order. The results for the analytes in the matrix spikes are within method control limits. The relative percent differences between the matrix spike and matrix spike duplicate results are within method control limits.

Instrument QC (ICV, CCV, etc): Recoveries of the analyte in all initial and continuing calibration verification samples are within quality control limits. No method analytes were found in any initial or continuing calibration blank sample at levels above the PQL.

Flagging Codes: A "U" flag is used to indicate the analyte was not detected above the MDL. A "J" flag is used to indicate the analyte value is between the MDL and the RL.

Serial Dilution: Two serial dilutions were prepared and analyzed with this batch. The results are in control except for zinc in 217039, unknown reason.

Post Digestion Spike Analysis: Two post digestion spikes were prepared with this batch. Results are within limits.

NC/CAR: None required.

Sample Calculation: The final results are calculated in µg/L by the equation (A) x (B) x (C) where:

A = Analyte concentration from instrument determination (µg/L)

$$B = \frac{\text{[Final Volume of Digestate (L)]}}{\text{[Initial Volume of Sample Used in Digestion (L)]}}$$

C = Dilution performed at time of analysis.

Miscellaneous Comments: None.

Kristie Bitner 06/05/11

Name: Kristie Bitner Date

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Case Narrative

Method:	EPA 120.1	**Client:**	Anderson Engineering Company
Analysis:	Specific Conductance	**Account:**	8001
Preparation SOP #:	NA	**Matrix:**	water
Analysis SOP #:	IC-EP-120.1		
Lot/Release/SDG #:	NA		
ALS Set ID:	1111003		HBN#: 65171

General Set Information:	The samples in this set were analyzed for specific conductance. The reporting limit for this method is 2.0 umhos/cm.
Method Summary:	Specific conductance is measured using an Orion model 160 conductivity meter. The cell and test tube are rinsed three times with each sample or standard before reading. For analysis, the tube is filled with enough sample to cover the conductivity probe
Sample Preparation:	An aliquot of each sample was filtered through the glass fiber filter paper used for TSS analysis just prior to conductivity analysis.
Hold Times:	Analysis was completed within hold time.
Dilution(s):	Dilutions are not applicable.
Method QC (MB, LCS):	LCS and blank data are within acceptable limits.
Matrix QC (MS, MD, MSD):	MD results are within acceptable parameters. MS/MSD are not applicable to this method
Instrument QC (ICV, CCV, etc):	There is no instrument QC applicable to this method.
Flagging Codes:	None required.
NC/CAR:	None.
Sample Calculation:	Sample results are calculated by the instrument.
Miscellaneous Comments:	None.

Rosemary H. Hanks

Name: Rosemary H. Hanks

Date: **04/27/11**

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Case Narrative

Method:	EPA 160.1	**Client:**	Anderson Engineering Company
Analysis:	Total Dissolved Solids	**Account:**	8001
Preparation SOP #:	NA	**Matrix:**	water
Analysis SOP #:	IW-EP-160.1		
Lot/Release/SDG #:	NA		
ALS Set ID:	1111003		HBN: 65172

General Set Information:	The samples in this set were analyzed for total dissolved solids. The reporting limit for this analyte is 50.mg/L.
Method Summary:	Sample conductivity is measured to determine the aliquot to be used for TDS. The sample is filtered, poured into a tared beaker, the liquid evaporated at 105 degree C, then moved to a 180 degree C oven to dry for at least an hour. The beakers are cooled to room temperature in a desiccator, weighed and the drying repeated until the difference in dry weight is no more than 0.0004 g.
Sample Preparation:	The sample was prepared in accordance with published procedures.
Hold Times:	Analysis was started on 04/25/11.
Dilution(s):	Dilutions are not applicable to this method.
Method QC (MB, LCS):	LCS and blank data are within acceptable limits.
Matrix QC (MS, MD, MSD):	The MD RPD is not within acceptable parameters, for unknown reasons.
Instrument QC (ICV, CCV, etc):	There is no instrument QC applicable to this method.
Flagging Codes:	None
NC/CAR:	None
Sample Calculation:	[+ residue wt. (g) - tare wt. (g)] x 1,000 mg/g / L (sample) = mg/L of TDS
Miscellaneous Comments:	None

Rosemary H. Hanks

Name: Rosemary H. Hanks

Date: **04/27/11**

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Case Narrative

Method:	EPA 160.2	**Client:**	Anderson Engineering Company
Analysis:	Total Suspended Solids	**Account:**	8001
Preparation SOP #:	NA	**Matrix:**	water
Analysis SOP #:	IW-EP-160.2		
Lot/Release/SDG #:	NA		
ALS Set ID:	1111003		HBN: 65173

General Set Information:	The sample in this set was analyzed for total suspended solids. The reporting limit for this analyte is 50mg/L.
Method Summary:	The sample is filtered and the tared weigh dish and filter placed in a 105 degree C oven for at least an hour, then cooled in a desiccator for an hour and weighed. The drying and weighing are repeated until two consecutive results show a difference in weight of no more than 0.0004 gram.
Sample Preparation:	The sample was prepared in accordance with published procedures.
Hold Times:	Analysis was started on 04/25/11.
Dilution(s):	Dilutions are not applicable to this method.
Method QC (MB, LCS):	LCS and blank data are within acceptable limits.
Matrix QC (MS, MD, MSD):	Tthe MD is within acceptable parameters.
Instrument QC (ICV, CCV, etc):	There is no instrument QC applicable to this method.
Flagging Codes:	None required.
NC/CAR:	None
Sample Calculation:	[+ residue wt. (g) - tare wt. (g)] x 1,000 mg/g / L (sample) = mg/L of TSS
Miscellaneous Comments:	None

Rosemary H. Hanks

Name: Rosemary H. Hanks

Date: **04/27/11**

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Case Narrative

Method:	EPA 130.2	**Client:**	Anderson Engineering Company
Analysis:	Hardness	**Account:**	8001
Preparation SOP #:	NA	**Matrix:**	water
Analysis SOP #:	IC-EP-130.2		
Lot/Release/SDG #:	NA		
ALS Set ID:	1111003		HBN#: 65252

General Set Information:	The samples in this set were analyzed for hardness as equivalent mg of calcium carbonate per liter. The reporting limit for this analyte is 10. mg/L.
Method Summary:	An aliquot of sample (10-50 mL) is placed in a beaker and enough ASTM type II water added to make approximately 50 mL. A small scoop of Eriochrome Black T indicator and 1 mL of buffer solution are added and the sample is titrated with EDTA titrant until the endpoint is reached. The sample is stirred continuously throughout.
Sample Preparation:	Samples were prepared in accordance with published procedures.
Hold Times:	Analysis was completed within hold time.
Dilution(s):	Dilutions are not applicable to this method, if results are high a smaller aliquot of sample is analyzed.
Method QC (MB, LCS):	LCS and blank data are within acceptable limits.
Matrix QC (MS, MD, MSD):	No MS/MSD is performed for this method, the MD is within acceptable parameters.
Instrument QC (ICV, CCV, etc):	There is no instrument QC applicable to this method.
Flagging Codes:	None required.
NC/CAR:	None
Sample Calculation:	Hardness (as equivalent mg CaCO3/L) = ml EDTA titrant x N, EDTA x 50,000 / mL of sample
Miscellaneous Comments:	None.

Rosemary H. Hanks

Name: Rosemary H. Hanks

Date: **04/26/11**

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Case Narrative

Method:	EPA 310.2	**Client:**	Anderson Engineering Company
Analysis:	Alkalinity by discrete auto-analyzer	**Account:**	8001
Preparation SOP #:	NA	**Matrix:**	water
Analysis SOP #:	SC-EP-310.2		
Lot/Release/SDG #:	NA		
ALS Set ID:	1111003		HBN: 65195

General Set Information:	The samples in this set were analyzed for alkalinity by SmartChem Method #2001N-0406W, which is an automated colorimetry method based on EPA 310.2. The RL for this method is 10mg/L.
Method Summary:	The methyl orange indicator is dissolved in a weak buffer at a pH of 3.1, just below the equivalence point of total alkalinity, so that any addition of alkalinty causes a loss of color directly proportional to the amount of alkalinity. The color intensity is measured at 550 nm.
Sample Preparation:	Samples prepared in accordance with published procedures.
Hold Times:	Analysis was completed within hold time.
Dilution(s):	None required.
Method QC (MB, LCS):	LCS and blank data are within acceptable limits.
Matrix QC (MS, MD, MSD):	MS/MD results are within acceptable parameters.
Instrument QC (ICV, CCV, etc):	LCS(ICV) and CCV data are within acceptable limits. All blank (ICB/CCB) results are below the RL.
Flagging Codes:	None required.
NC/CAR:	None
Sample Calculation:	The results are calculated as optical density by the instrument software and a standard curve prepared by comparing against known standard concentrations in mg/L.
Miscellaneous Comments:	None.

Rosemary H. Hanks

Name: Rosemary H. Hanks

Date: **04/26/11**

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Case Narrative

Method:	SW 9012/EPA 335.4	**Client:**	Anderson Engineering Co.
Analysis:	Cyanide	**Account:**	8001
Preparation SOP #:	N/A	**Matrix:**	Water
Analysis SOP #:	SC-SW-9012		
Lot/Release/SDG #:	N/A		
ALS Set ID:	1111003		

General Set Information: The samples in this set were prepared according to EPA Method SW-9012A as described below in method summary. Cyanide analysis was performed on distillates using a SmartChem discrete auto analyzer, instrument ID : WET01. The Method Limit of Detection (MDL) is 5.00 ug/L and the Reporting Limit (RL) is 10 ug/L for waters.

Method Summary: A 6 mL aliquot of sample was distilled using a Lachat Microdist distillation system. During distillation the cyanide, as hydrocyanic acid (HCN), was released by refluxing the sample with strong acid and the HCN was collected in an absorber-scrubber containing a sodium hydroxide solution. In the colorimetric measurement, the cyanide was converted to cyanogen chloride by reacting with Chloramine-T at a pH of less than eight without hydrolyzing to cyanate. After the reaction was complete, color was formed by the addition of pyridine-barbituric acid reagent. The cyanide ion was then determined by automated colorimetry.

Sample Preparation: The samples were prepared as stated above in the method summary.

Hold Times: The holding times were met for both preparation and analysis.

Dilution(s): No dilutions required.

Method QC (MB, LCS): LCS (ICV) data is within acceptable limits. All blank results are below the RL.

Matrix QC (MS, MD, MSD): 1111003009 MSD outside acceptance limits, post-distillation spike performed at 20ug/L with 91.1% recovery.

Instrument QC (ICV, CCV, etc): All CCVs and CCBs are within acceptable method limits.

Flagging Codes: 'J' indicates results between the MDL and the RL. "U" indicates results not detected above the MDL.

NC/CAR: None.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Sample Calculation: The results are calculated as optical density by the SmartChem software and a standard curve prepared by comparing against known concentrations of standards.

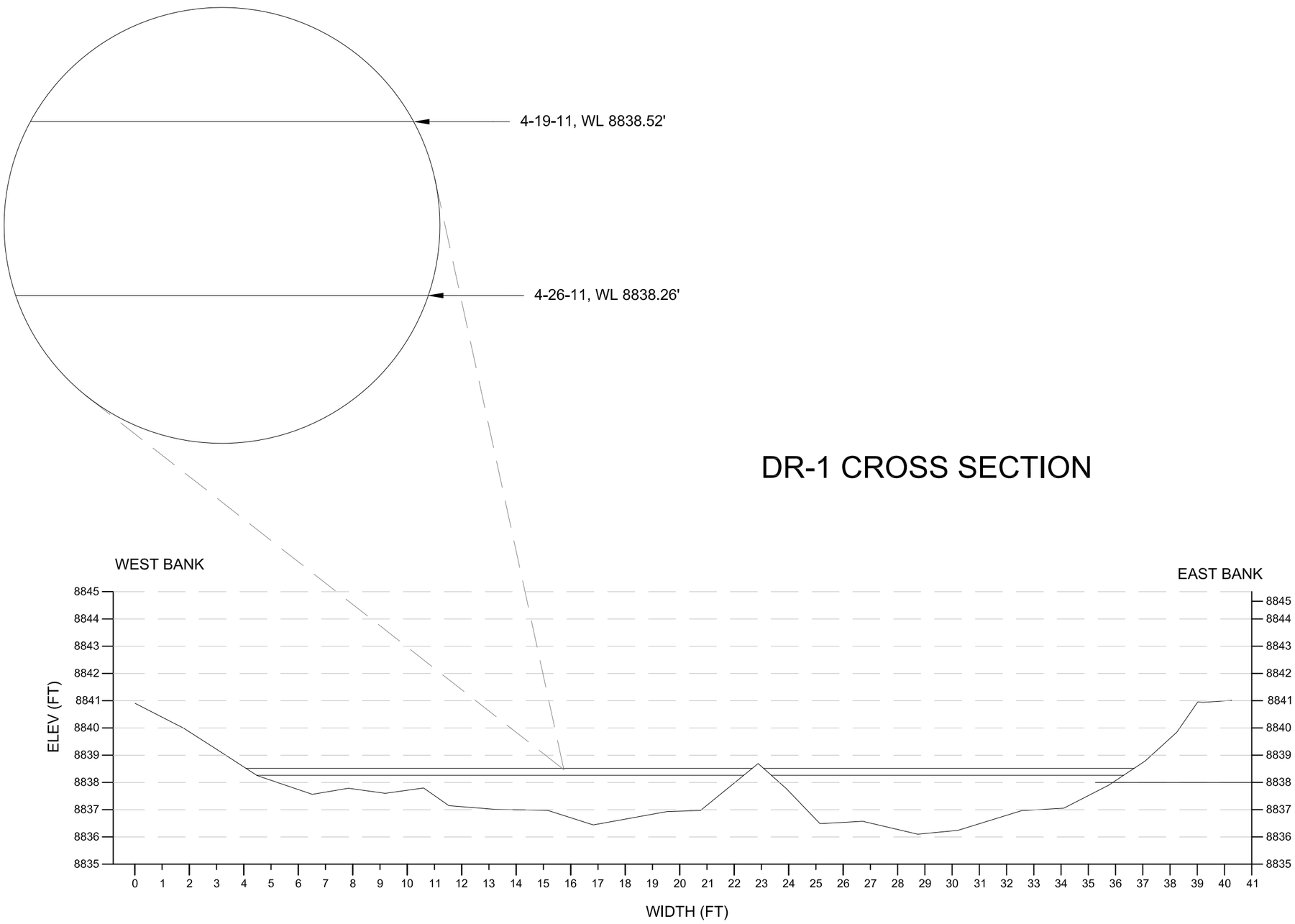
Miscellaneous Comments: None.

Name: Lance Hellmann

Date: **04/26/11**

Appendix E

Flow Cross Sections



DR-1 CROSS SECTION

General Notes

N

Scale in Feet
0 2 4

No.	Revision/Issue	Date

ATLANTIC RICHFIELD COMPANY

ANDERSON
ENGINEERING COMPANY, INC.

DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

RICO SURFACE WATER SAMPLING

DOLORES RIVER CROSS SECTION AT SAMPLING STATION DR-1

RICO, CO

Project
Date 26-MAY-2011
Scale
Figure 3

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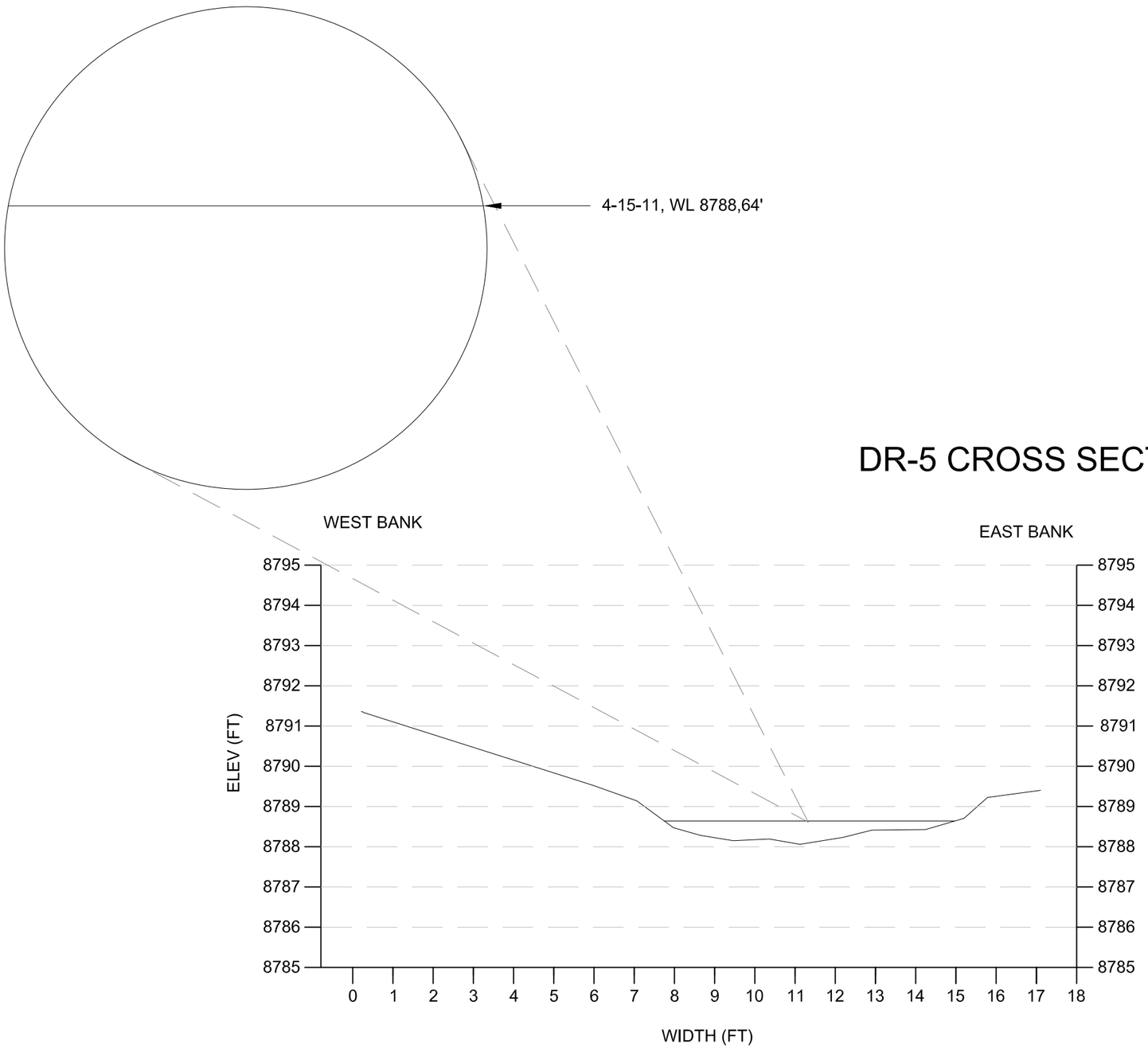
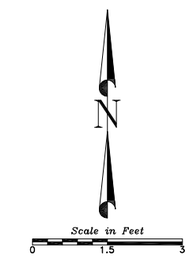
DR-5 CROSS SECTION



General Notes



No.	Revision/Issue	Date

ATLANTIC RICHFIELD COMPANY

ANDERSON
ENGINEERING COMPANY, INC.

DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

RICO SURFACE WATER SAMPLING

POND 8 EMBANKMENT CROSS SECTION AT SAMPLING STATION DR-5

RICO, CO

Project
Date 26-MAY-2011
Scale
Figure 4

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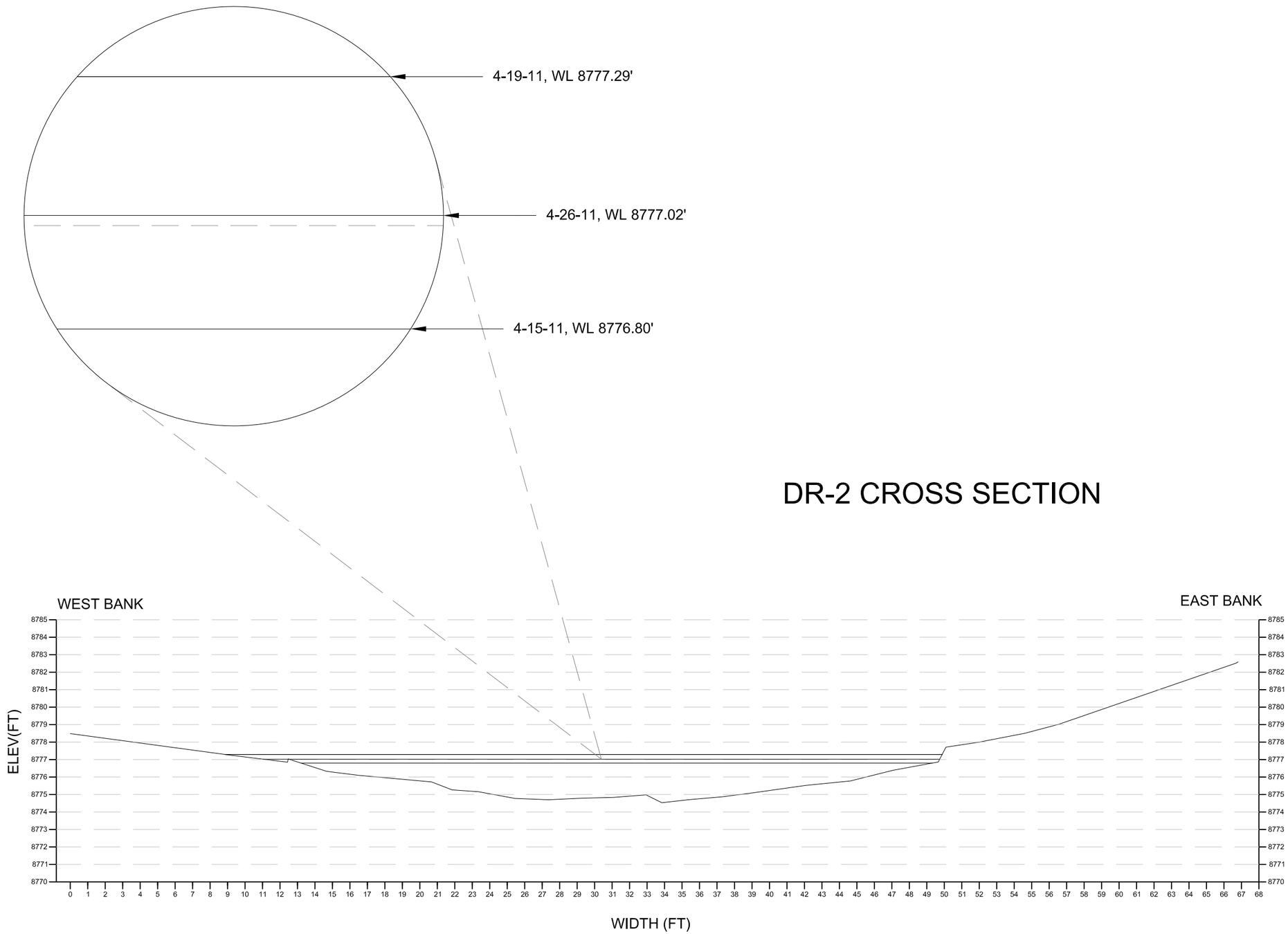

DR-2 CROSS SECTION

General Notes

N

Scale in Feet
0 3 6

No.	Revision/Issue	Date

ATLANTIC RICHFIELD COMPANY

ANDERSON
ENGINEERING COMPANY, INC.

DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

RICO SURFACE WATER SAMPLING

DOLORES RIVER CROSS SECTION AT SAMPLING STATION DR-2

RICO, CO

Project
Date 26-MAY-2011
Scale
Figure 5

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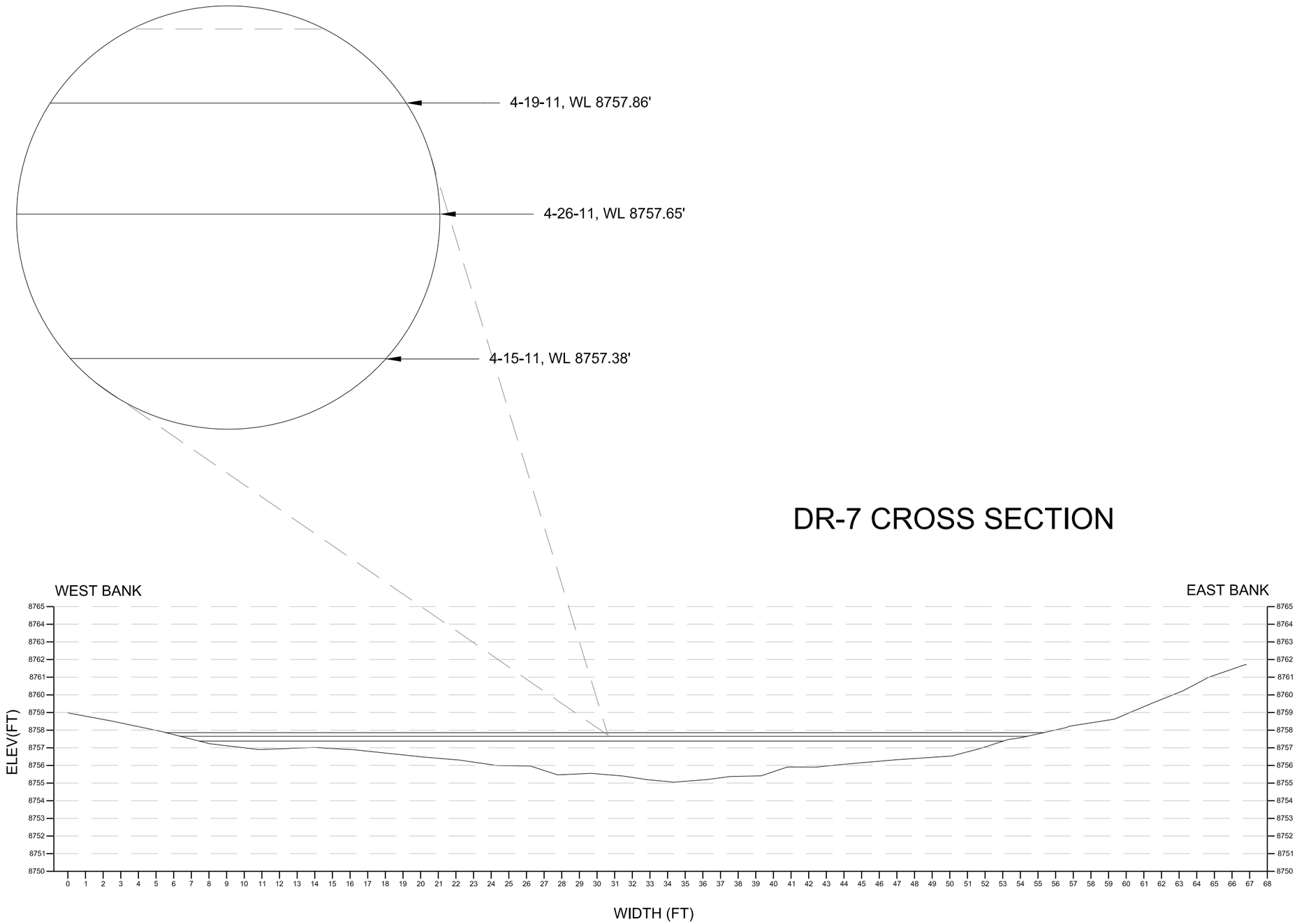

DR-7 CROSS SECTION

General Notes

N

Scale in Feet
0 3 6

No.	Revision/Issue	Date

ATLANTIC RICHFIELD COMPANY

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ENGINEERING COMPANY, INC.

DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

RICO SURFACE WATER SAMPLING

DOLORES RIVER CROSS SECTION AT SAMPLING STATION DR-7

RICO, CO

Project
Date 26-MAY-2011
Scale
Figure 6

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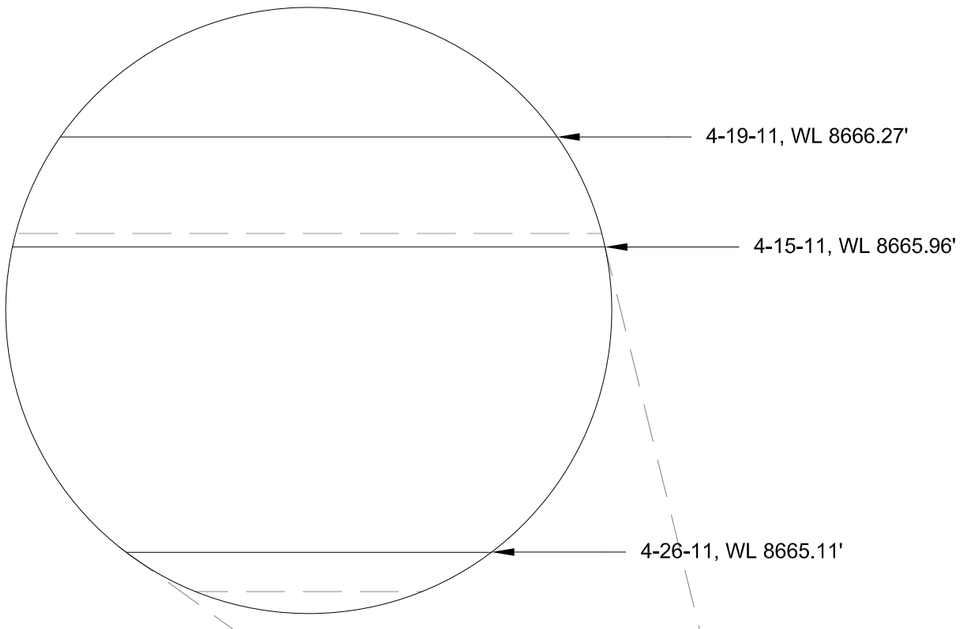
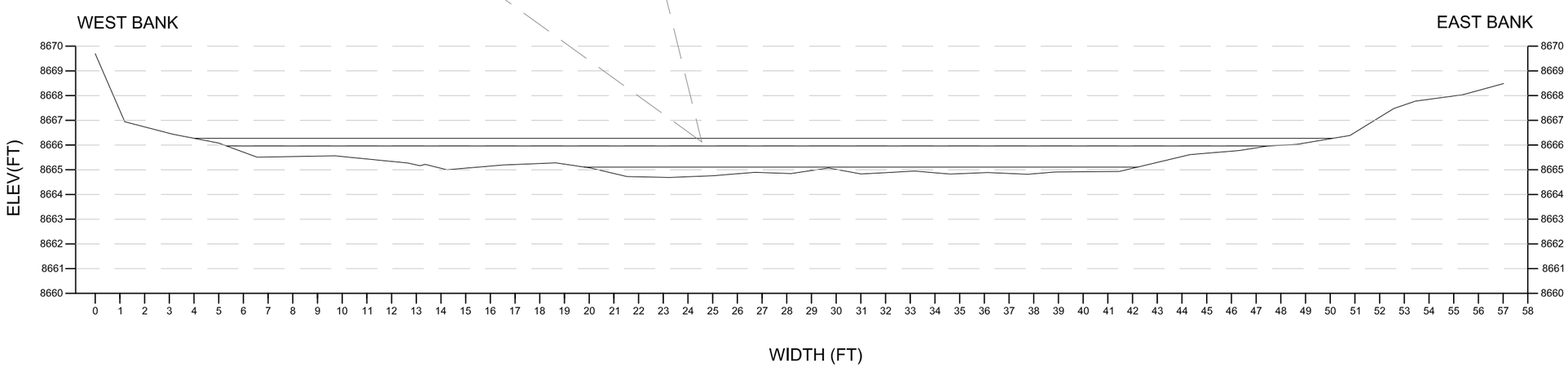


DR-4-SW CROSS SECTION



General Notes

N

Scale in Feet
0 2.5 5

No.	Revision/Issue	Date

ATLANTIC RICHFIELD COMPANY

ANDERSON
ENGINEERING COMPANY, INC.

DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

RICO SURFACE WATER SAMPLING

DOLORES RIVER CROSS SECTION AT SAMPLING STATION DR-4-SW

RICO, CO

Project
Date 26-MAY-2011
Scale
Figure 7

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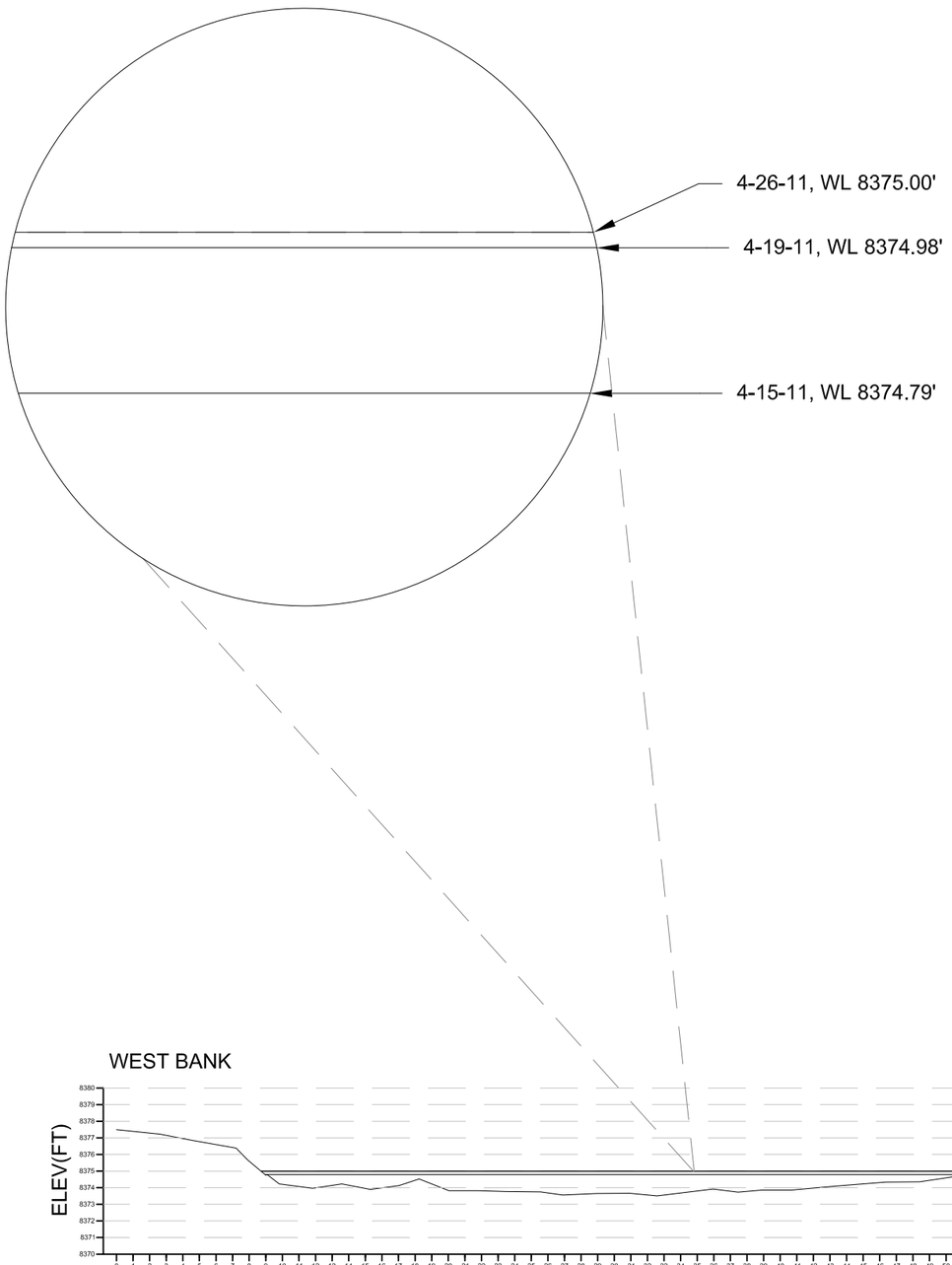
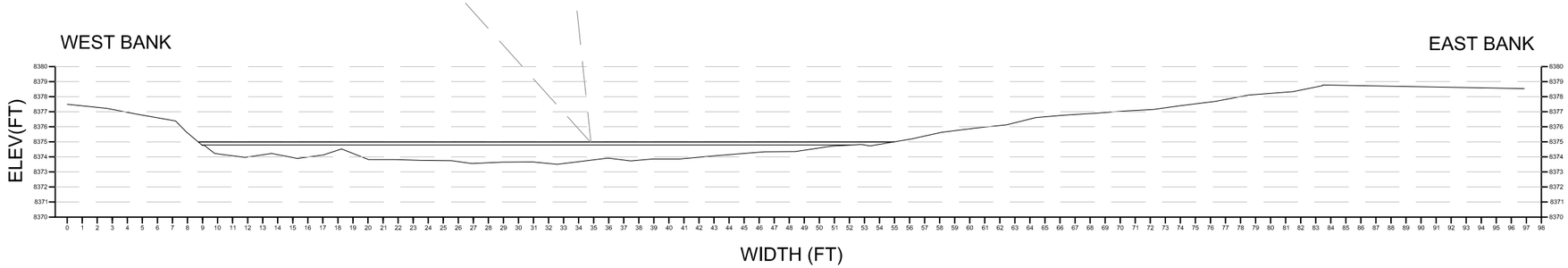
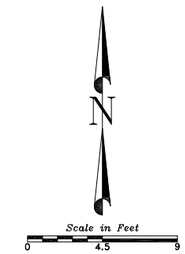


DR-G CROSS SECTION



General Notes



No.	Revision/Issue	Date

ATLANTIC RICHFIELD COMPANY

ANDERSON
ENGINEERING COMPANY, INC.

DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

RICO SURFACE WATER SAMPLING

DOLORES RIVER CROSS SECTION AT SAMPLING STATION DR-G

RICO, CO

Project
Date 26-MAY-2011
Scale
Figure 8

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Appendix F

Chain of Custody Records

183/7594/→

1111003

ALS Laboratory Group
Field Chain-of-Custody Record

Client Name & Address:	Project No.:
Anderson Engineering Co., Inc. 977 West 2100 South Salt Lake City, UT 84119	
Phone: 801-972-6222	Project Name: Rico Water Sampling
FAX: 801-972-6235	Sampler: (Signature)
e-mail: mdefriez@andersoneng.com	

Field Sample Number	Site ID	Date	Time	Depth	ALS Sample Number	Preservation Code	Sample Matrix Code	Sample for Matrix QC	Alkalinity, Hardness, TDS, TSS, Sulfate (1,2,3,4,6)	Salinity (5)	Total Metals (9,11,13)	Dissolved Metals (10,12,14)	Total Cyanide (7)	Dissolved Cyanide (8)			No. of Containers	Remarks
DR-4-SW		4.18.11							X	X	X	X	X	X			6	
DR-1									X	X	X	X	X	X			6	
DR-2									X	X	X	X	X	X			6	
DR-3									X	X	X	X	X	X			6	
DR-4									X	X	X	X	X	X			6	
DR-5									X	X	X	X	X	X			6	
DR-6									X	X	X	X	X	X			6	
DR-7									X	X	X	X	X	X			6	
DR-8									X	X	X	X	X	X			6	
DR-G									X	X	X	X	X	X			6	

Matrix Codes:
W) Water B) Bulk
L) Liquid F) Filter
S) Soil G) Wipe
C) Solid M) Media

Preservation Codes:
1) Cool to 4°C
2) HCl to pH<2, 4°C
3) H_2SO_4 to pH<2, 4°C
4) HNO_3 to pH<2, 4°C
5) NaOH to pH>12, 4°C
6) ZnOAc/NaOH to pH>9, 4°C

Possible Hazard Identification
- [x] Non-Hazard
- [ ] Flammable
- [ ] Skin Irritant
- [ ] Poison
- [ ] Rad
- [ ] Unknown

Sample Disposal
- [ ] Return to Client
- [x] Disposal by Lab
- [ ] Archive for _____ Months

(a fee may be assessed if samples are retained longer than 3 months)

Requested Turn Around Time
- [ ] 48 Hours (Rush)
- [ ] 72 Hours (Rush)
- [x] 7 Days
- [ ] 14 Days
- [ ] 21 Days
- [ ] Other

(Rush is email or fax data unless previously approved)

Carrier/Airbill #:

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
	Linda Jassico	04-17-11	10:37
Relinquished by: (Signature)	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Received by: (Signature)	Date	Time

Shipped to:
ALS Laboratory Group
960 West LeVoy Drive
Salt Lake City, UT 84123
Phone: (800) 356-9135
Phone: (801) 266-7700
FAX: (801) 268-9992
www.datachem.com

White - Laboratory Copy *Yellow - Client Copy*

1831/1594/7

ALS Laboratory Group
Field Chain-of-Custody Record

Client Name & Address:
Anderson Engineering Co., Inc.
977 West 2100 South
Salt Lake City, UT, 84119
Phone: 801-972-6222
FAX: 801-972-6235
e-mail: mdefriez@andersoneng.com

Project No.:

Project Name: Rio Water Sampling

Sampler: (Signature) [signature]

Matrix Codes: W) Water B) Bulk L) Liquid F) Filter S) Soil G) Wipe C) Solid M) Media

Preservation Codes: 1) Cool to 4°C 2) HCl to pH<2, 4°C 3) H_2SO_4 to pH<2, 4°C 4) HNO_3 to pH<2, 4°C 5) NaOH to pH>12, 4°C 6) ZnOAc/NaOH to pH>9, 4°C

Field Sample Number	Site ID	Date	Time	Depth	ALS Sample Number	Preservation Code	Sample Matrix Code	Sample for Matrix QC	Alkalinity, Hardness, TDS, TSS, Sulfate (1,2,3,4,6)	Salinity (5)	Total Metals (1)	Dissolved Metals (9,11,13)	Total Cyanide (10,12,14)	Dissolved Cyanide (7)	(8)			No. of Containers	Remarks
FB		4.18.11							X	X	X	X	X	X				6	

Possible Hazard Identification
☒ Non-Hazard ☐ Skin Irritant ☐ Rad
☐ Flammable ☐ Poison ☐ Unknown

Sample Disposal
☐ Return to Client ☐ Archive for _____ Months
☒ Disposal by Lab
(a fee may be assessed if samples are retained longer than 3 months)

Requested Turn Around Time
☐ 48 Hours (Rush) ☒ 7 Days ☐ 21 Days
☐ 72 Hours (Rush) ☐ 14 Days ☐ Other
(Rush is email or fax data unless previously approved)

Carrier/Airbill #:

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
[signature]	[signature]	04-19-11	10:27
Relinquished by: (Signature)	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Received by: (Signature)	Date	Time

Shipped to:
ALS Laboratory Group
960 West LeVoy Drive
Salt Lake City, UT 84123
Phone: (800) 356-9135
Phone: (801) 266-7700
FAX: (801) 268-9992
www.datachem.com

White - Laboratory Copy *Yellow - Client Copy*

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task: | Split: | Workorder ID: 1111003

Client: Anderson Engineering Company | Account: 8001

Comments:

Type: 500Poly

Preservatives: HNO3

Requested Analysis: EPA 200.7, EPA 200.8, SW7470

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 200.7	EPA 200.8	SW7470
1	04/18/2011 00:00	DR-4-SW	1111003001		Water	C	1	C	C	C
2	04/18/2011 00:00	DR-1	1111003002		Water	C	1	C	C	C
3	04/18/2011 00:00	DR-2	1111003003		Water	C	1	C	C	C
4	04/18/2011 00:00	DR-3	1111003004		Water	C	1	C	C	C
5	04/18/2011 00:00	DR-4	1111003005		Water	C	1	C	C	C
6	04/18/2011 00:00	DR-5	1111003006		Water	C	1	C	C	C
7	04/18/2011 00:00	DR-6	1111003007		Water	C	1	C	C	C
8	04/18/2011 00:00	DR-7	1111003008		Water	C	1	C	C	C
9	04/18/2011 00:00	DR-8	1111003009		Water	C	1	C	C	C
10	04/18/2011 00:00	DR-G	1111003010		Water	C	1	C	C	C

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[signature]	4-20-11 1013	R-33-1 7C	Storage
R-33-1 (7C) CH	4/21/11 09:36	metals prep lab CH	metals prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task: | Split: | Workorder ID: 1111003

Client: Anderson Engineering Company | Account: 8001

Comments:

Type: 500Poly

Preservatives: HNO3

Containers

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	ID(s)	Count	EPA 200.7	EPA 200.8	SW7470									
11	04/18/2011 00:00	FB	1111003011		Water	C	1	C	C	C									
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			

Requested Analysis

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[illegible]	4-20-11 1013	R-33-1 TC	Storage
R-33-1 (TC) CH	4/21/11 09:36	metals prep lab CH	metals prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task:	Split:	Workorder ID: 1111003
Client: Anderson Engineering Company		Account: 8001
Comments:		

Type: 500Poly

Preservatives: COOL

Requested Analysis: EPA 130.2 ✓, EPA 160.1 ✓, EPA 160.2 ✓, EPA 300.0 ✓, EPA 310.2 ✓, EPA 120.1

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 130.2	EPA 160.1	EPA 160.2	EPA 300.0	EPA 310.2	EPA 120.1
1	04/18/2011 00:00	DR-4-SW	1111003001		Water	A	1	A	A	A	A	A	A
2	04/18/2011 00:00	DR-1	1111003002		Water	A	1	A	A	A	A	A	A
3	04/18/2011 00:00	DR-2	1111003003		Water	A	1	A	A	A	A	A	A
4	04/18/2011 00:00	DR-3	1111003004		Water	A	1	A	A	A	A	A	A
5	04/18/2011 00:00	DR-4	1111003005		Water	A	1	A	A	A	A	A	A
6	04/18/2011 00:00	DR-5	1111003006		Water	A	1	A	A	A	A	A	A
7	04/18/2011 00:00	DR-6	1111003007		Water	A	1	A	A	A	A	A	A
8	04/18/2011 00:00	DR-7	1111003008		Water	A	1	A	A	A	A	A	A
9	04/18/2011 00:00	DR-8	1111003009		Water	A	1	A	A	A	A	A	A
10	04/18/2011 00:00	DR-G	1111003010		Water	A	1	A	A	A	A	A	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[illegible]	4-20-11 1013	R-33-1 TD	Storage
R33-1 [illegible]	04/25/11 08:30	Rosemary H. Hands	160.1, 160.2, 310.2, 120.1
Rosemary H. Hands	04/25/11 18:15	R403-1 [illegible]	#15
R-403 [illegible]	04/26/11 05:30	[illegible]	Autoclave

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task: | Split: | Workorder ID: 1111003

Client: Anderson Engineering Company | Account: 8001 | Type: 500Poly

Comments:

Preservatives: COOL

Requested Analysis: EPA 130.2, EPA 160.1, EPA 160.2, EPA 300.0, EPA 310.2, EPA 120.1

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 130.2	EPA 160.1	EPA 160.2	EPA 300.0	EPA 310.2	EPA 120.1
11	04/18/2011 00:00	FB	1111003011		Water	A	1	A	A	A	A	A	A
12													
13													
14													
15													
16													
17													
18													
19													
20													

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[illegible]	4/20/11 1013	R-331 70	Storage
R33-1pm	04/25/11 08:30	Rosemary H. Hanks	160.1, 160.2, 310.2, 120.1
Rosemary H. Hanks	04/25/11 15:15	R403-1pm	#15
R-403	04/26/11 05:00	[illegible]	Analysis

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task:	Split:	Workorder ID: 1111003
Client: Anderson Engineering Company		Account: 8001
Comments:		

Type: 500Poly

Preservatives: HNO3

Requested Analysis: EPA 200.7, EPA 200.8, SW7470

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 200.7	EPA 200.8	SW7470
1	04/18/2011 00:00	DR-4-SW	1111003001		Water	C	1	C	C	C
2	04/18/2011 00:00	DR-1	1111003002		Water	C	1	C	C	C
3	04/18/2011 00:00	DR-2	1111003003		Water	C	1	C	C	C
4	04/18/2011 00:00	DR-3	1111003004		Water	C	1	C	C	C
5	04/18/2011 00:00	DR-4	1111003005		Water	C	1	C	C	C
6	04/18/2011 00:00	DR-5	1111003006		Water	C	1	C	C	C
7	04/18/2011 00:00	DR-6	1111003007		Water	C	1	C	C	C
8	04/18/2011 00:00	DR-7	1111003008		Water	C	1	C	C	C
9	04/18/2011 00:00	DR-8	1111003009		Water	C	1	C	C	C
10	04/18/2011 00:00	DR-G	1111003010		Water	C	1	C	C	C

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[signature]	4/20/11 1013	R-33-1 7C	Storage
R-33-1 (7C) CH	4/21/11 09:36	metals prep lab CH	metals prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: Icp metals

Lab Notebook No.: Metrowpl

Prepared / Analyzed by: [signature]

Date / Time: 4/23/11 0930

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Metlab WS	4/23/11 1400	ICP lab WS	analysis

Wednesday, April 20, 2011 9:22:10 AM

ALSCOCV2.2

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task: | Split: | Workorder ID: 1111003

Client: Anderson Engineering Company | Account: 8001 | Type: 500Poly

Comments:

Preservatives: HNO3

Containers

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	ID(s)	Count	EPA 200.7	EPA 200.8	SW7470
11	04/18/2011 00:00	FB	1111003011		Water	C	1	C	C	C
12										
13										
14										
15										
16										
17										
18										
19										
20										

Requested Analysis

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[illegible]	4-20-11 1613	R-33-1 TC	Storage
R-33-1 (TC) CH	4/21/11 09:36	metals prep lab CH	metals prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: Icp metals

Lab Notebook No.: Network

Prepared / Analyzed by: [illegible]

Date / Time: 4/23/11 0930

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
metals lab wr	4/23/11 1100	Icp lab wr	ANALYSIS

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task: | Split: | Workorder ID: 1111003

Client: Anderson Engineering Company | Account: 8001

Comments:

Type: 1000Poly

Preservatives: HNO3

Requested Analysis: EPA 200.7, EPA 200.8, SW7470

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 200.7	EPA 200.8	SW7470
1	04/18/2011 00:00	DR-4-SW D	1111003012		Water	A	1	A	A	A
2	04/18/2011 00:00	DR-1 D	1111003013		Water	A	1	A	A	A
3	04/18/2011 00:00	DR-2 D	1111003014		Water	A	1	A	A	A
4	04/18/2011 00:00	DR-3 D	1111003015		Water	A	1	A	A	A
5	04/18/2011 00:00	DR-4 D	1111003016		Water	A	1	A	A	A
6	04/18/2011 00:00	DR-5 D	1111003017		Water	A	1	A	A	A
7	04/18/2011 00:00	DR-6 D	1111003018		Water	A	1	A	A	A
8	04/18/2011 00:00	DR-7 D	1111003019		Water	A	1	A	A	A
9	04/18/2011 00:00	DR-8 D	1111003020		Water	A	1	A	A	A
10	04/18/2011 00:00	DR-G D	1111003021		Water	A	1	A	A	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[signature]	4/20/11 10:13	R-33-1 7C	Storage
R-33-1 (7C) CH	4/21/11 09:36	metals prep lab CH	metals prep
Metals Prep Lab LB	04/26/11 09:30	ICP-MS Lab LB	200.8

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task: | Split: | Workorder ID: 1111003

Client: Anderson Engineering Company | Account: 8001 | Type: 1000Poly

Comments:

Preservatives: HNO3

Requested Analysis: EPA 200.7, EPA 200.8, SW7470

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 200.7	EPA 200.8	SW7470
11	04/18/2011 00:00	FB D	1111003022		Water	A	1	A	A	A
12										
13										
14										
15										
16										
17										
18										
19										
20										

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[illegible]	4/20/11 10:15	R-33-1 TC	Storage
R-33-1 (TC) CH	4/21/11 09:36	metals prep lab CH	metals prep
Metals Prep Lab KB	04/26/11 08:30	ICP-MS Lab KB	200.8

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task:	Split:	Workorder ID: 1111003
Client: Anderson Engineering Company		Account: 8001
Comments:		

Type: 500Poly

Preservatives: COOL

Requested Analysis: EPA 130.2, EPA 160.1 ✓, EPA 160.2 ✓, EPA 300.0, EPA 310.2 ✓, EPA 120.1 ✓

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 130.2	EPA 160.1	EPA 160.2	EPA 300.0	EPA 310.2	EPA 120.1
1	04/18/2011 00:00	DR-4-SW	1111003001		Water	A	1	A	A	A	A	A	A
2	04/18/2011 00:00	DR-1	1111003002		Water	A	1	A	A	A	A	A	A
3	04/18/2011 00:00	DR-2	1111003003		Water	A	1	A	A	A	A	A	A
4	04/18/2011 00:00	DR-3	1111003004		Water	A	1	A	A	A	A	A	A
5	04/18/2011 00:00	DR-4	1111003005		Water	A	1	A	A	A	A	A	A
6	04/18/2011 00:00	DR-5	1111003006		Water	A	1	A	A	A	A	A	A
7	04/18/2011 00:00	DR-6	1111003007		Water	A	1	A	A	A	A	A	A
8	04/18/2011 00:00	DR-7	1111003008		Water	A	1	A	A	A	A	A	A
9	04/18/2011 00:00	DR-8	1111003009		Water	A	1	A	A	A	A	A	A
10	04/18/2011 00:00	DR-G	1111003010		Water	A	1	A	A	A	A	A	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[illegible]	4.20.11 1013	R-33-1 7D	Storage
R33-1 pm	04/25/11 08:30	Rosemary H. Hanks	160.1, 160.2, 310.2, 120.1
Rosemary H. Hanks	04/25/11 08:15	R403-1 pm	#15
R-403, pm	04/26/11 05:30	[illegible]	Autoclave
[illegible]	04/26/11 08:30	Rosemary H. Hanks	130.2 / WL
Rosemary H. Hanks	04/26/11 12:15	R403-1 pm	#15

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task:	Split:	Workorder ID: 1111003
Client: Anderson Engineering Company		Account: 8001
Comments:		

Type: 500Poly

Preservatives: COOL

Requested Analysis

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 130.2	EPA 160.1	EPA 160.2	EPA 300.0	EPA 310.2	EPA 120.1						
11	04/18/2011 00:00	FB	1111003011		Water	A	1	A	A	A	A	A	A						
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[illegible]	4/20/11 1013	R-33-1 7D	Storage
R33-1 pm	04/25/11 08:30	Rosemary H. Hands	160.1, 160.2, 310.2, 120.1
Rosemary H. Hands	04/25/11 18:15	R403-1 pm	#15
R-403 pm	04/26/11 05:[illegible]	[illegible]	Auto
[illegible]	04/26/11 08:30	Rosemary H. Hands	130.2/WL
Rosemary H. Hands	04/26/11 12:15	R403-1 pm	#15

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task: | Split: | Workorder ID: 1111003

Client: Anderson Engineering Company | Account: 8001

Comments:

Type: 500Poly

Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 130.2	EPA 160.1	EPA 160.2	EPA 300.0	EPA 310.2	EPA 120.1
									✓	✓		✓	✓
1	04/18/2011 00:00	DR-4-SW	1111003001		Water	A	1	A	A	A	A	A	A
2	04/18/2011 00:00	DR-1	1111003002		Water	A	1	A	A	A	A	A	A
3	04/18/2011 00:00	DR-2	1111003003		Water	A	1	A	A	A	A	A	A
4	04/18/2011 00:00	DR-3	1111003004		Water	A	1	A	A	A	A	A	A
5	04/18/2011 00:00	DR-4	1111003005		Water	A	1	A	A	A	A	A	A
6	04/18/2011 00:00	DR-5	1111003006		Water	A	1	A	A	A	A	A	A
7	04/18/2011 00:00	DR-6	1111003007		Water	A	1	A	A	A	A	A	A
8	04/18/2011 00:00	DR-7	1111003008		Water	A	1	A	A	A	A	A	A
9	04/18/2011 00:00	DR-8	1111003009		Water	A	1	A	A	A	A	A	A
10	04/18/2011 00:00	DR-G	1111003010		Water	A	1	A	A	A	A	A	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[illegible]	4-20-11 1013	R-33-1 70	Storage
R33-1 [illegible]	04/25/11 09:30	Rosemary H. Hawks	160.1, 160.2, 310.2, 120.1
Rosemary H. Hawks	04/25/11 18:15	R403-1 [illegible]	#15
R-403 [illegible]	04/26/11 05:30	[illegible]	Autoc
[illegible]	04/26/11 08:30	Rosemary H. Hawks	130.2 / WL
Rosemary H. Hawks	04/26/11 12:15	R403-1 [illegible]	#15

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task: | Split: | Workorder ID: 1111003

Client: Anderson Engineering Company | Account: 8001

Comments:

Type: 500Poly

Preservatives: COOL

Requested Analysis

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 130.2	EPA 160.1	EPA 160.2	EPA 300.0	EPA 310.2	EPA 120.1						
11	04/18/2011 00:00	FB	1111003011		Water	A	1	A	A	A	A	A	A						
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[illegible]	4/20/11 1013	R-33-1 7D	Storage
R33-1 pm	04/25/11 08:30	Rosemary H. Hanks	160.1, 160.2, 310.2, 120.1
Rosemary H. Hanks	04/25/11 18:15	R403-1 pm	#15
R-403 pm	04/26/11 05:30	[illegible]	Analysis
[illegible]	04/26/11 08:30	Rosemary H. Hanks	130.2/WL
Rosemary H. Hanks	04/26/11 12:15	R403-1 pm	#15

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task: | Split: | Workorder ID: 1111003

Client: Anderson Engineering Company | Account: 8001

Comments:

Type: 1000AG

Preservatives: NaOH4C

Containers

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	ID(s)	Count	EPA 335.4 w/Micro Dist
1	04/18/2011 00:00	DR-4-SW D	1111003012		Water	B	1	B
2	04/18/2011 00:00	DR-1 D	1111003013		Water	B	1	B
3	04/18/2011 00:00	DR-2 D	1111003014		Water	B	1	B
4	04/18/2011 00:00	DR-3 D	1111003015		Water	B	1	B
5	04/18/2011 00:00	DR-4 D	1111003016		Water	B	1	B
6	04/18/2011 00:00	DR-5 D	1111003017		Water	B	1	B
7	04/18/2011 00:00	DR-6 D	1111003018		Water	B	1	B
8	04/18/2011 00:00	DR-7 D	1111003019		Water	B	1	B
9	04/18/2011 00:00	DR-8 D	1111003020		Water	B	1	B
10	04/18/2011 00:00	DR-G D	1111003021		Water	B	1	B

Requested Analysis

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[signature]	4-20-11 1013	R-33-1 7B	Storage
R-33-1 7B LH	04/23/11 2030	WET LAB LH	CN ANALYSIS
WET LAB LH	04/24/11 0535	R-403-1 #9	STORAGE

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Laboratory Group

CHAIN-OF-CUSTODY

Project / Job / Task: | Split: | Workorder ID: 1111003

Client: Anderson Engineering Company | Account: 8001 | Type: 1000AG

Comments:

Preservatives: NaOH-4C

Requested Analysis: EPA 335.4 w/Micro Dist

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 335.4 w/Micro Dist
11	04/18/2011 00:00	FB D	1111003022		Water	B	1	B
12								
13								
14								
15								
16								
17								
18								
19								
20								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Moon, Boone C.	04/19/2011 10:27	ALS Sample Receiving	Sample Login
[illegible]	4-20-11 1013	R-33-1 7B	Storage
R-33-1 7B LH	04/23/11 2030	WET LAB LH	CN ANALYSIS
WET LAB LH	04/24/11 0535	R-403-1 #9	STORAGE

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS LABORATORY GROUP SALT LAKE CITY CLIENT-RELATED INFORMATION REPORT (CRIR)

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: Anderson Engineering

Project/Task/Site: 111003

Date/Time of Receipt: 4.19.11 1027

Number of Coolers Received: 2

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Custody Seals:	Present/Absent/NA	Location Temp Taken:	Control/Between Samples
	Intact/Broken/NA	Are all temperatures within	
Tamper Evident:	Yes/No/NA	project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA	Are all applicable pHs within	
	Frozen/Melted/NA	specific guidelines?	Yes/No/NA

PH Check:						
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	ALS Cooler No.	Temp.	Cooler Received	ALS Cooler No.	Temp.	Cooler Received	ALS Cooler No.	Temp.
1	C11- 76910	17 °C	4	C11-	°C	7	C11-	°C
2	C11-	°C	5	C11-	°C	8	C11-	°C
3	C11-	°C	6	C11-	°C	9	C11-	°C

Taken By: [signature] (Signature) Boone Moon (Printed Name) 4.19.11 (Date)

CLIENT-RELATED INFORMATION

- ☐ Missing Cooler
- ☐ Cooler Conditions
- ☐ Missing Paperwork
- ☐ Missing/Incorrect Bottle labels
- ☐ Missing Samples/Bottles
- ☐ Broken/Leaking Samples
- ☐ Incorrect Bottle Type
- ☐ Cooler Temperatures Out of range
- ☐ Incorrect Preservation
- ☐ pH Criteria Not Met
- ☐ Head Space in Bottles
- ☐ Insufficient Sample Volume
- ☐ Chain of Custody Problems
- ☐ Other:

EPA Custody Seal:

BRIEFLY DESCRIBE THE PROBLEM AND THE ACTION TAKEN: Client drop off

Faxed to Client? YES ☐ NO ☐ (if yes, attach Fax Cover Sheet)

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

Appendix G

Field Photos

Cross Section at Station DR-2

Cross Section at Station DR-5

Cross Section at Station DR-7

Cross Section at Station DR-4-SW

Cross Section at Station DR-G

Parshall Flume at St. Louis Adit (North Flume)

Parshall Flume at Pond System Outfall (South Flume)

Water Sampling

Appendix H

Field Log Book Records

4/8/11 Friday

530 travel to Rico

630 Learn Equipment

700 south flume

Depth 6.5"

pH 6.38

Temp 5.7°C

Conductivity µS 1364

Dissolved Ox 8.23 ppm

Temp 10.7C

S 684

TDS

Friday

6.69

5.2

1382

70.1 % / 7.40 mg/L

6.9C

677 ppm

961 mg/L

Friday

825 North Flume
Depth 7.00"
pH 6.63
Temp 15.1 C
Conductivity µS 1301
Salinity .654
TDS 919 ppm

Dissolved Ox .560
Tem 8.3C

Friday

946 mg/L

5.66

900 Travel to SLC
300 SLC

CONTENTS

PAGE	REFERENCE	DATE

4/15/11 Rico Clear 30

915	GW = EB-2	15.61
	GW = TP-B	14.80
	GW = GW-6	11.72
	GW - 5	19.73
	GW - 7	20.81
950	GW - 4	9.60

North Flume

Conductivity µs 1245

TDS 945 ppm 925 mg/l

pH 6.75

(5) Salinity 710 6.75

Temp 20.3

Depth 6 1/4

Dis Ox 14.75 ppm 137.7

4-15-11

- Station DR-1

Velocity - 4.01 4.1 3.63 3.8
3.81 3.28 - OK TO ENTER

Flow ~~East~~ West
0.05 1.66 2.30 0.10 4.07
2.06 .50 (sediment) .96 2.84
- West

WATER SAMPLE COLLECTED 1:30 PM
BY S. COSPER (DH) ; M. DEFRIEZ (CH)

FLOW MEASUREMENTS START 1:35 PM
BY T. BARBEE COMPLETE AT 4:10

FIELD MEASUREMENTS

DO - 1.31 ppm
pH - 7.9
Temp 8.70 C
EC 483 µS

X-SECTION BY GPS - SEE DOWNLOAD
BY T. BARBEE

4-15-11

- STATION DR-5

Velocity in River (ft/s)
East → 0.61 West
Other flows: 1.75 ft/s, 2" deep, 2' wide
1.0 ft/s, 4" deep, 2' Wide

Water Sample Collected -
by S. Cosper (DH); M. Defriez (CH)
Flow measurement by / Start: 4:10 pm
T. Barbee / Complete 3:20 pm

Field Measurements
DO - 3.99 ppm
pH : 7.55
Temp: 12.1°C
EC : 1240 µS

X-section by GPS - See download
by T. Barbee

4-15-11

DR-2

Velocity F/S - East 0.39 0.47 0.91

0.75 1.75 1.65 1.75 1.42 1.96

Center

1.88 0.93 1.25

West

Field Measurements

DO - 1.07 ppm

PH - 7.72

Temp. 10.4°C

EC - 263 µS

Water Sample Collected - 4:00 pm
by M. DeFriez (CH) and S. Cosper (DH)
Flow measurement by T. Barbee

X-section by GPS - see download
by T. Barbee

4-15-11

~~velocity~~ DR-7

Velocity F/S - East 0.34 0.32 0.40

0.34 1.22 1.60 1.39 1.15

Center

.85 1.08 1.07 .62 .26

West

Field Measurements

Do 1.09 ppm

pH 7.46

Temp: 9.96

EC 341 µS

Water Sample Collected - 5:00 pm
by S. Cosper (DH) and M. DeFriez (CH)
Flow Measurement by T. Barbee

X-Section by GPS - see download
by T. Barbee

4-15-11
DR-4-SW

Velocity F/s - East 0.33 0.47 3.54
3.27 3.35 2.21 3.40
1.31 1.66 2.00 2.79
1.74 1.59
West

Field Measurements
DO - 1.11 ppm
pH ~~7.46~~ 7.12
Temp 8.4 °C
EC 307 µS

Water Sample Collected - 6:05pm
by S. Cosper (DH) and M. DeFriez (CH)
Flow Measurements by T. Barbee

X-section by GPS - see download
by T. Barbee

4-15-11
DR-G

Velocity F/s East 1.13 1.58 2.66
Center → A
2.71 1.55 2.25 [3.79] 2.32
2.77 4.45 1.83 2.29 1.07
2.14 1.07 0.06

Field Measurements
DO 1.21
pH 7.65
Temp 8.1°C
EC 318µS

Water Sample Collected - 7:30pm
by S. Cosper (DH) and M. DeFriez (CH)
Flow Measurements by T. Barbee

X-Section by GPS - see download
by T. Barbee

4-16-11
Station DR-3 St. Louis Adit discharge

~~Field test done by Tim, MD~~
~~See previous pages~~

Field Measurements
DO 0.64 ppm
pH 6.82
Temp 15.2°C
EC 1194 µS

~~Coll~~ Water Sample Collected - 8:55am
by S. Cosper (DH) and M. DeFriez (CH)

4-16-11
Station DR-8 (Duplicate of DR-3)

*Station DR-8 is a duplicate sample of the sample taken at station DR-3

Field Measurements
DO 0.64 ppm
pH 6.82
Temp 15.2°C
EC 1194 µS

Water Sample Collected - 9:10 am
by S. Cosper (DH) and M. DeFriez (CH)

4-16-11
Station: FB

Field Measurements - 9:30 am
Do 4.22 ppm
pH 7.03
Temp 4.8°C
EC 0.0 µS

4-16-11
DR-4 - Pond 15 discharge pipe
Velocity readings F/s Pipe1 6.36 4.23
6.17 3.36 5.83 F/s 4.14 6.98

Pipe1 diameter: 15"
water - 3" deep
Pipe2 diameter: 15" water - 2" deep
Field Measurements
DO .94
pH 7.61
Temp °C
EC 1209 µS

Velocity Pipe2 F/s 4.17 3.58 3.27 3.39
2.98 3.31 2.52

Water Sample Collected by S. Cosper (DH)
and M. DeFriez (CH) - 10:16 am
Flow Measurements by M. DeFriez

4-16-11
Station DR-6 System outfall
Channel width: 4'
Water level in channel: 4.5"
Velocity of channel FPS: .81 .78
.75 .81 .77 .69
~~Field Chemistry~~
Field Measurements:
DO 1.20
pH 6.98
Temp 9.2°C
EC 1281 µS

Water Sample Collected by S. Cosper (OH) and M. DeFriez (CH) - 11:05 am
Flow Measurements by M. DeFriez

4/19/2011

PROJECT: RICO PONDS

WELL MEASUREMENTS

1. GW-7 FROM TOP OF LIP:
~~20.67~~ 20.66 FT

2. GW-6 FROM TOP OF LIP:
21.15 FT

3. GW-5 FROM TOP OF LIP:
19.50 FT

4. GW-4 FROM TOP OF LIP:
9.48 FT

5. EB-2 FROM TOP OF LIP:
15.37 FT

9/19 RICO PONDS

PARSHALL FLUME NORTH:

1.4 FT DOWN FROM 2 FT MARK
= 0.6 FT DEPTH OF WATER.

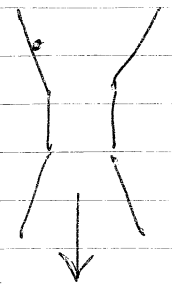
STAGING DOLORES RIVER

STAGE #1

TOP MARKER = 6.29, 6.29
6.29
6.29

WATER SURFACE = 8.76
8.80
8.78
8.78

PARSHALL FLUME AT SHACK



1.88 FT DOWN FROM LIP.

0.63 FT.

STAGE #2

TOP MARKER = ~~5.27~~ 5.29
5.29
5.29

WATER SURFACE = ~~10.56~~
10.60
10.59
10.59

STAGE #3 AT BRIDGE

TOP MARKER = 5.05
5.06
5.06

WATER SURFACE = 8.90
8.89
8.90

STAGE #4

TOP MARKER = 4.90
4.90
4.89

WATER SURFACE = 7.13
~~7.13~~ 7.12
7.12

STAGE 5 SOUTH END

TOP MARKER = 4.15
~~4.17~~
4.15

WATER SURFACE = ~~7.67~~
7.71
7.71

4/16
32° SNOW

RIVER STAGE #1

MARKER 5.99

WS 8.74

RIVER STAGE 2

MARKER = 5.45
WS = 11.02

RIVER STAGE 3

MARKER = ~~4.90~~ 5.32
WS = ~~8.59~~ 7.27

RIVER STAGE 4

MARKER = 5.47
WS = 8.85

RIVER STAGE 5

MARKER = 5.19
WS = 8.73

TOP FLUME

DEPTH OF FLOW = 1.92 TOL
1.43 FROM 2' MARK = .57

DO .63
Ph 7.02 6.88
T ~~13.2~~ 17.7
C ~~137~~ ~~606~~ 1241

BOTTOM FLUME

Depth of Flow = 1.85 TOL = .66

DO 1.12
Ph 6.8
T 7.7°C
C 1217 1145

4/26

GROUND WATER WELLS

1. GW-7 TOP OF LIP
20.36

2. GW-6 TOP OF LIP
20.9

3. GW-5 TOP OF LIP
19.19

4. GW-4 TOP OF LIP
9.38

5. EB-2 TOP OF LIP
15.15