

Appendix 41.A

Navajo Mine: Mine Spoil Leachate Test Analyses

**NAVAJO MINE: MINE SPOIL LEACHATE
TEST ANALYSES**

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1 INTRODUCTION

This document has been prepared to provide results of mine spoil leaching tests performed to support the Probable Hydrologic Consequences (PHC) assessment of the planned placement of spoil generated from the mining of coal at the Navajo Mine. The mine spoil is the non coal overburden and interburden materials removed to allow access to the coals of the Fruitland Formation. The spoil is generally rock of varying sizes. Placement of spoil within the mine pit as backfill is an accepted practice for handling of the spoils and necessary to achieve approximate original contour requirements for mine reclamation. The probable hydrologic consequences of placement of spoil materials for mine backfill is dependent on the hydrologic properties of mine spoil, the surface and groundwater conditions at the mine following reclamation and the inorganic chemistry of mine spoil including the potential for leaching or adsorption of constituents of concern.

A spoil testing program was completed to generate the information on spoil properties and leaching characteristics. The resulting information is used to support the PHC assessment for proposed spoil placement as mine backfill at the Navajo Mine. The spoils used for testing in this study were collected from the Area III mine spoils. The same coal units mined at Area III will be mined at Area IV so the interburden and overburden rock characteristics are expected to be essentially the same between the two areas.

2 MINE SPOIL TESTING PROGRAM

The following discussion summarizes the sampling and testing procedures followed in this study in order to provide a background and understanding for interpreting the results presented in Section 3.

2.1 COLLECTION OF REPRESENTATIVE SAMPLES

The geochemical testing was conducted using available materials that are representative of expected mine spoil in Area IV. Representative samples of backfill spoils from Area III were obtained and used for the testing. Likewise a composite coal water samples from wells completed in the upper and lower coal seams at Area IV were obtained for the spoil leaching test study.

2.1.1 Mine Spoil Samples

Composite spoil samples were obtained from the Navajo Mine Area III in accordance with the regraded spoil sampling plan. Samples were collected on a 2.5-acre (ac) square grid. The 2.5-acplot was divided into four equal subplots (0.625 ac each). A four-foot deep sample pit was then excavated in the center of each subplot. In order to obtain a representative sample of composite spoil material, sub-samples were collected over the interval from zero to four feet at each of the four subplot locations and one composite sample was prepared from the four sub-samples. The composite sample was be comprised of a minimum of 2 kg of spoil material and was split in the field using a corner to corner sampling technique (USDA-NRCS 1996).

Composite samples were collected, following the same procedure, at three additional 2.5-ac plot locations. Solids analysis was conducted on sample splits from each of the four 2.5-acre grid locations. The other split samples from the four 2.5-ac plots were combined and mixed to form a single composite sample of approximately 4 kg. This composite sample and the four splits were sent to the laboratory for geochemical testing.

The four individual sample splits were analyzed for trace metals and major ions in order to characterize the broad spatial variability in spoil material. The composite sample was mixed again in the lab and reduced in particle size as required by EPA Method 1312. Three subsamples of the composite sample were obtained for chemical and mineralogical analysis.

2.1.2 Groundwater Samples

A composite sample of coal water was obtained from equal proportions of water extracted from the No. 8 coal seam well KF-2007-01 and from the No. 3 coal seam well KF-98-02 located within Area IV. Two 5-gallon containers of coal water sample were obtained from each well. The 5-gallon containers were sent to the laboratory, where composite coal water was prepared for use

in the batch tests. Two duplicate samples were obtained from the composite coal water and submitted for chemical analysis.

2.2 LABORATORY LEACHING TEST PROCEDURES

The leaching tests were conducted using the EPA Synthetic Precipitation Leaching Procedure (SPLP, SW-846 Method 1312), the Synthetic Groundwater Leaching Procedure (SGLP), and modifications of these tests. Modifications to the standard test were performed to address site specific conditions. The modifications were as follows:

1. Use of leaching fluids that are appropriate to the site through collection of groundwater samples in addition to the synthetic rainwater that is specified in the SPLP method.
2. Inclusion of a 45-day leach test in addition to the method specified 18-hour leaching procedure, in order to assess the impacts of longer exposure to the leachant.
3. For the 45-day leach test, it was not practical for the laboratory to tumble the sample for the entire period. Thus the procedure was modified to include periodic 18-hour tumble of the sample: at the start of the test, after 15-days, after 30 days and with a final 18-hour tumble at the end of the 45-day period. The periodic tumbling was followed by an extended period of time during which the solids remain in contact with the fluid without tumbling intended to provide an indication of any leaching changes due to mineral aging, hydrolysis, and or diffusion.

Proposed leaching procedures consist of the following components. The leachate name as used in the discussions in Section 3 is included in bold in the discussion below.

1. A sequence in which spoil was leached in duplicate (18-hr tests) with coal well water (**Spoil Leachate 1 and Spoil Leachate 1 DUP**). Analyses of all leachates were performed, providing a duplicate analysis of the spoil leaching and a single analysis of the final leach with spoil-exposed coal water.
2. A test in which spoil is exposed to coal water for 45 days according to the long-term leaching procedure described above (**Spoil 45-Day**).
3. 18-hour leaching tests of spoil using the synthetic leaching fluid described in the SPLP (**Spoil SPLP**).

2.3 SOLIDS ANALYSES

The spoil composites were analyzed using Rietveld XRD for mineral identification, total metals analysis for major element identification, and cation exchange capacity (CEC) for determining the amount of exchange of cations between solution and solids. As discussed in Section 2.2.1, the spoil composites are comprised of samples collected from spoil backfill from the Navajo Mine Area III.

Solids analysis was performed on sample splits from each of the four composite samples from the 2.5-ac grid locations. The individual sample splits (four samples) were analyzed for total trace metals and major ions in order to characterize the broad spatial variability in spoil material. The other split samples from the four 2.5-ac plots were combined and mixed to form a single composite sample of spoil material that was used for the leaching tests. Three splits of this composite spoil sample were taken for replicate for chemical and mineralogical analysis in order to assess homogeneity of the composite spoil sample. The four individual sample split results are contained in Attachment A and Attachment B. The following discussions focus on the three splits analyzed for the mixed composite sample discussed above.

2.3.1 Rietveld X-ray Diffraction Results

Rietveld XRD analysis was carried out in triplicate for the spoil composite samples at the Department of Earth and Ocean Sciences, The University of British Columbia, Vancouver, British Columbia under the direction of Professor Mati Raudsepp. The laboratory results are provided in Attachment A.

A summary of the Rietveld XRD data for the composite spoil sample is presented in Table 2-1. The spoil composite samples were analyzed in triplicate and the results summarized in Table 2-1 as Spoil A, Spoil B and Spoil C indicate good reproducibility. The spoils contain a large amount of amorphous material with no definite crystalline structure. The mineralogical composition of the amorphous material is not included in Table 2-1. The spoil samples were modeled by the XRD laboratory to fit a smectite model in order to characterize the amorphous material. These results are provided in Table 2-2. The initial spoil model without a smectite fit indicates that the spoil is primarily comprised of quartz, kaolinite, and K-feldspar with lesser amounts (<5%) of gypsum, anhydrite, and calcite. Fitting the smectite model to the XRD data resulted in additional minerals montmorillonite, albite, and orthoclase. Although gypsum, anhydrite, and calcite were found in smaller relative amounts (<5%) in both interpretative results, their role in reactive chemistry is very important. This is due to their high solubility and relatively quick dissolution and precipitation rates as well as the buffering capacity of calcite on pH where pH controls the sorption of trace metals and other potentially important constituents.

TABLE 2-1.
RESULTS OF COMPOSITE MINE SPOIL SAMPLES QUANTITATIVE PHASE ANALYSIS (WT. %)

First Model without Fit to Amorphous Material					
Mineral	Ideal Formula	Spoil A	Spoil B	Spoil C	Average (wt %)
Quartz	SiO ₂	36.5	35.4	35.4	36
Plagioclase	NaAlSi ₃ O ₈ - CaAl ₂ Si ₂ O ₈	10.3	10.1	10.1	10
K-feldspar	KAlSi ₃ O ₈	6	6.5	7	7
Kaolinite	Al ₂ Si ₂ O ₅ (OH) ₄	40.8	40.8	40.6	41
Gypsum	CaSO ₄ ·2H ₂ O	2.6	3.1	2.8	3
Anhydrite	CaSO ₄	0.9	1	1.1	1
Calcite	CaCO ₃	2.9	3.1	2.9	3

TABLE 2-2.
RESULTS OF COMPOSITE MINE SPOIL SAMPLES SMECTITE MODEL QUANTITATIVE PHASE ANALYSIS (WT. %)

Smectite Model Fit to Amorphous Material					
Mineral	Ideal formula	Spoil A	Spoil B	Spoil C	Average (wt %)
Quartz	SiO ₂	29.68	27.56	28.28	29
Calcite	CaCO ₃	0.9	2.03	2.14	2
Gypsum	CaSO ₄ ·2H ₂ O	2.9	3.12	2.69	3
Albite low, calcium	Na _{0.95} Ca _{0.05} Al _{1.05} Si _{2.95} O ₈ , NaAlSi ₃ O ₈	6.41	5.92	6.05	6
Anhydrite	CaSO ₄	0.83	0.67	0.88	1
Orthoclase	KAlSi ₃ O ₈	3.87	2.39	3.32	3
Kaolinite	Al ₂ Si ₂ O ₅ (OH) ₄	11.68	12.08	10.46	11
Montmorillonite	(Na,Ca) _{0.3} (Al,Mg) ₂ Si ₄ O ₁₀ (OH) ₂ ·n(H ₂ O)	43.74	46.24	46.18	45

2.3.2 Total Metals Results

Total metals analysis was carried out in triplicate for the spoil composite samples using method 6010B at Analytica Environmental Laboratories, 12189 Pennsylvania Street, Thornton, Colorado. Laboratory results are provided in Attachment B.

The composite spoil samples were analyzed for metals (Table 2-3) The composite spoils are primarily comprised of Ca, Fe, Al, Na, Mg, and K. There are trace amounts (<1%) of several other trace metals. However, the results for all three analyses indicate As and thallium (Tl) are not present. The major cations also correlate with the primary minerals identified in the Rietveld XRD analyses:

- Ca with gypsum, calcite, and montmorillonite;
- Al with plagioclase, K-feldspar, kaolinite, albite, orthoclase, and montmorillonite;
- Na with plagioclase, albite, and montmorillonite;
- K with K-feldspar and orthoclase; and
- Mg with montmorillonite.

Although relatively high Fe concentrations are observed in the total Fe, no Fe containing minerals were identified in the XRD analyses. The Fe is associated with the non-identifiable amorphous material in the XRD analyses, most likely as amorphous Fe hydroxide. Additionally, siderite has been identified in the literature by Lucas et al. (2006) in the form of sideritic concretions.

2.3.3 Cation Exchange Capacity

The CEC was measured for spoil composites by Colorado Analytical Laboratories, Inc. using EPA method 9081 (US EPA 2007). The laboratory results are provided in Attachment C. Table 2-4 provides a summary of the results. The analyses were carried out for the seven collected spoil samples; including the four individual samples from each plot and the three composited samples.

The CEC value for the spoil samples ranged between 8.7 and 9.9 milli-equivalents per 100 grams (meq/100g) with an average of 9.3 meq/100g. These results indicate the relative ability of spoil materials to sorb and exchange different cations. The CEC is an indicator of major cation and trace metal attenuation the spoil may provide.

TABLE 2-3.TOTAL METALS ANALYSIS RESULTS FOR COMPOSITE SPOIL SAMPLES

Analyte (mg/Kg)	Spoil A			Spoil B			Spoil C			RPD 1	RPD 2	RPD3
	Result	PQL	MDL	Result	PQL	MDL	Result	PQL	MDL			
Al	10000	7.4	1.8	9500	6.8	1.7	9400	7.7	1.9	5%	6%	3%
Sb	0	10	0.58	0.052	9.3	0.52	0.9	11	0.59	-200%	-284%	159%
As	0	12	1.6	0	11	1.5	0	12	1.7			
Ba	170	0.37	0.029	180	0.34	0.026	170	0.38	0.03	-6%	0%	3%
Be	1	0.19	0.0082	1	0.17	0.0075	1	0.19	0.0085	0%	0%	0%
B	13	4.7	0.63	12	4.2	0.57	12	4.8	0.64	8%	8%	5%
Cd	0.64	0.74	0.054	0.63	0.68	0.049	0.59	0.77	0.055	2%	8%	4%
Ca	20000	13	5	22000	12	4.5	20000	13	5.1	-10%	0%	6%
Cr	6.7	1.9	0.28	6	1.7	0.25	6.1	1.9	0.28	11%	10%	6%
Co	11	2.8	0.24	11	2.5	0.22	11	2.9	0.25	0%	0%	0%
Cu	26	0.56	0.15	23	0.51	0.13	24	0.57	0.15	12%	8%	6%
Fe	20000	5.6	0.41	20000	5.1	0.37	20000	5.7	0.42	0%	0%	0%
Pb	16	5.6	0.98	17	5.1	0.89	18	5.7	1	-6%	-12%	6%
Mg	3100	9.3	0.89	2900	8.5	0.81	3000	9.6	0.92	7%	3%	3%
Mn	440	0.93	0.1	430	0.85	0.094	390	0.96	0.11	2%	12%	6%
Mo	0	1.9	0.22	0.0034	1.7	0.2	0	1.9	0.23	-200%	0%	173%
Ni	13	3.7	0.4	13	3.4	0.36	14	3.8	0.41	0%	-8%	4%
K	1900	93	29	1700	85	27	1800	96	30	11%	6%	6%
Se	2.9	9.3	2.3	2.7	8.5	2.1	2.9	9.6	2.4	7%	0%	4%
Na	4000	280	0.95	3900	250	0.86	4100	290	0.98	3%	-3%	3%
Tl	0	19	1.1	0	17	1	0	19	1.1			
V	23	0.93	0.18	22	0.85	0.16	22	0.96	0.19	4%	4%	3%
Zn	62	0.56	0.21	65	0.51	0.19	62	0.57	0.21	-5%	0%	3%
Li	8.6	4.7	0.045	8.2	4.2	0.041	8.1	4.8	0.047	5%	6%	3%
Hg	0.087	0.044	0.0061	0.073	0.044	0.006	0.068	0.044	0.006	18%	25%	13%
Moisture %	7.98	0.0465	0.0093	8.13	0.0465	0.0093	7.87	0.0466	0.00933	-2%	1%	2%

TABLE 2-4.
CATION EXCHANGE CAPACITY LABORATORY RESULTS SUMMARIZED

Sample ID	Sample Name	CEC (meq/100g)
B0711172-2B	123 S 87W 0-4' Spoil	9.7
B0711172-3B	123 S 89W 0-4' Spoil	8.7
B0711172-4B	125 S 88W 0-4' Spoil	9.4
B0711172-5B	120 S 89W 0-4' Spoil	9.0
B0711172-6B	Spoil A	9.0
B0711172-7B	Spoil B	9.6
B0711172-8B	Spoil C	9.9

3 LEACHATE TEST RESULTS OVERVIEW

3.1 LEACHATE SOLUTIONS

The solutions used as the beginning leachant solutions included groundwater collected and composited from two coal monitoring wells in Area IV and synthetic precipitation prepared in the laboratory. The laboratory water quality analysis reports for beginning leachant solutions and spoil leachate solutions are provide in Attachment D. These results are summarized in Table 3-1. The EPA drinking water standards and health advisories and the Navajo Nation livestock watering and aquatic and wildlife habitat criteria are also included in Table 3-1 for comparison.

Table 3-1 presents all reported values above the Practical Quantitation Limit (PQL) from the laboratory with the exception of quality assurance quality control analyses. The data below the PQL are listed with a “<” sign followed by the PQL value and the detected value. The data below the method detection limit (MDL) are presented with “<<” followed by the MDL. The Navajo Nation aquatic and wildlife habitat chronic criteria for Hg and Pb and the EPA drinking water criteria for antimony Sb, As, and Tl are below the laboratory method MDL while the MDL for Cd of 0.00051 is essentially the same as the Navajo Nation aquatic and wildlife habitat chronic criteria. Additionally, the reported PQL values for Cd, Pb, and Se are above the EPA drinking water criteria. Detected values below the PQL are included in Table 3-1 with the reported value listed in the table after the PQL value. However, the PQL is the lowest level of quantification that a laboratory can reliably achieve based on specified limits of precision and accuracy relating to instrumentation and sample interferences. Thus, the values below the PQL reported in Table 3-1 are not considered reliable and should be considered non-detect.

3.1.1 Synthetic Precipitation Leachate Solution Chemistry

Synthetic precipitation was prepared in the laboratory and used as a surrogate for field site precipitation that could percolate through the backfill and provide recharge to groundwater and potentially surface water discharge. The prepared solution is highly purified water with strong solvating properties. The water quality for the synthetic precipitation solution is presented in Table 3-1 under the heading “Initial Synthetic Precipitation”.

**TABLE 3-1.
BATCH LEACHING TEST RESULTS**

Analyte (mg/L)	EPA Drinking Water Criteria	Aquatic & Wildlife Habitat (Acute) ¹	Aquatic & Wildlife Habitat (Chronic) ¹	Livestock (LW) ¹	Initial Coal Water Sample	Initial Coal Water DUP	Initial Synthetic Precipitation	Spoil SPLP	Spoil 45-Day	Spoil Leachate	Spoil Leachate Dup
Al ³		0.750 mg/L	0.087 mg/L	NCNS	0.13	0.14	0.056	< 0.05, 0.021*	0.38	0.29	0.3
Sb	0.0056				<< 0.0067	<< 0.0067	<< 0.0067	<< 0.0067	<< 0.0067	<< 0.0067	<< 0.0067
As	0.01	0.340 mg/L D	0.150 mg/L D	0.200 mg/L	<< 0.015	<< 0.015	<< 0.015	<< 0.015	<< 0.015	<< 0.015	<< 0.015
Ba	1	NCNS	NCNS	NCNS	0.093	0.088		0.07	0.079	0.25	0.2
Be	0.004				< 0.001, 0.00019*	< 0.001, 0.00013*	< 0.001, 0.00006*	< 0.001, 0.00003*	< 0.001, 0.00011*	< 0.001, 0.0002*	< 0.001, 0.00014*
HCO ₃					1300	1200		33	960	1000	1000
B	0.63	NCNS	NCNS	5.0 mg/L D	0.31	0.29		0.084	0.36	0.44	0.45
Cd ²	0.005	0.005	0.0005	0.05 mg/L	<< 0.00051	<< 0.00051	<< 0.00051	<< 0.00051	<< 0.00051	< 0.006, 0.00087*	<< 0.00051
Ca					3.4	3.3	0.27	150	56	64	69
CO ₃					260	300	10	14	< 7, 0*	< 7, 0*	< 7, 0*
Cl	250				710	700		1.5	600	610	610
Cr (III + VI) ²	0.1	1.2	0.156	1.0 mg/L	< 0.01, 0.003*	< 0.010, 0.0037*	< 0.01, 0.00003*	< 0.01, 0.0018*	< 0.01, 0.0039*	< 0.01, 0.001*	< 0.01, 0.00036*
Co		NCNS	NCNS	1.0 mg/L D	< 0.005, 0.0014*	< 0.005, 0.0011*	< 0.005, -0.00011*	< 0.005, 0.0015*	< 0.005, 0.0015*	< 0.005, 0.0029*	< 0.005, 0.0023*
Cu	1.3	0.032	0.019	0.5 mg/L D	< 0.005, 0.0019*	< 0.005, 0.0019*	< 0.005, 0.0067*	< 0.005, -0.00088*	0.053	< 0.005, 0.0022*	< 0.005, 0.0026*
F	2	NCNS	NCNS	NCNS	2.4	2.5	0.0067	0.54	1.5	1.6	1.6
Fe	0.3				0.067	0.073	< 0.05, 0.0011*	< 0.05, 0.0013*	< 0.05, 0.03*	0.17	0.18
Pb	0.015	0.171	0.007	0.100 mg/L	<< 0.011	<< 0.011	<< 0.011	<< 0.011	<< 0.011	<< 0.011	<< 0.011
Li					< 0.1, 0.08*	< 0.1, 0.073*	< 0.1, -0.0012*	< 0.1, 0.032*	0.11	0.1	0.1
Mg					1.3	1.2		15	12	13	13
Mn	0.05 ³				< 0.01, 0.0095*	< 0.01, 0.0076*	< 0.01, 0.00055*	0.19	0.098	0.11	0.1
Hg	0.002	0.0024 mg/L	0.000001 mg/L	NCNS	<< 0.00005	<< 0.00005	<< 0.00005	<< 0.00005	<< 0.00005	< 0.00024, 0.0001*	< 0.0002, 0.00008*
Mo		NCNS	NCNS	NCNS	0.012	< 0.01, 0.0097*	< 0.01, -0.00038*	< 0.01, 0.00038*	0.015	0.014	0.014
Ni	0.61	1.011	0.112	NCNS	< 0.04, -0.00023*	< 0.04, 0.0011*	< 0.04, 0.00059*	< 0.04, -0.0011*	< 0.04, 0.0038*	< 0.04, 0.0029*	< 0.04, 0.0015*
pH (standard units)	6.5 - 9.0	6.5 - 9.0	6.5 - 9.0	6.5 - 9.0	9	8.9	5	7.5	8	8	7.9
K					11	10	< 1, -0.41*	7	14	14	14
Se	0.05	0.033 mg/L	0.002 mg/L	0.05 mg/L	<< 0.026	<< 0.026	<< 0.026	<< 0.026	<< 0.026	<< 0.026	<< 0.026
Ag	0.035	0.0154	NCNS	NCNS	< 0.015, 0.0022*	< 0.015, 0.0026*	< 0.015, 0.0011*	< 0.015, -0.00039*	< 0.015, 0.0025*	< 0.015, 0.0019*	< 0.015, -0.00068*
Na					1200	1100	5.7	150	1200	1200	1200
SO ₄	250				300	260	3.4	670	930	970	990
Tl	0.0017	0.700 mg/L D	0.150 mg/L D	NCNS	<< 0.011	<< 0.011	<< 0.011	<< 0.011	< 0.4, 0.014*	<< 0.011	<< 0.011
TDS	500				3100	3000	28	1200	3500	3500	3600
V		NCNS	NCNS	0.100 mg/L D	< 0.01, 0.003*	< 0.01, 0.0031*	< 0.01, -0.0017*	< 0.01, -0.0025*	< 0.01, 0.0015*	< 0.01, 0.0023*	< 0.01, 0.0028*
Zn	5	0.253	0.255	25 mg/L	< 0.005, -0.005*	< 0.005, -0.008*	< 0.005, -0.015*	< 0.005, -0.02*	< 0.005, -0.0089*	< 0.005, 0.0042*	0.0095

¹ Navajo Nation Water Quality Program, 2007, Navajo Nation Surface Water Quality Standards

² Hardness dependent criteria in NN SWQ Standards 2007 calculated based on median hardness for Chinde Arroyo of 248.5 mg/L as CaCO₃. ³ Hardness dependent criteria in NN SWQ Standards 2007 for Cr(III) only

³ pH 6.5 - 9

<< Reported value is less than the MDL

*Above MDL, but below PQL

D - Dissolved; NCNS - no current Navajo standard

NCNS - No Current Numeric Standard

3.1.2 Coal Groundwater Leachate Solution Chemistry

In order to simulate the effects of natural background groundwater interaction and flow through the backfill, batch leachate tests were performed using groundwater collected from the site. The composite groundwater sample was obtained from samples collected from well KF2007-01, completed in the No. 8 coal seam of the Fruitland Formation, and from well KF-98-02, completed in the No. 3 coal seam of the Fruitland Formation. Each sample was combined to form a composite sample for use as the leachant in leachate batch testing. The groundwater from the coal zones and precipitation recharge represent the water sources that are expected to re-saturate the backfill materials after mining. The groundwater quality data for the composite coal water sample is presented in Table 3-1 under the field heading “Initial Coal Water”.

The composite coal groundwater sample results indicate that the groundwater would not be suitable for drinking water due to elevated TDS, chloride, fluoride, and sulfate concentrations above the regulatory standards for drinking water (Table 3-1). The composite coal water sampling results are consistent with the sampling results reported in Appendix 6.G of the PAP for coal monitoring wells in Area III and IV.

3.2 LEACHATE MAJOR ION CHANGES AND TRACE ELEMENT DETECTIONS

The data was plotted and reviewed for overall general geochemical changes between initial groundwater and the final leachates.

3.2.1 Leachate Major Ion Changes

Major ion changes can be observed in the Durov diagram provided in Figure 3-1 and as major ion water types (Table 3-2). The TDS in the leachate from spoil only increases by approximately 500 mg/L from 3,027 mg/L in coal groundwater to approximately 3,525 mg/L in the supernatant. The TDS increases in spoil leachates resulted primarily as a function of leaching of Ca and sulfate. For those tests performed using coal water, the water changes from a Na bicarbonate water-type to a Na sulfate water-type.

For the leaching tests performed using synthetic precipitation, the water changes from a Na bicarbonate water type to a Ca sulfate water type. These results indicate a significant source of sulfate in the spoil materials.

FIGURE 3-1. DUROV DIAGRAM OF SPOIL LEACHATE ANALYSES AND INITIAL WATER COMPOSITIONS

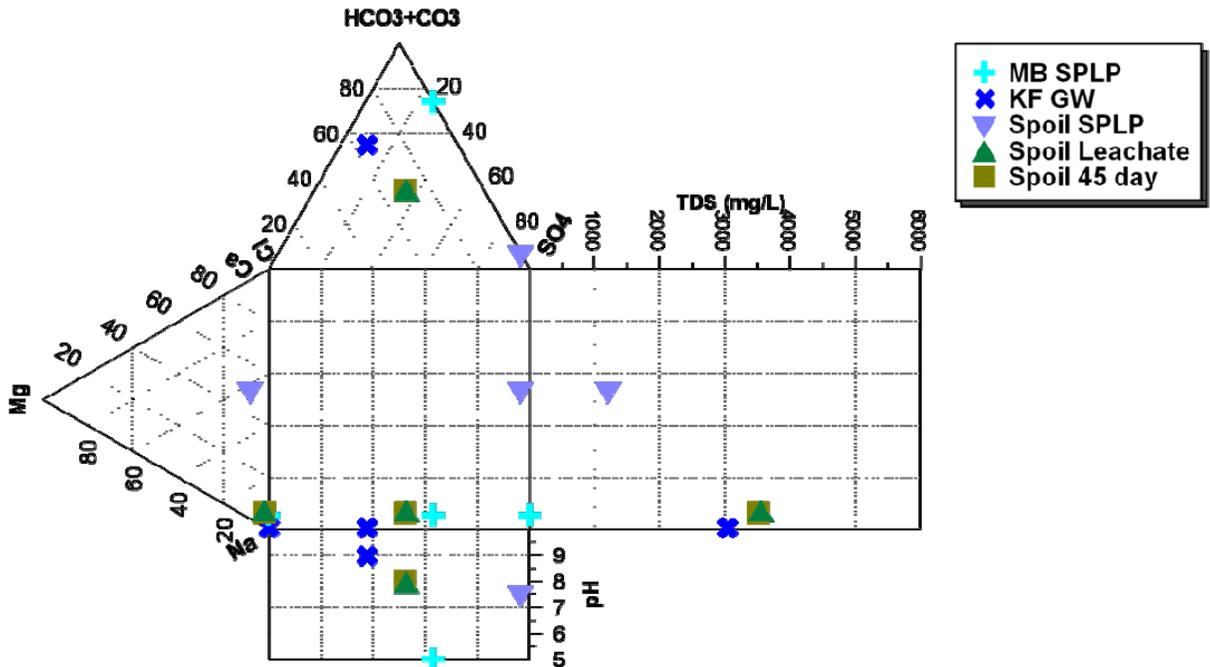


TABLE 3-2. MAJOR ION WATER TYPES

Sample ID	Water Type	Simple Water Type
Initial Synthetic Precipitation	Na-CO ₃ -HCO ₃	Sodium Bicarbonate
Initial Coal Water	Na-HCO ₃ -Cl	Sodium Bicarbonate
Spoil Leachate 1	Na-SO ₄ -HCO ₃ -Cl	Sodium Sulfate
Spoil 45-Day	Na-SO ₄ -HCO ₃ -Cl	Sodium Sulfate
Spoil SPLP	Ca-Na-SO ₄	Calcium Sulfate

As the sulfate is increased both bicarbonate and carbonate in the initial coal groundwater are reduced in spoil leachates. Reduction in carbonate concentrations is reflected by a pH drop from approximately 9.0 in the coal groundwater to 8.0 in the spoil leachates. The sulfate and TDS in all the leachates exceed criteria for the drinking water use .

The EPA secondary drinking water limits for chloride are exceeded in all samples except for SPLP leachate. Additionally, chloride does not increase in value in groundwater leachates and increases from non-detect to 1.5 mg/L in spoil leachate. Chloride is removed in all final leachates

compared to background groundwater when groundwater is used as the initial solution. The loss of chloride is significant (as much as 104 mg/L) and not attributed to sampling or analytical error. Typically, chloride is considered conservative meaning that it is not involved in sorption, oxidation, reduction, or degradation reactions. However, sorption of chloride on soils has been documented in the literature (Yu and Li 1997, Wang et al. 1987, Borggaard 1984). Sorption is a possible mechanism for the removal of chloride in these leachate tests. The leachate test results indicate spoil is not a source of chloride and that chloride is elevated in the natural groundwater at the site.

3.2.2 Leachate Trace Element Detections

Concentrations of Sb, beryllium (Be), Cd, cobalt (Co), Hg, Ni, Pb, Ag, and Tl are at levels reported below the PQL in all samples, while the Pb results for all samples were below the MDL (Table 3-1). Trace elements detected at concentrations above the PQL and above one or more of the relevant water quality criteria are as follows:

- Mn was detected at values above the PQL and above the EPA secondary drinking water criteria in all leachates.
- Zn was found in a duplicate split Spoil Leachate sample. The results for Zn indicate that it is potentially present in trace amounts in both spoil and is spatially variable but significantly below relevant Navajo Nation and EPA water quality criteria.

The reported values for Cd (only in one 18 hour duplicate), Hg, and Tl (only in the 45 day test) are above the MDL but below the PQL and are included in Table 3-1 for comparison with the Navajo Nation and EPA water quality criteria. Since the PQL is the lowest level of quantification that a laboratory can reliably achieve based on specified limits of precision and accuracy relating to instrumentation and sample interferences, the values below the PQL reported in Table 3-1 are not considered reliable and are not considered for further interpretations.

3.2.3 Distribution Ratios

A distribution ratio (K_r) was calculated for Ba and F. The distribution ratio is similar to a sorption isotherm where the concentration in solution is related to the concentration associated with the mass in or on the solid phase. The distribution ratio is defined in equation 3.1.

eq. 3.1
$$K_r = \frac{\text{mass of solute on solid phase per unit mass of solute}}{\text{concentration of solute in solution}}$$

The calculated K_r values (Table 3-3) reflect overall geochemical reactions of sorption and precipitation that result in attenuation of the solutes. As discussed in detail within the literature review section, the pH, redox conditions, temperature, solids characteristics, and the constituents in solution will affect the distribution of solutes on the solid phase. The precipitation of oxides

and oxyhydroxides, such as Fe and Mn oxides, can significantly increase sorption capacity. Thus, as precipitation reactions occur the number of sorption sites also increases providing greater attenuation. The results indicate that the majority of constituents show either no attenuation or are below detection limits such that a value could not be calculated (Table 3-1). However, the spoil showed the ability to attenuate Ba and F. The spoil attenuation was observed for leachate from coal groundwater.

TABLE 3-3.
CALCULATED DISTRIBUTION RATIOS FOR SELECTED TRACE METALS

Analyte	Spoil Leachate	Spoil 45-Day	Spoil SPLP
Al	--	--	BD
As	BD	BD	BD
B	--	--	--
Ba	--	2.91	--
Cr	BD	BD	BD
Cu	BD	--	BD
Fe	--	BD	BD
F	10.63	12.67	--
Mn	--	--	--
Mo	--	--	BD
Se	BD	BD	BD
SO4	--	--	--
V	BD	BD	BD
Zn	--	BD	BD

-- No observed attenuation

BD is below detection limit (PQL)

ATTACHMENT A
Rietveld X-ray Diffraction Laboratory Results

**QUANTITATIVE PHASE ANALYSIS OF TWO POWDER SAMPLES
USING THE RIETVELD METHOD AND X-RAY POWDER DIFFRACTION
DATA.**

Project: NavajoMine Extension Leaching Study – P.O. 62651

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January 18, 2008

EXPERIMENTAL METHODS

The six samples from Project Navajo Mine were reduced to the optimum grain-size range for quantitative X-ray analysis ($<5 \mu\text{m}$) by grinding under ethanol in a vibratory McCrone Micronising Mill for 7 minutes. Fine grain-size is an important factor in reducing micro-absorption contrast between phases.

Step-scan X-ray powder-diffraction data were collected over a range $3\text{-}80^\circ 2\theta$ with $\text{CoK}\alpha$ radiation on a standard Siemens (Bruker) D5000 Bragg-Brentano diffractometer equipped with an Fe monochromator foil, 0.6 mm (0.3°) divergence slit, incident- and diffracted-beam Soller slits and a Vantec-1 strip detector. The long fine-focus Co X-ray tube was operated at 35 kV and 40 mA , using a take-off angle of 6° .

RESULTS

The X-ray diffractograms were analyzed using the International Centre for Diffraction Database PDF-4 using Search-Match software by Siemens (Bruker). X-ray powder-diffraction data were refined with Rietveld program Topas 3 (Bruker AXS). The results of quantitative phase analysis by Rietveld refinements are given in Table 1. These amounts represent the relative amounts of crystalline phases normalized to 100%. The Rietveld refinement plots are shown in Figures 1-6.

The patterns of the three "Spoil" samples show a hump between about 6 and $10^\circ 2\theta$ that likely corresponds to either amorphous or nanoscale material (disordered clays?) we cannot identify. Therefore, the related results must be considerate approximate.

Table 1. Results of quantitative phase analysis (wt. %) – NORWEST Applied Hydrology - Project Navajo Mine

Mineral	Ideal formula	BR3* Composite Spoil A	BR3* Composite Spoil B	BR3* Composite Spoil C	Ash Composite 70% FA	Ash Composite DUP 1 70%FA	Ash Composite DUP 2 70%FA
Quartz	SiO ₂	36.5	35.4	35.4	21.3	26.3	24.8
Plagioclase	NaAlSi ₃ O ₈ – CaAl ₂ Si ₂ O ₈	10.3	10.1	10.1			
K-feldspar	KAlSi ₃ O ₈	6.0	6.5	7.0			
Kaolinite	Al ₂ Si ₂ O ₅ (OH) ₄	40.8	40.8	40.6			
Gypsum	CaSO ₄ ·2H ₂ O	2.6	3.1	2.8	50.1	38.5	45.2
Anhydrite	CaSO ₄	0.9	1.0	1.1			
Calcite	CaCO ₃	2.9	3.1	2.9	1.8	1.4	
Dolomite	CaMg(CO ₃) ₂				3.4	1.8	
Mullite	Al ₆ Si ₂ O ₁₃				23.4	29.5	30.0
Magnetite	Fe ₃ O ₄					2.4	
Total		100.0	100.0	100.0	100.0	100.0	100.0

* Semi-quantitative results

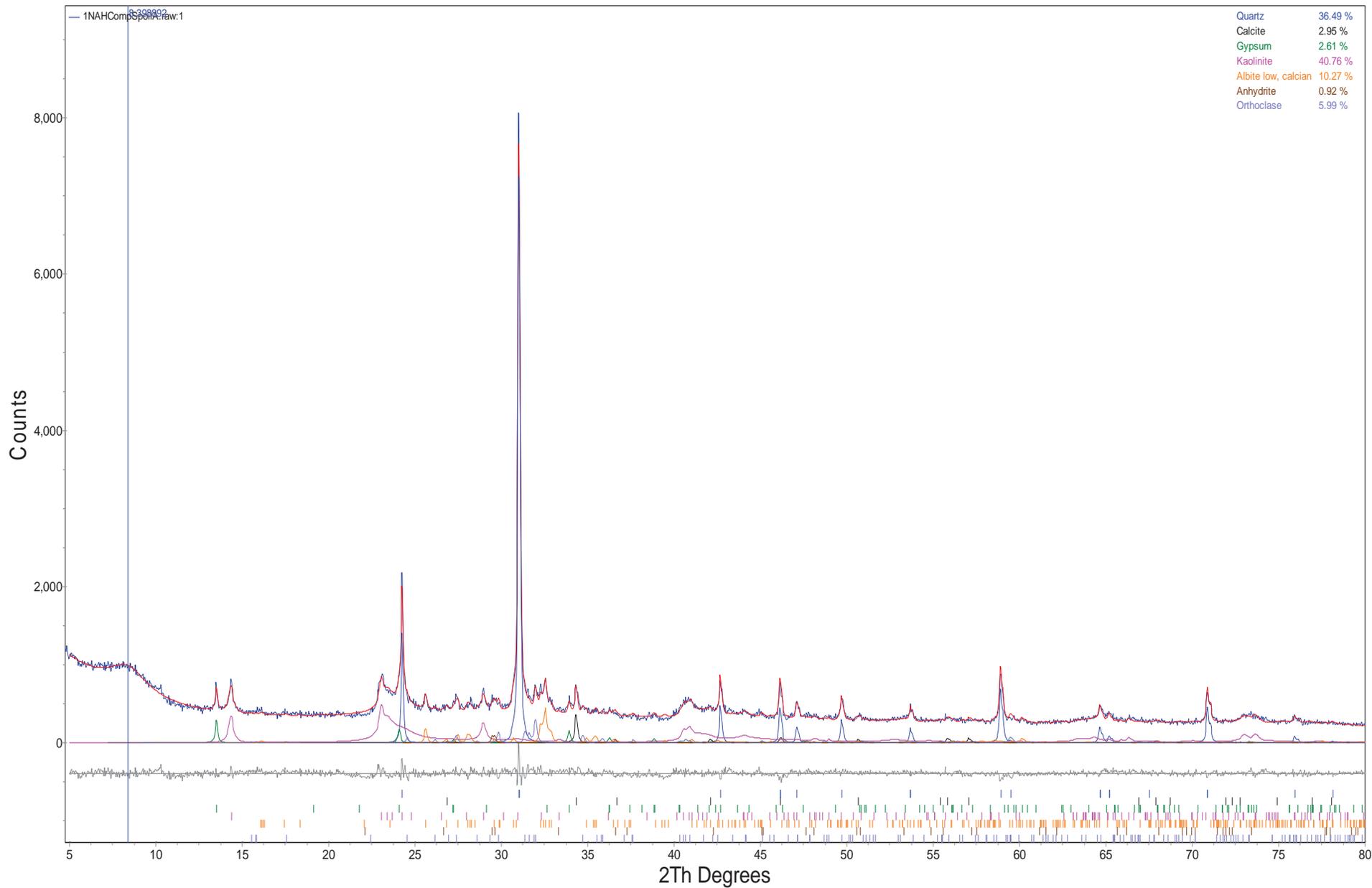


Figure 1. Rietveld refinement plot of sample **Norwest B.R. Composite Spoil A** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

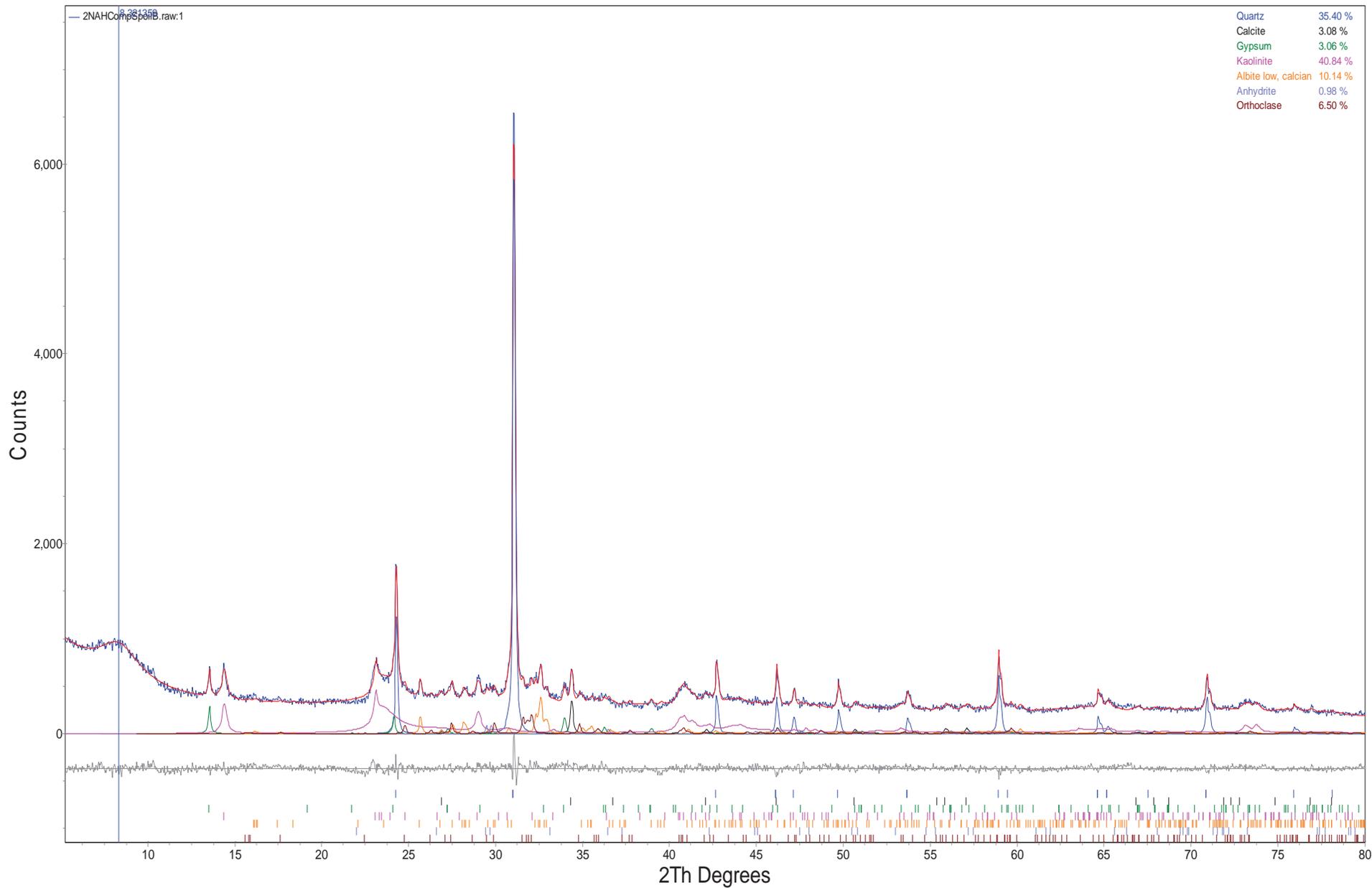


Figure 2. Rietveld refinement plot of sample **Norwest B.R. Composite Spoil B** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

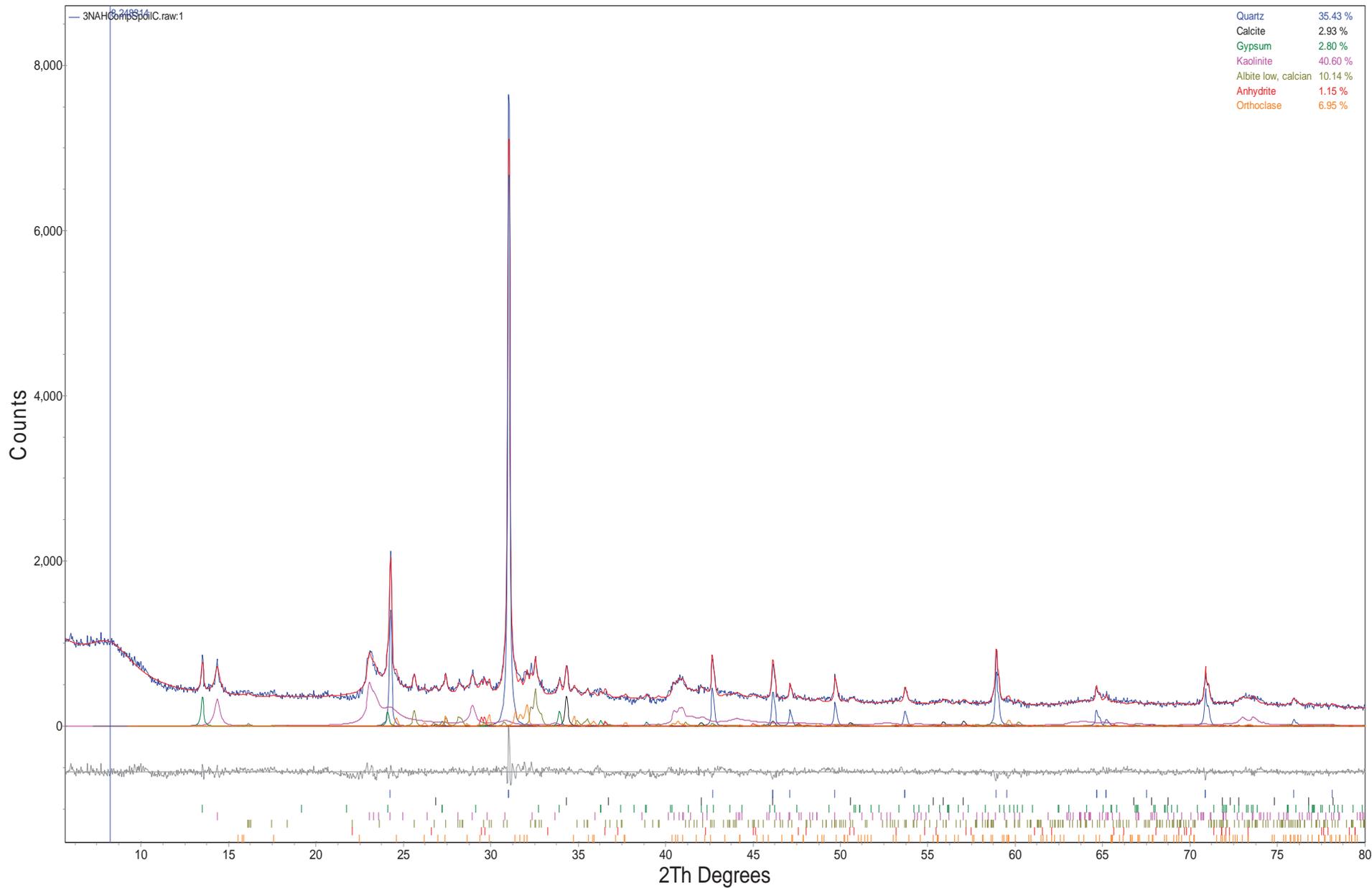


Figure 3. Rietveld refinement plot of sample **Norwest B.R. Composite Spoil C** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

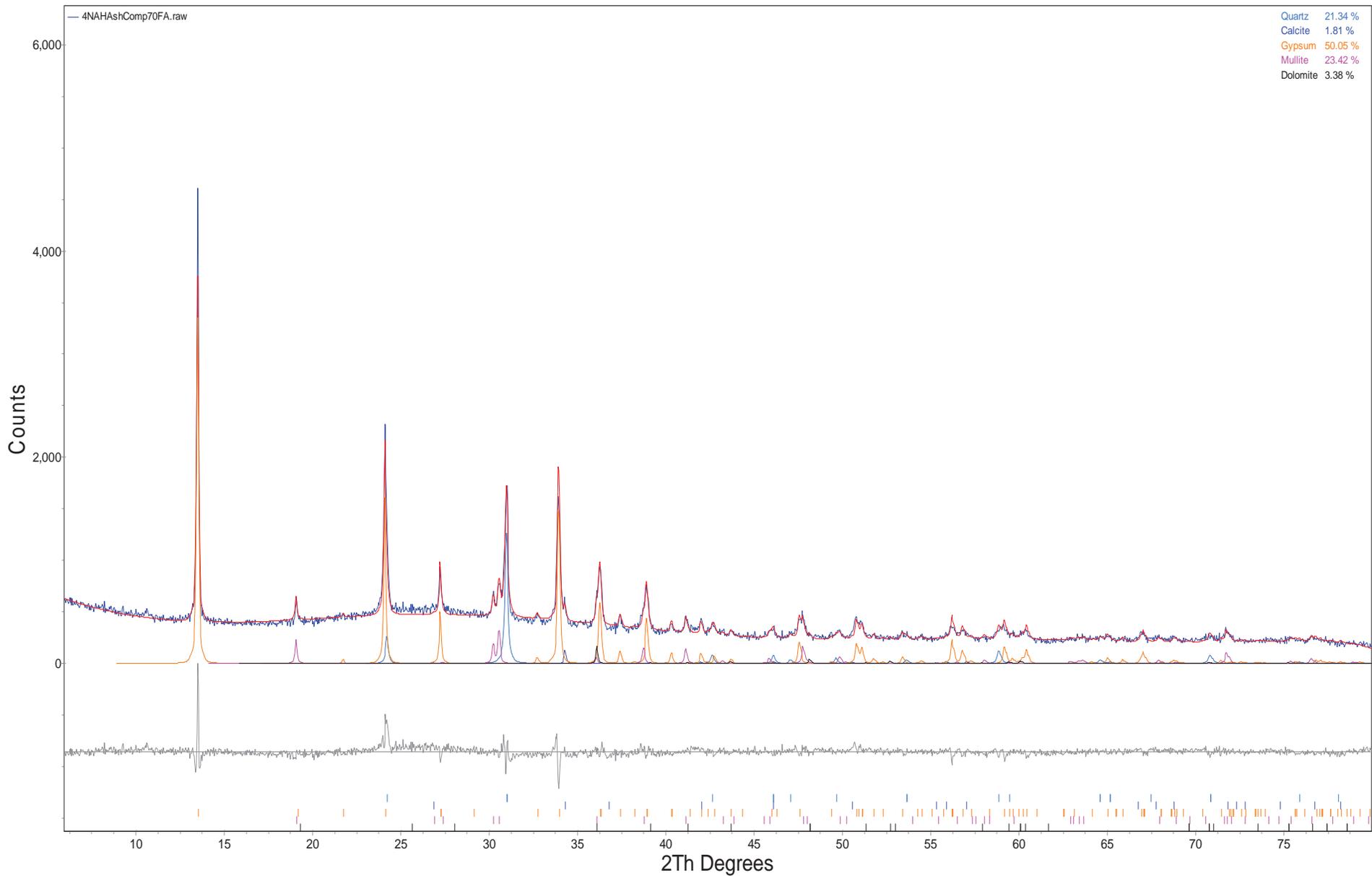


Figure 4. Rietveld refinement plot of sample **Norwest Ash Composite 70% FA** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

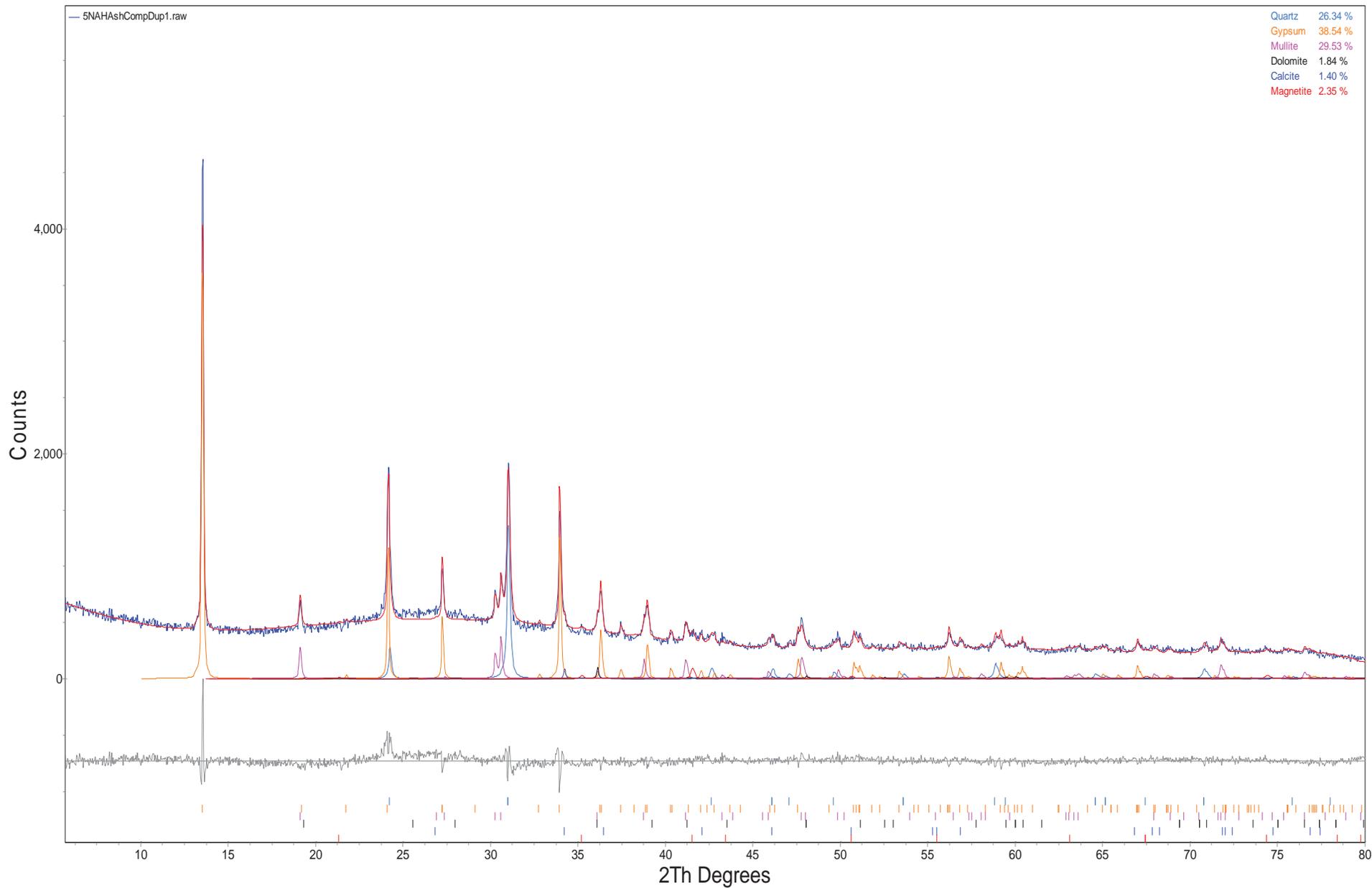


Figure 5. Rietveld refinement plot of sample **Norwest Ash Composite DUP 1 70% FA** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

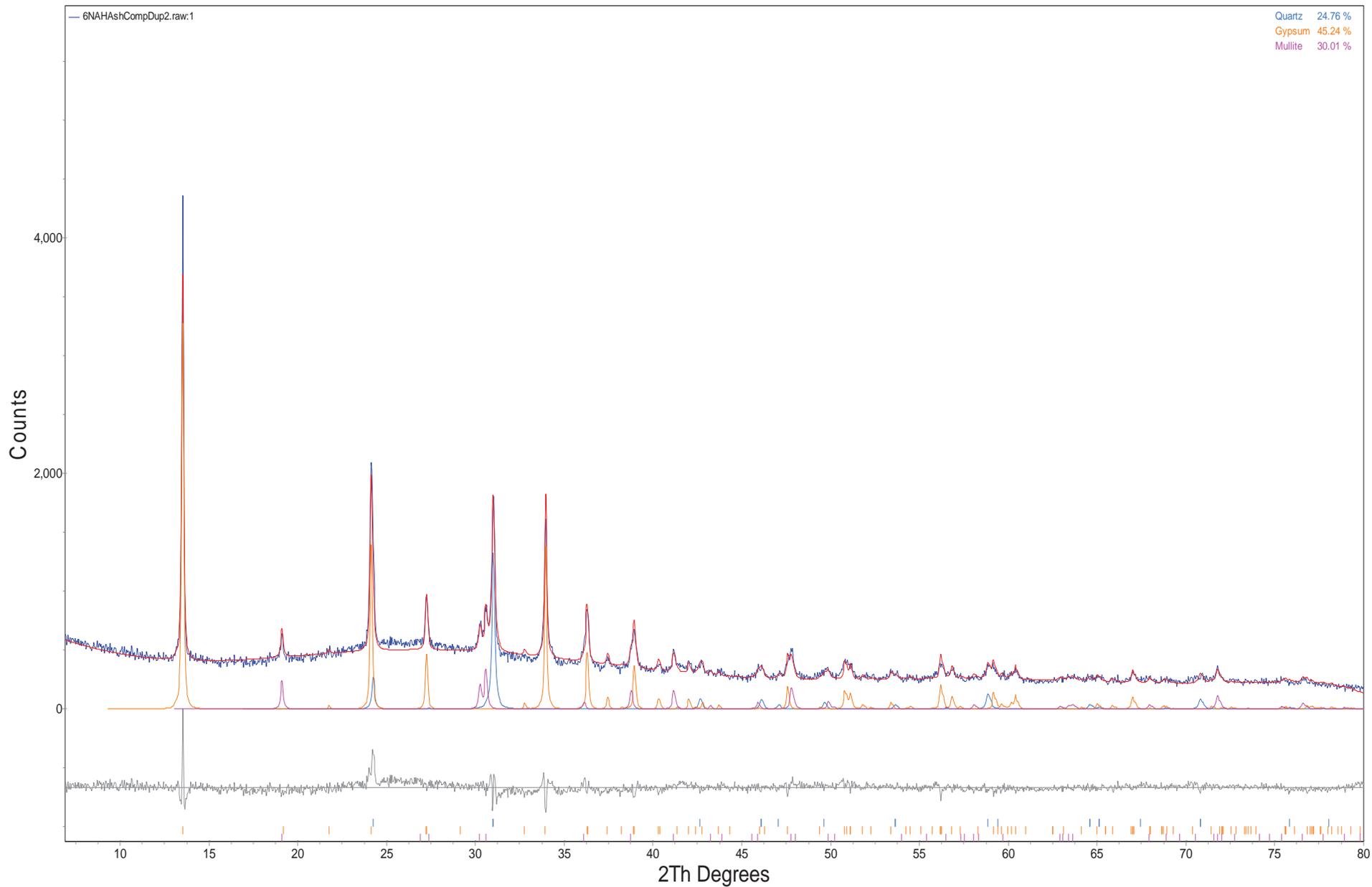


Figure 6. Rietveld refinement plot of sample **Norwest Ash Composite DUP 2 70% FA** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

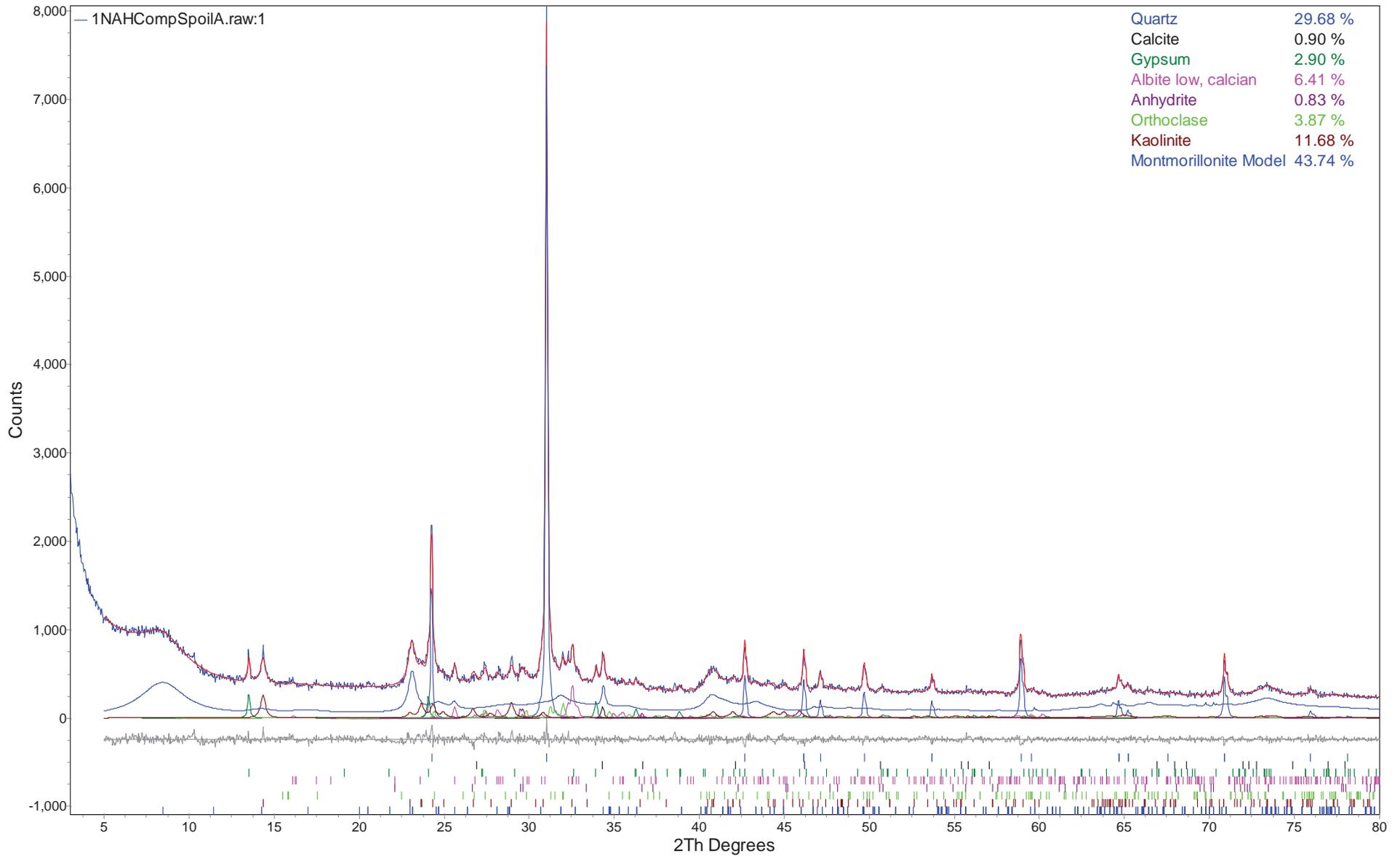


Figure 1. Rietveld refinement plot of sample **Norwest B.R.Composite Spoil A** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

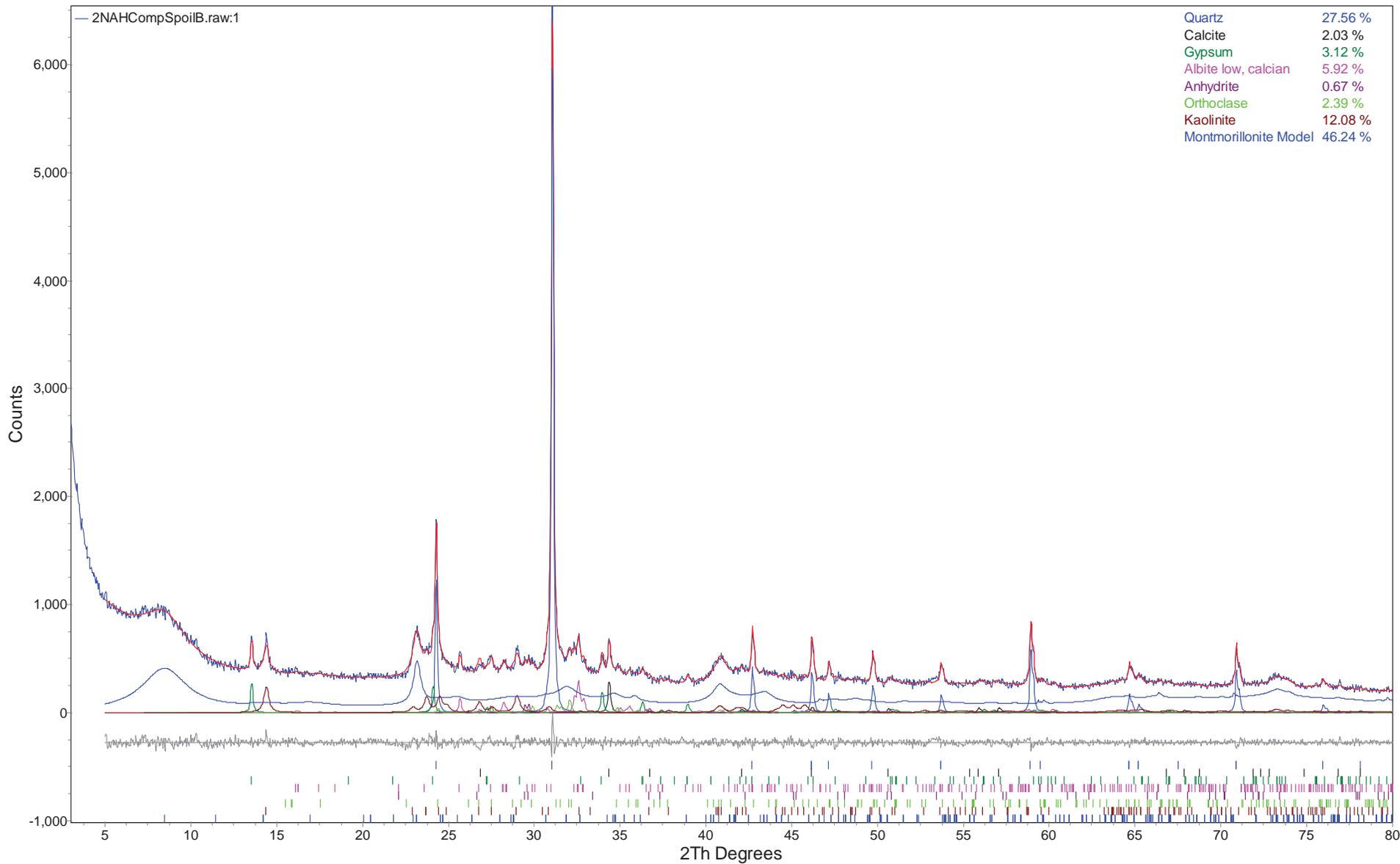


Figure 2. Rietveld refinement plot of sample **Norwest B.R. Composite Spoil B** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

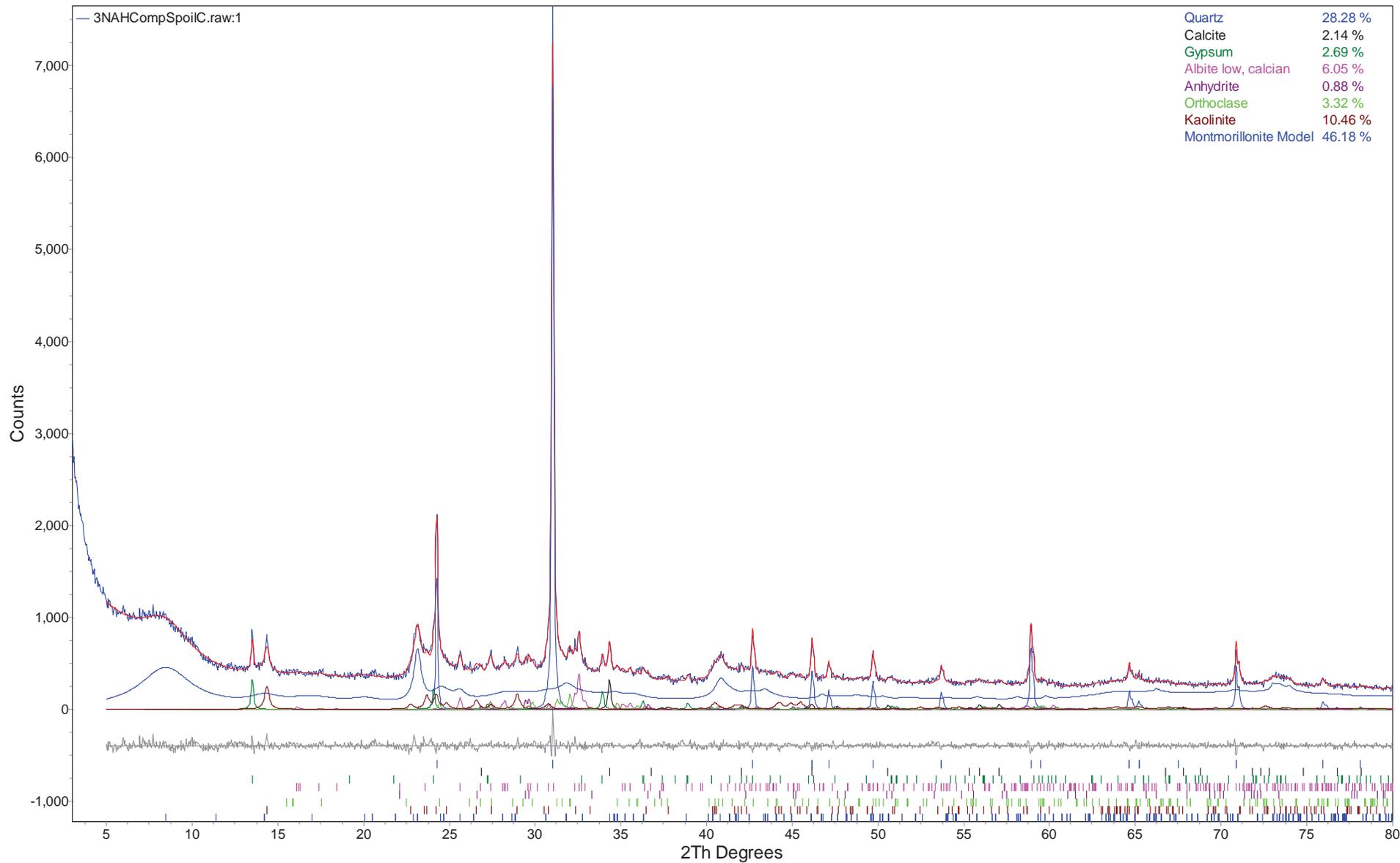


Figure 3. Rietveld refinement plot of sample **Norwest B.R. Composite Spoil C** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **KF2007-01(58) and KF-98-02(53)**

Matrix: Aqueous Collection Date: 11/15/2007 4:30:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-01A	Analysis Date:	11/30/2007 4:07:17PM
Prep Date:	11/30/2007	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B113007W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T071130013	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-01A	Analysis Date:	12/3/2007 6:01:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T071203011	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Aluminum	7429-90-5	0.13		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.093		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	3.4		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	0.067		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.3		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.012		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	11		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **KF2007-01(58) and KF-98-02(53)**

Matrix: Aqueous Collection Date: 11/15/2007 4:30:00PM

Lab Sample Number: B0711172-01A Analysis Date: 12/3/2007 6:01:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12037A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071203011
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	1

Lab Sample Number: B0711172-01A Analysis Date: 12/4/2007 5:19:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12047A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071203011
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Boron	7440-42-8	0.31		mg/L	0.050	0.0018	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **123 S 87W 0-4' SPOIL**

Matrix: Solid

Collection Date: 11/15/2007 12:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0711172-02A	Analysis Date: 12/4/2007 3:25:10PM
Prep Date: 12/4/2007	Instrument: CVAA_1
Analytical Method ID: SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Total H	File Name: B120407S.WK
Prep Method ID: 7471A	Dilution Factor: 1
Prep Batch Number: T071204013	Percent Moisture: 7.06
Report Basis: Dry Weight Basis	Analyst Initials: DL
Sample prep wt./vol: 0.67 g	Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	0.12		mg/Kg	0.040	0.0055	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0711172-02A	Analysis Date: 12/3/2007 1:27:00PM
Prep Date: 12/3/2007	Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total	File Name: E12037A
Prep Method ID: 3050B	Dilution Factor: 1
Prep Batch Number: T071203005	Percent Moisture: 7.06
Report Basis: Dry Weight Basis	Analyst Initials: rm
Sample prep wt./vol: 0.60 g	Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	9,700		mg/Kg	7.1	1.8	1
Antimony	7440-36-0	ND		mg/Kg	9.8	0.55	
Arsenic	7440-38-2	ND		mg/Kg	12	1.6	
Barium	7440-39-3	150		mg/Kg	0.36	0.028	
Beryllium	7440-41-7	1.0		mg/Kg	0.18	0.0079	
Boron	7440-42-8	13		mg/Kg	4.5	0.60	
Cadmium	7440-43-9	0.74		mg/Kg	0.71	0.051	
Calcium	7440-70-2	14,000		mg/Kg	12	4.8	
Chromium	7440-47-3	6.7		mg/Kg	1.8	0.26	
Cobalt	7440-48-4	12		mg/Kg	2.7	0.23	
Copper	7440-50-8	28		mg/Kg	0.54	0.14	
Iron	7439-89-6	22,000		mg/Kg	5.4	0.39	
Lead	7439-92-1	17		mg/Kg	5.4	0.94	
Magnesium	7439-96-4	3,100		mg/Kg	8.9	0.85	
Manganese	7439-96-5	360		mg/Kg	0.89	0.099	
Molybdenum	7439-98-7	ND		mg/Kg	1.8	0.21	
Nickel	7440-02-0	15		mg/Kg	3.6	0.38	
Potassium	7440-09-7	1,800		mg/Kg	89	28	
Selenium	7784-49-2	ND		mg/Kg	8.9	2.2	
Silver	7440-22-4	ND		mg/Kg	1.3	0.14	
Sodium	7440-23-5	3,900		mg/Kg	270	0.91	
Thallium	7440-28-0	ND		mg/Kg	18	1.1	
Vanadium	7440-62-2	22		mg/Kg	0.89	0.17	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **123 S 87W 0-4' SPOIL**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

Lab Sample Number:	B0711172-02A	Analysis Date:	12/3/2007 1:27:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.06
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.60 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	73		mg/Kg	0.54	0.20	1

Lab Sample Number:	B0711172-02A	Analysis Date:	12/4/2007 3:03:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12047A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.06
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.60 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Lithium	7439-93-2	9.1		mg/Kg	4.5	0.043	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **123 S 89W 0-4' SPOIL**

Matrix: Solid

Collection Date: 11/15/2007 12:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-03A	Analysis Date:	12/4/2007 4:05:31PM
Prep Date:	12/4/2007	Instrument:	CVAA_1
Analytical Method ID:	SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Total H	File Name:	B120407S.WK
Prep Method ID:	7471A	Dilution Factor:	1
Prep Batch Number:	T071204013	Percent Moisture:	8.64
Report Basis:	Dry Weight Basis	Analyst Initials:	DL
Sample prep wt./vol:	0.63 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	0.075		mg/Kg	0.044	0.0060	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-03A	Analysis Date:	12/3/2007 1:32:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	8.64
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.59 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	9,600		mg/Kg	7.5	1.8	1
Antimony	7440-36-0	ND		mg/Kg	10	0.58	
Arsenic	7440-38-2	ND		mg/Kg	12	1.6	
Barium	7440-39-3	170		mg/Kg	0.37	0.029	
Beryllium	7440-41-7	1.0		mg/Kg	0.19	0.0083	
Boron	7440-42-8	13		mg/Kg	4.7	0.63	
Cadmium	7440-43-9	0.85		mg/Kg	0.75	0.054	
Calcium	7440-70-2	21,000		mg/Kg	13	5.0	
Chromium	7440-47-3	6.6		mg/Kg	1.9	0.28	
Cobalt	7440-48-4	11		mg/Kg	2.8	0.24	
Copper	7440-50-8	25		mg/Kg	0.56	0.15	
Iron	7439-89-6	24,000		mg/Kg	5.6	0.41	
Lead	7439-92-1	17		mg/Kg	5.6	0.98	
Magnesium	7439-96-4	3,100		mg/Kg	9.3	0.89	
Manganese	7439-96-5	590		mg/Kg	0.93	0.10	
Molybdenum	7439-98-7	ND		mg/Kg	1.9	0.22	
Nickel	7440-02-0	15		mg/Kg	3.7	0.40	
Potassium	7440-09-7	1,800		mg/Kg	93	29	
Selenium	7784-49-2	ND		mg/Kg	9.3	2.3	
Silver	7440-22-4	ND		mg/Kg	1.4	0.14	
Sodium	7440-23-5	3,800		mg/Kg	280	0.95	
Thallium	7440-28-0	ND		mg/Kg	19	1.1	
Vanadium	7440-62-2	24		mg/Kg	0.93	0.18	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **123 S 89W 0-4' SPOIL**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

Lab Sample Number: B0711172-03A Analysis Date: 12/3/2007 1:32:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12037A
Prep Method ID: 3050B Dilution Factor: 1
Prep Batch Number: T071203005 Percent Moisture: 8.64
Report Basis: Dry Weight Basis Analyst Initials: rm
Sample prep wt./vol: 0.59 g Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	69		mg/Kg	0.56	0.21	1

Lab Sample Number: B0711172-03A Analysis Date: 12/4/2007 3:08:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12047A
Prep Method ID: 3050B Dilution Factor: 1
Prep Batch Number: T071203005 Percent Moisture: 8.64
Report Basis: Dry Weight Basis Analyst Initials: rm
Sample prep wt./vol: 0.59 g Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Lithium	7439-93-2	9.0		mg/Kg	4.7	0.045	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **125 S 88W 0-4' SPOIL**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-04A	Analysis Date:	12/4/2007 4:13:55PM
Prep Date:	12/4/2007	Instrument:	CVAA_1
Analytical Method ID:	SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Total H	File Name:	B120407S.WK
Prep Method ID:	7471A	Dilution Factor:	1
Prep Batch Number:	T071204013	Percent Moisture:	7.60
Report Basis:	Dry Weight Basis	Analyst Initials:	DL
Sample prep wt./vol:	0.62 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	0.053		mg/Kg	0.044	0.0060	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-04A	Analysis Date:	12/3/2007 1:37:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.60
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.61 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	10,000		mg/Kg	7.1	1.7	1
Antimony	7440-36-0	ND		mg/Kg	9.7	0.55	
Arsenic	7440-38-2	ND		mg/Kg	12	1.6	
Barium	7440-39-3	220		mg/Kg	0.35	0.027	
Beryllium	7440-41-7	1.1		mg/Kg	0.18	0.0078	
Boron	7440-42-8	13		mg/Kg	4.4	0.60	
Cadmium	7440-43-9	ND		mg/Kg	0.71	0.051	
Calcium	7440-70-2	16,000		mg/Kg	12	4.7	
Chromium	7440-47-3	6.8		mg/Kg	1.8	0.26	
Cobalt	7440-48-4	11		mg/Kg	2.7	0.23	
Copper	7440-50-8	28		mg/Kg	0.53	0.14	
Iron	7439-89-6	22,000		mg/Kg	5.3	0.39	
Lead	7439-92-1	18		mg/Kg	5.3	0.93	
Magnesium	7439-96-4	3,100		mg/Kg	8.9	0.85	
Manganese	7439-96-5	380		mg/Kg	0.89	0.098	
Molybdenum	7439-98-7	ND		mg/Kg	1.8	0.21	
Nickel	7440-02-0	14		mg/Kg	3.5	0.38	
Potassium	7440-09-7	1,900		mg/Kg	89	28	
Selenium	7784-49-2	ND		mg/Kg	8.9	2.2	
Silver	7440-22-4	ND		mg/Kg	1.3	0.14	
Sodium	7440-23-5	4,200		mg/Kg	270	0.90	
Thallium	7440-28-0	ND		mg/Kg	18	1.0	
Vanadium	7440-62-2	25		mg/Kg	0.89	0.17	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **125 S 88W 0-4' SPOIL**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

Lab Sample Number:	B0711172-04A	Analysis Date:	12/3/2007 1:37:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.60
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.61 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	66		mg/Kg	0.53	0.20	1

Lab Sample Number:	B0711172-04A	Analysis Date:	12/4/2007 3:13:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12047A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.60
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.61 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Lithium	7439-93-2	8.8		mg/Kg	4.4	0.043	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **120 S 89W 0-4' SPOIL**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-05A	Analysis Date:	12/5/2007 9:42:00AM
Prep Date:	12/4/2007	Instrument:	CVAA_1
Analytical Method ID:	SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Total H	File Name:	B120407S.WK
Prep Method ID:	7471A	Dilution Factor:	1
Prep Batch Number:	T071204013	Percent Moisture:	6.86
Report Basis:	Dry Weight Basis	Analyst Initials:	DL
Sample prep wt./vol:	0.62 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	0.12		mg/Kg	0.044	0.0060	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-05A	Analysis Date:	12/3/2007 1:43:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	6.86
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.56 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	9,200		mg/Kg	7.7	1.9	1
Antimony	7440-36-0	ND		mg/Kg	11	0.60	
Arsenic	7440-38-2	ND		mg/Kg	13	1.7	
Barium	7440-39-3	140		mg/Kg	0.39	0.030	
Beryllium	7440-41-7	0.84		mg/Kg	0.19	0.0085	
Boron	7440-42-8	11		mg/Kg	4.8	0.65	
Cadmium	7440-43-9	ND		mg/Kg	0.77	0.056	
Calcium	7440-70-2	27,000		mg/Kg	13	5.1	
Chromium	7440-47-3	6.1		mg/Kg	1.9	0.29	
Cobalt	7440-48-4	11		mg/Kg	2.9	0.25	
Copper	7440-50-8	20		mg/Kg	0.58	0.15	
Iron	7439-89-6	19,000		mg/Kg	5.8	0.42	
Lead	7439-92-1	17		mg/Kg	5.8	1.0	
Molybdenum	7439-98-7	ND		mg/Kg	1.9	0.23	
Nickel	7440-02-0	14		mg/Kg	3.9	0.41	
Potassium	7440-09-7	1,900		mg/Kg	96	30	
Selenium	7784-49-2	ND		mg/Kg	9.6	2.4	
Silver	7440-22-4	ND		mg/Kg	1.4	0.15	
Sodium	7440-23-5	4,100		mg/Kg	290	0.98	
Thallium	7440-28-0	ND		mg/Kg	19	1.1	
Vanadium	7440-62-2	18		mg/Kg	0.96	0.19	
Zinc	7440-66-6	59		mg/Kg	0.58	0.21	

Lab Sample Number: B0711172-05A Analysis Date: 12/4/2007 3:18:00PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **120 S 89W 0-4' SPOIL**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12047A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	6.86
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.56 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Lithium	7439-93-2	8.2		mg/Kg	4.8	0.047	3
Magnesium	7439-96-4	3,200		mg/Kg	9.6	0.92	
Manganese	7439-96-5	370		mg/Kg	0.96	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Barber Ramp 3 Composite Spoil A**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-06A	Analysis Date:	12/5/2007 9:49:39AM
Prep Date:	12/4/2007	Instrument:	CVAA_1
Analytical Method ID:	SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Total H	File Name:	B120407S.WK
Prep Method ID:	7471A	Dilution Factor:	1
Prep Batch Number:	T071204013	Percent Moisture:	7.98
Report Basis:	Dry Weight Basis	Analyst Initials:	DL
Sample prep wt./vol:	0.61 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	0.087		mg/Kg	0.044	0.0061	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-06A	Analysis Date:	12/3/2007 2:28:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.98
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.58 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	10,000		mg/Kg	7.4	1.8	1
Antimony	7440-36-0	ND		mg/Kg	10	0.58	
Arsenic	7440-38-2	ND		mg/Kg	12	1.6	
Barium	7440-39-3	170		mg/Kg	0.37	0.029	
Beryllium	7440-41-7	1.0		mg/Kg	0.19	0.0082	
Boron	7440-42-8	13		mg/Kg	4.7	0.63	
Cadmium	7440-43-9	ND		mg/Kg	0.74	0.054	
Calcium	7440-70-2	20,000		mg/Kg	13	5.0	
Chromium	7440-47-3	6.7		mg/Kg	1.9	0.28	
Cobalt	7440-48-4	11		mg/Kg	2.8	0.24	
Copper	7440-50-8	26		mg/Kg	0.56	0.15	
Iron	7439-89-6	20,000		mg/Kg	5.6	0.41	
Lead	7439-92-1	16		mg/Kg	5.6	0.98	
Magnesium	7439-96-4	3,100		mg/Kg	9.3	0.89	
Manganese	7439-96-5	440		mg/Kg	0.93	0.10	
Molybdenum	7439-98-7	ND		mg/Kg	1.9	0.22	
Nickel	7440-02-0	13		mg/Kg	3.7	0.40	
Potassium	7440-09-7	1,900		mg/Kg	93	29	
Selenium	7784-49-2	ND		mg/Kg	9.3	2.3	
Silver	7440-22-4	ND		mg/Kg	1.4	0.14	
Sodium	7440-23-5	4,000		mg/Kg	280	0.95	
Thallium	7440-28-0	ND		mg/Kg	19	1.1	
Vanadium	7440-62-2	23		mg/Kg	0.93	0.18	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Barber Ramp 3 Composite Spoil A**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

Lab Sample Number:	B0711172-06A	Analysis Date:	12/3/2007 2:28:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.98
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.58 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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Zinc	7440-66-6	62		mg/Kg	0.56	0.21	1
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Lab Sample Number:	B0711172-06A	Analysis Date:	12/4/2007 4:04:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12047A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.98
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.58 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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Lithium	7439-93-2	8.6		mg/Kg	4.7	0.045	2
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Barber Ramp 3 Composite Spoil B**

Matrix: Solid

Collection Date: 11/15/2007 12:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-07A	Analysis Date:	12/5/2007 9:57:26AM
Prep Date:	12/4/2007	Instrument:	CVAA_1
Analytical Method ID:	SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Total H	File Name:	B120407S.WK
Prep Method ID:	7471A	Dilution Factor:	1
Prep Batch Number:	T071204013	Percent Moisture:	8.13
Report Basis:	Dry Weight Basis	Analyst Initials:	DL
Sample prep wt./vol:	0.62 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	0.073		mg/Kg	0.044	0.0060	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-07A	Analysis Date:	12/3/2007 2:33:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	8.13
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.64 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	9,500		mg/Kg	6.8	1.7	1
Antimony	7440-36-0	ND		mg/Kg	9.3	0.52	
Arsenic	7440-38-2	ND		mg/Kg	11	1.5	
Barium	7440-39-3	180		mg/Kg	0.34	0.026	
Beryllium	7440-41-7	1.0		mg/Kg	0.17	0.0075	
Boron	7440-42-8	12		mg/Kg	4.2	0.57	
Cadmium	7440-43-9	ND		mg/Kg	0.68	0.049	
Calcium	7440-70-2	22,000		mg/Kg	12	4.5	
Chromium	7440-47-3	6.0		mg/Kg	1.7	0.25	
Cobalt	7440-48-4	11		mg/Kg	2.5	0.22	
Copper	7440-50-8	23		mg/Kg	0.51	0.13	
Iron	7439-89-6	20,000		mg/Kg	5.1	0.37	
Lead	7439-92-1	17		mg/Kg	5.1	0.89	
Magnesium	7439-96-4	2,900		mg/Kg	8.5	0.81	
Manganese	7439-96-5	430		mg/Kg	0.85	0.094	
Molybdenum	7439-98-7	ND		mg/Kg	1.7	0.20	
Nickel	7440-02-0	13		mg/Kg	3.4	0.36	
Potassium	7440-09-7	1,700		mg/Kg	85	27	
Selenium	7784-49-2	ND		mg/Kg	8.5	2.1	
Silver	7440-22-4	ND		mg/Kg	1.3	0.13	
Sodium	7440-23-5	3,900		mg/Kg	250	0.86	
Thallium	7440-28-0	ND		mg/Kg	17	1.00	
Vanadium	7440-62-2	22		mg/Kg	0.85	0.16	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Barber Ramp 3 Composite Spoil B**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

Lab Sample Number:	B0711172-07A	Analysis Date:	12/3/2007 2:33:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	8.13
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.64 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	65		mg/Kg	0.51	0.19	1

Lab Sample Number:	B0711172-07A	Analysis Date:	12/4/2007 4:09:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12047A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	8.13
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.64 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Lithium	7439-93-2	8.2		mg/Kg	4.2	0.041	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Barber Ramp 3 Composite Spoil C**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-08A	Analysis Date:	12/5/2007 10:05:12AM
Prep Date:	12/4/2007	Instrument:	CVAA_1
Analytical Method ID:	SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Total H	File Name:	B120407S.WK
Prep Method ID:	7471A	Dilution Factor:	1
Prep Batch Number:	T071204013	Percent Moisture:	7.87
Report Basis:	Dry Weight Basis	Analyst Initials:	DL
Sample prep wt./vol:	0.62 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	0.068		mg/Kg	0.044	0.0060	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-08A	Analysis Date:	12/3/2007 2:38:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.87
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.57 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	9,400		mg/Kg	7.7	1.9	1
Antimony	7440-36-0	ND		mg/Kg	11	0.59	
Arsenic	7440-38-2	ND		mg/Kg	12	1.7	
Barium	7440-39-3	170		mg/Kg	0.38	0.030	
Beryllium	7440-41-7	1.0		mg/Kg	0.19	0.0085	
Boron	7440-42-8	12		mg/Kg	4.8	0.64	
Cadmium	7440-43-9	ND		mg/Kg	0.77	0.055	
Calcium	7440-70-2	20,000		mg/Kg	13	5.1	
Chromium	7440-47-3	6.1		mg/Kg	1.9	0.28	
Cobalt	7440-48-4	11		mg/Kg	2.9	0.25	
Copper	7440-50-8	24		mg/Kg	0.57	0.15	
Iron	7439-89-6	20,000		mg/Kg	5.7	0.42	
Lead	7439-92-1	18		mg/Kg	5.7	1.0	
Magnesium	7439-96-4	3,000		mg/Kg	9.6	0.92	
Manganese	7439-96-5	390		mg/Kg	0.96	0.11	
Molybdenum	7439-98-7	ND		mg/Kg	1.9	0.23	
Nickel	7440-02-0	14		mg/Kg	3.8	0.41	
Potassium	7440-09-7	1,800		mg/Kg	96	30	
Selenium	7784-49-2	ND		mg/Kg	9.6	2.4	
Silver	7440-22-4	ND		mg/Kg	1.4	0.15	
Sodium	7440-23-5	4,100		mg/Kg	290	0.98	
Thallium	7440-28-0	ND		mg/Kg	19	1.1	
Vanadium	7440-62-2	22		mg/Kg	0.96	0.19	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Barber Ramp 3 Composite Spoil C**

Matrix: Solid Collection Date: 11/15/2007 12:00:00PM

Lab Sample Number:	B0711172-08A	Analysis Date:	12/3/2007 2:38:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.87
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.57 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	62		mg/Kg	0.57	0.21	1

Lab Sample Number:	B0711172-08A	Analysis Date:	12/4/2007 4:14:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12047A
Prep Method ID:	3050B	Dilution Factor:	1
Prep Batch Number:	T071203005	Percent Moisture:	7.87
Report Basis:	Dry Weight Basis	Analyst Initials:	rm
Sample prep wt./vol:	0.57 g	Prep Extract Vol:	50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Lithium	7439-93-2	8.1		mg/Kg	4.8	0.047	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name:

**KF2007-01(58) DUP and
KF-98-02(53)DUP**

Matrix: Aqueous Collection Date: 11/15/2007 4:30:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-12A	Analysis Date:	11/30/2007 4:09:34PM
Prep Date:	11/30/2007	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B113007W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T071130013	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0711172-12A	Analysis Date:	12/3/2007 6:06:00PM
Prep Date:	12/3/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12037A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T071203011	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.14		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.088		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	3.3		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	0.073		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.2		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	10		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	
Sodium	7440-23-5	1,100		mg/L	3.0	0.028	
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name:

**KF2007-01(58) DUP and
KF-98-02(53)DUP**

Matrix: Aqueous Collection Date: 11/15/2007 4:30:00PM

Lab Sample Number: B0711172-12A Analysis Date: 12/3/2007 6:06:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12037A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071203011
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	1

Lab Sample Number: B0711172-12A Analysis Date: 12/4/2007 5:24:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12047A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071203011
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Boron	7440-42-8	0.29		mg/L	0.050	0.0018	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Solid

Collection Date: 12/4/2007 12:00:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071204013-MB Analysis Date: 12/4/2007 3:00:38PM
Prep Date: 12/4/2007 Instrument: CVAA_1
Analytical Method ID: SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Total H File Name: B120407S.WK
Prep Method ID: 7471A Dilution Factor: 1
Prep Batch Number: T071204013 Percent Moisture: NA
Report Basis: Dry Weight Basis Analyst Initials: DL
Sample prep wt./vol: 0.60 g Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/Kg	0.042	0.0057	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071203005-MB Analysis Date: 12/3/2007 1:12:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12037A
Prep Method ID: 3050B Dilution Factor: 1
Prep Batch Number: T071203005 Percent Moisture: NA
Report Basis: Dry Weight Basis Analyst Initials: rm
Sample prep wt./vol: 0.50 g Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	ND		mg/Kg	8.0	2.0	1
Antimony	7440-36-0	ND		mg/Kg	11	0.62	
Arsenic	7440-38-2	ND		mg/Kg	13	1.8	
Barium	7440-39-3	ND		mg/Kg	0.40	0.031	
Beryllium	7440-41-7	ND		mg/Kg	0.20	0.0089	
Boron	7440-42-8	ND		mg/Kg	5.0	0.67	
Cadmium	7440-43-9	ND		mg/Kg	0.80	0.058	
Calcium	7440-70-2	ND		mg/Kg	14	5.3	
Chromium	7440-47-3	ND		mg/Kg	2.0	0.30	
Cobalt	7440-48-4	ND		mg/Kg	3.0	0.26	
Copper	7440-50-8	ND		mg/Kg	0.60	0.16	
Iron	7439-89-6	ND		mg/Kg	6.0	0.44	
Lead	7439-92-1	ND		mg/Kg	6.0	1.1	
Magnesium	7439-96-4	ND		mg/Kg	10	0.96	
Manganese	7439-96-5	ND		mg/Kg	1.0	0.11	
Molybdenum	7439-98-7	ND		mg/Kg	2.0	0.24	
Nickel	7440-02-0	ND		mg/Kg	4.0	0.43	
Potassium	7440-09-7	ND		mg/Kg	100	31	
Selenium	7784-49-2	ND		mg/Kg	10	2.5	
Silver	7440-22-4	ND		mg/Kg	1.5	0.15	
Sodium	7440-23-5	ND		mg/Kg	300	1.0	
Thallium	7440-28-0	ND		mg/Kg	20	1.2	
Vanadium	7440-62-2	ND		mg/Kg	1.0	0.20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Solid Collection Date: 12/3/2007 12:00:00AM

Lab Sample Number: T071203005-MB Analysis Date: 12/4/2007 2:48:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12047A
Prep Method ID: 3050B Dilution Factor: 1
Prep Batch Number: T071203005 Percent Moisture: NA
Report Basis: Dry Weight Basis Analyst Initials: rm
Sample prep wt./vol: 0.50 g Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Lithium	7439-93-2	ND		mg/Kg	5.0	0.049	2

Lab Sample Number: T071203005-MB Analysis Date: 12/5/2007 1:51:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12057A
Prep Method ID: 3050B Dilution Factor: 1
Prep Batch Number: T071203005 Percent Moisture: NA
Report Basis: Dry Weight Basis Analyst Initials: rm
Sample prep wt./vol: 0.50 g Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	ND		mg/Kg	0.60	0.22	3

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071130013-MB Analysis Date: 11/30/2007 4:00:22PM
Prep Date: 11/30/2007 Instrument: CVAA_1
Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg File Name: B113007W.W
Prep Method ID: 7470A Dilution Factor: 1
Prep Batch Number: T071130013
Report Basis: Dry Weight Basis Analyst Initials: DL
Sample prep wt./vol: 30.00 ml Prep Extract Vol: 30.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.00050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071203011-MB Analysis Date: 12/3/2007 5:46:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12037A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071203011
Report Basis: Dry Weight Basis Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	ND		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous Collection Date: 12/3/2007 12:00:00AM

Lab Sample Number: T071203011-MB Analysis Date: 12/3/2007 5:46:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12037A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071203011
Report Basis: Dry Weight Basis Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Barium	7440-39-3	ND		mg/L	0.010	0.00016	1
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	ND		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	ND		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	ND		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	
Sodium	7440-23-5	ND		mg/L	3.0	0.028	
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	

Lab Sample Number: T071203011-MB Analysis Date: 12/4/2007 5:04:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12047A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071203011
Report Basis: Dry Weight Basis Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Boron	7440-42-8	ND		mg/L	0.050	0.0018	2

Lab Sample Number: T071203011-MB Analysis Date: 12/5/2007 1:41:00PM
Prep Date: 12/3/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12057A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071203011

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous

Collection Date: 12/3/2007 12:00:00AM

Report Basis: Dry Weight Basis

Analyst Initials: rm

Sample prep wt./vol: 50.00 ml

Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	3

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **KF2007-01(58) and KF-98-02(53)**

Matrix: Aqueous Collection Date: 11/15/2007 4:30:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0711172-01B Analysis Date: 11/29/2007 10:08:49AM
Prep Date: 11/29/2007 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T071203006
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 25.00 ml Prep Extract Vol: 25.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		1,300		mg/L	5.0	1.5	1
Carbonate		260		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0711172-01B Analysis Date: 11/28/2007 10:05:27AM
Prep Date: 11/28/2007 Instrument: Probe
Analytical Method ID: 150.1 - pH, Elecrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T071203004
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
pH		9.0		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0711172-01B Analysis Date: 12/4/2007 9:06:42AM
Prep Date: 11/29/2007 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T071203008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,100		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0711172-01B Analysis Date: 11/29/2007 1:54:49PM
Prep Date: 11/29/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071129_013.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T071130001
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **KF2007-01(58) and KF-98-02(53)**

Matrix: Aqueous Collection Date: 11/15/2007 4:30:00PM

Lab Sample Number: B0711172-01B Analysis Date: 11/29/2007 1:54:49PM
Prep Date: 11/29/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071129_013.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T071130001
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		2.4		mg/L	0.40	0.031	2
Sulfate		300		mg/L	1.5	0.11	

Lab Sample Number: B0711172-01B Analysis Date: 11/30/2007 12:00:01PM
Prep Date: 11/29/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071130_007.D
Prep Method ID: 300.0 Dilution Factor: 27
Prep Batch Number: T071130001
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		710		mg/L	21	1.1	1

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name:

**KF2007-01(58) DUP and
KF-98-02(53)DUP**

Matrix: Aqueous Collection Date: 11/15/2007 4:30:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0711172-12B Analysis Date: 11/29/2007 10:08:49AM
Prep Date: 11/29/2007 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T071203006 Analyst Initials: kl
Report Basis: As Received Prep Extract Vol: 25.00 ml
Sample prep wt./vol: 25.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		1,200		mg/L	5.0	1.5	1
Carbonate		300		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0711172-12B Analysis Date: 11/28/2007 10:05:27AM
Prep Date: 11/28/2007 Instrument: Probe
Analytical Method ID: 150.1 - pH, Elecrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T071203004 Analyst Initials: kl
Report Basis: As Received Prep Extract Vol: 10.00 ml
Sample prep wt./vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		8.9		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0711172-12B Analysis Date: 12/4/2007 9:06:42AM
Prep Date: 11/29/2007 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T071203008 Analyst Initials: kl
Report Basis: As Received Prep Extract Vol: 1.00 ml
Sample prep wt./vol: 100.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Total Dissolved Solids		3,000		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0711172-12B Analysis Date: 11/29/2007 2:11:40PM
Prep Date: 11/29/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071129_014.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T071130001 Analyst Initials: KB
Report Basis: As Received Prep Extract Vol: 20.00 ml
Sample prep wt./vol: 20.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name:

**KF2007-01(58) DUP and
KF-98-02(53)DUP**

Matrix: Aqueous Collection Date: 11/15/2007 4:30:00PM

Lab Sample Number: B0711172-12B Analysis Date: 11/29/2007 2:11:40PM
Prep Date: 11/29/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071129_014.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T071130001
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		2.5		mg/L	0.40	0.031	2

Lab Sample Number: B0711172-12B Analysis Date: 11/29/2007 10:36:20PM
Prep Date: 11/29/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071129_044.D
Prep Method ID: 300.0 Dilution Factor: 10
Prep Batch Number: T071130001
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sulfate		260		mg/L	15	1.1	3

Lab Sample Number: B0711172-12B Analysis Date: 11/30/2007 12:16:51PM
Prep Date: 11/29/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071130_008.D
Prep Method ID: 300.0 Dilution Factor: 27
Prep Batch Number: T071130001
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		700		mg/L	21	1.1	1

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous

Collection Date: 11/29/2007 12:00:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071203006-MB

Analysis Date: 11/29/2007 10:08:49AM

Prep Date: 11/29/2007

Instrument: Titrametric

Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

File Name:

Prep Method ID: Alkalinity_W

Dilution Factor: 1

Prep Batch Number: T071203006

Report Basis: Dry Weight Basis

Analyst Initials: kl

Sample prep wt./vol: 100.00 ml

Prep Extract Vol: 100.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		ND		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071203008-MB

Analysis Date: 12/4/2007 9:06:42AM

Prep Date: 11/29/2007

Instrument: SCALE

Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS

File Name:

Prep Method ID: 160.1

Dilution Factor: 1

Prep Batch Number: T071203008

Report Basis: Dry Weight Basis

Analyst Initials: kl

Sample prep wt./vol: 100.00 ml

Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		ND		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071130001-MB

Analysis Date: 11/29/2007 1:04:19PM

Prep Date: 11/29/2007

Instrument: IC

Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC

File Name: 071129_010.D

Prep Method ID: 300.0

Dilution Factor: 1

Prep Batch Number: T071130001

Report Basis: Dry Weight Basis

Analyst Initials: KB

Sample prep wt./vol: 20.00 ml

Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		ND		mg/L	0.80	0.042	1
Fluoride		ND		mg/L	0.40	0.031	
Sulfate		ND		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071203011

LCS/LCSD REPORT

Analysis: SW6010B - ICP - Total

MB: T071203011-MB

Prep Date: 12/3/2007

MB Anal. Date: 12/3/2007 5:46:00PM

Units: mg/L

LCS Anal. Date: 12/3/2007 5:51:00PM LCSD Anal. Date: 12/3/2007 5:56:00PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Aluminum	ND	2.09	2.05	2.00	2.00	104.5	102.5	1.9	89 - 117	20	
Antimony	ND	0.504	0.491	0.500	0.500	100.8	98.2	2.6	82 - 117	20	
Arsenic	ND	2.04	2.00	2.00	2.00	102.0	100.0	2.0	86 - 116	20	
Barium	ND	2.00	1.97	2.00	2.00	100.0	98.5	1.5	86 - 116	20	
Beryllium	ND	0.0511	0.0500	0.0500	0.0500	102.2	100.0	2.2	87 - 111	20	
Boron	ND	0.650	0.638	0.500	0.500	130.0	127.6	1.9	76 - 130	20	
Cadmium	ND	0.0500	0.0482	0.0500	0.0500	100.0	96.4	3.7	79 - 113	20	
Calcium	ND	10.0	9.85	10.0	10.0	100.0	98.5	1.5	79 - 119	20	
Chromium	ND	0.202	0.197	0.200	0.200	101.0	98.5	2.5	86 - 117	20	
Cobalt	ND	0.506	0.494	0.500	0.500	101.2	98.8	2.4	82 - 118	20	
Copper	ND	0.252	0.247	0.250	0.250	100.8	98.8	2.0	86 - 117	20	
Iron	ND	1.02	1.02	1.00	1.00	102.0	102.0	0.0	83 - 121	20	
Lead	ND	0.511	0.505	0.500	0.500	102.2	101.0	1.2	83 - 121	20	
Magnesium	ND	10.6	10.4	10.0	10.0	106.0	104.0	1.9	83 - 118	20	
Manganese	ND	0.507	0.497	0.500	0.500	101.4	99.4	2.0	82 - 121	20	
Molybdenum	ND	0.508	0.496	0.500	0.500	101.6	99.2	2.4	82 - 120	20	
Nickel	ND	0.510	0.496	0.500	0.500	102.0	99.2	2.8	84 - 117	20	
Potassium	ND	9.04	8.48	10.0	10.0	90.4	84.8	6.4	74 - 110	20	
Selenium	ND	2.01	1.96	2.00	2.00	100.5	98.0	2.5	87 - 117	20	
Silver	ND	0.266	0.259	0.250	0.250	106.4	103.6	2.7	80 - 127	20	
Sodium	ND	9.67	9.69	10.0	10.0	96.7	96.9	0.2	87 - 113	20	
Thallium	ND	0.204	0.189	0.200	0.200	102.0	94.5	7.6	89 - 113	20	
Vanadium	ND	0.514	0.503	0.500	0.500	102.8	100.6	2.2	87 - 119	20	
Zinc	ND	0.495	0.478	0.500	0.500	99.0	95.6	3.5	81 - 120	20	
Lithium	ND	0.479	0.475	0.500	0.500	95.8	95.0	0.8	80 - 120	20	

Prep Batch: T071130013

LCS/LCSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071130013

LCS/LCSD REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg MB: T071130013-MB

Prep Date: 11/30/2007

MB Anal. Date: 11/30/2007 4:00:22PM

Units: mg/L

LCS Anal. Date: 11/30/2007 4:02:28PM LCSD Anal. Date: 11/30/2007 4:05:02PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Mercury	ND	0.00233	0.00196	0.00200	0.0020	116.5	98.0	17.2	80 - 120	20	

Prep Batch: T071203005

SAMPLE DUPLICATE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0711172-05A

Prep Date: 12/3/2007

Samp. Anal. Date: 12/3/2007 1:43:00PM

Units: mg/Kg

DUP Anal. Date: 12/3/2007 1:48:00PM

Matrix: Solid

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Aluminum	9,240	10,500	12.8	35	
Antimony	ND	ND	0.0	35	
Arsenic	ND	ND	0.0	35	
Barium	141	142	0.7	35	
Beryllium	0.838	0.943	11.8	35	
Boron	10.8	11.9	9.7	35	
Cadmium	ND	ND	0.0	35	
Calcium	27,500	25,500	7.5	35	
Chromium	6.15	6.34	3.0	35	
Cobalt	11.1	10.6	4.6	35	
Copper	20.3	19.2	5.6	35	
Iron	19,200	19,200	0.0	35	
Lead	17.0	16.9	0.6	35	
Magnesium	3,160	3,310	4.6	35	
Manganese	374	461	20.8	35	
Molybdenum	ND	ND	0.0	35	
Nickel	14.3	13.6	5.0	35	
Potassium	1,880	1,980	5.2	35	
Selenium	ND	ND	0.0	35	
Silver	ND	ND	0.0	35	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071203005

SAMPLE DUPLICATE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0711172-05A
Prep Date: 12/3/2007

Samp. Anal. Date: 12/3/2007 1:43:00PM

Units: mg/Kg

DUP Anal. Date: 12/3/2007 1:48:00PM

Matrix: Solid

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Sodium	4,090	3,880	5.3	35	
Thallium	ND	ND	0.0	35	
Vanadium	17.9	19.5	8.6	35	
Zinc	59.4	60.1	1.2	35	
Lithium	8.19	9.07	10.2	35	

LCS/LCSD REPORT

Analysis: SW6010B - ICP - Total

MB: T071203005-MB
Prep Date: 12/3/2007

MB Anal. Date: 12/3/2007 1:12:00PM

Units: mg/Kg

LCS Anal. Date: 12/3/2007 1:17:00PM LCSD Anal. Date: 12/3/2007 1:22:00PM

Matrix: Solid

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Aluminum	ND	204	203	200	200	102.0	101.5	0.5	70 - 130	35	
Antimony	ND	47.2	47.7	50.0	50.0	94.4	95.4	1.1	70 - 130	35	
Arsenic	ND	192	193	200	200	96.0	96.5	0.5	70 - 130	35	
Barium	ND	199	199	200	200	99.5	99.5	0.0	70 - 130	35	
Beryllium	ND	4.82	4.82	5.00	5.00	96.4	96.4	0.0	70 - 130	35	
Boron	ND	60.2	64.5	50.0	50.0	120.4	129.0	6.9	70 - 130	35	
Cadmium	ND	5.06	5.01	5.00	5.00	101.2	100.2	1.0	70 - 130	35	
Calcium	ND	954	947	1,000	1,000	95.4	94.7	0.7	70 - 130	35	
Chromium	ND	19.6	19.6	20.0	20.0	98.0	98.0	0.0	70 - 130	35	
Cobalt	ND	48.2	48.3	50.0	50.0	96.4	96.6	0.2	70 - 130	35	
Copper	ND	24.7	24.9	25.0	25.0	98.8	99.6	0.8	70 - 130	35	
Iron	ND	99.4	98.7	100	100	99.4	98.7	0.7	70 - 130	35	
Lead	ND	48.1	48.7	50.0	50.0	96.2	97.4	1.2	70 - 130	35	
Magnesium	ND	994	992	1,000	1,000	99.4	99.2	0.2	70 - 130	35	
Manganese	ND	49.0	48.8	50.0	50.0	98.0	97.6	0.4	70 - 130	35	
Molybdenum	ND	48.6	48.4	50.0	50.0	97.2	96.8	0.4	70 - 130	35	
Nickel	ND	47.9	48.1	50.0	50.0	95.8	96.2	0.4	70 - 130	35	
Potassium	ND	937	954	1,000	1,000	93.7	95.4	1.8	70 - 130	35	

ATTACHMENT B
Total Analyses Laboratory Results

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number: **QUALITY CONTROL REPORT**

Prep Batch: **T071203005**

LCS/LCSD REPORT

Analysis: SW6010B - ICP - Total

MB: T071203005-MB

Prep Date: 12/3/2007

MB Anal. Date: 12/3/2007 1:12:00PM

Units: mg/Kg

LCS Anal. Date: 12/3/2007 1:17:00PM LCSD Anal. Date: 12/3/2007 1:22:00PM Matrix: Solid

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Selenium	ND	189	191	200	200	94.5	95.5	1.1	70 - 130	35	
Silver	ND	24.9	25.0	25.0	25.0	99.6	100.0	0.4	70 - 130	35	
Sodium	ND	1,010	1,000	1,000	1,000	101.0	100.0	1.0	70 - 130	35	
Thallium	ND	20.4	18.6	20.0	20.0	102.0	93.0	9.2	70 - 130	35	
Vanadium	ND	49.9	49.6	50.0	50.0	99.8	99.2	0.6	70 - 130	35	
Zinc	ND	54.1	62.4	50.0	50.0	108.2	124.8	14.2	70 - 130	35	
Lithium	ND	47.3	47.0	50.0	50.0	94.6	94.0	0.6	70 - 130	35	

MS/MSD REPORT

Analysis: SW6010B - ICP - Total

Parent: B0711172-05A

Prep Date: 12/3/2007

Samp. Anal. Date: 12/3/2007 1:43:00PM

Units: mg/Kg

MS Anal. Date: 12/3/2007 1:53:00PM MSD Anal. Date: 12/3/2007 1:58:00PM Matrix: Solid

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLev	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Aluminum	9,240	13,400	13,700	192	191	2,171.5	2,334.7	2.2	70 - 130	35	NOTE 2 NOTE 2
Antimony	ND	19.7	18.6	47.9	47.8	41.1	38.9	5.7	70 - 130	35	lowMS lowMSD
Arsenic	ND	158	157	192	191	82.5	82.2	0.6	70 - 130	35	
Barium	141	319	320	192	191	92.9	93.7	0.3	70 - 130	35	
Beryllium	0.838	5.47	5.46	4.79	4.78	96.7	96.8	0.2	70 - 130	35	
Boron	10.8	67.1	66.8	47.9	47.8	117.6	117.3	0.4	70 - 130	35	
Cadmium	ND	5.48	5.44	4.79	4.78	114.4	113.9	0.7	70 - 130	35	
Calcium	27,500	25,900	25,900	958	955	-167.0	-167.5	0.0	70 - 130	35	NOTE 2 NOTE 2
Chromium	6.15	25.8	26.2	19.2	19.1	102.6	105.0	1.5	70 - 130	35	
Cobalt	11.1	54.1	54.3	47.9	47.8	89.8	90.5	0.4	70 - 130	35	
Copper	20.3	42.4	43.0	23.9	23.9	92.3	95.1	1.4	70 - 130	35	
Iron	19,200	18,800	20,200	95.8	95.5	-417.6	1,046.9	7.2	70 - 130	35	NOTE 2 NOTE 2
Lead	17.0	60.7	61.4	47.9	47.8	91.2	93.0	1.1	70 - 130	35	
Magnesium	3,160	4,370	4,600	1,030	955	117.7	150.8	5.1	70 - 130	35	highMSD

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071203005

MS/MSD REPORT

Analysis: SW6010B - ICP - Total

Parent: B0711172-05A

Prep Date: 12/3/2007

Samp. Anal. Date: 12/4/2007 3:18:00PM

Units: mg/Kg

MS Anal. Date: 12/4/2007 3:28:00PM MSD Anal. Date: 12/4/2007 3:33:00PM Matrix: Solid

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLv	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Manganese	374	431	419	51.4	47.8	110.9	94.2	2.8	70 - 130	35	NOTE 2 NOTE 2
Molybdenum	ND	43.2	42.4	47.9	47.8	90.2	88.8	1.9	70 - 130	35	
Nickel	14.3	56.9	58.1	47.9	47.8	88.9	91.7	2.1	70 - 130	35	
Potassium	1,880	2,870	2,920	958	955	103.4	108.9	1.7	70 - 130	35	
Selenium	ND	189	187	192	191	98.7	97.9	1.1	70 - 130	35	
Silver	ND	23.6	23.3	23.9	23.9	98.6	97.6	1.3	70 - 130	35	
Sodium	4,090	4,710	5,020	958	955	64.7	97.4	6.4	70 - 130	35	NOTE 2 NOTE 2
Thallium	ND	13.6	12.1	19.2	19.1	71.0	63.3	11.7	70 - 130	35	lowMSD
Vanadium	17.9	67.0	67.8	47.9	47.8	102.5	104.5	1.2	70 - 130	35	
Zinc	59.4	97.6	105	47.9	47.8	79.8	95.5	7.3	70 - 130	35	
Lithium	8.19	58.0	54.6	51.4	47.8	96.9	97.2	6.0	70 - 130	35	

POST DIGESTION SPIKE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0711172-05A

Prep Date: 12/3/2007

Samp. Anal. Date: 12/3/2007 1:43:00PM

Units: mg/Kg

PDS Anal. Date: 12/3/2007 2:18:00PM

Matrix: Solid

Analyte Name	SampResult	PDSRes.	SPLev	Recov.	Recov Lim	Flag
Aluminum	9,240	14,100	206	2,369.3	70 - 130	Note 2
Antimony	ND	20.7	51.4	39.5	70 - 130	lowPDS
Arsenic	ND	168	206	93.7	70 - 130	
Barium	141	334	206	94.1	70 - 130	Note 2
Beryllium	0.838	5.72	5.14	95.0	70 - 130	
Boron	10.8	70.3	51.4	115.6	70 - 130	
Cadmium	ND	5.59	5.14	96.6	70 - 130	
Calcium	27,500	27,300	1,030	-23.3	70 - 130	Note 2
Chromium	6.15	27.1	20.6	102.0	70 - 130	Note 2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071203005

POST DIGESTION SPIKE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0711172-05A

Prep Date: 12/3/2007

Samp. Anal. Date: 12/3/2007 1:43:00PM

Units: mg/Kg

PDS Anal. Date: 12/3/2007 2:18:00PM

Matrix: Solid

Analyte Name	SampResult	PDSRes.	SPLev	Recov.	Recov Lim	Flag
Cobalt	11.1	57.0	51.4	89.3	70 - 130	
Copper	20.3	44.2	25.7	93.2	70 - 130	Note 2
Iron	19,200	19,800	103	569.3	70 - 130	Note 2
Lead	17.0	64.3	51.4	92.0	70 - 130	Note 2
Magnesium	3,160	4,600	1,030	139.6	70 - 130	Note 2
Manganese	374	446	51.4	139.5	70 - 130	Note 2
Molybdenum	ND	45.1	51.4	87.9	70 - 130	
Nickel	14.3	59.6	51.4	88.1	70 - 130	Note 2
Potassium	1,880	3,030	1,030	111.8	70 - 130	Note 2
Selenium	ND	203	206	98.3	70 - 130	
Silver	ND	24.9	25.7	98.3	70 - 130	
Sodium	4,090	4,990	1,030	87.3	70 - 130	Note 2
Thallium	ND	13.7	20.6	83.1	70 - 130	
Vanadium	17.9	70.3	51.4	102.0	70 - 130	Note 2
Zinc	59.4	103	51.4	84.3	70 - 130	Note 2
Lithium	8.19	59.1	51.4	99.0	70 - 130	

SERIAL DILUTION REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0711172-05A

Prep Date: 12/3/2007

Samp. Anal. Date: 12/3/2007 1:43:00PM

Units: mg/Kg

SER DIL. Date: 12/4/2007 3:59:00PM

Matrix: Solid

Analyte Name	SampResult	PQL	MDL	SerialRes.	SerPQL	RPD	Flag
Aluminum	9,240	7.7	1.9	9,470	39	2.4	
Antimony	ND	11	0.60	ND	53		
Arsenic	ND	13	1.7	ND	63		
Barium	141	0.39	0.030	128	1.9	9.6	
Beryllium	0.838	0.19	0.0085	ND	0.96		
Boron	10.8	4.8	0.65	ND	24		

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071203005

SERIAL DILUTION REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0711172-05A

Prep Date: 12/3/2007

Samp. Anal. Date: 12/3/2007 1:43:00PM

Units: mg/Kg

SER DIL. Date: 12/4/2007 3:59:00PM

Matrix: Solid

Analyte Name	SampResult	PQL	MDL	SerialRes.	SerPQL	RPD	Flag
Cadmium	ND	0.77	0.056	ND	3.9		
Calcium	27,500	13	5.1	23,800	67	14.4	OUT
Chromium	6.15	1.9	0.29	ND	9.6		
Cobalt	11.1	2.9	0.25	ND	14		
Copper	20.3	0.58	0.15	16.7	2.9	19.4	OUT
Iron	19,200	5.8	0.42	16,500	29	15.1	OUT
Lead	17.0	5.8	1.0	ND	29		
Magnesium	3,160	9.6	0.92	2,990	48	5.5	
Manganese	374	0.96	0.11	429	4.8	13.7	OUT
Molybdenum	ND	1.9	0.23	ND	9.6		
Nickel	14.3	3.9	0.41	ND	19		
Potassium	1,880	96	30	1,720	480	8.8	
Selenium	ND	9.6	2.4	ND	48		
Silver	ND	1.4	0.15	ND	7.2		
Sodium	4,090	290	0.98	3,400	1,400	18.4	OUT
Thallium	ND	19	1.1	ND	96		
Vanadium	17.9	0.96	0.19	19.6	4.8	9.0	
Zinc	59.4	0.58	0.21	55.1	2.9	7.5	
Lithium	8.19	4.8	0.047	ND	24		

Prep Batch: T071204013

SAMPLE DUPLICATE REPORT

Analysis: SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Tot

Base Sample: B0711172-02A

Prep Date: 12/4/2007

Samp. Anal. Date: 12/4/2007 3:25:10PM

Units: mg/Kg

DUP Anal. Date: 12/4/2007 3:33:00PM

Matrix: Solid

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Mercury	0.124	0.134	7.8	35	

LCS/LCSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071204013

LCS/LCSD REPORT

Analysis: SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Tot MB: T071204013-MB

Prep Date: 12/4/2007

MB Anal. Date: 12/4/2007 3:00:38PM

Units: mg/Kg

LCS Anal. Date: 12/4/2007 3:08:17PM LCSD Anal. Date: 12/4/2007 3:16:19PM Matrix: Solid

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Mercury	ND	0.845	0.843	0.833	0.833	101.4	101.2	0.2	70 - 130	35	

MS/MSD REPORT

Analysis: SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Tot Parent: B0711172-02A

Prep Date: 12/4/2007

Samp. Anal. Date: 12/4/2007 3:25:10PM

Units: mg/Kg

MS Anal. Date: 12/4/2007 3:41:00PM MSD Anal. Date: 12/4/2007 3:49:21PM Matrix: Solid

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLev	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Mercury	0.124	0.966	0.999	0.845	0.873	99.7	100.2	3.4	70 - 130	35	

POST DIGESTION SPIKE REPORT

Analysis: SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Tot Base Sample: B0711172-02A

Prep Date: 12/4/2007

Samp. Anal. Date: 12/4/2007 3:25:10PM

Units: mg/Kg

PDS Anal. Date: 12/4/2007 3:57:39PM

Matrix: Solid

Analyte Name	SampResult	PDSRes.	SPLev	Recov.	Recov Lim	Flag
Mercury	0.124	1.01	0.876	101.3	80 - 130	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071207005

SAMPLE DUPLICATE REPORT

Analysis: ASTM D2216 - Pmoist

Base Sample: B0711172-11A

Prep Date: 12/6/2007

Samp. Anal. Date: 12/7/2007 9:39:41AM

Units: %

DUP Anal. Date: 12/7/2007 9:39:41AM

Matrix: Solid

<u>Analyte Name</u>	<u>SampResult</u>	<u>DUPRes.</u>	<u>RPD</u>	<u>RPDLim</u>	<u>Flag</u>
Moisture	6.98	6.39	8.8	20	

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071130001

SAMPLE DUPLICATE REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC

Base Sample: B0711172-12B

Prep Date: 11/29/2007

Samp. Anal. Date: 11/29/2007 2:11:40PM

Units: mg/L

DUP Anal. Date: 11/29/2007 2:28:30PM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Fluoride	2.46	2.45	0.4	30	
Chloride	700	702	0.3	30	
Sulfate	263	263	0.0	30	

LCS/LCSD REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC

MB: T071130001-MB

Prep Date: 11/29/2007

MB Anal. Date: 11/29/2007 1:04:19PM

Units: mg/L

LCS Anal. Date: 11/29/2007 1:21:08PM

LCSD Anal. Date: 11/29/2007 1:37:58PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLim	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Fluoride	ND	2.62	2.55	2.50	2.50	104.8	102.0	2.7	90 - 110	20	
Chloride	ND	5.13	5.12	5.00	5.00	102.6	102.4	0.2	90 - 110	20	
Sulfate	ND	39.0	39.1	37.5	37.5	104.0	104.3	0.3	90 - 110	20	

MS REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC

Parent: B0711172-12B

Prep Date: 11/29/2007

Samp. Anal. Date: 11/29/2007 2:11:40PM

Units: mg/L

MS Anal. Date: 11/29/2007 2:45:21PM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Fluoride	2.46	5.28	2.50	112.8	70 - 130	
Chloride	700	845	133	108.8	70 - 130	NOTE 2
Sulfate	263	693	375	114.7	70 - 130	

Prep Batch: T071203008

SAMPLE DUPLICATE REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071203008

SAMPLE DUPLICATE REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS
Base Sample: B0711172-01B
Prep Date: 11/29/2007

Samp. Anal. Date: 12/4/2007 9:06:42AM

Units: mg/L

DUP Anal. Date: 12/4/2007 9:06:42AM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>DUPRes.</u>	<u>RPD</u>	<u>RPDLim</u>	<u>Flag</u>
Total Dissolved Solids	3,070	2,980	3.0	20	

LCS/LCSD REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS
MB: T071203008-MB
Prep Date: 11/29/2007

MB Anal. Date: 12/4/2007 9:06:42AM

Units: mg/L

LCS Anal. Date: 12/4/2007 9:06:42AM
LCSD Anal. Date: 12/4/2007 9:06:42AM
Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>LCSRes.</u>	<u>SDRes.</u>	<u>SPLev</u>	<u>SPDLev</u>	<u>Recov.</u>	<u>SD Recov</u>	<u>RPD</u>	<u>Recov Lim</u>	<u>RPDLim</u>	<u>Flag</u>
Total Dissolved Solids	ND	730	735	744	744	98.1	98.8	0.7	80 - 120	20	

MS REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS
Parent: B0711172-01B
Prep Date: 11/29/2007

Samp. Anal. Date: 12/4/2007 9:06:42AM

Units: mg/L

MS Anal. Date: 12/4/2007 9:06:42AM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>MSRes.</u>	<u>SPLev</u>	<u>Recov.</u>	<u>Recov Lim</u>	<u>Flag</u>
Total Dissolved Solids	3,070	3,790	744	96.8	70 - 130	NOTE 2

Prep Batch: T071203004

SAMPLE DUPLICATE REPORT

Analysis: 150.1 - pH, Elecrometric - pH
Base Sample: B0711172-01B
Prep Date: 11/28/2007

Samp. Anal. Date: 11/28/2007 10:05:27AM

Units: pH

DUP Anal. Date: 11/28/2007 10:05:27AM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>DUPRes.</u>	<u>RPD</u>	<u>RPDLim</u>	<u>Flag</u>
pH	8.97	8.95	0.2	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at:	Analytica Environmental Laboratories - Thornton, Colorado
Workorder (SDG):	B0711172
Project:	Navajo Mine Extension Leaching Study
Project Number:	QUALITY CONTROL REPORT
Prep Batch:	T071203004

Prep Batch: **T071203006**

SAMPLE DUPLICATE REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity
 Base Sample: B0711172-01B
 Prep Date: 11/29/2007

Samp. Anal. Date: 11/29/2007 10:08:49AM
 Units: mg/L

DUP Anal. Date: 11/29/2007 10:08:49AM
 Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Bicarbonate	1,280	1,230	4.0	20	
Carbonate	256	288	11.8	20	

LCS/LCSD REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity
 MB: T071203006-MB
 Prep Date: 11/29/2007

MB Anal. Date: 11/29/2007 10:08:49AM
 Units: mg/L

LCS Anal. Date: 11/29/2007 10:08:49AM
 LCSD Anal. Date: 11/29/2007 10:08:49AM
 Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Bicarbonate	ND	24.0	26.0	25.0	25.0	96.0	104.0	8.0	80 - 120	20	
Carbonate	ND	49.0	50.0	50.0	50.0	98.0	100.0	2.0	80 - 120	20	

FOOTNOTES TO QC REPORT

- Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.
- Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.
- Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.
- Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 81,530 Lab Project Number: B0711172

Prep Date: 11/29/2007

Lab Method Blank Id: T071130001-MB

Prep Batch ID: T071130001

Method: Inorganic Anions by Ion Chromatography - Anions by IC

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
T071130001-LCS	LCS	071129_011.DXD	11/29/2007 1:21:08PM
T071130001-LCSD	LCSD	071129_012.DXD	11/29/2007 1:37:58PM
B0711172-01B	KF2007-01(58) and KF-98-02(53)	071129_013.DXD	11/29/2007 1:54:49PM
B0711172-12B	KF2007-01(58) DUP and KF-98-02(53)DUP	071129_014.DXD	11/29/2007 2:11:40PM
B0711172-12B-DUP	DUP	071129_015.DXD	11/29/2007 2:28:30PM
B0711172-12B-MS	MS	071129_016.DXD	11/29/2007 2:45:21PM
B0711172-12B	KF2007-01(58) DUP and KF-98-02(53)DUP	071129_044.DXD	11/29/2007 10:36:20PM
B0711172-12B-DUP	DUP	071129_045.DXD	11/29/2007 10:53:10PM
B0711172-12B-MS	MS	071129_046.DXD	11/29/2007 11:09:59PM
B0711172-01B	KF2007-01(58) and KF-98-02(53)	071130_007.DXD	11/30/2007 12:00:01PM
B0711172-12B	KF2007-01(58) DUP and KF-98-02(53)DUP	071130_008.DXD	11/30/2007 12:16:51PM
B0711172-12B-DUP	DUP	071130_009.DXD	11/30/2007 12:33:40PM
B0711172-12B-MS	MS	071130_010.DXD	11/30/2007 12:50:29PM

Prep Date: 11/30/2007

Lab Method Blank Id: T071130013-MB

Prep Batch ID: T071130013

Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0711172-01A	KF2007-01(58) and KF-98-02(53)	B113007W.WKS	11/30/2007 4:07:17PM
B0711172-12A	KF2007-01(58) DUP and KF-98-02(53)DUP	B113007W.WKS	11/30/2007 4:09:34PM
J0711112-01B	Batch QC	B113007W.WKS	11/30/2007 4:14:48PM
T071130013-LCS	LCS	B113007W.WKS	11/30/2007 4:02:28PM
T071130013-LCSD	LCSD	B113007W.WKS	11/30/2007 4:05:02PM
J0711112-01B-DUP	DUP	B113007W.WKS	11/30/2007 4:17:01PM
J0711112-01B-MS	MS	B113007W.WKS	11/30/2007 4:19:11PM
J0711112-01B-MSD	MSD	B113007W.WKS	11/30/2007 4:21:35PM
J0711112-01B-PDS	PDS	B113007W.WKS	11/30/2007 4:23:43PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 81,530 Lab Project Number: B0711172

Prep Date: 12/3/2007

Lab Method Blank Id: T071203005-MB
Prep Batch ID: T071203005
Method: SW6010B - ICP - Total

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0711172-02A	123 S 87W 0-4' SPOIL	E12037A	12/3/2007 1:27:00PM
B0711172-03A	123 S 89W 0-4' SPOIL	E12037A	12/3/2007 1:32:00PM
B0711172-04A	125 S 88W 0-4' SPOIL	E12037A	12/3/2007 1:37:00PM
B0711172-05A	120 S 89W 0-4' SPOIL	E12037A	12/3/2007 1:43:00PM
B0711172-06A	Barber Ramp 3 Composite Spoil A	E12037A	12/3/2007 2:28:00PM
B0711172-07A	Barber Ramp 3 Composite Spoil B	E12037A	12/3/2007 2:33:00PM
B0711172-08A	Barber Ramp 3 Composite Spoil C	E12037A	12/3/2007 2:38:00PM
B0711172-09A	Ash Composite 70% FA	E12037A	12/3/2007 2:43:00PM
B0711172-10A	Ash Composite Dup 1 70% FA	E12037A	12/3/2007 2:48:00PM
B0711172-11A	Ash Composite Dup2 70% FA	E12037A	12/3/2007 2:53:00PM
T071203005-LCS	LCS	E12037A	12/3/2007 1:17:00PM
T071203005-LCS	LCS	E12037A	12/3/2007 2:58:00PM
T071203005-LCSD	LCSD	E12037A	12/3/2007 1:22:00PM
B0711172-05A-DUP	DUP	E12037A	12/3/2007 1:48:00PM
B0711172-05A-MS	MS	E12037A	12/3/2007 1:53:00PM
B0711172-05A-MSD	MSD	E12037A	12/3/2007 1:58:00PM
B0711172-05A-PDS	PDS	E12037A	12/3/2007 2:18:00PM
B0711172-02A	123 S 87W 0-4' SPOIL	E12047A	12/4/2007 3:03:00PM
B0711172-03A	123 S 89W 0-4' SPOIL	E12047A	12/4/2007 3:08:00PM
B0711172-04A	125 S 88W 0-4' SPOIL	E12047A	12/4/2007 3:13:00PM
B0711172-05A	120 S 89W 0-4' SPOIL	E12047A	12/4/2007 3:18:00PM
B0711172-06A	Barber Ramp 3 Composite Spoil A	E12047A	12/4/2007 4:04:00PM
B0711172-07A	Barber Ramp 3 Composite Spoil B	E12047A	12/4/2007 4:09:00PM
B0711172-08A	Barber Ramp 3 Composite Spoil C	E12047A	12/4/2007 4:14:00PM
B0711172-09A	Ash Composite 70% FA	E12047A	12/4/2007 4:19:00PM
B0711172-10A	Ash Composite Dup 1 70% FA	E12047A	12/4/2007 4:24:00PM
B0711172-11A	Ash Composite Dup2 70% FA	E12047A	12/4/2007 4:29:00PM
T071203005-LCS	LCS	E12047A	12/4/2007 2:53:00PM
T071203005-LCSD	LCSD	E12047A	12/4/2007 2:58:00PM
B0711172-05A-DUP	DUP	E12047A	12/4/2007 3:23:00PM
B0711172-05A-MS	MS	E12047A	12/4/2007 3:28:00PM
B0711172-05A-MSD	MSD	E12047A	12/4/2007 3:33:00PM
B0711172-05A-PDS	PDS	E12047A	12/4/2007 3:54:00PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 81,530 Lab Project Number: B0711172

Prep Date: 11/29/2007

Lab Method Blank Id: T071203006-MB
Prep Batch ID: T071203006
Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0711172-01B	KF2007-01(58) and KF-98-02(53)		11/29/2007 10:08:49AM
B0711172-12B	KF2007-01(58) DUP and KF-98-02(53)DUP		11/29/2007 10:08:49AM
T071203006-LCS	LCS		11/29/2007 10:08:49AM
T071203006-LCSD	LCSD		11/29/2007 10:08:49AM
B0711172-01B-DUP	DUP		11/29/2007 10:08:49AM

Prep Date: 11/29/2007

Lab Method Blank Id: T071203008-MB
Prep Batch ID: T071203008
Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0711172-01B	KF2007-01(58) and KF-98-02(53)		12/4/2007 9:06:42AM
B0711172-12B	KF2007-01(58) DUP and KF-98-02(53)DUP		12/4/2007 9:06:42AM
T071203008-LCS	LCS		12/4/2007 9:06:42AM
T071203008-LCSD	LCSD		12/4/2007 9:06:42AM
B0711172-01B-DUP	DUP		12/4/2007 9:06:42AM
B0711172-01B-MS	MS		12/4/2007 9:06:42AM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **81,530** Lab Project Number: **B0711172**

Prep Date: 12/3/2007

Lab Method Blank Id: T071203011-MB
Prep Batch ID: T071203011
Method: SW6010B - ICP - Total

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0711172-01A	KF2007-01(58) and KF-98-02(53)	E12037A	12/3/2007 6:01:00PM
B0711172-12A	KF2007-01(58) DUP and KF-98-02(53)DUPE	E12037A	12/3/2007 6:06:00PM
F0711221-01A	Batch QC	E12037A	12/3/2007 6:11:00PM
T071203011-LCS	LCS	E12037A	12/3/2007 5:51:00PM
T071203011-LCSD	LCSD	E12037A	12/3/2007 5:56:00PM
F0711221-01A-DUP	DUP	E12037A	12/3/2007 6:16:00PM
F0711221-01A-MS	MS	E12037A	12/3/2007 6:21:00PM
F0711221-01A-MSD	MSD	E12037A	12/3/2007 6:26:00PM
F0711221-01A-PDS	PDS	E12037A	12/3/2007 6:31:00PM
B0711172-01A	KF2007-01(58) and KF-98-02(53)	E12047A	12/4/2007 5:19:00PM
B0711172-12A	KF2007-01(58) DUP and KF-98-02(53)DUPE	E12047A	12/4/2007 5:24:00PM
F0711221-01A	Batch QC	E12047A	12/5/2007 9:03:00AM
T071203011-LCS	LCS	E12047A	12/4/2007 5:09:00PM
T071203011-LCSD	LCSD	E12047A	12/4/2007 5:14:00PM
F0711221-01A-DUP	DUP	E12047A	12/5/2007 9:08:00AM
F0711221-01A-MS	MS	E12047A	12/5/2007 9:13:00AM
F0711221-01A-MSD	MSD	E12047A	12/5/2007 9:18:00AM
F0711221-01A-PDS	PDS	E12047A	12/5/2007 9:23:00AM
F0711221-01A-MS	MS	E12057A	12/5/2007 6:20:00PM
F0711221-01A-MSD	MSD	E12057A	12/6/2007 10:14:00AM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **81,530** Lab Project Number: **B0711172**

Prep Date: 12/4/2007

Lab Method Blank Id: T071204013-MB

Prep Batch ID: T071204013

Method: SW7471A - Mercury in Solid or Semisolid Waste by CVAA - Tot

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0711172-02A	123 S 87W 0-4' SPOIL	B120407S.WKS	12/4/2007 3:25:10PM
B0711172-03A	123 S 89W 0-4' SPOIL	B120407S.WKS	12/4/2007 4:05:31PM
B0711172-04A	125 S 88W 0-4' SPOIL	B120407S.WKS	12/4/2007 4:13:55PM
B0711172-05A	120 S 89W 0-4' SPOIL	B120407S.WKS	12/5/2007 9:42:00AM
B0711172-06A	Barber Ramp 3 Composite Spoil A	B120407S.WKS	12/5/2007 9:49:39AM
B0711172-07A	Barber Ramp 3 Composite Spoil B	B120407S.WKS	12/5/2007 9:57:26AM
B0711172-08A	Barber Ramp 3 Composite Spoil C	B120407S.WKS	12/5/2007 10:05:12AM
B0711172-09A	Ash Composite 70% FA	B120407S.WKS	12/5/2007 10:21:36AM
B0711172-10A	Ash Composite Dup 1 70% FA	B120407S.WKS	12/5/2007 10:31:17AM
B0711172-11A	Ash Composite Dup2 70% FA	B120407S.WKS	12/5/2007 10:40:18AM
T071204013-LCS	LCS	B120407S.WKS	12/4/2007 3:08:17PM
T071204013-LCSD	LCSD	B120407S.WKS	12/4/2007 3:16:19PM
B0711172-02A-DUP	DUP	B120407S.WKS	12/4/2007 3:33:00PM
B0711172-02A-MS	MS	B120407S.WKS	12/4/2007 3:41:00PM
B0711172-02A-MSD	MSD	B120407S.WKS	12/4/2007 3:49:21PM
B0711172-02A-PDS	PDS	B120407S.WKS	12/4/2007 3:57:39PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **81,530** Lab Project Number: **B0711172**

Prep Date: 12/6/2007

Lab Method Blank Id: T071207005-MB
Prep Batch ID: T071207005
Method: ASTM D2216 - Pmoist

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0711172-02A	123 S 87W 0-4' SPOIL		12/7/2007 9:39:41AM
B0711172-03A	123 S 89W 0-4' SPOIL		12/7/2007 9:39:41AM
B0711172-04A	125 S 88W 0-4' SPOIL		12/7/2007 9:39:41AM
B0711172-05A	120 S 89W 0-4' SPOIL		12/7/2007 9:39:41AM
B0711172-06A	Barber Ramp 3 Composite Spoil A		12/7/2007 9:39:41AM
B0711172-07A	Barber Ramp 3 Composite Spoil B		12/7/2007 9:39:41AM
B0711172-08A	Barber Ramp 3 Composite Spoil C		12/7/2007 9:39:41AM
B0711172-09A	Ash Composite 70% FA		12/7/2007 9:39:41AM
B0711172-10A	Ash Composite Dup 1 70% FA		12/7/2007 9:39:41AM
B0711172-11A	Ash Composite Dup2 70% FA		12/7/2007 9:39:41AM
B0711172-11A-DUP	DUP		12/7/2007 9:39:41AM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

DATA FLAGS AND DEFINITIONS

The PQL is the Method Quantitation Limit as defined by USACE.

Reporting Limit: Limit below which results are shown as "ND". This may be the PQL, MDL, or a value between. See the report conventions below.

Result Field:

ND = Not Detected at or above the Reporting Limit

NA = Analyte not applicable (see Case Narrative for discussion)

Qualifier Fields:

LOW = Recovery is below Lower Control Limit

HIGH = Recovery, RPD, or other parameter is above Upper Control Limit

E = Reported concentration is above the instrument calibration upper range

Organic Analysis Flags:

B = Analyte was detected in the laboratory method blank

J = Analyte was detected above MDL or Reporting Limit but below the Quant Limit (PQL)

Inorganic Analysis Flags:

J = Analyte was detected above the Reporting Limit but below the Quant Limit (PQL)

W = Post digestion spike did not meet criteria

S = Reported value determined by the Method of Standard Additions (MSA)

Other Flags may be applied. See Case Narrative for Description

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0711172

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

REPORTING CONVENTIONS FOR THIS REPORT

B0711172

<u>TestPkgName</u>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
150.1/150.1 (Aqueous) - pH	As Received		Report to PQL
160.1/160.1 (Aqueous) - TDS	As Received		Report to PQL
300.0/300.0 (Aqueous) - Anions by IC	As Received		Report to PQL
310.1/310.1 (Aqueous) - Alkalinity	As Received		Report to PQL
6010B/3010A (Aqueous) - Total	As Received		Report to PQL
6010B/3050B (Solid) - Total	Dry Weight Basis		Report to PQL
7470A/7470A (Aqueous) - Total Hg	As Received		Report to PQL
7471A/7471A (Solid) - Total Hg	Dry Weight Basis		Report to PQL
ASTMD2216/ASTMD2216 (Solid) - Pmoist	As Received		Report to MDL, J qual below PQL

ATTACHMENT C
Cation Exchange Capacity Laboratory Results



Analytical Results

Report To: Claire Toon
Company: Analytica Environmental Labs
 12189 Pennsylvania Street
 Thornton CO 80241-3115

Task No: 07112932
Date Received: 11/29/07
Reported: 12/13/07
Client PO: T13190
Client Project: B0711172

Customer Sample ID: 123 S 87W 0-4' Spoil (B0711172-2B)
Sample Date/Time: 11/15/07 12:00 PM

Lab Number: 07112932-01
Matrix: Soil - Environmental

Test	Result	Reporting Limit	Method
<u>Dry Weight Basis</u> Cation Exchange Capacity	9.7 meq/100g	0.1	EPA 9081

ASA - "Methods of Soil Analysis, Parts 1 and 2", Second Edition, American Society of Agronomy and Soil Science Society of America, Madison, WI, 1982.

SW-846 - "Test Methods for Evaluating Solid Waste"; USEPA; November 1986

AB-DTPA - "Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity"; Colorado State University Technical Bulletin LTBR8-2; Jan 1998; SM Workman, PN Solanpour and RH Follen.

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Page 1 of 10

240 South Main Street / Brighton, CO 80601-0507 / 303-659-2313
 Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507 / Fax: 303-659-2315

07112932



Analytical Results

Report To: Claire Toon
Company: Analytica Environmental Labs
 12189 Pennsylvania Street
 Thornton CO 80241-3115

Task No: 07112932
Date Received: 11/29/07
Reported: 12/13/07
Client PO: T13190
Client Project: B0711172

Customer Sample ID: 123 S 89W 0-4' Spoil (B0711172-3B)
Sample Date/Time: 11/15/07 12:00 PM

Lab Number: 07112932-02
Matrix: Soil - Environmental

Test	Result	Reporting Limit	Method
<i>Dry Weight Basis</i>			
Cation Exchange Capacity	8.7 meq/100g	0.1	EPA 9081

ASA = "Methods of Soil Analysis, Parts 1 and 2", Second Edition, American Society of Agronomy and Soil Science Society of America, Madison, WI, 1982.
 SW-846 = "Test Methods for Evaluating Solid Waste"; USEPA; November 1986
 AB-DTPA = "Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity"; Colorado State University Technical Bulletin LT888-2; Jan 1998; SM Workman, FN Soltanpour and RH Follett.

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Page 2 of 10

240 South Main Street / Brighton, CO 80601-0507 / 303-659-2313
 Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507 / Fax: 303-659-2315

07112932



Analytical Results

Report To: Claire Toon
Company: Analytica Environmental Labs
 12189 Pennsylvania Street
 Thornton CO 80241-3115

Task No: 07112932
Date Received: 11/29/07
Reported: 12/13/07
Client PO: T13190
Client Project: B0711172

Customer Sample ID: 125 S 88W 0-4' Spoil (B0711172-4B) **Lab Number:** 07112932-03
Sample Date/Time: 11/15/07 12:00 PM **Matrix:** Soil - Environmental

Test	Result	Reporting Limit	Method
<i>Dry Weight Basis</i>			
Cation Exchange Capacity	9.4 meq/100g	0.1	EPA 9081

ASA - "Methods of Soil Analysis, Parts 1 and 2", Second Edition, American Society of Agronomy and Soil Science Society of America, Madison, WI, 1982.
 SW-846 - "Test Methods for Evaluating Solid Waste"; USEPA, November 1986
 AB-DTPA - "Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity"; Colorado State University Technical Bulletin LTBR-2; Jan 1998; SM Workman, PN Soltanpour and RH Follen,

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240 South Main Street / Brighton, CO 80601-0507 / 303-659-2313
 Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507 / Fax: 303-659-2315

07112932



Analytical Results

Report To: Claire Toon
Company: Analytica Environmental Labs
 12189 Pennsylvania Street
 Thornton CO 80241-3115

Task No: 07112932
Date Received: 11/29/07
Reported: 12/13/07
Client PO: T13190
Client Project: B0711172

Customer Sample ID: 120 S 89W 0-4' Spoil (B0711172-5B)
Sample Date/Time: 11/15/07 12:00 PM

Lab Number: 07112932-04
Matrix: Soil - Environmental

Test	Result	Reporting Limit	Method
<u>Dry Weight Basis</u> Cation Exchange Capacity	9.0 meq/100g	0.1	EPA 9081

ASA - "Methods of Soil Analysis, Parts 1 and 2", Second Edition, American Society of Agronomy and Soil Science Society of America, Madison, WI, 1982.
 SW-846 - "Test Methods for Evaluating Solid Waste"; USEPA; November 1986
 AB-DTPA - "Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity"; Colorado State University Technical Bulletin LTBR-2; Jan 1998; SM Workman, FN Soltanpour and RH Follett.

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240 South Main Street / Brighton, CO 80601-0507 / 303-659-2313
 Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507 / Fax: 303-659-2315

07112932



Analytical Results

Report To: Claire Toon
Company: Analytica Environmental Labs
 12189 Pennsylvania Street
 Thornton CO 80241-3115

Task No: 07112932
Date Received: 11/29/07
Reported: 12/13/07
Client PO: T13190
Client Project: B0711172

Customer Sample ID: Barber Ramp 3 Composite Soil A (B0711172) **Lab Number:** 07112932-05
Sample Date/Time: 11/15/07 12:00 PM **Matrix:** Soil - Environmental

Test	Result	Reporting Limit	Method
<i>Dry Weight Basis</i>			
Cation Exchange Capacity	9.0 meq/100g	0.1	EPA 9081

ASA = "Methods of Soil Analysis, Parts 1 and 2", Second Edition, American Society of Agronomy and Soil Science Society of America, Madison, WI, 1982.
 SW-846 = "Text Methods for Evaluating Solid Waste"; USEPA; November 1986
 AB-DTPA = "Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity"; Colorado State University Technical Bulletin LT888-2; Jan 1998; SM Workman, PN Soltanpour and RH Follen.

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240 South Main Street / Brighton, CO 80601-0507 / 303-659-2313
 Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507 / Fax: 303-659-2315

07112932



Analytical Results

Report To: Claire Toon
Company: Analytica Environmental Labs
 12189 Pennsylvania Street
 Thornton CO 80241-3115

Task No: 07112932
Date Received: 11/29/07
Reported: 12/13/07
Client PO: T13190
Client Project: B0711172

Customer Sample ID: Barber Ramp 3 Composite Soil B (B0711172) **Lab Number:** 07112932-06
Sample Date/Time: 11/15/07 12:00 PM **Matrix:** Soil - Environmental

Test	Result	Reporting Limit	Method
<u>Dry Weight Basis</u> Cation Exchange Capacity	9.6 meq/100g	0.1	EPA 9081

ASA - "Methods of Soil Analysis, Parts 1 and 2", Second Edition, American Society of Agronomy and Soil Science Society of America, Madison, WI, 1982.
 SW-846 - "Test Methods for Evaluating Solid Waste"; USEPA; November 1986
 AB-DTPA - "Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity"; Colorado State University Technical Bulletin LTBR#-2; Jan 1998; SM Workman, PN Soltanpour and RH Follett.

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240 South Main Street / Brighton, CO 80601-0507 / 303-659-2313
 Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507 / Fax: 303-659-2315

07112932



Analytical Results

Report To: Claire Toon
Company: Analytica Environmental Labs
 12189 Pennsylvania Street
 Thornton CO 80241-3115

Task No: 07112932
Date Received: 11/29/07
Reported: 12/13/07
Client PO: T13190
Client Project: B0711172

Customer Sample ID	Barber Ramp 3 Composite Soil C (B0711172)	Lab Number: 07112932-07
Sample Date/Time: 11/15/07 12:00 PM		Matrix: Soil - Environmental

Test	Result	Reporting Limit	Method
<i>Dry Weight Basis</i>			
Cation Exchange Capacity	9.9 meq/100g	0.1	EPA 9081

ASA - "Methods of Soil Analysis, Parts 1 and 2", Second Edition, American Society of Agronomy and Soil Science Society of America. Madison, WI, 1982.
 SW-846 - "Test Methods for Evaluating Solid Waste": USEPA; November 1986
 AB-DIPA - "Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity": Colorado State University Technical Bulletin LTB88-2; Jan 1998; SM Workman, PN Soltanpour and RH Follett.

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Analytical Results

Report To: Claire Toon
Company: Analytica Environmental Labs
 12189 Pennsylvania Street
 Thornton CO 80241-3115

Task No: 07112932
Date Received: 11/29/07
Reported: 12/13/07
Client PO: T13190
Client Project: B0711172

Customer Sample ID: Ash Composite 70% FA (B0711172-9B) **Lab Number:** 07112932-08
Sample Date/Time: 11/26/07 10:00 AM **Matrix:** Soil - Environmental

Test	Result	Reporting Limit	Method
<u>Dry Weight Basis</u>			
Cation Exchange Capacity	0.4 meq/100g	0.1	EPA 9081

ASA - "Methods of Soil Analysis, Parts 1 and 2", Second Edition, American Society of Agronomy and Soil Science Society of America, Madison, WI, 1982.
 SW-846 - "Test Methods for Evaluating Solid Waste"; USEPA; November 1986
 AB-DTPA - "Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity"; Colorado State University Technical Bulletin LT888-2; Jan 1998; SM Workman, FN Soltanpour and RH Follett.

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 Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507 / Fax: 303-659-2315

07112932



Analytical Results

Report To: Claire Toon
Company: Analytica Environmental Labs
 12189 Pennsylvania Street
 Thornton CO 80241-3115

Task No: 07112932
Date Received: 11/29/07
Reported: 12/13/07
Client PO: T13190
Client Project: B0711172

Customer Sample ID: Ash Composite Dup 1 70% FA (B0711172-10) **Lab Number:** 07112932-09
Sample Date/Time: 11/26/07 10:00 AM **Matrix:** Soil - Environmental

Test	Result	Reporting Limit	Method
<i>Dry Weight Basis</i>			
Cation Exchange Capacity	0.2 meq/100g	0.1	EPA 9081

ASA - "Methods of Soil Analysis, Parts 1 and 2", Second Edition, American Society of Agronomy and Soil Science Society of America, Madison, WI, 1982.
 SW-846 - "Test Methods for Evaluating Solid Waste"; USEPA; November 1986
 AB-DTPA - "Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity"; Colorado State University Technical Bulletin LTBR-2; Jan 1998; SM Workman, PN Soltanpour and RH Follett.

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 Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507 / Fax: 303-659-2315

07112932



Analytical Results

Report To: Claire Toon
Company: Analytica Environmental Labs
 12189 Pennsylvania Street
 Thornton CO 80241-3115

Task No: 07112932
Date Received: 11/29/07
Reported: 12/13/07
Client PO: T13190
Client Project: B0711172

Customer Sample ID: Ash Composite Dup 2 70% FA (B0711172-11) **Lab Number:** 07112932-10
Sample Date/Time: 11/26/07 10:00 AM **Matrix:** Soil - Environmental

Test	Result	Reporting Limit	Method
<i>Dry Weight Basis</i>			
Cation Exchange Capacity	0.2 meq/100g	0.1	EPA 9081

ASA - "Methods of Soil Analysis, Parts 1 and 2", Second Edition. American Society of Agronomy and Soil Science Society of America. Madison, WI, 1982.
 SW-846 - "Test Methods for Evaluating Solid Waste"; USEPA; November 1986
 AB-DTPA - "Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity"; Colorado State University Technical Bulletin LTBR-2; Jan 1998; SM Workman, FN Solaimpour and RH Follett.

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ATTACHMENT D
Leachate Water Quality Laboratory Results



Analytica Environmental
Laboratories, Inc.
12189 Pennsylvania Street
Thornton, CO 80241
Phone: 303-469-8868
Fax: 303-469-5254

1/3/2008

Applied Hydrology Associates, Inc.
950 South Cherry Street
Suite 810
Denver, CO 80246
Attn: Art O'Hayre

Work Order #: B0712127
Date: 1/3/2008
Work ID: Navajo Mine Extension Leaching Study
Date Received: 12/17/2007
Proj #: none

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
B0712127-01	MB Leachate 1	B0712127-02	Ash Leachate 1
B0712127-03	Ash Leachate 1 Dup	B0712127-04	Spoil Leachate 1
B0712127-05	Spoil Leachate 1 Dup		

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. Listings of data qualifiers, analytical codes, key dates, and QC relationships are provided at the end of the report.

Sincerely,

Claire Toon
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

Analytica Environmental Laboratories, Inc.

Work Order: B0712127

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Methods for Chemical Analysis of Water and Wastes, USEPA 600/4-79-020, March 1983.

Pfaff, J. D., C. A. Brockhoff and J. W. O'Dell. 1994. The Determination of Inorganic Anions in Water by Ion Chromatography. Method 300.0A. U. S. Environmental Protection Agency. Environmental Monitoring Systems Lab.

Methods for the Determination of Metals in Environmental Samples, EPA/600/R-94/111, May 1994.

SAMPLE RECEIPT:

Five (5) samples were received on 12/17/2007 3:10:00 PM., at a temperature of 20 deg C., at Analytica-Thornton. The samples were received in good condition and in order per chain of custody.

REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN

A summary of our review is shown below.

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries is kept on file in our office and is available upon request.

All method specifications were met for the following tests:

Test Method: 150.1 - pH, Elecrometric - pH - Aqueous

Test Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS - Aqueous

Test Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity - Aqueous

Test Method: Inorganic Anions by Ion Chromatography - Anions by IC - Aqueous

Test Method: SW6010B - ICP - Total - Aqueous

MS/MSD and DUP OUTLIERS:

As shown below, the MS/MSD was outside of limits for Sodium. The sample had Sodium concentrations greater than four times the spike amount. In these cases it is not appropriate to calculate a recovery. The result should be used as a replicate.

Type	Client Sample	LabSample	Analyte	Recovery	LCL	UCL	Parent	Spike
MS	MB Leachate 1	B0712127-01A	Sodium	418	75	125	1180	10.0
MSD	MB Leachate 1	B0712127-01A	Sodium	-76.	75	125	1180	10.0

Case Narrative

Analytica Environmental Laboratories, Inc.

Work Order: B0712127

(continued)

Test Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg - Aqueous

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Leachate 1**

Matrix: Aqueous

Collection Date: 12/17/2007 9:40:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-01A Analysis Date: 12/18/2007 5:51:20PM
Prep Date: 12/18/2007 Instrument: CVAA_1
Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg File Name: B121807W.W
Prep Method ID: 7470A Dilution Factor: 1
Prep Batch Number: T071218023
Report Basis: As Received Analyst Initials: DL
Sample prep wt./vol: 30.00 ml Prep Extract Vol: 30.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-01A Analysis Date: 12/19/2007 4:17:00PM
Prep Date: 12/18/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12197A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071218012
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.056		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.12		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.33		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	2.9		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	0.073		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.2		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.014		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	11		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Leachate 1**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

Lab Sample Number: B0712127-01A Analysis Date: 12/19/2007 4:17:00PM
Prep Date: 12/18/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12197A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071218012
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-01B Analysis Date: 12/19/2007 2:30:16PM
Prep Date: 12/19/2007 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T071219013
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		1,300		mg/L	5.0	1.5	1
Carbonate		260		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-01B Analysis Date: 12/18/2007 9:45:23AM
Prep Date: 12/18/2007 Instrument: Probe
Analytical Method ID: 150.1 - pH, Elecrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T071218019
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		9.0		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Leachate 1**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

Lab Sample Number: B0712127-01B Analysis Date: 12/31/2007 10:51:30AM
Prep Date: 12/21/2007 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T071221010
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,000		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-01B Analysis Date: 12/18/2007 8:44:03PM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071218_026.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		2.2		mg/L	0.40	0.031	1
Sulfate		280		mg/L	1.5	0.11	

Lab Sample Number: B0712127-01B Analysis Date: 12/20/2007 5:51:04PM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071220_003.D
Prep Method ID: 300.0 Dilution Factor: 20
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		620		mg/L	16	0.84	3

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Leachate 1**

Matrix: Aqueous

Collection Date: 12/17/2007 9:40:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0712127-02A	Analysis Date:	12/18/2007 5:58:45PM
Prep Date:	12/18/2007	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B121807W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T071218023	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0712127-02A	Analysis Date:	12/19/2007 4:58:00PM
Prep Date:	12/18/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12197A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T071218012	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.053		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.099		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	2.6		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	570		mg/L	0.10	0.013	
Chromium	7440-47-3	0.011		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	0.13		mg/L	0.10	0.00072	
Magnesium	7439-96-4	7.7		mg/L	0.10	0.012	
Manganese	7439-96-5	0.095		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.15		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	12		mg/L	1.0	0.31	
Selenium	7784-49-2	0.14		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Leachate 1**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

Lab Sample Number: B0712127-02A Analysis Date: 12/19/2007 4:58:00PM
Prep Date: 12/18/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12197A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071218012
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	0.12		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-02B Analysis Date: 12/19/2007 2:30:16PM
Prep Date: 12/19/2007 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T071219013
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		810		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-02B Analysis Date: 12/18/2007 9:45:23AM
Prep Date: 12/18/2007 Instrument: Probe
Analytical Method ID: 150.1 - pH, Elecrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T071218019
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		7.7		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Leachate 1**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

Lab Sample Number: B0712127-02B Analysis Date: 12/31/2007 10:51:30AM
Prep Date: 12/21/2007 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T071221010
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		5,400		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-02B Analysis Date: 12/19/2007 9:50:23AM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071218_027.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		5.0		mg/L	0.40	0.031	1

Lab Sample Number: B0712127-02B Analysis Date: 12/20/2007 6:27:50PM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071220_005.D
Prep Method ID: 300.0 Dilution Factor: 20
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		620		mg/L	16	0.84	4
Sulfate		2,400		mg/L	30	2.2	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Leachate 1 Dup**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0712127-03A	Analysis Date:	12/18/2007 6:00:49PM
Prep Date:	12/18/2007	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B121807W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T071218023	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0712127-03A	Analysis Date:	12/19/2007 5:03:00PM
Prep Date:	12/18/2007	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E12197A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T071218012	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	ND		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.10		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	2.5		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	560		mg/L	0.10	0.013	
Chromium	7440-47-3	0.011		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	0.13		mg/L	0.10	0.00072	
Magnesium	7439-96-4	7.6		mg/L	0.10	0.012	
Manganese	7439-96-5	0.095		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.14		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	12		mg/L	1.0	0.31	
Selenium	7784-49-2	0.13		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Leachate 1 Dup**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

Lab Sample Number: B0712127-03A Analysis Date: 12/19/2007 5:03:00PM
Prep Date: 12/18/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12197A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071218012
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	0.12		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-03B Analysis Date: 12/19/2007 2:30:16PM
Prep Date: 12/19/2007 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T071219013
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		820		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-03B Analysis Date: 12/18/2007 9:45:23AM
Prep Date: 12/18/2007 Instrument: Probe
Analytical Method ID: 150.1 - pH, Elecrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T071218019
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		7.6		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Leachate 1 Dup**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

Lab Sample Number: B0712127-03B Analysis Date: 12/31/2007 10:51:30AM
Prep Date: 12/21/2007 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T071221010
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		5,400		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-03B Analysis Date: 12/19/2007 10:08:47AM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071218_028.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		5.0		mg/L	0.40	0.031	1

Lab Sample Number: B0712127-03B Analysis Date: 12/20/2007 5:57:55AM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071219_058.D
Prep Method ID: 300.0 Dilution Factor: 10
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sulfate		2,500		mg/L	15	1.1	2

Lab Sample Number: B0712127-03B Analysis Date: 12/20/2007 7:04:36PM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071220_007.D
Prep Method ID: 300.0 Dilution Factor: 27
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		610		mg/L	21	1.1	3

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Leachate 1**

Matrix: Aqueous

Collection Date: 12/17/2007 9:40:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-04A Analysis Date: 12/18/2007 6:03:02PM
Prep Date: 12/18/2007 Instrument: CVAA_1
Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg File Name: B121807W.W
Prep Method ID: 7470A Dilution Factor: 1
Prep Batch Number: T071218023
Report Basis: As Received Analyst Initials: DL
Sample prep wt./vol: 25.00 ml Prep Extract Vol: 30.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Mercury	7439-97-6	ND		mg/L	0.00024	0.000060	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-04A Analysis Date: 12/19/2007 5:08:00PM
Prep Date: 12/18/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12197A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071218012
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Aluminum	7429-90-5	0.29		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.25		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.44		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	64		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	0.17		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	0.10		mg/L	0.10	0.00072	
Magnesium	7439-96-4	13		mg/L	0.10	0.012	
Manganese	7439-96-5	0.11		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.014		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	14		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Leachate 1**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

Lab Sample Number: B0712127-04A Analysis Date: 12/19/2007 5:08:00PM
Prep Date: 12/18/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12197A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071218012
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-04B Analysis Date: 12/19/2007 2:30:16PM
Prep Date: 12/19/2007 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T071219013
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		1,000		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-04B Analysis Date: 12/18/2007 9:45:23AM
Prep Date: 12/18/2007 Instrument: Probe
Analytical Method ID: 150.1 - pH, Elecrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T071218019
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		8.0		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Leachate 1**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

Lab Sample Number: B0712127-04B Analysis Date: 12/31/2007 10:51:30AM
Prep Date: 12/21/2007 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T071221010
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,500		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-04B Analysis Date: 12/19/2007 10:27:11AM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071218_029.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		1.6		mg/L	0.40	0.031	1

Lab Sample Number: B0712127-04B Analysis Date: 12/20/2007 6:16:18AM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071219_059.D
Prep Method ID: 300.0 Dilution Factor: 10
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sulfate		970		mg/L	15	1.1	2

Lab Sample Number: B0712127-04B Analysis Date: 12/20/2007 7:23:00PM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071220_008.D
Prep Method ID: 300.0 Dilution Factor: 27
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		610		mg/L	21	1.1	3

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Leachate 1 Dup**

Matrix: Aqueous

Collection Date: 12/17/2007 9:40:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-05A Analysis Date: 12/18/2007 6:05:14PM
Prep Date: 12/18/2007 Instrument: CVAA_1
Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg File Name: B121807W.W
Prep Method ID: 7470A Dilution Factor: 1
Prep Batch Number: T071218023
Report Basis: As Received Analyst Initials: DL
Sample prep wt./vol: 30.00 ml Prep Extract Vol: 30.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-05A Analysis Date: 12/19/2007 5:13:00PM
Prep Date: 12/18/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12197A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071218012
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.30		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.20		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.45		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	69		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	0.18		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	0.10		mg/L	0.10	0.00072	
Magnesium	7439-96-4	13		mg/L	0.10	0.012	
Manganese	7439-96-5	0.10		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.014		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	14		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Leachate 1 Dup**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

Lab Sample Number: B0712127-05A Analysis Date: 12/19/2007 5:13:00PM
Prep Date: 12/18/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12197A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071218012
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	0.0095		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-05B Analysis Date: 12/19/2007 2:30:16PM
Prep Date: 12/19/2007 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T071219013
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		1,000		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-05B Analysis Date: 12/18/2007 9:45:23AM
Prep Date: 12/18/2007 Instrument: Probe
Analytical Method ID: 150.1 - pH, Elecrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T071218019
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		7.9		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Leachate 1 Dup**

Matrix: Aqueous Collection Date: 12/17/2007 9:40:00AM

Lab Sample Number: B0712127-05B Analysis Date: 12/31/2007 10:51:30AM
Prep Date: 12/21/2007 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T071221010
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,600		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0712127-05B Analysis Date: 12/19/2007 10:45:34AM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071218_030.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		1.6		mg/L	0.40	0.031	1

Lab Sample Number: B0712127-05B Analysis Date: 12/20/2007 6:34:42AM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071219_060.D
Prep Method ID: 300.0 Dilution Factor: 10
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sulfate		990		mg/L	15	1.1	2

Lab Sample Number: B0712127-05B Analysis Date: 12/20/2007 7:41:22PM
Prep Date: 12/18/2007 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 071220_009.D
Prep Method ID: 300.0 Dilution Factor: 27
Prep Batch Number: T071218016
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		610		mg/L	21	1.1	3

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous

Collection Date: 12/18/2007 12:00:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071218023-MB Analysis Date: 12/18/2007 5:28:28PM
Prep Date: 12/18/2007 Instrument: CVAA_1
Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg File Name: B121807W.W
Prep Method ID: 7470A Dilution Factor: 1
Prep Batch Number: T071218023
Report Basis: As Received Analyst Initials: DL
Sample prep wt./vol: 30.00 ml Prep Extract Vol: 30.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071218012-MB Analysis Date: 12/19/2007 3:57:00PM
Prep Date: 12/18/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12197A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071218012
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	ND		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	ND		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	ND		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	ND		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	ND		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	ND		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous Collection Date: 12/18/2007 12:00:00AM

Lab Sample Number: T071218012-MB Analysis Date: 12/19/2007 3:57:00PM
Prep Date: 12/18/2007 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E12197A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T071218012
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	ND		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071219013-MB Analysis Date: 12/19/2007 2:30:16PM
Prep Date: 12/19/2007 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T071219013
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		ND		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T071221010-MB Analysis Date: 12/31/2007 10:51:30AM
Prep Date: 12/21/2007 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T071221010
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Total Dissolved Solids		ND		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous

Collection Date: 12/18/2007 12:00:00AM

Lab Sample Number: T071218016-MB

Analysis Date: 12/18/2007 6:17:08PM

Prep Date: 12/18/2007

Instrument: IC

Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC

File Name: 071218_018.D

Prep Method ID: 300.0

Dilution Factor: 1

Prep Batch Number: T071218016

Report Basis: As Received

Analyst Initials: KB

Sample prep wt./vol: 20.00 ml

Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		ND		mg/L	0.80	0.042	1
Fluoride		ND		mg/L	0.40	0.031	
Sulfate		ND		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado
 Workorder (SDG): B0712127
 Project: Navajo Mine Extension Leaching Study
 Project Number: **QUALITY CONTROL REPORT**
 Prep Batch: **T071218012**

SAMPLE DUPLICATE REPORT

Analysis: SW6010B - ICP - Total Base Sample: B0712127-01A
Prep Date: 12/18/2007

Samp. Anal. Date: 12/19/2007 4:17:00PM Units: mg/L
 DUP Anal. Date: 12/19/2007 4:22:00PM Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Aluminum	0.0556	0.211	116.6	20	OUT
Antimony	ND	ND	0.0	20	
Arsenic	ND	ND	0.0	20	
Barium	0.118	0.143	19.2	20	
Beryllium	ND	ND	0.0	20	
Boron	0.331	0.340	2.7	20	
Cadmium	ND	ND	0.0	20	
Calcium	2.89	3.28	12.6	20	
Chromium	ND	ND	0.0	20	
Cobalt	ND	0.00726	0.0	20	
Copper	ND	0.00783	0.0	20	
Iron	0.0733	0.313	124.1	20	OUT
Lead	ND	ND	0.0	20	
Magnesium	1.24	1.42	13.5	20	
Manganese	ND	0.0116	0.0	20	
Molybdenum	0.0141	0.0180	24.3	20	OUT
Nickel	ND	ND	0.0	20	
Potassium	11.0	11.6	5.3	20	
Selenium	ND	ND	0.0	20	
Silver	ND	ND	0.0	20	
Sodium	1,180	1,200	1.7	20	
Thallium	ND	ND	0.0	20	
Vanadium	ND	ND	0.0	20	
Zinc	ND	0.00930	0.0	20	
Lithium	ND	ND	0.0	20	

LCS/LCSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071218012

LCS/LCSD REPORT

Analysis: SW6010B - ICP - Total

MB: T071218012-MB

Prep Date: 12/18/2007

MB Anal. Date: 12/19/2007 3:57:00PM

Units: mg/L

LCS Anal. Date: 12/19/2007 4:02:00PM LCSD Anal. Date: 12/19/2007 4:07:00PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Aluminum	ND	2.06	2.08	2.00	2.00	103.0	104.0	1.0	89 - 117	20	
Antimony	ND	0.487	0.492	0.500	0.500	97.4	98.4	1.0	82 - 117	20	
Arsenic	ND	1.96	1.97	2.00	2.00	98.0	98.5	0.5	86 - 116	20	
Barium	ND	1.95	1.98	2.00	2.00	97.5	99.0	1.5	86 - 116	20	
Beryllium	ND	0.0507	0.0517	0.0500	0.0500	101.4	103.4	2.0	87 - 111	20	
Boron	ND	0.648	0.616	0.500	0.500	129.6	123.2	5.1	76 - 130	20	
Cadmium	ND	0.0434	0.0442	0.0500	0.0500	86.8	88.4	1.8	79 - 113	20	
Calcium	ND	9.92	10.2	10.0	10.0	99.2	102.0	2.8	79 - 119	20	
Chromium	ND	0.200	0.200	0.200	0.200	100.0	100.0	0.0	86 - 117	20	
Cobalt	ND	0.494	0.500	0.500	0.500	98.8	100.0	1.2	82 - 118	20	
Copper	ND	0.244	0.249	0.250	0.250	97.6	99.6	2.0	86 - 117	20	
Iron	ND	1.03	1.07	1.00	1.00	103.0	107.0	3.8	83 - 121	20	
Lead	ND	0.497	0.493	0.500	0.500	99.4	98.6	0.8	83 - 121	20	
Magnesium	ND	10.1	10.2	10.0	10.0	101.0	102.0	1.0	83 - 118	20	
Manganese	ND	0.497	0.505	0.500	0.500	99.4	101.0	1.6	82 - 121	20	
Molybdenum	ND	0.491	0.501	0.500	0.500	98.2	100.2	2.0	82 - 120	20	
Nickel	ND	0.490	0.496	0.500	0.500	98.0	99.2	1.2	84 - 117	20	
Potassium	ND	9.25	8.89	10.0	10.0	92.5	88.9	4.0	74 - 110	20	
Selenium	ND	1.93	1.97	2.00	2.00	96.5	98.5	2.1	87 - 117	20	
Silver	ND	0.256	0.259	0.250	0.250	102.4	103.6	1.2	80 - 127	20	
Sodium	ND	9.79	9.97	10.0	10.0	97.9	99.7	1.8	87 - 113	20	
Thallium	ND	0.199	0.207	0.200	0.200	99.5	103.5	3.9	89 - 113	20	
Vanadium	ND	0.504	0.512	0.500	0.500	100.8	102.4	1.6	87 - 119	20	
Zinc	ND	0.476	0.495	0.500	0.500	95.2	99.0	3.9	81 - 120	20	
Lithium	ND	0.492	0.500	0.500	0.500	98.4	100.0	1.6	80 - 120	20	

MS/MSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071218012

MS/MSD REPORT

Analysis: SW6010B - ICP - Total

Parent: B0712127-01A

Prep Date: 12/18/2007

Samp. Anal. Date: 12/19/2007 4:17:00PM

Units: mg/L

MS Anal. Date: 12/19/2007 4:27:00PMMSD Anal. Date: 12/19/2007 4:42:00PMMatrix: Aqueous

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLv	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Aluminum	0.0556	2.11	2.04	2.00	2.00	102.7	99.2	3.4	75 - 125	20	
Antimony	ND	0.497	0.482	0.500	0.500	99.4	96.4	3.1	75 - 125	20	
Arsenic	ND	2.04	1.98	2.00	2.00	102.0	99.0	3.0	75 - 125	20	
Barium	0.118	2.03	1.93	2.00	2.00	95.6	90.6	5.1	75 - 125	20	
Beryllium	ND	0.0510	0.0495	0.0500	0.0500	102.0	99.0	3.0	75 - 125	20	
Boron	0.331								75 - 125		
Cadmium	ND	0.0445	0.0459	0.0500	0.0500	89.0	91.8	3.1	75 - 125	20	
Calcium	2.89	12.9	12.7	10.0	10.0	100.1	98.1	1.6	75 - 125	20	
Chromium	ND	0.198	0.196	0.200	0.200	99.0	98.0	1.0	75 - 125	20	
Cobalt	ND	0.490	0.482	0.500	0.500	98.0	96.4	1.6	75 - 125	20	
Copper	ND	0.244	0.234	0.250	0.250	97.6	93.6	4.2	75 - 125	20	
Iron	0.0733	1.05	1.02	1.00	1.00	97.7	94.7	2.9	75 - 125	20	
Lead	ND	0.499	0.484	0.500	0.500	99.8	96.8	3.1	75 - 125	20	
Magnesium	1.24	11.4	10.9	10.0	10.0	101.6	96.6	4.5	75 - 125	20	
Manganese	ND	0.499	0.484	0.500	0.500	99.8	96.8	3.1	75 - 125	20	
Molybdenum	0.0141	0.508	0.496	0.500	0.500	98.8	96.4	2.4	75 - 125	20	
Nickel	ND	0.487	0.478	0.500	0.500	97.4	95.6	1.9	75 - 125	20	
Potassium	11.0	21.0	20.3	10.0	10.0	100.0	93.0	3.4	75 - 125	20	
Selenium	ND	2.03	1.97	2.00	2.00	101.5	98.5	3.0	75 - 125	20	
Silver	ND	0.251	0.245	0.250	0.250	100.4	98.0	2.4	75 - 125	20	
Sodium	1,180	1,230	1,180	10.0	10.0	500.0	0.0	4.1	75 - 125	20	NOTE 2 NOTE 2
Thallium	ND		0.167		0.200		83.5		75 - 125	20	
Vanadium	ND	0.509	0.494	0.500	0.500	101.8	98.8	3.0	75 - 125	20	
Zinc	ND	0.492	0.484	0.500	0.500	98.4	96.8	1.6	75 - 125	20	
Lithium	ND	0.578	0.548	0.500	0.500	115.6	109.6	5.3	75 - 125	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071218012

POST DIGESTION SPIKE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0712127-01A

Prep Date: 12/18/2007

Samp. Anal. Date: 12/19/2007 4:17:00PM

Units: mg/L

PDS Anal. Date: 12/19/2007 4:48:00PM

Matrix: Aqueous

Analyte Name	SampResult	PDSRes.	SPLev	Recov.	Recov Lim	Flag
Aluminum	0.0556	2.04	2.00	99.3	75 - 117	
Antimony	ND	0.485	0.500	96.5	75 - 117	
Arsenic	ND	1.99	2.00	99.3	75 - 116	
Barium	0.118	1.93	2.00	90.7	75 - 116	
Beryllium	ND	0.0492	0.0500	98.0	75 - 111	
Cadmium	ND	0.0447	0.0500	89.7	75 - 113	
Calcium	2.89	12.6	10.0	97.4	75 - 119	
Chromium	ND	0.193	0.200	96.4	75 - 117	
Cobalt	ND	0.477	0.500	95.0	75 - 118	
Copper	ND	0.234	0.250	93.4	75 - 117	
Iron	0.0733	1.02	1.00	94.6	75 - 121	
Lead	ND	0.487	0.500	97.1	75 - 121	
Magnesium	1.24	11.0	10.0	97.3	75 - 118	
Manganese	ND	0.482	0.500	95.9	75 - 121	
Molybdenum	0.0141	0.494	0.500	96.1	75 - 120	
Nickel	ND	0.473	0.500	94.4	75 - 117	
Potassium	11.0	20.6	10.0	96.2	75 - 110	
Selenium	ND	1.98	2.00	99.7	75 - 117	
Silver	ND	0.245	0.250	98.4	75 - 127	
Sodium	1,180	1,180	10.0	-54.9	75 - 113	lowPDS Note 2
Thallium	ND	0.191	0.200	90.7	75 - 113	
Vanadium	ND	0.492	0.500	98.0	75 - 119	
Zinc	ND	0.482	0.500	98.8	75 - 120	
Lithium	ND	0.553	0.500	94.5	75 - 120	

SERIAL DILUTION REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071218012

SERIAL DILUTION REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0712127-01A

Prep Date: 12/18/2007

Samp. Anal. Date: 12/19/2007 4:17:00PM

Units: mg/L

SER DIL. Date: 12/19/2007 4:53:00PM

Matrix: Aqueous

Analyte Name	SampResult	PQL	MDL	SerialRes.	SerPQL	RPD	Flag
Aluminum	0.0556	0.050	0.014	ND	0.25		
Antimony	ND	0.050	0.0067	ND	0.25		
Arsenic	ND	0.10	0.015	ND	0.50		
Barium	0.118	0.0100	0.00016	0.133	0.050	11.9	OUT
Beryllium	ND	0.0010	0.000060	ND	0.0050		
Boron	0.331	0.050	0.0018	0.365	0.25	9.7	
Cadmium	ND	0.0060	0.00051	ND	0.030		
Calcium	2.89	0.10	0.013	3.32	0.50	13.8	OUT
Chromium	ND	0.0100	0.0018	ND	0.050		
Cobalt	ND	0.0050	0.0016	ND	0.025		
Copper	ND	0.0050	0.0019	ND	0.025		
Iron	0.0733	0.050	0.0027	ND	0.25		
Lead	ND	0.050	0.011	ND	0.25		
Magnesium	1.24	0.10	0.012	1.32	0.50	6.2	
Manganese	ND	0.0100	0.00066	ND	0.050		
Molybdenum	0.0141	0.0100	0.0018	ND	0.050		
Nickel	ND	0.040	0.0027	ND	0.20		
Potassium	11.0	1.0	0.31	12.1	5.0	9.5	
Selenium	ND	0.10	0.026	ND	0.50		
Silver	ND	0.015	0.00066	ND	0.075		
Sodium	1,180	3.0	0.028	1,310	15	10.4	OUT
Thallium	ND	0.40	0.011	ND	2.0		
Vanadium	ND	0.0100	0.00072	ND	0.050		
Zinc	ND	0.0050	0.0010	ND	0.025		
Lithium	ND	0.10	0.00072	ND	0.50		

Prep Batch: T071218023

LCS/LCSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071218023

LCS/LCSD REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg MB: T071218023-MB

Prep Date: 12/18/2007

MB Anal. Date: 12/18/2007 5:28:28PM

Units: mg/L

LCS Anal. Date: 12/18/2007 5:31:45PM LCSD Anal. Date: 12/18/2007 5:33:52PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Mercury	ND	0.00218	0.00214	0.00200	0.0020	109.0	107.0	1.9	80 - 120	20	

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071218016

LCS/LCSD REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC MB: T071218016-MB

Prep Date: 12/18/2007

MB Anal. Date: 12/18/2007 6:17:08PM

Units: mg/L

LCS Anal. Date: 12/18/2007 6:35:30PM LCSD Anal. Date: 12/18/2007 6:53:53PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Fluoride	ND	2.25	2.29	2.50	2.50	90.0	91.6	1.8	90 - 110	20	
Chloride	ND	4.68	4.68	5.00	5.00	93.6	93.6	0.0	90 - 110	20	
Sulfate	ND	38.6	36.4	37.5	37.5	102.9	97.1	5.9	90 - 110	20	

Prep Batch: T071221010

SAMPLE DUPLICATE REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS

Base Sample: B0712127-01B

Prep Date: 12/21/2007

Samp. Anal. Date: 12/31/2007 10:51:30AM

Units: mg/L

DUP Anal. Date: 12/31/2007 10:51:30AM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Total Dissolved Solids	3,030	3,030	0.0	20	

LCS/LCSD REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS

MB: T071221010-MB

Prep Date: 12/21/2007

MB Anal. Date: 12/31/2007 10:51:30AM

Units: mg/L

LCS Anal. Date: 12/31/2007 10:51:30AM LCSD Anal. Date: 12/31/2007 10:51:30AM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Total Dissolved Solids	ND	742	753	744	744	99.7	101.2	1.5	80 - 120	20	

MS REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS

Parent: B0712127-01B

Prep Date: 12/21/2007

Samp. Anal. Date: 12/31/2007 10:51:30AM

Units: mg/L

MS Anal. Date: 12/31/2007 10:51:30AM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Total Dissolved Solids	3,030	3,820	744	106.2	70 - 130	NOTE 2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T071221010

MS REPORT

Prep Batch: T071218019

SAMPLE DUPLICATE REPORT

Analysis: 150.1 - pH, Elecrometric - pH

Base Sample: B0712127-01B
Prep Date: 12/18/2007

Samp. Anal. Date: 12/18/2007 9:45:23AM

Units: pH

DUP Anal. Date: 12/18/2007 9:45:23AM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
pH	9.01	8.95	0.7	20	

Prep Batch: T071219013

SAMPLE DUPLICATE REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

Base Sample: B0712127-01B
Prep Date: 12/19/2007

Samp. Anal. Date: 12/19/2007 2:30:16PM

Units: mg/L

DUP Anal. Date: 12/19/2007 2:30:16PM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Bicarbonate	1,270	1,230	3.2	20	
Carbonate	264	284	7.3	20	

LCS/LCSD REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

MB: T071219013-MB

Prep Date: 12/19/2007

MB Anal. Date: 12/19/2007 2:30:16PM

Units: mg/L

LCS Anal. Date: 12/19/2007 2:30:16PM LCSD Anal. Date: 12/19/2007 2:30:16PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Bicarbonate	ND	25.0	25.0	25.0	25.0	100.0	100.0	0.0	80 - 120	20	
Carbonate	ND	51.0	50.0	50.0	50.0	102.0	100.0	2.0	80 - 120	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 82,236 Lab Project Number: B0712127

Prep Date: 12/18/2007

Lab Method Blank Id: T071218012-MB
Prep Batch ID: T071218012
Method: SW6010B - ICP - Total

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0712127-01A	MB Leachate 1	E12197A	12/19/2007 4:17:00PM
B0712127-02A	Ash Leachate 1	E12197A	12/19/2007 4:58:00PM
B0712127-03A	Ash Leachate 1 Dup	E12197A	12/19/2007 5:03:00PM
B0712127-04A	Spoil Leachate 1	E12197A	12/19/2007 5:08:00PM
B0712127-05A	Spoil Leachate 1 Dup	E12197A	12/19/2007 5:13:00PM
T071218012-LCS	LCS	E12197A	12/19/2007 4:02:00PM
T071218012-LCSD	LCSD	E12197A	12/19/2007 4:07:00PM
B0712127-01A-DUP	DUP	E12197A	12/19/2007 4:22:00PM
B0712127-01A-MS	MS	E12197A	12/19/2007 4:27:00PM
B0712127-01A-MSD	MSD	E12197A	12/19/2007 4:42:00PM
B0712127-01A-PDS	PDS	E12197A	12/19/2007 4:48:00PM
T071218012-LCSD	LCSD	E12207A	12/20/2007 12:58:00PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 82,236 Lab Project Number: B0712127

Prep Date: 12/18/2007

Lab Method Blank Id: T071218016-MB

Prep Batch ID: T071218016

Method: Inorganic Anions by Ion Chromatography - Anions by IC

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
T071218016-LCS	LCS	071218_019.DXD	12/18/2007 6:35:30PM
T071218016-LCSD	LCSD	071218_020.DXD	12/18/2007 6:53:53PM
B0712136-01C	Batch QC	071218_022.DXD	12/18/2007 7:30:41PM
B0712136-01C-DUP	DUP	071218_023.DXD	12/18/2007 7:49:04PM
B0712136-01C-MS	MS	071218_024.DXD	12/18/2007 8:07:29PM
B0712127-01B	MB Leachate 1	071218_026.DXD	12/18/2007 8:44:03PM
B0712127-02B	Ash Leachate 1	071218_027.DXD	12/19/2007 9:50:23AM
B0712127-03B	Ash Leachate 1 Dup	071218_028.DXD	12/19/2007 10:08:47AM
B0712127-04B	Spoil Leachate 1	071218_029.DXD	12/19/2007 10:27:11AM
B0712127-05B	Spoil Leachate 1 Dup	071218_030.DXD	12/19/2007 10:45:34AM
T071218016-LCS	LCS	071219_049.DXD	12/20/2007 3:12:25AM
T071218016-LCSD	LCSD	071219_050.DXD	12/20/2007 3:30:48AM
B0712136-01C	Batch QC	071219_052.DXD	12/20/2007 4:07:34AM
B0712136-01C-DUP	DUP	071219_053.DXD	12/20/2007 4:25:58AM
B0712136-01C-MS	MS	071219_054.DXD	12/20/2007 4:44:21AM
B0712127-03B	Ash Leachate 1 Dup	071219_058.DXD	12/20/2007 5:57:55AM
B0712127-04B	Spoil Leachate 1	071219_059.DXD	12/20/2007 6:16:18AM
B0712127-05B	Spoil Leachate 1 Dup	071219_060.DXD	12/20/2007 6:34:42AM
B0712127-01B	MB Leachate 1	071220_003.DXD	12/20/2007 5:51:04PM
B0712127-02B	Ash Leachate 1	071220_005.DXD	12/20/2007 6:27:50PM
B0712127-03B	Ash Leachate 1 Dup	071220_007.DXD	12/20/2007 7:04:36PM
B0712127-04B	Spoil Leachate 1	071220_008.DXD	12/20/2007 7:23:00PM
B0712127-05B	Spoil Leachate 1 Dup	071220_009.DXD	12/20/2007 7:41:22PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 82,236 Lab Project Number: B0712127

Prep Date: 12/18/2007

Lab Method Blank Id: T071218023-MB

Prep Batch ID: T071218023

Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
J0712041-01B-MS	MS	B1218072.WKS	12/19/2007 12:58:57PM
B0712127-01A	MB Leachate 1	B121807W.WKS	12/18/2007 5:51:20PM
B0712127-02A	Ash Leachate 1	B121807W.WKS	12/18/2007 5:58:45PM
B0712127-03A	Ash Leachate 1 Dup	B121807W.WKS	12/18/2007 6:00:49PM
B0712127-04A	Spoil Leachate 1	B121807W.WKS	12/18/2007 6:03:02PM
B0712127-05A	Spoil Leachate 1 Dup	B121807W.WKS	12/18/2007 6:05:14PM
J0712041-01B	Batch QC	B121807W.WKS	12/18/2007 6:13:47PM
T071218023-LCS	LCS	B121807W.WKS	12/18/2007 5:31:45PM
T071218023-LCSD	LCSD	B121807W.WKS	12/18/2007 5:33:52PM
J0712041-01B-DUP	DUP	B121807W.WKS	12/18/2007 6:15:51PM
J0712041-01B-MSD	MSD	B121807W.WKS	12/18/2007 6:25:46PM
J0712041-01B-PDS	PDS	B121807W.WKS	12/18/2007 6:27:55PM

Prep Date: 12/19/2007

Lab Method Blank Id: T071219013-MB

Prep Batch ID: T071219013

Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0712127-01B	MB Leachate 1		12/19/2007 2:30:16PM
B0712127-02B	Ash Leachate 1		12/19/2007 2:30:16PM
B0712127-03B	Ash Leachate 1 Dup		12/19/2007 2:30:16PM
B0712127-04B	Spoil Leachate 1		12/19/2007 2:30:16PM
B0712127-05B	Spoil Leachate 1 Dup		12/19/2007 2:30:16PM
T071219013-LCS	LCS		12/19/2007 2:30:16PM
T071219013-LCSD	LCSD		12/19/2007 2:30:16PM
B0712127-01B-DUP	DUP		12/19/2007 2:30:16PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 82,236 Lab Project Number: B0712127

Prep Date: 12/21/2007

Lab Method Blank Id: T071221010-MB

Prep Batch ID: T071221010

Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0712127-01B	MB Leachate 1		12/31/2007 10:51:30AM
B0712127-02B	Ash Leachate 1		12/31/2007 10:51:30AM
B0712127-03B	Ash Leachate 1 Dup		12/31/2007 10:51:30AM
B0712127-04B	Spoil Leachate 1		12/31/2007 10:51:30AM
B0712127-05B	Spoil Leachate 1 Dup		12/31/2007 10:51:30AM
T071221010-LCS	LCS		12/31/2007 10:51:30AM
T071221010-LCSD	LCSD		12/31/2007 10:51:30AM
B0712127-01B-DUP	DUP		12/31/2007 10:51:30AM
B0712127-01B-MS	MS		12/31/2007 10:51:30AM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

DATA FLAGS AND DEFINITIONS

The PQL is the Method Quantitation Limit as defined by USACE.

Reporting Limit: Limit below which results are shown as "ND". This may be the PQL, MDL, or a value between. See the report conventions below.

Result Field:

ND = Not Detected at or above the Reporting Limit

NA = Analyte not applicable (see Case Narrative for discussion)

Qualifier Fields:

LOW = Recovery is below Lower Control Limit

HIGH = Recovery, RPD, or other parameter is above Upper Control Limit

E = Reported concentration is above the instrument calibration upper range

Organic Analysis Flags:

B = Analyte was detected in the laboratory method blank

J = Analyte was detected above MDL or Reporting Limit but below the Quant Limit (PQL)

Inorganic Analysis Flags:

J = Analyte was detected above the Reporting Limit but below the Quant Limit (PQL)

W = Post digestion spike did not meet criteria

S = Reported value determined by the Method of Standard Additions (MSA)

Several ways of defining the limit of detection and quantitation are prevalent in the laboratory industry and may appear in Analytica reports. These include the following:

MRL = "minimum reporting level", from the EPA Safe Drinking Water program (SDW)

PQL = "practical quantitation limit", from SW-846

EQL = "estimated quantitation limit", from SW-846

LOQ = "limit of quantitation", from a number of authoritative sources

In Analytica's work, all of these terms have the same meaning, equivalent to the EPA definition of the MRL. This reporting level is supported by a satisfactory calibration data point which is at that level or lower, and also is supported by a method detection limit (MDL) determined by the procedure in 40CFR. The MDL is lower than the MRL and represents an estimate of the level where positive detections have a 99% probability of being real, but where quantitation accuracy is unknown.

The MRL as defined by Analytica is the lowest demonstrated point of known quantitation accuracy.

The MRL should not be confused with the MCL, which is the EPA-defined "maximum contaminant level" allowed for certain regulated targets under specific regulations, such as the National Primary Drinking Water Regulations. Normally, the MRL is set at a level which is much lower than the MCL in order to ensure that levels are well below those limits. Not all target analytes have MCL levels established.

Other Flags may be applied. See Case Narrative for Description

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0712127

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

REPORTING CONVENTIONS FOR THIS REPORT

B0712127

<u>TestPkgName</u>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
150.1/150.1 (Aqueous) - pH	As Received	2	Report to PQL
160.1/160.1 (Aqueous) - TDS	As Received	2	Report to PQL
300.0/300.0 (Aqueous) - Anions by IC	As Received	2	Report to PQL
310.1/310.1 (Aqueous) - Alkalinity	As Received	2	Report to PQL
6010B/3010A (Aqueous) - Total	As Received	2	Report to PQL
7470A/7470A (Aqueous) - Total Hg	As Received	2	Report to PQL



Cooler Receipt Form

Client: Applied Hydrology Associates Client Code: 030188
Project: Navajo Mine Extension Leaching Study

Order #: B0712127

Cooler ID: 1

A. Preliminary Examination Phase:

Date cooler opened: 12/17/2007
Cooler opened by: gp

Signature: GP

- 1. Was airbill Attached? N/A Airbill #: Carrier Name: Other
- 2. Custody Seals? N/A How many? 0 Location: Seal Name:
- 3. Seals intact? N/A
- 4. COC Attached? Yes Properly Completed? Yes Signed by AEL employee? Yes
- 5. Project Identification from custody paper: Navajo Mine Extension Leaching Study
- 6. Preservative: None Temperature: 20.0 deg. C

Designated person initial here to acknowledge receipt:

GP Date: 12/17/07

COMMENTS:

B. Log-In Phase: Samples Log-in Date: 12/17/2007 Log-in By: gp

- 1. Packing Type: Other
- 2. Were samples in separate bags? N/A
- 3. Were containers intact? Yes Labels agree with COC? Yes
- 4. Number of bottles received: 10 Number of samples received: 5
- 5. Correct containers used? Yes Correct preservatives added? Yes
- 6. Sufficient sample volume? Yes
- 7. Bubbles in VOA samples? N/A
- 8. Was Project manager called and status discussed? No
- 9. Was anyone called? No Who was called? _____ By whom? _____ Date: _____

COMMENTS:

The Analytica Group
CLIENT INVOICE

Remit to: Accounting Dpt
Analytica Environmental Laboratories, Inc.
P.O. Box 973426
Dallas, TX 75397-3426

Invoice #: 81993
Work Order#: B0801027
Account#: 030188
Quote ID#: 11340
Invoice Date: 1/21/2008
Work ID: Navajo Mine Extension
PO #: Leaching Study
none
Received: 1/7/2008
Reported: 1/21/2008
Client Project#: Navajo Mine Extension Leach

Phone: (303) 469-8868

Attention: Mr. Art O'Hayre
Invoice to: Applied Hydrology Associates, Inc.
950 South Cherry Street
Suite 810
Denver, CO 80246

Comments:

<u>Item charges</u>		<u>Qty</u>	<u>Price</u>	<u>Total</u>
SW7470A - Mercury in Liquid Waste by CVAA - Total Hg In Aqueous	M	2	35.00	70.00
160.1 - Total Dissolved Solids dried at 180°C - TDS In Liquid	Matrix	2	22.00	44.00
150.1 - pH, Electrometric - pH In Liquid	Matrix	2	10.00	20.00
SW6010B - ICP - Total In Aqueous	Matrix	2	312.00	624.00
Inorganic Anions by Ion Chromatography - Anions by IC In Liquid	Matrix	2	54.00	108.00
310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity In Liquid	Matrix	2	36.00	72.00

Total of Items Above: \$938.00

<u>Adjustments or Special Services</u>	<u>Qty</u>	<u>Price</u>	<u>Total</u>
One Gallon of DI water	4	24.00	96.00
Tumbling Charge	1	95.00	95.00

Total of Items Above: \$191.00

Grand Total: \$1,129.00

All invoices are due and payable upon receipt. Outstanding balances over 30 days are subject to a finance charge of 1.5% per month, plus a late fee of \$25.00. If Analytica engages legal counsel to enforce its rights or any other rights under an application for payment, the customer will be liable to Analytica for all costs of collection and other legal expenses, including reasonable attorney fees.

The Analytica Group
CLIENT INVOICE

REMITTANCE ADVICE
PLEASE RETURN THIS PORTION WITH YOUR
PAYMENT

Mr. Art O'Hayre

Applied Hydrology Associates, Inc.

950 South Cherry Street

Suite 810

Denver, CO 80246

Account#: 030188

Invoice #: 81993

Invoice Date: 1/21/2008

TOTAL INVOICE AMOUNT:

\$1,129.00

PAYMENT AMOUNT ENCLOSED:



Analytica Environmental
Laboratories, Inc.
12189 Pennsylvania Street
Thornton, CO 80241
Phone: 303-469-8868
Fax: 303-469-5254

1/21/2008

Applied Hydrology Associates, Inc.
950 South Cherry Street
Suite 810
Denver, CO 80246
Attn: Art O'Hayre

Work Order #: B0801027
Date: 1/21/2008
Work ID: Navajo Mine Extension Leaching Study
Date Received: 1/7/2008
Proj #: none

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
B0801027-01	MB	B0801027-02	4 Corners PP Bottom Ash Leac

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. Listings of data qualifiers, analytical codes, key dates, and QC relationships are provided at the end of the report.

Sincerely,

Kristen Stone
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

Analytica Environmental Laboratories, Inc.

Work Order: B0801027

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Methods for Chemical Analysis of Water and Wastes, USEPA 600/4-79-020, March 1983.

Pfaff, J. D., C. A. Brockhoff and J. W. O'Dell. 1994. The Determination of Inorganic Anions in Water by Ion Chromatography. Method 300.0A. U. S. Environmental Protection Agency. Environmental Monitoring Systems Lab.

Methods for the Determination of Metals in Environmental Samples, EPA/600/R-94/111, May 1994.

SAMPLE RECEIPT:

Two (2) samples were received on 1/7/2008 1:55:00 PM., at a temperature of 3.1 deg C., at Analytica-Thornton. The samples were received in good condition and in order per chain of custody. The samples were tumbled upon arrival to the laboratory.

REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN

A summary of our review is shown below.

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries is kept on file in our office and is available upon request.

All method specifications were met for the following tests:

Test Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg - Aqueous

Test Method: 150.1 - pH, Elecrometric - pH - Aqueous

Test Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS - Aqueous

Test Method: Inorganic Anions by Ion Chromatography - Anions by IC - Aqueous

Test Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity - Aqueous

MS/MSD and DUP OUTLIERS:

As shown below, the MS was outside of limits for Bicarbonate and Carbonate. Bicarbonate had a sample concentration that was greater than four times the spike amount. In these cases it is not appropriate to calculate a recovery. The result should be used as a replicate. The MS recovery of Carbonate was slightly low. No corrective action was taken, as the recoveries of this compounds in the LCS/LCSD were acceptable.

Type	Client Sample	LabSample	Analyte	Recovery	LCL	UCL	Parent	Spike
MS	4 Corners	PP Bot B0801027-02B	Bicarbonate	56.0	70	130	1250	50.0
MS	4 Corners	PP Bot B0801027-02B	Carbonate	68.0	70	130	228	100

Test Method: SW6010B - ICP - Total - Aqueous

Case Narrative

Analytica Environmental Laboratories, Inc.

Work Order: B0801027

(continued)

MS/MSD and DUP OUTLIERS:

As shown below, the MS/MSD were outside of the limits for Sodium. Sodium had a sample concentration that was greater than four times the spike amount. In these cases it is not appropriate to calculate a recovery. The result should be used as a replicate. The MSD recovery of Potassium is slightly low. No corrective action was taken, as the recovery of Potassium in the LCS/LCSD/MS were acceptable.

Type	Client Sample	LabSample	Analyte	Recovery	LCL	UCL	Parent	Spike
MS	4 Corners	PP Bot B0801027-02A	Sodium	-149	75	125	1130	10.0
MSD	4 Corners	PP Bot B0801027-02A	Potassium	71.2	75	125	10.9	10.0
MSD	4 Corners	PP Bot B0801027-02A	Sodium	-607	75	125	1130	10.0

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name:

MB

Matrix: Aqueous

Collection Date: 1/4/2008 1:20:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-01A

Analysis Date: 1/8/2008 5:17:11PM

Prep Date: 1/8/2008

Instrument: CVAA_1

Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

File Name: B010807W.W

Prep Method ID: 7470A

Dilution Factor: 1

Prep Batch Number: T080108012

Report Basis: As Received

Analyst Initials: DL

Sample prep wt./vol: 30.00 ml

Prep Extract Vol: 30.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-01A

Analysis Date: 1/8/2008 7:53:00PM

Prep Date: 1/8/2008

Instrument: ICP_2

Analytical Method ID: SW6010B - ICP - Total

File Name: E01088A

Prep Method ID: 3010_ICP

Dilution Factor: 1

Prep Batch Number: T080108015

Report Basis: As Received

Analyst Initials: rm

Sample prep wt./vol: 50.00 ml

Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.058		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.088		mg/L	0.010	0.00016	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	2.4		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	0.0073		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.2		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	11		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name:

MB

Matrix: Aqueous Collection Date: 1/4/2008 1:20:00PM

Lab Sample Number: B0801027-01A Analysis Date: 1/8/2008 7:53:00PM
Prep Date: 1/8/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01088A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080108015
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	1

Lab Sample Number: B0801027-01A Analysis Date: 1/9/2008 1:35:00PM
Prep Date: 1/8/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01098A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080108015
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	2
Boron	7440-42-8	0.35		mg/L	0.050	0.0018	
Thallium	7440-28-0	ND		mg/L	0.40	0.011	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-01B Analysis Date: 1/17/2008 2:31:55PM
Prep Date: 1/17/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T080117013
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		1,300		mg/L	5.0	1.5	1
Carbonate		220		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-01B Analysis Date: 1/5/2008 9:29:27AM
Prep Date: 1/5/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080117001
Report Basis: As Received Analyst Initials: rs
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name:

MB

Matrix: Aqueous Collection Date: 1/4/2008 1:20:00PM

Lab Sample Number: B0801027-01B Analysis Date: 1/5/2008 9:29:27AM
Prep Date: 1/5/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Elecrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080117001
Report Basis: As Received Analyst Initials: rs
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
pH		9.0		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-01B Analysis Date: 1/16/2008 1:50:18PM
Prep Date: 1/11/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080111013
Report Basis: As Received Analyst Initials: KLibhart
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,100		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-01B Analysis Date: 1/8/2008 2:44:31AM
Prep Date: 1/7/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080107_047.D
Prep Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080107001
Report Basis: As Received Analyst Initials: CS
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		630		mg/L	20	1.1	1

Lab Sample Number: B0801027-01B Analysis Date: 1/8/2008 3:21:16AM
Prep Date: 1/7/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080107_049.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080107001
Report Basis: As Received Analyst Initials: CS
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		2.2		mg/L	0.40	0.031	3
Sulfate		280		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **4 Corners PP Bottom Ash Leachate**

Matrix: Aqueous

Collection Date: 1/4/2008 1:20:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-02A Analysis Date: 1/8/2008 5:19:17PM
Prep Date: 1/8/2008 Instrument: CVAA_1
Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg File Name: B010807W.W
Prep Method ID: 7470A Dilution Factor: 1
Prep Batch Number: T080108012
Report Basis: As Received Analyst Initials: DL
Sample prep wt./vol: 30.00 ml Prep Extract Vol: 30.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-02A Analysis Date: 1/8/2008 7:58:00PM
Prep Date: 1/8/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01088A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080108015
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Aluminum	7429-90-5	0.20		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.13		mg/L	0.010	0.00016	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	3.1		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	0.054		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.3		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	11		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	
Sodium	7440-23-5	1,100		mg/L	3.0	0.028	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **4 Corners PP Bottom Ash Leachate**

Matrix: Aqueous Collection Date: 1/4/2008 1:20:00PM

Lab Sample Number: B0801027-02A Analysis Date: 1/8/2008 7:58:00PM
 Prep Date: 1/8/2008 Instrument: ICP_2
 Analytical Method ID: SW6010B - ICP - Total File Name: E01088A
 Prep Method ID: 3010_ICP Dilution Factor: 1
 Prep Batch Number: T080108015
 Report Basis: As Received Analyst Initials: rm
 Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	1

Lab Sample Number: B0801027-02A Analysis Date: 1/9/2008 1:40:00PM
 Prep Date: 1/8/2008 Instrument: ICP_2
 Analytical Method ID: SW6010B - ICP - Total File Name: E01098A
 Prep Method ID: 3010_ICP Dilution Factor: 1
 Prep Batch Number: T080108015
 Report Basis: As Received Analyst Initials: rm
 Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	3
Boron	7440-42-8	0.39		mg/L	0.050	0.0018	
Thallium	7440-28-0	ND		mg/L	0.40	0.011	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-02B Analysis Date: 1/17/2008 2:31:55PM
 Prep Date: 1/17/2008 Instrument: Titrametric
 Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
 Prep Method ID: Alkalinity_W Dilution Factor: 1
 Prep Batch Number: T080117013
 Report Basis: As Received Analyst Initials: kl
 Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		1,300		mg/L	5.0	1.5	1
Carbonate		230		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-02B Analysis Date: 1/5/2008 9:29:27AM
 Prep Date: 1/5/2008 Instrument: Probe
 Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
 Prep Method ID: 150.1 Dilution Factor: 1
 Prep Batch Number: T080117001
 Report Basis: As Received Analyst Initials: rs
 Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **4 Corners PP Bottom Ash Leachate**

Matrix: Aqueous Collection Date: 1/4/2008 1:20:00PM

Lab Sample Number: B0801027-02B Analysis Date: 1/5/2008 9:29:27AM
Prep Date: 1/5/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Elecrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080117001
Report Basis: As Received Analyst Initials: rs
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
pH		9.0		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-02B Analysis Date: 1/16/2008 1:50:18PM
Prep Date: 1/11/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080111013
Report Basis: As Received Analyst Initials: KLibhart
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,100		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801027-02B Analysis Date: 1/8/2008 3:58:04AM
Prep Date: 1/7/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080107_051.D
Prep Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080107001
Report Basis: As Received Analyst Initials: CS
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		630		mg/L	20	1.1	1

Lab Sample Number: B0801027-02B Analysis Date: 1/8/2008 4:34:49AM
Prep Date: 1/7/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080107_053.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080107001
Report Basis: As Received Analyst Initials: CS
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		2.2		mg/L	0.40	0.031	3
Sulfate		280		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous

Collection Date: 1/8/2008 12:00:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080108012-MB

Analysis Date: 1/8/2008 5:04:24PM

Prep Date: 1/8/2008

Instrument: CVAA_1

Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

File Name: B010807W.W

Prep Method ID: 7470A

Dilution Factor: 1

Prep Batch Number: T080108012

Report Basis: As Received

Analyst Initials: DL

Sample prep wt./vol: 30.00 ml

Prep Extract Vol: 30.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080108015-MB

Analysis Date: 1/8/2008 7:38:00PM

Prep Date: 1/8/2008

Instrument: ICP_2

Analytical Method ID: SW6010B - ICP - Total

File Name: E01088A

Prep Method ID: 3010_ICP

Dilution Factor: 1

Prep Batch Number: T080108015

Report Basis: As Received

Analyst Initials: rm

Sample prep wt./vol: 50.00 ml

Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	ND		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	ND		mg/L	0.010	0.00016	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	ND		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	ND		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	ND		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	
Sodium	7440-23-5	ND		mg/L	3.0	0.028	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous Collection Date: 1/8/2008 12:00:00AM

Lab Sample Number: T080108015-MB Analysis Date: 1/8/2008 7:38:00PM
Prep Date: 1/8/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01088A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080108015
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	1

Lab Sample Number: T080108015-MB Analysis Date: 1/9/2008 1:05:00PM
Prep Date: 1/8/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01098A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080108015
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	2
Boron	7440-42-8	ND		mg/L	0.050	0.0018	
Thallium	7440-28-0	ND		mg/L	0.40	0.011	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080117013-MB Analysis Date: 1/17/2008 2:31:55PM
Prep Date: 1/17/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T080117013
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		ND		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080111013-MB Analysis Date: 1/16/2008 1:50:18PM
Prep Date: 1/11/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080111013
Report Basis: As Received Analyst Initials: KLibhart
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous Collection Date: 1/11/2008 12:00:00AM

Lab Sample Number: T080111013-MB Analysis Date: 1/16/2008 1:50:18PM
Prep Date: 1/11/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080111013
Report Basis: As Received Analyst Initials: KLibhart
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		ND		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080107001-MB Analysis Date: 1/8/2008 12:12:51PM
Prep Date: 1/7/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080108_009.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080107001
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sulfate		ND		mg/L	1.5	0.11	2

Lab Sample Number: T080107001-MB Analysis Date: 1/9/2008 3:32:33AM
Prep Date: 1/7/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080108_059.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080107001
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		ND		mg/L	0.40	0.031	3

Lab Sample Number: T080107001-MB Analysis Date: 1/10/2008 9:49:26PM
Prep Date: 1/7/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080110_032.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080107001
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		ND		mg/L	0.80	0.042	4

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado
 Workorder (SDG): B0801027
 Project: Navajo Mine Extension Leaching Study
 Project Number: **QUALITY CONTROL REPORT**
 Prep Batch: **T080108015**

SAMPLE DUPLICATE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801027-02A
 Prep Date: 1/8/2008

Samp. Anal. Date: 1/8/2008 7:58:00PM

Units: mg/L

DUP Anal. Date: 1/8/2008 8:03:00PM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Aluminum	0.198	0.205	3.5	20	
Antimony	ND	ND	0.0	20	
Arsenic	ND	ND	0.0	20	
Barium	0.127	0.128	0.8	20	
Beryllium	ND	ND	0.0	20	
Boron	0.390	0.386	1.0	20	
Cadmium	ND	ND	0.0	20	
Calcium	3.11	3.12	0.3	20	
Chromium	ND	ND	0.0	20	
Cobalt	ND	ND	0.0	20	
Copper	ND	ND	0.0	20	
Iron	0.0542	0.0637	16.1	20	
Lead	ND	ND	0.0	20	
Magnesium	1.32	1.33	0.8	20	
Manganese	ND	ND	0.0	20	
Molybdenum	ND	ND	0.0	20	
Nickel	ND	ND	0.0	20	
Potassium	10.9	11.2	2.7	20	
Selenium	ND	ND	0.0	20	
Silver	ND	ND	0.0	20	
Sodium	1,130	1,140	0.9	20	
Thallium	ND	ND	0.0	20	
Vanadium	ND	ND	0.0	20	
Zinc	ND	ND	0.0	20	
Lithium	ND	ND	0.0	20	

LCS/LCSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080108015

LCS/LCSD REPORT

Analysis: SW6010B - ICP - Total

MB: T080108015-MB

Prep Date: 1/8/2008

MB Anal. Date: 1/8/2008 7:38:00PM

Units: mg/L

LCS Anal. Date: 1/8/2008 7:43:00PM LCSD Anal. Date: 1/8/2008 7:48:00PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Aluminum	ND	1.83	1.85	2.00	2.00	91.5	92.5	1.1	89 - 117	20	
Antimony	ND	0.433	0.446	0.500	0.500	86.6	89.2	3.0	82 - 117	20	
Arsenic	ND	1.77	1.78	2.00	2.00	88.5	89.0	0.6	86 - 116	20	
Barium	ND	1.84	1.86	2.00	2.00	92.0	93.0	1.1	86 - 116	20	
Beryllium	ND	0.0507	0.0505	0.0500	0.0500	101.4	101.0	0.4	87 - 111	20	
Boron	ND	0.509	0.507	0.500	0.500	101.8	101.4	0.4	76 - 130	20	
Cadmium	ND	0.0475	0.0471	0.0500	0.0500	95.0	94.2	0.8	79 - 113	20	
Calcium	ND	8.53	8.99	10.0	10.0	85.3	89.9	5.3	79 - 119	20	
Chromium	ND	0.178	0.184	0.200	0.200	89.0	92.0	3.3	86 - 117	20	
Cobalt	ND	0.436	0.443	0.500	0.500	87.2	88.6	1.6	82 - 118	20	
Copper	ND	0.234	0.237	0.250	0.250	93.6	94.8	1.3	86 - 117	20	
Iron	ND	0.913	0.952	1.00	1.00	91.3	95.2	4.2	83 - 121	20	
Lead	ND	0.442	0.454	0.500	0.500	88.4	90.8	2.7	83 - 121	20	
Magnesium	ND	9.31	9.42	10.0	10.0	93.1	94.2	1.2	83 - 118	20	
Manganese	ND	0.444	0.451	0.500	0.500	88.8	90.2	1.6	82 - 121	20	
Molybdenum	ND	0.431	0.435	0.500	0.500	86.2	87.0	0.9	82 - 120	20	
Nickel	ND	0.434	0.440	0.500	0.500	86.8	88.0	1.4	84 - 117	20	
Potassium	ND	9.01	8.87	10.0	10.0	90.1	88.7	1.6	74 - 110	20	
Selenium	ND	1.78	1.84	2.00	2.00	89.0	92.0	3.3	87 - 117	20	
Silver	ND	0.244	0.246	0.250	0.250	97.6	98.4	0.8	80 - 127	20	
Sodium	ND	9.55	10.6	10.0	10.0	95.5	106.0	10.4	87 - 113	20	
Thallium	ND	0.198	0.218	0.200	0.200	99.0	109.0	9.6	89 - 113	20	
Vanadium	ND	0.450	0.456	0.500	0.500	90.0	91.2	1.3	87 - 119	20	
Zinc	ND	0.436	0.473	0.500	0.500	87.2	94.6	8.1	81 - 120	20	
Lithium	ND	0.490	0.497	0.500	0.500	98.0	99.4	1.4	80 - 120	20	

MS/MSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080108015

MS/MSD REPORT

Analysis: SW6010B - ICP - Total

Parent: B0801027-02A

Prep Date: 1/8/2008

Samp. Anal. Date: 1/8/2008 7:58:00PM

Units: mg/L

MS Anal. Date: 1/8/2008 8:23:00PM MSD Anal. Date: 1/8/2008 8:28:00PM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLv	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Aluminum	0.198	1.73	1.94	2.00	2.00	76.6	87.1	11.4	75 - 125	20	
Antimony	ND	0.378	0.430	0.500	0.500	75.6	86.0	12.9	75 - 125	20	
Arsenic	ND	1.54	1.73	2.00	2.00	77.0	86.5	11.6	75 - 125	20	
Barium	0.127	2.08	1.83	2.00	2.00	97.7	85.2	12.8	75 - 125	20	
Beryllium	ND	0.0499	0.0498	0.0500	0.0500	99.8	99.6	0.2	75 - 125	20	
Boron	0.390	0.870	0.869	0.500	0.500	96.0	95.8	0.1	75 - 125	20	
Cadmium	ND	0.0410	0.0413	0.0500	0.0500	82.0	82.6	0.7	75 - 125	20	
Calcium	3.11	13.1	11.0	10.0	10.0	99.9	78.9	17.4	75 - 125	20	
Chromium	ND	0.192	0.166	0.200	0.200	96.0	83.0	14.5	75 - 125	20	
Cobalt	ND	0.475	0.410	0.500	0.500	95.0	82.0	14.7	75 - 125	20	
Copper	ND	0.196	0.221	0.250	0.250	78.4	88.4	12.0	75 - 125	20	
Iron	0.0542	0.819	0.905	1.00	1.00	76.5	85.1	10.0	75 - 125	20	
Lead	ND	0.376	0.414	0.500	0.500	75.2	82.8	9.6	75 - 125	20	
Magnesium	1.32	8.91	9.93	10.0	10.0	75.9	86.1	10.8	75 - 125	20	
Manganese	ND	0.379	0.422	0.500	0.500	75.8	84.4	10.7	75 - 125	20	
Molybdenum	ND	0.377	0.423	0.500	0.500	75.4	84.6	11.5	75 - 125	20	
Nickel	ND	0.481	0.409	0.500	0.500	96.2	81.8	16.2	75 - 125	20	
Potassium	10.9	19.0	18.0	10.0	10.0	81.0	71.0	5.4	75 - 125	20	lowMSD
Selenium	ND	1.56	1.75	2.00	2.00	78.0	87.5	11.5	75 - 125	20	
Silver	ND	0.207	0.229	0.250	0.250	82.8	91.6	10.1	75 - 125	20	
Sodium	1,130	984	1,070	10.0	10.0	-1,460.0	-600.0	8.4	75 - 125	20	NOTE 2 NOTE 2
Thallium	ND	0.187	0.174	0.200	0.200	93.5	87.0	7.2	75 - 125	20	
Vanadium	ND	0.381	0.429	0.500	0.500	76.2	85.8	11.9	75 - 125	20	
Zinc	ND	0.383	0.424	0.500	0.500	76.6	84.8	10.2	75 - 125	20	
Lithium	ND	0.465	0.524	0.500	0.500	93.0	104.8	11.9	75 - 125	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080108015

POST DIGESTION SPIKE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801027-02A

Prep Date: 1/8/2008

Samp. Anal. Date: 1/8/2008 7:58:00PM

Units: mg/L

PDS Anal. Date: 1/8/2008 8:33:00PM

Matrix: Aqueous

Analyte Name	SampResult	PDSRes.	SPLev	Recov.	Recov Lim	Flag
Aluminum	0.198	1.98	2.00	88.9	75 - 117	
Antimony	ND	0.438	0.500	87.0	75 - 117	
Arsenic	ND	1.78	2.00	88.8	75 - 116	
Barium	0.127	1.88	2.00	87.5	75 - 116	
Beryllium	ND	0.0478	0.0500	95.4	75 - 111	
Boron	0.390	0.846	0.500	91.1	75 - 130	
Cadmium	ND	0.0408	0.0500	86.7	75 - 113	
Calcium	3.11	11.2	10.0	80.8	75 - 119	
Chromium	ND	0.172	0.200	85.4	75 - 117	
Cobalt	ND	0.418	0.500	83.5	75 - 118	
Copper	ND	0.228	0.250	91.1	75 - 117	
Iron	0.0542	0.925	1.00	87.1	75 - 121	
Lead	ND	0.430	0.500	86.0	75 - 121	
Magnesium	1.32	10.1	10.0	88.3	75 - 118	
Manganese	ND	0.431	0.500	84.9	75 - 121	
Molybdenum	ND	0.429	0.500	84.0	75 - 120	
Nickel	ND	0.417	0.500	83.0	75 - 117	
Potassium	10.9	17.8	10.0	69.0	75 - 110	lowPDS
Selenium	ND	1.79	2.00	89.2	75 - 117	
Silver	ND	0.234	0.250	93.2	75 - 127	
Sodium	1,130	1,100	10.0	-349.9	75 - 113	lowPDS Note 2
Thallium	ND	0.174	0.200	85.7	75 - 113	
Vanadium	ND	0.440	0.500	87.4	75 - 119	
Zinc	ND	0.432	0.500	86.5	75 - 120	
Lithium	ND	0.539	0.500	92.0	75 - 120	

SERIAL DILUTION REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080108015

SERIAL DILUTION REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801027-02A

Prep Date: 1/8/2008

Samp. Anal. Date: 1/8/2008 7:58:00PM

Units: mg/L

SER DIL. Date: 1/8/2008 8:38:00PM

Matrix: Aqueous

Analyte Name	SampResult	PQL	MDL	SerialRes.	SerPQL	RPD	Flag
Aluminum	0.198	0.050	0.014	ND	0.25		
Antimony	ND	0.050	0.0067	ND	0.25		
Arsenic	ND	0.10	0.015	ND	0.50		
Barium	0.127	0.0100	0.00016	0.111	0.050	13.4	OUT
Cadmium	ND	0.0060	0.00051	ND	0.030		
Calcium	3.11	0.10	0.013	5.53	0.50	56.0	OUT
Chromium	ND	0.0100	0.0018	ND	0.050		
Cobalt	ND	0.0050	0.0016	ND	0.025		
Copper	ND	0.0050	0.0019	ND	0.025		
Iron	0.0542	0.050	0.0027	ND	0.25		
Lead	ND	0.050	0.011	ND	0.25		
Magnesium	1.32	0.10	0.012	1.11	0.50	17.2	OUT
Manganese	ND	0.0100	0.00066	ND	0.050		
Molybdenum	ND	0.0100	0.0018	ND	0.050		
Nickel	ND	0.040	0.0027	ND	0.20		
Potassium	10.9	1.0	0.31	10.3	5.0	5.6	
Selenium	ND	0.10	0.026	ND	0.50		
Silver	ND	0.015	0.00066	ND	0.075		
Sodium	1,130	3.0	0.028	1,030	15	9.2	
Vanadium	ND	0.0100	0.00072	ND	0.050		
Zinc	ND	0.0050	0.0010	0.204	0.025		
Lithium	ND	0.10	0.00072	ND	0.50		

Prep Batch: T080108012

SAMPLE DUPLICATE REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

Base Sample: B0801027-02A

Prep Date: 1/8/2008

Samp. Anal. Date: 1/8/2008 5:19:17PM

Units: mg/L

DUP Anal. Date: 1/8/2008 5:21:31PM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080108012

SAMPLE DUPLICATE REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Base Sample: B0801027-02A
Prep Date: 1/8/2008

Samp. Anal. Date: 1/8/2008 5:19:17PM

Units: mg/L

DUP Anal. Date: 1/8/2008 5:21:31PM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Mercury	ND	ND	0.0	20	

LCS/LCSD REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg MB: T080108012-MB

Prep Date: 1/8/2008

MB Anal. Date: 1/8/2008 5:04:24PM

Units: mg/L

LCS Anal. Date: 1/8/2008 5:10:50PM LCSD Anal. Date: 1/8/2008 5:12:54PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Mercury	ND	0.00203	0.00208	0.00200	0.0020	101.5	104.0	2.4	80 - 120	20	

MS/MSD REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Parent: B0801027-02A

Prep Date: 1/8/2008

Samp. Anal. Date: 1/8/2008 5:19:17PM

Units: mg/L

MS Anal. Date: 1/8/2008 5:23:34PM MSD Anal. Date: 1/8/2008 5:25:40PM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLev	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Mercury	ND	0.00213	0.00210	0.00200	0.00200	106.5	105.0	1.4	70 - 130	20	

POST DIGESTION SPIKE REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Base Sample: B0801027-02A

Prep Date: 1/8/2008

Samp. Anal. Date: 1/8/2008 5:19:17PM

Units: mg/L

PDS Anal. Date: 1/8/2008 5:27:45PM

Matrix: Aqueous

Analyte Name	SampResult	PDSRes.	SPLev	Recov.	Recov Lim	Flag
Mercury	ND	0.00216	0.00200	103.1	80 - 120	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080107001

LCS/LCSD REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC MB: T080107001-MB

Prep Date: 1/7/2008

MB Anal. Date: 1/9/2008 3:32:33AM

Units: mg/L

LCS Anal. Date: 1/7/2008 6:27:53PM LCSD Anal. Date: 1/7/2008 6:46:17PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Fluoride	ND	2.31	2.25	2.50	2.50	92.4	90.0	2.6	90 - 110	20	
Chloride	ND	4.71	4.71	5.00	5.00	94.2	94.2	0.0	90 - 110	20	
Sulfate	ND	34.1	34.0	37.5	37.5	90.9	90.7	0.3	90 - 110	20	

MS REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC

Parent: B0801027-02B

Prep Date: 1/7/2008

Samp. Anal. Date: 1/8/2008 4:34:49AM

Units: mg/L

MS Anal. Date: 1/9/2008 2:37:21AM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Fluoride	2.16	4.39	2.50	89.2	70 - 130	
Chloride	632	755	125	98.4	70 - 130	NOTE 2
Sulfate	285	323	37.5	101.3	70 - 130	NOTE 2

Prep Batch: T080111013

SAMPLE DUPLICATE REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS

Base Sample: B0801027-02B

Prep Date: 1/11/2008

Samp. Anal. Date: 1/16/2008 1:50:18PM

Units: mg/L

DUP Anal. Date: 1/16/2008 1:50:18PM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Total Dissolved Solids	3,070	3,060	0.3	20	

LCS/LCSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080111013

LCS/LCSD REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS MB: T080111013-MB

Prep Date: 1/11/2008

MB Anal. Date: 1/16/2008 1:50:18PM

Units: mg/L

LCS Anal. Date: 1/16/2008 1:50:18PM LCSD Anal. Date: 1/16/2008 1:50:18PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Total Dissolved Solids	ND	815	826	825	825	98.8	100.1	1.3	80 - 120	20	

MS REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS Parent: B0801027-02B

Prep Date: 1/11/2008

Samp. Anal. Date: 1/16/2008 1:50:18PM

Units: mg/L

MS Anal. Date: 1/16/2008 1:50:18PM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Total Dissolved Solids	3,070	3,850	825	94.5	70 - 130	

Prep Batch: T080117001

SAMPLE DUPLICATE REPORT

Analysis: 150.1 - pH, Electrometric - pH Base Sample: B0801027-02B

Prep Date: 1/5/2008

Samp. Anal. Date: 1/5/2008 9:29:27AM

Units: pH

DUP Anal. Date: 1/5/2008 9:29:27AM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
pH	8.97	8.97	0.0	20	

Prep Batch: T080117013

SAMPLE DUPLICATE REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080117013

SAMPLE DUPLICATE REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

Base Sample: B0801027-02B

Prep Date: 1/17/2008

Samp. Anal. Date: 1/17/2008 2:31:55PM

Units: mg/L

DUP Anal. Date: 1/17/2008 2:31:55PM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Bicarbonate	1,250	1,240	0.8	20	
Carbonate	228	248	8.4	20	

LCS/LCSD REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

MB: T080117013-MB

Prep Date: 1/17/2008

MB Anal. Date: 1/17/2008 2:31:55PM

Units: mg/L

LCS Anal. Date: 1/17/2008 2:31:55PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Bicarbonate	ND	28.0	26.0	25.0	25.0	112.0	104.0	7.4	80 - 120	20	
Carbonate	ND	51.0	49.0	50.0	50.0	102.0	98.0	4.0	80 - 120	20	

MS REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

Parent: B0801027-02B

Prep Date: 1/17/2008

Samp. Anal. Date: 1/17/2008 2:31:55PM

Units: mg/L

MS Anal. Date: 1/17/2008 2:31:55PM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Bicarbonate	1,250	1,280	50.0	60.0	70 - 130	NOTE 2
Carbonate	228	296	100	68.0	70 - 130	lowMS

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 82,878 Lab Project Number: B0801027

Prep Date: 1/7/2008

Lab Method Blank Id: T080107001-MB

Prep Batch ID: T080107001

Method: Inorganic Anions by Ion Chromatography - Anions by IC

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
T080107001-LCS	LCS	080107_020.DXD	1/7/2008 6:27:53PM
T080107001-LCSD	LCSD	080107_021.DXD	1/7/2008 6:46:17PM
B0801018-08B	Batch QC	080107_036.DXD	1/7/2008 11:22:10PM
B0801027-01B	MB	080107_047.DXD	1/8/2008 2:44:31AM
B0801027-01B	MB	080107_049.DXD	1/8/2008 3:21:16AM
B0801027-02B	4 Corners PP Bottom Ash Leachate	080107_051.DXD	1/8/2008 3:58:04AM
B0801027-02B	4 Corners PP Bottom Ash Leachate	080107_053.DXD	1/8/2008 4:34:49AM
T080107001-LCS	LCS	080108_010.DXD	1/8/2008 12:31:14PM
T080107001-LCSD	LCSD	080108_011.DXD	1/8/2008 12:49:38PM
B0801018-08B-DUP	DUP	080108_026.DXD	1/8/2008 5:25:29PM
B0801018-08B-MS	MS	080108_027.DXD	1/8/2008 5:43:52PM
B0801027-02B-MS	MS	080108_052.DXD	1/9/2008 1:23:44AM
B0801027-02B-MS	MS	080108_056.DXD	1/9/2008 2:37:21AM
B0801018-08B	Batch QC	080111_042.DXD	1/12/2008 12:33:51AM
B0801018-08B-DUP	DUP	080111_043.DXD	1/12/2008 12:52:16AM

Prep Date: 1/8/2008

Lab Method Blank Id: T080108012-MB

Prep Batch ID: T080108012

Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801027-01A	MB	B010807W.WKS	1/8/2008 5:17:11PM
B0801027-02A	4 Corners PP Bottom Ash Leachate	B010807W.WKS	1/8/2008 5:19:17PM
T080108012-LCS	LCS	B010807W.WKS	1/8/2008 5:10:50PM
T080108012-LCSD	LCSD	B010807W.WKS	1/8/2008 5:12:54PM
B0801027-02A-DUP	DUP	B010807W.WKS	1/8/2008 5:21:31PM
B0801027-02A-MS	MS	B010807W.WKS	1/8/2008 5:23:34PM
B0801027-02A-MSD	MSD	B010807W.WKS	1/8/2008 5:25:40PM
B0801027-02A-PDS	PDS	B010807W.WKS	1/8/2008 5:27:45PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 82,878 Lab Project Number: B0801027

Prep Date: 1/8/2008

Lab Method Blank Id: T080108015-MB
Prep Batch ID: T080108015
Method: SW6010B - ICP - Total

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801027-01A	MB	E01088A	1/8/2008 7:53:00PM
B0801027-02A	4 Corners PP Bottom Ash Leachate	E01088A	1/8/2008 7:58:00PM
T080108015-LCS	LCS	E01088A	1/8/2008 7:43:00PM
T080108015-LCSD	LCSD	E01088A	1/8/2008 7:48:00PM
B0801027-02A-DUP	DUP	E01088A	1/8/2008 8:03:00PM
B0801027-02A-MS	MS	E01088A	1/8/2008 8:23:00PM
B0801027-02A-MSD	MSD	E01088A	1/8/2008 8:28:00PM
B0801027-02A-PDS	PDS	E01088A	1/8/2008 8:33:00PM
B0801027-01A	MB	E01098A	1/9/2008 1:35:00PM
B0801027-02A	4 Corners PP Bottom Ash Leachate	E01098A	1/9/2008 1:40:00PM
T080108015-LCS	LCS	E01098A	1/9/2008 1:10:00PM
T080108015-LCSD	LCSD	E01098A	1/9/2008 1:15:00PM
B0801027-02A-DUP	DUP	E01098A	1/9/2008 1:45:00PM
B0801027-02A-MS	MS	E01098A	1/9/2008 1:50:00PM
B0801027-02A-MSD	MSD	E01098A	1/9/2008 1:56:00PM
B0801027-02A-PDS	PDS	E01098A	1/9/2008 2:01:00PM

Prep Date: 1/11/2008

Lab Method Blank Id: T080111013-MB
Prep Batch ID: T080111013
Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801027-01B	MB		1/16/2008 1:50:18PM
B0801027-02B	4 Corners PP Bottom Ash Leachate		1/16/2008 1:50:18PM
T080111013-LCS	LCS		1/16/2008 1:50:18PM
T080111013-LCSD	LCSD		1/16/2008 1:50:18PM
B0801027-02B-DUP	DUP		1/16/2008 1:50:18PM
B0801027-02B-MS	MS		1/16/2008 1:50:18PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 82,878 Lab Project Number: B0801027

Prep Date: 1/17/2008

Lab Method Blank Id: T080117013-MB

Prep Batch ID: T080117013

Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801027-01B	MB		1/17/2008 2:31:55PM
B0801027-02B	4 Corners PP Bottom Ash Leachate		1/17/2008 2:31:55PM
T080117013-LCS	LCS		1/17/2008 2:31:55PM
T080117013-LCSD	LCSD		1/17/2008 2:31:55PM
B0801027-02B-DUP	DUP		1/17/2008 2:31:55PM
B0801027-02B-MS	MS		1/17/2008 2:31:55PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

DATA FLAGS AND DEFINITIONS

The PQL is the Method Quantitation Limit as defined by USACE.

Reporting Limit: Limit below which results are shown as "ND". This may be the PQL, MDL, or a value between. See the report conventions below.

Result Field:

ND = Not Detected at or above the Reporting Limit

NA = Analyte not applicable (see Case Narrative for discussion)

Qualifier Fields:

LOW = Recovery is below Lower Control Limit

HIGH = Recovery, RPD, or other parameter is above Upper Control Limit

E = Reported concentration is above the instrument calibration upper range

Organic Analysis Flags:

B = Analyte was detected in the laboratory method blank

J = Analyte was detected above MDL or Reporting Limit but below the Quant Limit (PQL)

Inorganic Analysis Flags:

J = Analyte was detected above the Reporting Limit but below the Quant Limit (PQL)

W = Post digestion spike did not meet criteria

S = Reported value determined by the Method of Standard Additions (MSA)

Several ways of defining the limit of detection and quantitation are prevalent in the laboratory industry and may appear in Analytica reports. These include the following:

MRL = "minimum reporting level", from the EPA Safe Drinking Water program (SDW)

PQL = "practical quantitation limit", from SW-846

EQL = "estimated quantitation limit", from SW-846

LOQ = "limit of quantitation", from a number of authoritative sources

In Analytica's work, all of these terms have the same meaning, equivalent to the EPA definition of the MRL. This reporting level is supported by a satisfactory calibration data point which is at that level or lower, and also is supported by a method detection limit (MDL) determined by the procedure in 40CFR. The MDL is lower than the MRL and represents an estimate of the level where positive detections have a 99% probability of being real, but where quantitation accuracy is unknown.

The MRL as defined by Analytica is the lowest demonstrated point of known quantitation accuracy.

The MRL should not be confused with the MCL, which is the EPA-defined "maximum contaminant level" allowed for certain regulated targets under specific regulations, such as the National Primary Drinking Water Regulations. Normally, the MRL is set at a level which is much lower than the MCL in order to ensure that levels are well below those limits. Not all target analytes have MCL levels established.

Other Flags may be applied. See Case Narrative for Description

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801027

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

REPORTING CONVENTIONS FOR THIS REPORT

B0801027

<u>TestPkgName</u>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
150.1/150.1 (Aqueous) - pH	As Received	2	Report to PQL
160.1/160.1 (Aqueous) - TDS	As Received	2	Report to PQL
300.0/300.0 (Aqueous) - Anions by IC	As Received	2	Report to PQL
310.1/310.1 (Aqueous) - Alkalinity	As Received	2	Report to PQL
6010B/3010A (Aqueous) - Total	As Received	2	Report to PQL
7470A/7470A (Aqueous) - Total Hg	As Received	2	Report to PQL



12189 Pennsylvania St
 Thornton, CO 80241
 (303) 469-8868
 (303) 469-5254 fax

4907 Arctic Boulevard
 Anchorage, AK 99503
 (907) 258-2155
 (907) 258-6834 fax

475 Hall St.
 Fairbanks, AK 99701
 (907) 456-3116
 (907) 456-3125 Fax

5438 Shaune Drive
 Juneau, AK 99801
 (907) 780-6668
 (907) 780-6670 fax

Page _____ of _____

Analytica Chain of Custody Form

Client Name & Address:
 Applied Hydrology Associates, Inc.

Project Name:
 Navajo Mine Extension Leachate Study

Public Water System (PWS) ID#:

Section To be Completed by Analytica

Quote ID: _____
 Account #: 030188
 Cash Credit Card

Invoice to Name & Address: _____
 LGN: B0801027

Report to: _____
Phone No.: _____
Fax No.: _____
E-mail: _____

Standard _____ **Expedited** (< 10 days, prior authorization required)
(please specify due date below, add'l charges may apply)

Requested Due Date for Results: _____

Special Instructions/Comments:
 Tumbled in house by R.S.
 Bottom Ash Leachate study

P.O. or Contract No.: _____
Requested Analysis/Method

Kit Prep/Shipping Charge: \$

Client Sample Identification / Location

Client Sample Identification / Location	Date Sampled	Time Sampled	Matrix (S-DW-WW-Other)	No. of Containers	Lot # / Pres.	Lot # / Pres.	Lot # / Pres.	Lot # / Pres.	Lot # / Pres.	Field Preserved	Field Filtered	MS/MSD ?	
MB 4 corners PP Bottom Ash Leachate	1/4/08	13:00	AQ	2	6010B/3010A-TL ✓	7470A Hg ✓	150.1 pH ✓	160.1 TDS ✓	300.0 Anions/TC ✓	30.1 Alk ✓	1/2	1/2	X

Relinquished by:	Date	Time	Received by:	Date	Time	Condition of Custody Seal?	Initiated By:	Temp/Loc:	Thermo ID#:	Shipped Via:	
R. Seeman	1/7/08	13:55	R. Seeman	1/7/08	13:55	THO	ANC	JNU	FBKS	3.1	Ryan Seeman



Cooler Receipt Form

Client: Applied Hydrology Associates Client Code: 030188
Project: Navajo Mine Extension Leaching Study

Order #: B0801027

Cooler ID: 1

A. Preliminary Examination Phase:

Date cooler opened: 1/7/2008
Cooler opened by: gp

Signature: GP

- 1. Was airbill Attached? N/A Airbill #: Carrier Name: Other
- 2. Custody Seals? N/A How many? 0 Location: Seal Name:
- 3. Seals intact? N/A
- 4. COC Attached? Yes Properly Completed? Yes Signed by AEL employee? Yes
- 5. Project Identification from custody paper: Navajo Mine Extension Leaching Study
- 6. Preservative: None Temperature: 3.1 deg. C

Designated person initial here to acknowledge receipt:

GP Date: 1/7/08

COMMENTS:

B. Log-In Phase: Samples Log-in Date: 1/7/2008 Log-in By: gp

- 1. Packing Type: Other
- 2. Were samples in separate bags? N/A
- 3. Were containers intact? Yes Labels agree with COC? Yes
- 4. Number of bottles received: 4 Number of samples received: 2
- 5. Correct containers used? Yes Correct preservatives added? Yes
- 6. Sufficient sample volume? Yes
- 7. Bubbles in VOA samples? N/A
- 8. Was Project manager called and status discussed? No
- 9. Was anyone called? No Who was called? _____ By whom? _____ Date: _____

COMMENTS:

The Analytica Group
CLIENT INVOICE

Remit to: Accounting Dpt
 Analytica Environmental Laboratories, Inc.
 P.O. Box 973426
 Dallas, TX 75397-3426

Invoice #: 82649
Work Order#: B0801191
Account#: 030188
Quote ID#: 11340
Invoice Date: 2/11/2008
Work ID: Navajo Mine Extension
PO #: Leaching Study
 none
Received: 1/28/2008
Reported: 2/11/2008
Client Project#: Navajo Mine Extension Leach

Phone: (303) 469-8868

Attention: Mr. Art O'Hayre
Invoice to: Applied Hydrology Associates, Inc.
 950 South Cherry Street
 Suite 810
 Denver, CO 80246

Comments:

<u>Item charges</u>		<u>Qty</u>	<u>Price</u>	<u>Total</u>
SW7470A - Mercury in Liquid Waste by CVAA - Total Hg In Aqueous	M	6	35.00	210.00
160.1 - Total Dissolved Solids dried at 180°C - TDS In Liquid	Matrix	6	22.00	132.00
150.1 - pH, Electrometric - pH In Liquid	Matrix	6	10.00	60.00
SW6010B - ICP - Total In Aqueous	Matrix	6	312.00	1,872.00
Inorganic Anions by Ion Chromatography - Anions by IC In Liquid	Matrix	6	54.00	324.00
310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity In Liquid	Matrix	6	36.00	216.00

Total of Items Above: \$2,814.00

Adjustments or Special Services

	<u>Qty</u>	<u>Price</u>	<u>Total</u>
Tumbling Charge	5	95.00	475.00

Total of Items Above: \$475.00

Grand Total: \$3,289.00

All invoices are due and payable upon receipt. Outstanding balances over 30 days are subject to a finance charge of 1.5% per month, plus a late fee of \$25.00. If Analytica engages legal counsel to enforce its rights or any other rights under an application for payment, the customer will be liable to Analytica for all costs of collection and other legal expenses, including reasonable attorney fees.

The Analytica Group
CLIENT INVOICE

REMITTANCE ADVICE
PLEASE RETURN THIS PORTION WITH YOUR
PAYMENT

Mr. Art O'Hayre
Applied Hydrology Associates, Inc.
950 South Cherry Street
Suite 810
Denver, CO 80246

Account#: 030188
Invoice #: 82649
Invoice Date: 2/11/2008

TOTAL INVOICE AMOUNT: **\$3,289.00**

PAYMENT AMOUNT ENCLOSED: _____



Analytica Environmental
Laboratories, Inc.
12189 Pennsylvania Street
Thornton, CO 80241
Phone: 303-469-8868
Fax: 303-469-5254

2/11/2008

Applied Hydrology Associates, Inc.
950 South Cherry Street
Suite 810
Denver, CO 80246
Attn: Art O'Hayre

Work Order #: B0801191
Date: 2/11/2008
Work ID: Navajo Mine Extension Leaching Study
Date Received: 1/28/2008
Proj #: none

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
B0801191-01	MB 45 day	B0801191-02	Ash Composite 45 day
B0801191-03	Spoil Composite 45 day	B0801191-04	MB SPLP
B0801191-05	Ash Composite SPLP	B0801191-06	Spoil Composite SPLP

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. Listings of data qualifiers, analytical codes, key dates, and QC relationships are provided at the end of the report.

Sincerely,

Kristen Stone
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

Analytica Environmental Laboratories, Inc.

Work Order: B0801191

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Methods for Chemical Analysis of Water and Wastes, USEPA 600/4-79-020, March 1983.

Pfaff, J. D., C. A. Brockhoff and J. W. O'Dell. 1994. The Determination of Inorganic Anions in Water by Ion Chromatography. Method 300.0A. U. S. Environmental Protection Agency. Environmental Monitoring Systems Lab.

Methods for the Determination of Metals in Environmental Samples, EPA/600/R-94/111, May 1994.

SAMPLE RECEIPT:

Six (6) samples were received on 1/28/2008 12:35:00 PM., at a temperature of 6 deg C., at Analytica-Thornton. The samples were received in good condition and in order per chain of custody. The samples were tumbled at the laboratory.

REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN

A summary of our review is shown below.

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries is kept on file in our office and is available upon request.

All method specifications were met for the following tests:

Test Method: 150.1 - pH, Elecrometric - pH - Aqueous

Test Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS - Aqueous

Test Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity - Aqueous

Test Method: Inorganic Anions by Ion Chromatography - Anions by IC - Aqueous

Test Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg - Aqueous

Test Method: SW6010B - ICP - Total - Aqueous

MS/MSD and DUP OUTLIERS:

As shown below, the MSD was outside of limits for Calcium. The sample had Calcium concentrations greater than four times the spike amount. In these cases it is not appropriate to calculate a recovery. The result should be used as a replicate.

Type	Client Sample	LabSample	Analyte	Recovery	LCL	UCL	Parent	Spike
MSD	Ash Composite	SP B0801191-05A	Calcium	-11.	75	125	562	10.0

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB 45 day**

Matrix: Aqueous

Collection Date: 1/25/2008 2:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-01A Analysis Date: 1/31/2008 1:50:33PM
Prep Date: 1/29/2008 Instrument: CVAA_1
Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg File Name: B013108W.W
Prep Method ID: 7470A Dilution Factor: 1
Prep Batch Number: T080131004
Report Basis: As Received Analyst Initials: DL
Sample prep wt./vol: 30.00 ml Prep Extract Vol: 30.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-01A Analysis Date: 1/30/2008 12:59:00PM
Prep Date: 1/29/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01308A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080129008
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.85		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.081		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.32		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	3.0		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	0.14		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.2		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.013		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	12		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB 45 day**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number: B0801191-01A Analysis Date: 1/30/2008 12:59:00PM
Prep Date: 1/29/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01308A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080129008
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	0.0053		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-01B Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		1,200		mg/L	5.0	1.5	1
Carbonate		260		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-01B Analysis Date: 1/25/2008 2:10:00PM
Prep Date: 1/25/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080201005
Report Basis: As Received Analyst Initials: R. Seeman
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		8.7		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB 45 day**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number: B0801191-01B Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,000		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-01B Analysis Date: 1/30/2008 4:18:17PM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_011.D
Prep Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		600		mg/L	20	1.1	1

Lab Sample Number: B0801191-01B Analysis Date: 1/30/2008 9:12:31PM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_027.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		2.2		mg/L	0.40	0.031	2
Sulfate		280		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Composite 45 day**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-02A	Analysis Date:	1/31/2008 2:39:43PM
Prep Date:	1/29/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B013108W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080131004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-02A	Analysis Date:	1/30/2008 1:04:00PM
Prep Date:	1/29/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E01308A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T080129008	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	4.6		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.033		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	2.6		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	530		mg/L	0.10	0.013	
Chromium	7440-47-3	0.031		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	0.72		mg/L	0.0050	0.0019	
Iron	7439-89-6	0.071		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	0.14		mg/L	0.10	0.00072	
Magnesium	7439-96-4	12		mg/L	0.10	0.012	
Manganese	7439-96-5	0.12		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.15		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	12		mg/L	1.0	0.31	
Selenium	7784-49-2	0.15		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Composite 45 day**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number: B0801191-02A Analysis Date: 1/30/2008 1:04:00PM
Prep Date: 1/29/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01308A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080129008
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	0.10		mg/L	0.010	0.00072	
Zinc	7440-66-6	0.098		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-02B Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		1,100		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-02B Analysis Date: 1/25/2008 2:10:00PM
Prep Date: 1/25/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080201005
Report Basis: As Received Analyst Initials: R. Seeman
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
pH		7.8		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Composite 45 day**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number: B0801191-02B Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		5,300		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-02B Analysis Date: 1/30/2008 4:36:41PM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_012.D
Prep Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		610		mg/L	20	1.1	1
Sulfate		2,500		mg/L	38	2.8	

Lab Sample Number: B0801191-02B Analysis Date: 1/30/2008 9:49:17PM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_029.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		8.2		mg/L	0.40	0.031	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Composite 45 day**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-03A	Analysis Date:	1/31/2008 2:41:52PM
Prep Date:	1/29/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B013108W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080131004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-03A	Analysis Date:	1/30/2008 1:09:00PM
Prep Date:	1/29/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E01308A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T080129008	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Aluminum	7429-90-5	0.38		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.079		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.36		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	56		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	0.053		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	0.11		mg/L	0.10	0.00072	
Magnesium	7439-96-4	12		mg/L	0.10	0.012	
Manganese	7439-96-5	0.098		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.015		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	14		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Composite 45 day**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number:	B0801191-03A	Analysis Date:	1/30/2008 1:09:00PM
Prep Date:	1/29/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E01308A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T080129008	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-03B	Analysis Date:	2/4/2008 9:52:02AM
Prep Date:	2/4/2008	Instrument:	Titrametric
Analytical Method ID:	310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity	File Name:	
Prep Method ID:	Alkalinity_W	Dilution Factor:	1
Prep Batch Number:	T080205001	Analyst Initials:	cs
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		960		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-03B	Analysis Date:	1/25/2008 2:10:00PM
Prep Date:	1/25/2008	Instrument:	Probe
Analytical Method ID:	150.1 - pH, Electrometric - pH	File Name:	
Prep Method ID:	150.1	Dilution Factor:	1
Prep Batch Number:	T080201005	Analyst Initials:	R. Seeman
Report Basis:	As Received	Prep Extract Vol:	10.00 ml
Sample prep wt./vol:	10.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
pH		8.0		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Composite 45 day**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number:	B0801191-03B	Analysis Date:	2/4/2008 12:47:24PM
Prep Date:	1/31/2008	Instrument:	SCALE
Analytical Method ID:	160.1 - Total Dissolved Solids dried at 180°C - TDS	File Name:	
Prep Method ID:	160.1	Dilution Factor:	1
Prep Batch Number:	T080131008	Analyst Initials:	kl
Report Basis:	As Received	Prep Extract Vol:	1.00 ml
Sample prep wt./vol:	100.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,500		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-03B	Analysis Date:	1/30/2008 5:50:15PM
Prep Date:	1/30/2008	Instrument:	IC
Analytical Method ID:	Inorganic Anions by Ion Chromatography - Anions by IC	File Name:	080130_016.D
Prep Method ID:	300.0	Dilution Factor:	25
Prep Batch Number:	T080130013	Analyst Initials:	KB
Report Basis:	As Received	Prep Extract Vol:	20.00 ml
Sample prep wt./vol:	20.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		600		mg/L	20	1.1	1
Sulfate		930		mg/L	38	2.8	

Lab Sample Number:	B0801191-03B	Analysis Date:	1/30/2008 11:02:52PM
Prep Date:	1/30/2008	Instrument:	IC
Analytical Method ID:	Inorganic Anions by Ion Chromatography - Anions by IC	File Name:	080130_033.D
Prep Method ID:	300.0	Dilution Factor:	1
Prep Batch Number:	T080130013	Analyst Initials:	KB
Report Basis:	As Received	Prep Extract Vol:	20.00 ml
Sample prep wt./vol:	20.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		1.5		mg/L	0.40	0.031	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB SPLP**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-04A	Analysis Date:	1/31/2008 2:44:26PM
Prep Date:	1/29/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B013108W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080131004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-04A	Analysis Date:	1/30/2008 1:14:00PM
Prep Date:	1/29/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E01308A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T080129008	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.056		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	ND		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	ND		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	0.27		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	0.0067		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	ND		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	ND		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name:

MB SPLP

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number: B0801191-04A Analysis Date: 1/30/2008 1:14:00PM
Prep Date: 1/29/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01308A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080129008
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sodium	7440-23-5	5.7		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-04B Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		ND		mg/L	5.0	1.5	1
Carbonate		10		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-04B Analysis Date: 1/25/2008 2:10:00PM
Prep Date: 1/25/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080201005
Report Basis: As Received Analyst Initials: R. Seeman
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
pH		5.0		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB SPLP**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number: B0801191-04B Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		ND		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-04B Analysis Date: 1/31/2008 12:16:31AM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_037.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		ND		mg/L	0.80	0.042	2
Fluoride		ND		mg/L	0.40	0.031	
Sulfate		3.4		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Composite SPLP**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-05A	Analysis Date:	1/31/2008 2:46:54PM
Prep Date:	1/29/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B013108W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080131004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-05A	Analysis Date:	1/30/2008 1:19:00PM
Prep Date:	1/29/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E01308A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T080129008	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.36		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.11		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.28		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	560		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	0.88		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.089		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	ND		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Composite SPLP**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number: B0801191-05A Analysis Date: 1/30/2008 1:19:00PM
Prep Date: 1/29/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01308A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080129008
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	8.8		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	0.088		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-05B Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		ND		mg/L	5.0	1.5	1
Carbonate		18		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-05B Analysis Date: 1/25/2008 2:10:00PM
Prep Date: 1/25/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080201005
Report Basis: As Received Analyst Initials: R. Seeman
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		7.4		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Composite SPLP**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number: B0801191-05B Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		2,200		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-05B Analysis Date: 1/30/2008 6:27:01PM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_018.D
Prep Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sulfate		1,300		mg/L	38	2.8	1

Lab Sample Number: B0801191-05B Analysis Date: 1/31/2008 12:34:55AM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_038.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		5.6		mg/L	0.80	0.042	2
Fluoride		3.2		mg/L	0.40	0.031	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Composite SPLP**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-06A	Analysis Date:	1/31/2008 2:48:59PM
Prep Date:	1/29/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B013108W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080131004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801191-06A	Analysis Date:	1/30/2008 2:29:00PM
Prep Date:	1/29/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E01308A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T080129008	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	ND		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.070		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.084		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	150		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	15		mg/L	0.10	0.012	
Manganese	7439-96-5	0.19		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	7.0		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Composite SPLP**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number: B0801191-06A Analysis Date: 1/30/2008 2:29:00PM
Prep Date: 1/29/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01308A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080129008
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	150		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-06B Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		33		mg/L	5.0	1.5	1
Carbonate		14		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-06B Analysis Date: 1/25/2008 2:10:00PM
Prep Date: 1/25/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080201005
Report Basis: As Received Analyst Initials: R. Seeman
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		7.5		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Spoil Composite SPLP**

Matrix: Aqueous Collection Date: 1/25/2008 2:00:00PM

Lab Sample Number: B0801191-06B Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		1,200		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801191-06B Analysis Date: 1/30/2008 7:40:34PM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_022.D
Prep Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sulfate		670		mg/L	38	2.8	1

Lab Sample Number: B0801191-06B Analysis Date: 1/31/2008 12:53:17AM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_039.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		1.5		mg/L	0.80	0.042	2
Fluoride		0.54		mg/L	0.40	0.031	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name: **MB**

Matrix: Aqueous Collection Date: 1/29/2008 12:00:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	T080131004-MB	Analysis Date:	1/31/2008 1:01:23PM
Prep Date:	1/29/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B013108W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080131004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	T080129008-MB	Analysis Date:	1/30/2008 12:34:00PM
Prep Date:	1/29/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E01308A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T080129008	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	ND		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	ND		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	ND		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	ND		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	ND		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	ND		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name: **MB**

Matrix: Aqueous Collection Date: 1/29/2008 12:00:00AM

Lab Sample Number: T080129008-MB Analysis Date: 1/30/2008 12:34:00PM
Prep Date: 1/29/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01308A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080129008
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sodium	7440-23-5	ND		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	

Lab Sample Number: T080129008-MB Analysis Date: 1/31/2008 11:13:00AM
Prep Date: 1/29/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01318A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080129008
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	2

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080205001-MB Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		ND		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080131008-MB Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous Collection Date: 1/31/2008 12:00:00AM

Lab Sample Number: T080131008-MB Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		ND		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080130013-MB Analysis Date: 1/30/2008 3:04:45PM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_007.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		ND		mg/L	0.80	0.042	1
Fluoride		ND		mg/L	0.40	0.031	
Sulfate		ND		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado
 Workorder (SDG): B0801191
 Project: Navajo Mine Extension Leaching Study
 Project Number: **QUALITY CONTROL REPORT**
 Prep Batch: **T080129008**

SAMPLE DUPLICATE REPORT

Analysis: SW6010B - ICP - Total
 Base Sample: B0801191-05A
 Prep Date: 1/29/2008
 Samp. Anal. Date: 1/30/2008 1:19:00PM Units: mg/L
 DUP Anal. Date: 1/30/2008 1:40:00PM Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Aluminum	0.359	0.346	3.7	20	
Antimony	ND	ND	0.0	20	
Arsenic	ND	ND	0.0	20	
Barium	0.113	0.110	2.7	20	
Beryllium	ND	ND	0.0	20	
Boron	0.282	0.278	1.4	20	
Cadmium	ND	ND	0.0	20	
Calcium	562	549	2.3	20	
Chromium	ND	ND	0.0	20	
Cobalt	ND	ND	0.0	20	
Copper	ND	ND	0.0	20	
Iron	ND	ND	0.0	20	
Lead	ND	ND	0.0	20	
Magnesium	0.883	0.856	3.1	20	
Manganese	ND	ND	0.0	20	
Molybdenum	0.0886	0.0859	3.1	20	
Nickel	ND	ND	0.0	20	
Potassium	ND	1.10	0.0	20	
Selenium	ND	ND	0.0	20	
Silver	ND	ND	0.0	20	
Sodium	8.85	8.45	4.6	20	
Thallium	ND	ND	0.0	20	
Vanadium	0.0883	0.0868	1.7	20	
Zinc	ND	ND	0.0	20	
Lithium	ND	ND	0.0	20	

LCS/LCSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080129008

LCS/LCSD REPORT

Analysis: SW6010B - ICP - Total

MB: T080129008-MB

Prep Date: 1/29/2008

MB Anal. Date: 1/30/2008 12:34:00PM

Units: mg/L

LCS Anal. Date: 1/30/2008 12:39:00PM LCSD Anal. Date: 1/30/2008 12:44:00PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Aluminum	ND	1.91	1.88	2.00	2.00	95.5	94.0	1.6	89 - 117	20	
Antimony	ND	0.474	0.458	0.500	0.500	94.8	91.6	3.4	82 - 117	20	
Arsenic	ND	1.81	1.82	2.00	2.00	90.5	91.0	0.6	86 - 116	20	
Barium	ND	1.87	1.85	2.00	2.00	93.5	92.5	1.1	86 - 116	20	
Beryllium	ND	0.0481	0.0477	0.0500	0.0500	96.2	95.4	0.8	87 - 111	20	
Boron	ND	0.463	0.459	0.500	0.500	92.6	91.8	0.9	76 - 130	20	
Cadmium	ND	0.0448	0.0430	0.0500	0.0500	89.6	86.0	4.1	79 - 113	20	
Calcium	ND	9.59	9.28	10.0	10.0	95.9	92.8	3.3	79 - 119	20	
Chromium	ND	0.189	0.185	0.200	0.200	94.5	92.5	2.1	86 - 117	20	
Cobalt	ND	0.468	0.464	0.500	0.500	93.6	92.8	0.9	82 - 118	20	
Copper	ND	0.231	0.231	0.250	0.250	92.4	92.4	0.0	86 - 117	20	
Iron	ND	0.981	0.972	1.00	1.00	98.1	97.2	0.9	83 - 121	20	
Lead	ND	0.472	0.453	0.500	0.500	94.4	90.6	4.1	83 - 121	20	
Magnesium	ND	9.61	9.54	10.0	10.0	96.1	95.4	0.7	83 - 118	20	
Manganese	ND	0.475	0.471	0.500	0.500	95.0	94.2	0.8	82 - 121	20	
Molybdenum	ND	0.468	0.463	0.500	0.500	93.6	92.6	1.1	82 - 120	20	
Nickel	ND	0.472	0.468	0.500	0.500	94.4	93.6	0.9	84 - 117	20	
Potassium	ND	7.84	7.75	10.0	10.0	78.4	77.5	1.2	74 - 110	20	
Selenium	ND	1.86	1.86	2.00	2.00	93.0	93.0	0.0	87 - 117	20	
Silver	ND	0.248	0.247	0.250	0.250	99.2	98.8	0.4	80 - 127	20	
Sodium	ND	9.34	10.1	10.0	10.0	93.4	101.0	7.8	87 - 113	20	
Thallium	ND	0.190	0.198	0.200	0.200	95.0	99.0	4.1	89 - 113	20	
Vanadium	ND	0.481	0.476	0.500	0.500	96.2	95.2	1.0	87 - 119	20	
Zinc	ND	0.476	0.543	0.500	0.500	95.2	108.6	13.2	81 - 120	20	
Lithium	ND	0.463	0.459	0.500	0.500	92.6	91.8	0.9	80 - 120	20	

MS/MSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080129008

MS/MSD REPORT

Analysis: SW6010B - ICP - Total

Parent: B0801191-05A

Prep Date: 1/29/2008

Samp. Anal. Date: 1/30/2008 1:19:00PM

Units: mg/L

MS Anal. Date: 1/30/2008 1:45:00PM MSD Anal. Date: 1/30/2008 1:50:00PM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLv	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Aluminum	0.359	2.23	2.20	2.00	2.00	93.6	92.1	1.4	75 - 125	20	
Antimony	ND	0.449	0.440	0.500	0.500	89.8	88.0	2.0	75 - 125	20	
Arsenic	ND	1.80	1.73	2.00	2.00	90.0	86.5	4.0	75 - 125	20	
Barium	0.113	1.89	1.82	2.00	2.00	88.9	85.4	3.8	75 - 125	20	
Beryllium	ND	0.0466	0.0452	0.0500	0.0500	93.2	90.4	3.1	75 - 125	20	
Boron	0.282	0.733	0.715	0.500	0.500	90.2	86.6	2.5	75 - 125	20	
Cadmium	ND	0.0408	0.0411	0.0500	0.0500	81.6	82.2	0.7	75 - 125	20	
Calcium	562	572	560	10.0	10.0	100.0	-20.0	2.1	75 - 125	20	NOTE 2 NOTE 2
Chromium	ND	0.184	0.180	0.200	0.200	92.0	90.0	2.2	75 - 125	20	
Cobalt	ND	0.437	0.427	0.500	0.500	87.4	85.4	2.3	75 - 125	20	
Copper	ND	0.229	0.221	0.250	0.250	91.6	88.4	3.6	75 - 125	20	
Iron	ND	0.935	0.925	1.00	1.00	93.5	92.5	1.1	75 - 125	20	
Lead	ND	0.434	0.429	0.500	0.500	86.8	85.8	1.2	75 - 125	20	
Magnesium	0.883	10.5	10.2	10.0	10.0	96.2	93.2	2.9	75 - 125	20	
Manganese	ND	0.445	0.431	0.500	0.500	89.0	86.2	3.2	75 - 125	20	
Molybdenum	0.0886	0.525	0.513	0.500	0.500	87.3	84.9	2.3	75 - 125	20	
Nickel	ND	0.445	0.433	0.500	0.500	89.0	86.6	2.7	75 - 125	20	
Potassium	ND	9.32	9.45	10.0	10.0	93.2	94.5	1.4	75 - 125	20	
Selenium	ND	1.94	1.87	2.00	2.00	97.0	93.5	3.7	75 - 125	20	
Silver	ND	0.241	0.234	0.250	0.250	96.4	93.6	2.9	75 - 125	20	
Sodium	8.85	18.0	17.5	10.0	10.0	91.5	86.5	2.8	75 - 125	20	
Thallium	ND	0.179	0.176	0.200	0.200	89.5	88.0	1.7	75 - 125	20	
Vanadium	0.0883	0.546	0.532	0.500	0.500	91.5	88.7	2.6	75 - 125	20	
Zinc	ND	0.428	0.419	0.500	0.500	85.6	83.8	2.1	75 - 125	20	
Lithium	ND	0.523	0.505	0.500	0.500	104.6	101.0	3.5	75 - 125	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T080129008**

POST DIGESTION SPIKE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801191-05A

Prep Date: 1/29/2008

Samp. Anal. Date: 1/30/2008 1:19:00PM

Units: mg/L

PDS Anal. Date: 1/30/2008 1:55:00PM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>PDSRes.</u>	<u>SPLev</u>	<u>Recov.</u>	<u>Recov Lim</u>	<u>Flag</u>
Aluminum	0.359	2.27	2.00	95.7	75 - 117	
Antimony	ND	0.444	0.500	87.5	75 - 117	
Arsenic	ND	1.76	2.00	88.3	75 - 116	
Barium	0.113	1.89	2.00	89.0	75 - 116	
Beryllium	ND	0.0467	0.0500	92.5	75 - 111	
Boron	0.282	0.736	0.500	90.7	75 - 130	
Cadmium	ND	0.0404	0.0500	79.3	75 - 113	
Calcium	562	580	10.0	186.5	75 - 119	highPDS Note 2
Chromium	ND	0.185	0.200	88.3	75 - 117	
Cobalt	ND	0.438	0.500	87.3	75 - 118	
Copper	ND	0.227	0.250	89.9	75 - 117	
Iron	ND	0.957	1.00	95.5	75 - 121	
Lead	ND	0.438	0.500	88.0	75 - 121	
Magnesium	0.883	10.6	10.0	96.7	75 - 118	
Manganese	ND	0.443	0.500	88.4	75 - 121	
Molybdenum	0.0886	0.525	0.500	87.3	75 - 120	
Nickel	ND	0.443	0.500	88.9	75 - 117	
Potassium	ND	9.68	10.0	87.5	75 - 110	
Selenium	ND	1.94	2.00	95.6	75 - 117	
Silver	ND	0.240	0.250	96.5	75 - 127	
Sodium	8.85	18.4	10.0	95.2	75 - 113	
Thallium	ND	0.169	0.200	80.3	75 - 113	
Vanadium	0.0883	0.547	0.500	91.7	75 - 119	
Zinc	ND	0.428	0.500	88.6	75 - 120	
Lithium	ND	0.531	0.500	96.7	75 - 120	

SERIAL DILUTION REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T080129008**

SERIAL DILUTION REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801191-05A

Prep Date: 1/29/2008

Samp. Anal. Date: 1/30/2008 1:19:00PM

Units: mg/L

SER DIL. Date: 1/30/2008 2:24:00PM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>PQL</u>	<u>MDL</u>	<u>SerialRes.</u>	<u>SerPQL</u>	<u>RPD</u>	<u>Flag</u>
Aluminum	0.359	0.050	0.014	0.526	0.25	37.7	Note 4
Antimony	ND	0.050	0.0067	ND	0.25		
Arsenic	ND	0.10	0.015	ND	0.50		
Barium	0.113	0.0100	0.00016	0.122	0.050	7.6	
Beryllium	ND	0.0010	0.000060	ND	0.0050		
Boron	0.282	0.050	0.0018	0.301	0.25	6.5	
Cadmium	ND	0.0060	0.00051	ND	0.030		
Calcium	562	0.10	0.013	585	0.50	4.0	
Chromium	ND	0.0100	0.0018	ND	0.050		
Cobalt	ND	0.0050	0.0016	ND	0.025		
Copper	ND	0.0050	0.0019	ND	0.025		
Iron	ND	0.050	0.0027	ND	0.25		
Lead	ND	0.050	0.011	ND	0.25		
Magnesium	0.883	0.10	0.012	0.965	0.50	8.8	
Manganese	ND	0.0100	0.00066	ND	0.050		
Molybdenum	0.0886	0.0100	0.0018	0.0920	0.050	3.7	
Nickel	ND	0.040	0.0027	ND	0.20		
Potassium	ND	1.0	0.31	ND	5.0		
Selenium	ND	0.10	0.026	ND	0.50		
Silver	ND	0.015	0.00066	ND	0.075		
Sodium	8.85	3.0	0.028	ND	15		
Thallium	ND	0.40	0.011	ND	2.0		
Vanadium	0.0883	0.0100	0.00072	0.0903	0.050	2.2	
Zinc	ND	0.0050	0.0010	ND	0.025		
Lithium	ND	0.10	0.00072	ND	0.50		

Prep Batch: **T080131004**

LCS/LCSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080131004

LCS/LCSD REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg MB: T080131004-MB

Prep Date: 1/29/2008

MB Anal. Date: 1/31/2008 1:01:23PM

Units: mg/L

LCS Anal. Date: 1/31/2008 1:03:28PM LCSD Anal. Date: 1/31/2008 1:06:14PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>LCSRes.</u>	<u>SDRes.</u>	<u>SPLev</u>	<u>SPDLev</u>	<u>Recov.</u>	<u>SD Recov</u>	<u>RPD</u>	<u>Recov Lim</u>	<u>RPDLim</u>	<u>Flag</u>
Mercury	ND	0.00204	0.00209	0.00200	0.0020	102.0	104.5	2.4	80 - 120	20	

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080130013

SAMPLE DUPLICATE REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC Base Sample: B0801191-02B
Prep Date: 1/30/2008

Samp. Anal. Date: 1/30/2008 9:49:17PM Units: mg/L
DUP Anal. Date: 1/30/2008 10:07:41PM Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Fluoride	8.19	8.30	1.3	30	
Chloride	611	599	2.0	30	
Sulfate	2,480	2,440	1.6	30	

LCS/LCSD REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC MB: T080130013-MB
Prep Date: 1/30/2008

MB Anal. Date: 1/30/2008 3:04:45PM Units: mg/L
LCS Anal. Date: 1/31/2008 2:12:57PMLCSD Anal. Date: 1/31/2008 2:31:20PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLim	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Fluoride	ND	2.37	2.36	2.50	2.50	94.8	94.4	0.4	90 - 110	20	
Chloride	ND	4.75	4.75	5.00	5.00	95.0	95.0	0.0	90 - 110	20	
Sulfate	ND	34.1	34.1	37.5	37.5	90.9	90.9	0.0	90 - 110	20	

MS REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC Parent: B0801191-02B
Prep Date: 1/30/2008

Samp. Anal. Date: 1/30/2008 9:49:17PM Units: mg/L
MS Anal. Date: 1/30/2008 10:26:05PM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Fluoride	8.19	10.6	2.50	96.4	70 - 130	
Chloride	611	727	125	92.8	70 - 130	NOTE 2
Sulfate	2,480	3,420	938	100.3	70 - 130	

Prep Batch: T080131008

SAMPLE DUPLICATE REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T080131008**

SAMPLE DUPLICATE REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS Base Sample: B0801191-02B
Prep Date: 1/31/2008

Samp. Anal. Date: 2/4/2008 12:47:24PM Units: mg/L
DUP Anal. Date: 2/4/2008 12:47:24PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>DUPRes.</u>	<u>RPD</u>	<u>RPDLim</u>	<u>Flag</u>
Total Dissolved Solids	5,320	5,430	2.0	20	

LCS/LCSD REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS MB: T080131008-MB
Prep Date: 1/31/2008

MB Anal. Date: 2/4/2008 12:47:24PM Units: mg/L
LCS Anal. Date: 2/4/2008 12:47:24PM LCSD Anal. Date: 2/4/2008 12:47:24PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>LCSRes.</u>	<u>SDRes.</u>	<u>SPLev</u>	<u>SPDLev</u>	<u>Recov.</u>	<u>SD Recov</u>	<u>RPD</u>	<u>Recov Lim</u>	<u>RPDLim</u>	<u>Flag</u>
Total Dissolved Solids	ND	802	765	821	821	97.6	93.1	4.7	80 - 120	20	

MS REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS Parent: B0801191-02B
Prep Date: 1/31/2008

Samp. Anal. Date: 2/4/2008 12:47:24PM Units: mg/L
MS Anal. Date: 2/4/2008 12:47:24PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>MSRes.</u>	<u>SPLev</u>	<u>Recov.</u>	<u>Recov Lim</u>	<u>Flag</u>
Total Dissolved Solids	5,320	6,190	821	105.9	70 - 130	NOTE 2

Prep Batch: **T080205001**

SAMPLE DUPLICATE REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity Base Sample: B0801191-04B
Prep Date: 2/4/2008

Samp. Anal. Date: 2/4/2008 9:52:02AM Units: mg/L
DUP Anal. Date: 2/4/2008 9:52:02AM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>DUPRes.</u>	<u>RPD</u>	<u>RPDLim</u>	<u>Flag</u>
Bicarbonate	ND	ND	0.0	20	
Carbonate	10.0	8.00	22.2	20	OUT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205001

LCS/LCSD REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

MB: T080205001-MB

Prep Date: 2/4/2008

MB Anal. Date: 2/4/2008 9:52:02AM

Units: mg/L

LCS Anal. Date: 2/4/2008 9:52:02AM LCSD Anal. Date: 2/4/2008 9:52:02AM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Bicarbonate	ND	24.0	27.0	25.0	25.0	96.0	108.0	11.8	80 - 120	20	
Carbonate	ND	50.0	51.0	50.0	50.0	100.0	102.0	2.0	80 - 120	20	

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 83,542 Lab Project Number: B0801191

Prep Date: 1/29/2008

Lab Method Blank Id: T080129008-MB
Prep Batch ID: T080129008
Method: SW6010B - ICP - Total

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801191-01A	MB 45 day	E01308A	1/30/2008 12:59:00PM
B0801191-02A	Ash Composite 45 day	E01308A	1/30/2008 1:04:00PM
B0801191-03A	Spoil Composite 45 day	E01308A	1/30/2008 1:09:00PM
B0801191-04A	MB SPLP	E01308A	1/30/2008 1:14:00PM
B0801191-05A	Ash Composite SPLP	E01308A	1/30/2008 1:19:00PM
B0801191-06A	Spoil Composite SPLP	E01308A	1/30/2008 2:29:00PM
T080129008-LCS	LCS	E01308A	1/30/2008 12:39:00PM
T080129008-LCSD	LCSD	E01308A	1/30/2008 12:44:00PM
B0801191-05A-DUP	DUP	E01308A	1/30/2008 1:40:00PM
B0801191-05A-MS	MS	E01308A	1/30/2008 1:45:00PM
B0801191-05A-MSD	MSD	E01308A	1/30/2008 1:50:00PM
B0801191-05A-PDS	PDS	E01308A	1/30/2008 1:55:00PM
T080129008-LCS	LCS	E01318A	1/31/2008 11:18:00AM
T080129008-LCSD	LCSD	E01318A	1/31/2008 11:23:00AM
B0801191-05A-MS	MS	E01318A	1/31/2008 11:28:00AM
B0801191-05A-MSD	MSD	E01318A	1/31/2008 11:33:00AM
B0801191-05A-PDS	PDS	E01318A	1/31/2008 11:38:00AM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 83,542 Lab Project Number: B0801191

Prep Date: 1/30/2008

Lab Method Blank Id: T080130013-MB

Prep Batch ID: T080130013

Method: Inorganic Anions by Ion Chromatography - Anions by IC

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
T080130013-LCS	LCS	080130_008.DXD	1/30/2008 3:23:07PM
T080130013-LCSD	LCSD	080130_009.DXD	1/30/2008 3:41:32PM
B0801191-01B	MB 45 day	080130_011.DXD	1/30/2008 4:18:17PM
B0801191-02B	Ash Composite 45 day	080130_012.DXD	1/30/2008 4:36:41PM
B0801191-02B-DUP	DUP	080130_013.DXD	1/30/2008 4:55:04PM
B0801191-02B-MS	MS	080130_014.DXD	1/30/2008 5:13:28PM
B0801191-03B	Spoil Composite 45 day	080130_016.DXD	1/30/2008 5:50:15PM
B0801191-05B	Ash Composite SPLP	080130_018.DXD	1/30/2008 6:27:01PM
B0801191-06B	Spoil Composite SPLP	080130_022.DXD	1/30/2008 7:40:34PM
B0801197-02B	Batch QC	080130_024.DXD	1/30/2008 8:17:21PM
B0801197-02B-MS	MS	080130_025.DXD	1/30/2008 8:35:45PM
B0801191-01B	MB 45 day	080130_027.DXD	1/30/2008 9:12:31PM
B0801191-02B	Ash Composite 45 day	080130_029.DXD	1/30/2008 9:49:17PM
B0801191-02B-DUP	DUP	080130_030.DXD	1/30/2008 10:07:41PM
B0801191-02B-MS	MS	080130_031.DXD	1/30/2008 10:26:05PM
B0801191-03B	Spoil Composite 45 day	080130_033.DXD	1/30/2008 11:02:52PM
B0801191-04B	MB SPLP	080130_037.DXD	1/31/2008 12:16:31AM
B0801191-05B	Ash Composite SPLP	080130_038.DXD	1/31/2008 12:34:55AM
B0801191-06B	Spoil Composite SPLP	080130_039.DXD	1/31/2008 12:53:17AM
B0801197-02B	Batch QC	080130_043.DXD	1/31/2008 2:06:51AM
B0801197-02B-MS	MS	080130_044.DXD	1/31/2008 2:25:15AM
T080130013-LCS	LCS	080131_010.DXD	1/31/2008 2:12:57PM
T080130013-LCSD	LCSD	080131_011.DXD	1/31/2008 2:31:20PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 83,542 Lab Project Number: B0801191

Prep Date: 1/29/2008

Lab Method Blank Id: T080131004-MB

Prep Batch ID: T080131004

Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
A0801184-01D	Batch QC	B013108W.WKS	1/31/2008 1:13:50PM
B0801191-01A	MB 45 day	B013108W.WKS	1/31/2008 1:50:33PM
B0801191-02A	Ash Composite 45 day	B013108W.WKS	1/31/2008 2:39:43PM
B0801191-03A	Spoil Composite 45 day	B013108W.WKS	1/31/2008 2:41:52PM
B0801191-04A	MB SPLP	B013108W.WKS	1/31/2008 2:44:26PM
B0801191-05A	Ash Composite SPLP	B013108W.WKS	1/31/2008 2:46:54PM
B0801191-06A	Spoil Composite SPLP	B013108W.WKS	1/31/2008 2:48:59PM
T080131004-LCS	LCS	B013108W.WKS	1/31/2008 1:03:28PM
T080131004-LCSD	LCSD	B013108W.WKS	1/31/2008 1:06:14PM
A0801184-01D-DUP	DUP	B013108W.WKS	1/31/2008 1:16:26PM
A0801184-01D-MS	MS	B013108W.WKS	1/31/2008 1:18:43PM
A0801184-01D-MSD	MSD	B013108W.WKS	1/31/2008 1:20:47PM
A0801184-01D-PDS	PDS	B013108W.WKS	1/31/2008 1:23:11PM

Prep Date: 1/31/2008

Lab Method Blank Id: T080131008-MB

Prep Batch ID: T080131008

Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801191-01B	MB 45 day		2/4/2008 12:47:24PM
B0801191-02B	Ash Composite 45 day		2/4/2008 12:47:24PM
B0801191-03B	Spoil Composite 45 day		2/4/2008 12:47:24PM
B0801191-04B	MB SPLP		2/4/2008 12:47:24PM
B0801191-05B	Ash Composite SPLP		2/4/2008 12:47:24PM
B0801191-06B	Spoil Composite SPLP		2/4/2008 12:47:24PM
B0801197-02B	Batch QC		2/4/2008 12:47:24PM
T080131008-LCS	LCS		2/4/2008 12:47:24PM
T080131008-LCSD	LCSD		2/4/2008 12:47:24PM
B0801191-02B-DUP	DUP		2/4/2008 12:47:24PM
B0801191-02B-MS	MS		2/4/2008 12:47:24PM
B0801197-02B-MS	MS		2/4/2008 12:47:24PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 83,542 Lab Project Number: B0801191

Prep Date: 2/4/2008

Lab Method Blank Id: T080205001-MB

Prep Batch ID: T080205001

Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801191-01B	MB 45 day		2/4/2008 9:52:02AM
B0801191-02B	Ash Composite 45 day		2/4/2008 9:52:02AM
B0801191-03B	Spoil Composite 45 day		2/4/2008 9:52:02AM
B0801191-04B	MB SPLP		2/4/2008 9:52:02AM
B0801191-05B	Ash Composite SPLP		2/4/2008 9:52:02AM
B0801191-06B	Spoil Composite SPLP		2/4/2008 9:52:02AM
T080205001-LCS	LCS		2/4/2008 9:52:02AM
T080205001-LCSD	LCSD		2/4/2008 9:52:02AM
B0801191-04B-DUP	DUP		2/4/2008 9:52:02AM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

DATA FLAGS AND DEFINITIONS

The PQL is the Method Quantitation Limit as defined by USACE.

Reporting Limit: Limit below which results are shown as "ND". This may be the PQL, MDL, or a value between. See the report conventions below.

Result Field:

ND = Not Detected at or above the Reporting Limit

NA = Analyte not applicable (see Case Narrative for discussion)

Qualifier Fields:

LOW = Recovery is below Lower Control Limit

HIGH = Recovery, RPD, or other parameter is above Upper Control Limit

E = Reported concentration is above the instrument calibration upper range

Organic Analysis Flags:

B = Analyte was detected in the laboratory method blank

J = Analyte was detected above MDL or Reporting Limit but below the Quant Limit (PQL)

Inorganic Analysis Flags:

J = Analyte was detected above the Reporting Limit but below the Quant Limit (PQL)

W = Post digestion spike did not meet criteria

S = Reported value determined by the Method of Standard Additions (MSA)

Several ways of defining the limit of detection and quantitation are prevalent in the laboratory industry and may appear in Analytica reports. These include the following:

MRL = "minimum reporting level", from the EPA Safe Drinking Water program (SDW)

PQL = "practical quantitation limit", from SW-846

EQL = "estimated quantitation limit", from SW-846

LOQ = "limit of quantitation", from a number of authoritative sources

In Analytica's work, all of these terms have the same meaning, equivalent to the EPA definition of the MRL. This reporting level is supported by a satisfactory calibration data point which is at that level or lower, and also is supported by a method detection limit (MDL) determined by the procedure in 40CFR. The MDL is lower than the MRL and represents an estimate of the level where positive detections have a 99% probability of being real, but where quantitation accuracy is unknown.

The MRL as defined by Analytica is the lowest demonstrated point of known quantitation accuracy.

The MRL should not be confused with the MCL, which is the EPA-defined "maximum contaminant level" allowed for certain regulated targets under specific regulations, such as the National Primary Drinking Water Regulations. Normally, the MRL is set at a level which is much lower than the MCL in order to ensure that levels are well below those limits. Not all target analytes have MCL levels established.

Other Flags may be applied. See Case Narrative for Description

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801191

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

REPORTING CONVENTIONS FOR THIS REPORT

B0801191

<u>TestPkgName</u>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
150.1/150.1 (Aqueous) - pH	As Received	2	Report to PQL
160.1/160.1 (Aqueous) - TDS	As Received	2	Report to PQL
300.0/300.0 (Aqueous) - Anions by IC	As Received	2	Report to PQL
310.1/310.1 (Aqueous) - Alkalinity	As Received	2	Report to PQL
6010B/3010A (Aqueous) - Total	As Received	2	Report to PQL
7470A/7470A (Aqueous) - Total Hg	As Received	2	Report to PQL



12189 Pennsylvania St. 4307 Arctic Boulevard 475 Hall St. 5438 Shauna Drive
 Thornton, CO 80241 Anchorage, AK 99503 Fairbanks, AK 99701 Juneau, AK 99801
 (303) 469-8988 (907) 258-2155 (907) 456-3115 (907) 780-6688
 (303) 469-524 fax (907) 258-6634 fax (907) 456-3125 Fax (907) 780-6670 fax

Analytica Chain of Custody Form

Chain of Custody No: **63226**

Client Name & Address:
Applied Hydrology Associates, Inc.

Project Name:
Navajo Mine Extension Leaching Study

Quote ID:
 LCN: **608011a1**

Turnaround Time for Results (TAT)
 Standard Expedited
(please specify due date below; order changes may apply)

Account # _____ Cash Credit Card
 Invoice to Name & Address:

Report to:
 Phone No:
 Fax No:
 E-mail:

Requested Due Date for Results:

Special Instructions/Comments:
Tumbled in house by R. Seeman

P.O. or Contract No:

45 day coal water and SPLP leach
 Kit Prep/Shipping Charge: \$

Client Sample Identification / Location

Date Sampled Time Sampled Matrix (S-DW-WW-Other) No. of Containers

6010B/3010A-TTL	Lot # 1107090	Pres: H ₂ O ₂	7470A/7470A-H ₂	Lot # 1107096	Pres: H ₂ O ₂	150.1 pH	Lot #:	Pres:	160.1 TDS	Lot #:	Pres:	3000 Amous/IC	Lot #:	Pres:	310.1 AIF	Lot #:	Pres:	Field Preserved	Field Filtered	MS/MSD ?
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Client Sample Identification / Location	Date Sampled	Time Sampled	Matrix (S-DW-WW-Other)	No. of Containers	Requested Analysis/Method	Field Preserved	Field Filtered	MS/MSD ?	
MB 45 day	1/25/08	14:00	A ₂	2	X	X	X	X	
Ash Composite 45day				3	X	X	X	X	
Spoil Composite 45day				2	X	X	X	X	
MB SPLP				2	X	X	X	X	
ASK Composite SPLP				2	X	X	X	X	
Spoil Composite SPLP				2	X	X	X	X	
Relinquished by:	Date	Time	Received by:	Date	Time	Section To Be Completed by Analytica			
R. Seeman	1/28/08	12:35	R. Seeman	1/28/08	12:35	THO	ANC	JNU	FBKS
Relinquished by:	Date	Time	Received by:	Date	Time	Condition of Custody Seal?			
						Initiated By: _____			
						Temp/Loc: <u>6.0</u>			
						Thermo ID#: _____			
						Shipped Via: <u>Ryan Seaman</u>			



Cooler Receipt Form

Client: Applied Hydrology Associates Client Code: 030188
Project: Navajo Mine Extension Leaching Study

Order #: B0801191

Cooler ID: 1

A. Preliminary Examination Phase:

Date cooler opened: 1/28/2008
Cooler opened by: gp

Signature: gp

- 1. Was airbill Attached? N/A Airbill #: Carrier Name: Other
- 2. Custody Seals? N/A How many? 0 Location: Seal Name:
- 3. Seals intact? N/A
- 4. COC Attached? Yes Properly Completed? Yes Signed by AEL employee? Yes
- 5. Project Identification from custody paper: Navajo Mine Extension Leaching Study
- 6. Preservative: None Temperature: 6.0 deg. C

Designated person initial here to acknowledge receipt: _____

gp Date: 1/28/08

COMMENTS: Tumbled in house by R. Seeman. 45 day coal water and SPLP Leach.

B. Log-In Phase: Samples Log-in Date: 1/28/2008 Log-in By: gp

- 1. Packing Type: Other
- 2. Were samples in separate bags? N/A
- 3. Were containers intact? Yes Labels agree with COC? Yes
- 4. Number of bottles received: 13 Number of samples received: 6
- 5. Correct containers used? Yes Correct preservatives added? Yes
- 6. Sufficient sample volume? Yes
- 7. Bubbles in VOA samples? N/A
- 8. Was Project manager called and status discussed? No
- 9. Was anyone called? No Who was called? _____ By whom? _____ Date: _____

COMMENTS:

The Analytica Group
CLIENT INVOICE

Remit to: Accounting Dpt
 Analytica Environmental Laboratories, Inc.
 P.O. Box 973426
 Dallas, TX 75397-3426

Invoice #: 82691
Work Order#: B0801197
Account#: 030188
Quote ID#: 11340
Invoice Date: 2/11/2008
Work ID: Navajo Mine Extension
PO #: Leaching Study
 none
Received: 1/29/2008
Reported: 2/11/2008
Client Project#: Navajo Mine Extension Leach

Phone: (303) 469-8868

Attention: Mr. Art O'Hayre
Invoice to: Applied Hydrology Associates, Inc.
 950 South Cherry Street
 Suite 810
 Denver, CO 80246

Comments:

<u>Item charges</u>		<u>Qty</u>	<u>Price</u>	<u>Total</u>
SW7470A - Mercury in Liquid Waste by CVAA - Total Hg In Aqueous	M	2	35.00	70.00
160.1 - Total Dissolved Solids dried at 180°C - TDS In Liquid	Matrix	2	22.00	44.00
150.1 - pH, Electrometric - pH In Liquid	Matrix	2	10.00	20.00
SW6010B - ICP - Total In Aqueous	Matrix	2	312.00	624.00
Inorganic Anions by Ion Chromatography - Anions by IC In Liquid	Matrix	2	54.00	108.00
310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity In Liquid	Matrix	2	36.00	72.00

Total of Items Above: \$938.00

Adjustments or Special Services

	<u>Qty</u>	<u>Price</u>	<u>Total</u>
Tumbling Charge	1	95.00	95.00

Total of Items Above: \$95.00

Grand Total: \$1,033.00

All invoices are due and payable upon receipt. Outstanding balances over 30 days are subject to a finance charge of 1.5% per month, plus a late fee of \$25.00. If Analytica engages legal counsel to enforce its rights or any other rights under an application for payment, the customer will be liable to Analytica for all costs of collection and other legal expenses, including reasonable attorney fees.

The Analytica Group
CLIENT INVOICE

REMITTANCE ADVICE
PLEASE RETURN THIS PORTION WITH YOUR
PAYMENT

Mr. Art O'Hayre
Applied Hydrology Associates, Inc.
950 South Cherry Street
Suite 810
Denver, CO 80246

Account#: 030188
Invoice #: 82691
Invoice Date: 2/11/2008

TOTAL INVOICE AMOUNT: **\$1,033.00**

PAYMENT AMOUNT ENCLOSED: _____



Analytica Environmental
Laboratories, Inc.
12189 Pennsylvania Street
Thornton, CO 80241
Phone: 303-469-8868
Fax: 303-469-5254

2/11/2008

Applied Hydrology Associates, Inc.
950 South Cherry Street
Suite 810
Denver, CO 80246
Attn: Art O'Hayre

Work Order #: B0801197
Date: 2/11/2008
Work ID: Navajo Mine Extension Leaching Study
Date Received: 1/29/2008
Proj #: none

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
B0801197-01	MB Successive #1	B0801197-02	Ash Successive #1

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. Listings of data qualifiers, analytical codes, key dates, and QC relationships are provided at the end of the report.

Sincerely,

Kristen Stone
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

Analytica Environmental Laboratories, Inc.

Work Order: B0801197

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Methods for Chemical Analysis of Water and Wastes, USEPA 600/4-79-020, March 1983.

Pfaff, J. D., C. A. Brockhoff and J. W. O'Dell. 1994. The Determination of Inorganic Anions in Water by Ion Chromatography. Method 300.0A. U. S. Environmental Protection Agency. Environmental Monitoring Systems Lab.

Methods for the Determination of Metals in Environmental Samples, EPA/600/R-94/111, May 1994.

SAMPLE RECEIPT:

Two (2) samples were received on 1/29/2008 1:40:00 PM., at a temperature of 20 deg C., at Analytica-Thornton. The samples were received in good condition and in order per chain of custody. The samples were tumbled at the laboratory.

REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN

A summary of our review is shown below.

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries is kept on file in our office and is available upon request.

All method specifications were met for the following tests:

Test Method: 150.1 - pH, Elecrometric - pH - Aqueous

Test Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS - Aqueous

Test Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity - Aqueous

Test Method: Inorganic Anions by Ion Chromatography - Anions by IC - Aqueous

Test Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg - Aqueous

Test Method: SW6010B - ICP - Total - Aqueous

MS/MSD and DUP OUTLIERS:

As shown below, the MS/MSD was outside of limits for Sodium and Calcium. The sample had Sodium and Calcium concentrations greater than four times the spike amount. In these case it is not appropriate to calculate a recovery. The result should be used as a replicate.

Type	Client	Sample	LabSample	Analyte	Recovery	LCL	UCL	Parent	Spike
MS	Ash	Successive	# B0801197-02A	Sodium	52.8	75	125	1130	10.0
MSD	Ash	Successive	# B0801197-02A	Calcium	217	75	125	472	10.0
MSD	Ash	Successive	# B0801197-02A	Sodium	352	75	125	1130	10.0

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Successive #1**

Matrix: Aqueous

Collection Date: 1/29/2008 11:10:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801197-01A	Analysis Date:	2/5/2008 4:36:31PM
Prep Date:	2/5/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B020508W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080205004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	2

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801197-01A	Analysis Date:	1/31/2008 1:35:00PM
Prep Date:	1/30/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E01318A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T080130010	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.063		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.085		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.31		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	3.2		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.3		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.016		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	12		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Successive #1**

Matrix: Aqueous Collection Date: 1/29/2008 11:10:00AM

Lab Sample Number:	B0801197-01A	Analysis Date:	1/31/2008 1:35:00PM
Prep Date:	1/30/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E01318A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T080130010	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801197-01B	Analysis Date:	2/4/2008 9:52:02AM
Prep Date:	2/4/2008	Instrument:	Titrametric
Analytical Method ID:	310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity	File Name:	
Prep Method ID:	Alkalinity_W	Dilution Factor:	1
Prep Batch Number:	T080205001	Analyst Initials:	cs
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		1,100		mg/L	5.0	1.5	1
Carbonate		280		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801197-01B	Analysis Date:	1/29/2008 11:20:00AM
Prep Date:	1/29/2008	Instrument:	Probe
Analytical Method ID:	150.1 - pH, Electrometric - pH	File Name:	
Prep Method ID:	150.1	Dilution Factor:	1
Prep Batch Number:	T080201006	Analyst Initials:	R. Seeman
Report Basis:	As Received	Prep Extract Vol:	10.00 ml
Sample prep wt./vol:	10.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
pH		9.1		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Successive #1**

Matrix: Aqueous Collection Date: 1/29/2008 11:10:00AM

Lab Sample Number: B0801197-01B Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,000		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801197-01B Analysis Date: 1/30/2008 7:58:57PM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_023.D
Prep Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		600		mg/L	20	1.1	1

Lab Sample Number: B0801197-01B Analysis Date: 1/31/2008 1:30:04AM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_041.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		2.2		mg/L	0.40	0.031	2
Sulfate		280		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Successive #1**

Matrix: Aqueous

Collection Date: 1/29/2008 11:10:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801197-02A	Analysis Date:	2/5/2008 4:38:47PM
Prep Date:	2/5/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B020508W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080205004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	2

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801197-02A	Analysis Date:	1/31/2008 1:40:00PM
Prep Date:	1/30/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E01318A
Prep Method ID:	3010_ICP	Dilution Factor:	1
Prep Batch Number:	T080130010	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.065		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.033		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.37		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	470		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	2.0		mg/L	0.10	0.012	
Manganese	7439-96-5	0.021		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.019		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	12		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Successive #1**

Matrix: Aqueous Collection Date: 1/29/2008 11:10:00AM

Lab Sample Number: B0801197-02A Analysis Date: 1/31/2008 1:40:00PM
Prep Date: 1/30/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01318A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080130010
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sodium	7440-23-5	1,100		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	0.034		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801197-02B Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		790		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801197-02B Analysis Date: 1/29/2008 11:20:00AM
Prep Date: 1/29/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Prep Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080201006
Report Basis: As Received Analyst Initials: R. Seeman
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
pH		7.4		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Successive #1**

Matrix: Aqueous Collection Date: 1/29/2008 11:10:00AM

Lab Sample Number: B0801197-02B Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		4,900		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801197-02B Analysis Date: 1/30/2008 8:17:21PM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_024.D
Prep Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		610		mg/L	20	1.1	1
Sulfate		2,100		mg/L	38	2.8	

Lab Sample Number: B0801197-02B Analysis Date: 1/31/2008 2:06:51AM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_043.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		2.6		mg/L	0.40	0.031	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous

Collection Date: 2/5/2008 12:00:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080205004-MB Analysis Date: 2/5/2008 4:23:51PM
Prep Date: 2/5/2008 Instrument: CVAA_1
Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg File Name: B020508W.W
Prep Method ID: 7470A Dilution Factor: 1
Prep Batch Number: T080205004
Report Basis: As Received Analyst Initials: DL
Sample prep wt./vol: 30.00 ml Prep Extract Vol: 30.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	2

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080130010-MB Analysis Date: 1/31/2008 1:04:00PM
Prep Date: 1/30/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01318A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080130010
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	ND		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	ND		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	ND		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	ND		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	ND		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	ND		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	
Sodium	7440-23-5	ND		mg/L	3.0	0.028	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous Collection Date: 1/30/2008 12:00:00AM

Lab Sample Number: T080130010-MB Analysis Date: 1/31/2008 1:04:00PM
Prep Date: 1/30/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E01318A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080130010
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Thallium	7440-28-0	ND		mg/L	0.40	0.011	1
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	

Lab Sample Number: T080130010-MB Analysis Date: 2/1/2008 12:48:00PM
Prep Date: 1/30/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E02018A
Prep Method ID: 3010_ICP Dilution Factor: 1
Prep Batch Number: T080130010
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Lead	7439-92-1	ND		mg/L	0.050	0.011	2
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080205001-MB Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Prep Method ID: Alkalinity_W Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		ND		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080131008-MB Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous Collection Date: 1/31/2008 12:00:00AM

Lab Sample Number: T080131008-MB Analysis Date: 2/4/2008 12:47:24PM
Prep Date: 1/31/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Prep Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080131008
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		ND		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080130013-MB Analysis Date: 1/30/2008 3:04:45PM
Prep Date: 1/30/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080130_007.D
Prep Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080130013
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		ND		mg/L	0.80	0.042	1
Fluoride		ND		mg/L	0.40	0.031	
Sulfate		ND		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado
 Workorder (SDG): B0801197
 Project: Navajo Mine Extension Leaching Study
 Project Number: **QUALITY CONTROL REPORT**
 Prep Batch: **T080130010**

SAMPLE DUPLICATE REPORT

Analysis: SW6010B - ICP - Total
 Base Sample: B0801197-02A
 Prep Date: 1/30/2008
 Samp. Anal. Date: 1/31/2008 1:40:00PM Units: mg/L
 DUP Anal. Date: 1/31/2008 1:45:00PM Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Aluminum	0.0655	ND	0.0	20	
Antimony	ND	ND	0.0	20	
Arsenic	ND	ND	0.0	20	
Barium	0.0334	0.0320	4.3	20	
Beryllium	ND	ND	0.0	20	
Boron	0.369	0.359	2.7	20	
Cadmium	ND	ND	0.0	20	
Calcium	472	452	4.3	20	
Chromium	ND	ND	0.0	20	
Cobalt	ND	ND	0.0	20	
Copper	ND	ND	0.0	20	
Iron	ND	ND	0.0	20	
Lead	ND	ND	0.0	20	
Magnesium	1.99	1.89	5.2	20	
Manganese	0.0213	0.0202	5.3	20	
Molybdenum	0.0188	0.0181	3.8	20	
Nickel	ND	ND	0.0	20	
Potassium	11.8	11.9	0.8	20	
Selenium	ND	ND	0.0	20	
Silver	ND	ND	0.0	20	
Sodium	1,130	1,080	4.5	20	
Thallium	ND	ND	0.0	20	
Vanadium	0.0339	0.0313	8.0	20	
Zinc	ND	ND	0.0	20	
Lithium	ND	ND	0.0	20	

LCS/LCSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080130010

LCS/LCSD REPORT

Analysis: SW6010B - ICP - Total

MB: T080130010-MB

Prep Date: 1/30/2008

MB Anal. Date: 1/31/2008 1:04:00PM

Units: mg/L

LCS Anal. Date: 1/31/2008 1:25:00PM LCSD Anal. Date: 1/31/2008 1:30:00PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Aluminum	ND	1.89	1.94	2.00	2.00	94.5	97.0	2.6	89 - 117	20	
Antimony	ND	0.451	0.464	0.500	0.500	90.2	92.8	2.8	82 - 117	20	
Arsenic	ND	1.84	1.88	2.00	2.00	92.0	94.0	2.2	86 - 116	20	
Barium	ND	1.84	1.89	2.00	2.00	92.0	94.5	2.7	86 - 116	20	
Beryllium	ND	0.0499	0.0512	0.0500	0.0500	99.8	102.4	2.6	87 - 111	20	
Boron	ND	0.440	0.452	0.500	0.500	88.0	90.4	2.7	76 - 130	20	
Cadmium	ND	0.0438	0.0439	0.0500	0.0500	87.6	87.8	0.2	79 - 113	20	
Calcium	ND	9.54	9.93	10.0	10.0	95.4	99.3	4.0	79 - 119	20	
Chromium	ND	0.192	0.197	0.200	0.200	96.0	98.5	2.6	86 - 117	20	
Cobalt	ND	0.474	0.488	0.500	0.500	94.8	97.6	2.9	82 - 118	20	
Copper	ND	0.229	0.234	0.250	0.250	91.6	93.6	2.2	86 - 117	20	
Iron	ND	0.998	1.04	1.00	1.00	99.8	104.0	4.1	83 - 121	20	
Lead	ND	0.465	0.479	0.500	0.500	93.0	95.8	3.0	83 - 121	20	
Magnesium	ND	9.89	10.2	10.0	10.0	98.9	102.0	3.1	83 - 118	20	
Manganese	ND	0.480	0.493	0.500	0.500	96.0	98.6	2.7	82 - 121	20	
Molybdenum	ND	0.468	0.483	0.500	0.500	93.6	96.6	3.2	82 - 120	20	
Nickel	ND	0.478	0.490	0.500	0.500	95.6	98.0	2.5	84 - 117	20	
Potassium	ND	8.36	8.35	10.0	10.0	83.6	83.5	0.1	74 - 110	20	
Selenium	ND	1.89	1.93	2.00	2.00	94.5	96.5	2.1	87 - 117	20	
Silver	ND	0.248	0.253	0.250	0.250	99.2	101.2	2.0	80 - 127	20	
Sodium	ND	9.23	9.80	10.0	10.0	92.3	98.0	6.0	87 - 113	20	
Thallium	ND	0.199	0.178	0.200	0.200	99.5	89.0	11.1	89 - 113	20	lowdup
Vanadium	ND	0.484	0.497	0.500	0.500	96.8	99.4	2.7	87 - 119	20	
Zinc	ND	0.450	0.459	0.500	0.500	90.0	91.8	2.0	81 - 120	20	
Lithium	ND	0.457	0.471	0.500	0.500	91.4	94.2	3.0	80 - 120	20	

MS/MSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080130010

MS/MSD REPORT

Analysis: SW6010B - ICP - Total

Parent: B0801197-02A

Prep Date: 1/30/2008

Samp. Anal. Date: 1/31/2008 1:40:00PM

Units: mg/L

MS Anal. Date: 1/31/2008 1:50:00PM MSD Anal. Date: 1/31/2008 1:55:00PM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLv	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Aluminum	0.0655	1.96	1.96	2.00	2.00	94.7	94.7	0.0	75 - 125	20	
Antimony	ND	0.449	0.459	0.500	0.500	89.8	91.8	2.2	75 - 125	20	
Arsenic	ND	1.85	1.92	2.00	2.00	92.5	96.0	3.7	75 - 125	20	
Barium	0.0334	1.77	1.82	2.00	2.00	86.8	89.3	2.8	75 - 125	20	
Beryllium	ND	0.0469	0.0492	0.0500	0.0500	93.8	98.4	4.8	75 - 125	20	
Boron	0.369	0.789	0.815	0.500	0.500	84.0	89.2	3.2	75 - 125	20	
Cadmium	ND	0.0392	0.0387	0.0500	0.0500	78.4	77.4	1.3	75 - 125	20	
Calcium	472	480	493	10.0	10.0	80.0	210.0	2.7	75 - 125	20	NOTE 2 NOTE 2
Chromium	ND	0.177	0.184	0.200	0.200	88.5	92.0	3.9	75 - 125	20	
Cobalt	ND	0.430	0.450	0.500	0.500	86.0	90.0	4.5	75 - 125	20	
Copper	ND	0.223	0.232	0.250	0.250	89.2	92.8	4.0	75 - 125	20	
Iron	ND	0.925	0.956	1.00	1.00	92.5	95.6	3.3	75 - 125	20	
Lead	ND	0.432	0.448	0.500	0.500	86.4	89.6	3.6	75 - 125	20	
Magnesium	1.99	11.6	12.0	10.0	10.0	96.1	100.1	3.4	75 - 125	20	
Manganese	0.0213	0.463	0.479	0.500	0.500	88.3	91.5	3.4	75 - 125	20	
Molybdenum	0.0188	0.455	0.469	0.500	0.500	87.2	90.0	3.0	75 - 125	20	
Nickel	ND	0.439	0.455	0.500	0.500	87.8	91.0	3.6	75 - 125	20	
Potassium	11.8	20.4	21.4	10.0	10.0	86.0	96.0	4.8	75 - 125	20	
Selenium	ND	2.00	2.07	2.00	2.00	100.0	103.5	3.4	75 - 125	20	
Silver	ND	0.237	0.244	0.250	0.250	94.8	97.6	2.9	75 - 125	20	
Sodium	1,130	1,130	1,160	10.0	10.0	0.0	300.0	2.6	75 - 125	20	NOTE 2 NOTE 2
Thallium	ND	0.166	0.165	0.200	0.200	83.0	82.5	0.6	75 - 125	20	
Vanadium	0.0339	0.494	0.509	0.500	0.500	92.0	95.0	3.0	75 - 125	20	
Zinc	ND	0.434	0.445	0.500	0.500	86.8	89.0	2.5	75 - 125	20	
Lithium	ND	0.562	0.579	0.500	0.500	112.4	115.8	3.0	75 - 125	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T080130010**

POST DIGESTION SPIKE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801197-02A

Prep Date: 1/30/2008

Samp. Anal. Date: 1/31/2008 1:40:00PM

Units: mg/L

PDS Anal. Date: 1/31/2008 2:00:00PM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>PDSRes.</u>	<u>SPLev</u>	<u>Recov.</u>	<u>Recov Lim</u>	<u>Flag</u>
Aluminum	0.0655	1.91	2.00	92.0	75 - 117	
Antimony	ND	0.447	0.500	87.2	75 - 117	
Arsenic	ND	1.85	2.00	91.2	75 - 116	
Barium	0.0334	1.76	2.00	86.3	75 - 116	
Beryllium	ND	0.0477	0.0500	94.4	75 - 111	
Boron	0.369	0.791	0.500	84.4	75 - 130	
Cadmium	ND	0.0391	0.0500	77.3	75 - 113	
Calcium	472	480	10.0	78.6	75 - 119	Note 2
Chromium	ND	0.178	0.200	88.8	75 - 117	
Cobalt	ND	0.435	0.500	86.7	75 - 118	
Copper	ND	0.225	0.250	89.0	75 - 117	
Iron	ND	0.931	1.00	93.2	75 - 121	
Lead	ND	0.442	0.500	87.1	75 - 121	
Magnesium	1.99	11.7	10.0	97.3	75 - 118	
Manganese	0.0213	0.466	0.500	89.0	75 - 121	
Molybdenum	0.0188	0.457	0.500	87.6	75 - 120	
Nickel	ND	0.444	0.500	88.3	75 - 117	
Potassium	11.8	21.1	10.0	93.1	75 - 110	
Selenium	ND	1.98	2.00	97.3	75 - 117	
Silver	ND	0.239	0.250	93.8	75 - 127	
Sodium	1,130	1,130	10.0	22.3	75 - 113	lowPDS Note 2
Thallium	ND	0.165	0.200	79.3	75 - 113	
Vanadium	0.0339	0.496	0.500	92.4	75 - 119	
Zinc	ND	0.439	0.500	90.6	75 - 120	
Lithium	ND	0.559	0.500	94.3	75 - 120	

SERIAL DILUTION REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T080130010**

SERIAL DILUTION REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801197-02A

Prep Date: 1/30/2008

Samp. Anal. Date: 1/31/2008 1:40:00PM

Units: mg/L

SER DIL. Date: 1/31/2008 2:05:00PM

Matrix: Aqueous

Analyte Name	SampResult	PQL	MDL	SerialRes.	SerPQL	RPD	Flag
Aluminum	0.0655	0.050	0.014	ND	0.25		
Antimony	ND	0.050	0.0067	ND	0.25		
Arsenic	ND	0.10	0.015	ND	0.50		
Barium	0.0334	0.0100	0.00016	ND	0.050		
Beryllium	ND	0.0010	0.000060	ND	0.0050		
Boron	0.369	0.050	0.0018	0.353	0.25	4.4	
Cadmium	ND	0.0060	0.00051	ND	0.030		
Calcium	472	0.10	0.013	435	0.50	8.1	
Chromium	ND	0.0100	0.0018	ND	0.050		
Cobalt	ND	0.0050	0.0016	ND	0.025		
Copper	ND	0.0050	0.0019	ND	0.025		
Iron	ND	0.050	0.0027	ND	0.25		
Lead	ND	0.050	0.011	ND	0.25		
Magnesium	1.99	0.10	0.012	1.72	0.50	14.5	OUT
Manganese	0.0213	0.0100	0.00066	ND	0.050		
Molybdenum	0.0188	0.0100	0.0018	ND	0.050		
Nickel	ND	0.040	0.0027	ND	0.20		
Potassium	11.8	1.0	0.31	11.7	5.0	0.8	
Selenium	ND	0.10	0.026	ND	0.50		
Silver	ND	0.015	0.00066	ND	0.075		
Sodium	1,130	3.0	0.028	1,030	15	9.2	
Thallium	ND	0.40	0.011	ND	2.0		
Vanadium	0.0339	0.0100	0.00072	ND	0.050		
Zinc	ND	0.0050	0.0010	ND	0.025		
Lithium	ND	0.10	0.00072	ND	0.50		

Prep Batch: **T080205004**

SAMPLE DUPLICATE REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205004

SAMPLE DUPLICATE REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Base Sample: B0801197-02A
Prep Date: 2/5/2008

Samp. Anal. Date: 2/5/2008 4:38:47PM Units: mg/L

DUP Anal. Date: 2/5/2008 4:41:14PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>DUPRes.</u>	<u>RPD</u>	<u>RPDLim</u>	<u>Flag</u>
Mercury	ND	ND	0.0	20	

LCS/LCSD REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg MB: T080205004-MB
Prep Date: 2/5/2008

MB Anal. Date: 2/5/2008 4:23:51PM Units: mg/L

LCS Anal. Date: 2/5/2008 4:26:44PM LCSD Anal. Date: 2/5/2008 4:29:07PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>LCSRes.</u>	<u>SDRes.</u>	<u>SPLev</u>	<u>SPDLev</u>	<u>Recov.</u>	<u>SD Recov</u>	<u>RPD</u>	<u>Recov Lim</u>	<u>RPDLim</u>	<u>Flag</u>
Mercury	ND	0.00223	0.00227	0.00200	0.0020	111.5	113.5	1.8	80 - 120	20	

MS/MSD REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Parent: B0801197-02A
Prep Date: 2/5/2008

Samp. Anal. Date: 2/5/2008 4:38:47PM Units: mg/L

MS Anal. Date: 2/5/2008 4:43:28PM MSD Anal. Date: 2/5/2008 4:46:03PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>MSRes.</u>	<u>MSDRes</u>	<u>SPLev</u>	<u>SPDLev</u>	<u>Recov.</u>	<u>MSD Rec.</u>	<u>RPD</u>	<u>Recov Lim</u>	<u>RPDLim</u>	<u>Flag</u>
Mercury	ND	0.00209	0.00203	0.00200	0.00200	104.5	101.5	2.9	70 - 130	20	

POST DIGESTION SPIKE REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Base Sample: B0801197-02A
Prep Date: 2/5/2008

Samp. Anal. Date: 2/5/2008 4:38:47PM Units: mg/L

PDS Anal. Date: 2/5/2008 4:52:53PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>PDSRes.</u>	<u>SPLev</u>	<u>Recov.</u>	<u>Recov Lim</u>	<u>Flag</u>
Mercury	ND	0.00211	0.00200	110.2	80 - 120	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080130013

LCS/LCSD REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC MB: T080130013-MB

Prep Date: 1/30/2008

MB Anal. Date: 1/30/2008 3:04:45PM

Units: mg/L

LCS Anal. Date: 1/31/2008 2:12:57PM LCSD Anal. Date: 1/31/2008 2:31:20PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Fluoride	ND	2.37	2.36	2.50	2.50	94.8	94.4	0.4	90 - 110	20	
Chloride	ND	4.75	4.75	5.00	5.00	95.0	95.0	0.0	90 - 110	20	
Sulfate	ND	34.1	34.1	37.5	37.5	90.9	90.9	0.0	90 - 110	20	

MS REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC Parent: B0801197-02B

Prep Date: 1/30/2008

Samp. Anal. Date: 1/31/2008 2:06:51AM

Units: mg/L

MS Anal. Date: 1/31/2008 2:25:15AM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Fluoride	2.55	4.83	2.50	91.2	70 - 130	
Chloride	605	743	125	110.4	70 - 130	NOTE 2
Sulfate	2,100	3,120	938	108.8	70 - 130	

Prep Batch: T080131008

LCS/LCSD REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS MB: T080131008-MB

Prep Date: 1/31/2008

MB Anal. Date: 2/4/2008 12:47:24PM

Units: mg/L

LCS Anal. Date: 2/4/2008 12:47:24PM LCSD Anal. Date: 2/4/2008 12:47:24PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Total Dissolved Solids	ND	802	765	821	821	97.6	93.1	4.7	80 - 120	20	

MS REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080131008

MS REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS

Parent: B0801197-02B

Prep Date: 1/31/2008

Samp. Anal. Date: 2/4/2008 12:47:24PM

Units: mg/L

MS Anal. Date: 2/4/2008 12:47:24PM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Total Dissolved Solids	4,880	5,940	821	129.0	70 - 130	NOTE 2

Prep Batch: T080205001

LCS/LCSD REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

MB: T080205001-MB

Prep Date: 2/4/2008

MB Anal. Date: 2/4/2008 9:52:02AM

Units: mg/L

LCS Anal. Date: 2/4/2008 9:52:02AM LCS Anal. Date: 2/4/2008 9:52:02AM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Bicarbonate	ND	24.0	27.0	25.0	25.0	96.0	108.0	11.8	80 - 120	20	
Carbonate	ND	50.0	51.0	50.0	50.0	100.0	102.0	2.0	80 - 120	20	

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 83,582 Lab Project Number: B0801197

Prep Date: 1/30/2008

Lab Method Blank Id: T080130010-MB
Prep Batch ID: T080130010
Method: SW6010B - ICP - Total

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801197-02A-PDS	PDS	E02018A	2/1/2008 1:13:00PM
T080130010-LCSD	LCSD	E02018A	2/1/2008 12:58:00PM
B0801197-02A-MS	MS	E02018A	2/1/2008 1:03:00PM
B0801197-02A-MSD	MSD	E02018A	2/1/2008 1:08:00PM
B0801197-02A-MSD	MSD	E01318A	1/31/2008 1:55:00PM
B0801197-02A-PDS	PDS	E01318A	1/31/2008 2:00:00PM
T080130010-LCS	LCS	E02018A	2/1/2008 12:53:00PM
T080130010-LCSD	LCSD	E01318A	1/31/2008 1:30:00PM
B0801197-02A-DUP	DUP	E01318A	1/31/2008 1:45:00PM
B0801197-02A-MS	MS	E01318A	1/31/2008 1:50:00PM
B0801197-01A	MB Successive #1	E01318A	1/31/2008 1:35:00PM
B0801197-02A	Ash Successive #1	E01318A	1/31/2008 1:40:00PM
T080130010-LCS	LCS	E01318A	1/31/2008 1:25:00PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 83,582 Lab Project Number: B0801197

Prep Date: 1/30/2008

Lab Method Blank Id: T080130013-MB

Prep Batch ID: T080130013

Method: Inorganic Anions by Ion Chromatography - Anions by IC

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
T080130013-LCSD	LCSD	080131_011.DXD	1/31/2008 2:31:20PM
B0801197-02B	Ash Successive #1	080130_043.DXD	1/31/2008 2:06:51AM
B0801197-02B-MS	MS	080130_044.DXD	1/31/2008 2:25:15AM
T080130013-LCS	LCS	080131_010.DXD	1/31/2008 2:12:57PM
B0801191-02B-DUP	DUP	080130_030.DXD	1/30/2008 10:07:41PM
B0801191-02B-MS	MS	080130_031.DXD	1/30/2008 10:26:05PM
B0801197-01B	MB Successive #1	080130_041.DXD	1/31/2008 1:30:04AM
B0801197-02B	Ash Successive #1	080130_024.DXD	1/30/2008 8:17:21PM
B0801197-02B-MS	MS	080130_025.DXD	1/30/2008 8:35:45PM
B0801191-02B	Batch QC	080130_029.DXD	1/30/2008 9:49:17PM
B0801191-02B-DUP	DUP	080130_013.DXD	1/30/2008 4:55:04PM
B0801191-02B-MS	MS	080130_014.DXD	1/30/2008 5:13:28PM
B0801197-01B	MB Successive #1	080130_023.DXD	1/30/2008 7:58:57PM
T080130013-LCS	LCS	080130_008.DXD	1/30/2008 3:23:07PM
T080130013-LCSD	LCSD	080130_009.DXD	1/30/2008 3:41:32PM
B0801191-02B	Batch QC	080130_012.DXD	1/30/2008 4:36:41PM

Prep Date: 1/31/2008

Lab Method Blank Id: T080131008-MB

Prep Batch ID: T080131008

Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801191-02B-MS	MS		2/4/2008 12:47:24PM
B0801197-02B-MS	MS		2/4/2008 12:47:24PM
T080131008-LCS	LCS		2/4/2008 12:47:24PM
T080131008-LCSD	LCSD		2/4/2008 12:47:24PM
B0801191-02B-DUP	DUP		2/4/2008 12:47:24PM
B0801191-02B	Batch QC		2/4/2008 12:47:24PM
B0801197-01B	MB Successive #1		2/4/2008 12:47:24PM
B0801197-02B	Ash Successive #1		2/4/2008 12:47:24PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 83,582 Lab Project Number: B0801197

Prep Date: 2/4/2008

Lab Method Blank Id: T080205001-MB
Prep Batch ID: T080205001
Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
T080205001-LCS	LCS		2/4/2008 9:52:02AM
T080205001-LCSD	LCSD		2/4/2008 9:52:02AM
B0801191-04B-DUP	DUP		2/4/2008 9:52:02AM
B0801191-04B	Batch QC		2/4/2008 9:52:02AM
B0801197-01B	MB Successive #1		2/4/2008 9:52:02AM
B0801197-02B	Ash Successive #1		2/4/2008 9:52:02AM

Prep Date: 2/5/2008

Lab Method Blank Id: T080205004-MB
Prep Batch ID: T080205004
Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801197-02A-PDS	PDS	B020508W.WKS	2/5/2008 4:52:53PM
B0801210-02A-PDS	PDS	B020508W.WKS	2/5/2008 5:08:38PM
B0801210-04A-PDS	PDS	B020508W.WKS	2/5/2008 5:27:21PM
B0801197-02A-MSD	MSD	B020508W.WKS	2/5/2008 4:46:03PM
B0801210-02A-MSD	MSD	B020508W.WKS	2/5/2008 5:06:23PM
B0801210-04A-MSD	MSD	B020508W.WKS	2/5/2008 5:25:08PM
B0801197-02A-MS	MS	B020508W.WKS	2/5/2008 4:43:28PM
B0801210-02A-MS	MS	B020508W.WKS	2/5/2008 5:04:18PM
B0801210-04A-MS	MS	B020508W.WKS	2/5/2008 5:22:59PM
B0801197-02A-DUP	DUP	B020508W.WKS	2/5/2008 4:41:14PM
B0801210-02A-DUP	DUP	B020508W.WKS	2/5/2008 5:02:05PM
B0801210-04A-DUP	DUP	B020508W.WKS	2/5/2008 5:20:14PM
B0801210-04A	Batch QC	B020508W.WKS	2/5/2008 5:13:23PM
T080205004-LCS	LCS	B020508W.WKS	2/5/2008 4:26:44PM
T080205004-LCSD	LCSD	B020508W.WKS	2/5/2008 4:29:07PM
B0801197-01A	MB Successive #1	B020508W.WKS	2/5/2008 4:36:31PM
B0801197-02A	Ash Successive #1	B020508W.WKS	2/5/2008 4:38:47PM
B0801210-02A	Batch QC	B020508W.WKS	2/5/2008 4:59:48PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

DATA FLAGS AND DEFINITIONS

The PQL is the Method Quantitation Limit as defined by USACE.

Reporting Limit: Limit below which results are shown as "ND". This may be the PQL, MDL, or a value between. See the report conventions below.

Result Field:

ND = Not Detected at or above the Reporting Limit

NA = Analyte not applicable (see Case Narrative for discussion)

Qualifier Fields:

LOW = Recovery is below Lower Control Limit

HIGH = Recovery, RPD, or other parameter is above Upper Control Limit

E = Reported concentration is above the instrument calibration upper range

Organic Analysis Flags:

B = Analyte was detected in the laboratory method blank

J = Analyte was detected above MDL or Reporting Limit but below the Quant Limit (PQL)

Inorganic Analysis Flags:

J = Analyte was detected above the Reporting Limit but below the Quant Limit (PQL)

W = Post digestion spike did not meet criteria

S = Reported value determined by the Method of Standard Additions (MSA)

Several ways of defining the limit of detection and quantitation are prevalent in the laboratory industry and may appear in Analytica reports. These include the following:

MRL = "minimum reporting level", from the EPA Safe Drinking Water program (SDW)

PQL = "practical quantitation limit", from SW-846

EQL = "estimated quantitation limit", from SW-846

LOQ = "limit of quantitation", from a number of authoritative sources

In Analytica's work, all of these terms have the same meaning, equivalent to the EPA definition of the MRL. This reporting level is supported by a satisfactory calibration data point which is at that level or lower, and also is supported by a method detection limit (MDL) determined by the procedure in 40CFR. The MDL is lower than the MRL and represents an estimate of the level where positive detections have a 99% probability of being real, but where quantitation accuracy is unknown.

The MRL as defined by Analytica is the lowest demonstrated point of known quantitation accuracy.

The MRL should not be confused with the MCL, which is the EPA-defined "maximum contaminant level" allowed for certain regulated targets under specific regulations, such as the National Primary Drinking Water Regulations. Normally, the MRL is set at a level which is much lower than the MCL in order to ensure that levels are well below those limits. Not all target analytes have MCL levels established.

Other Flags may be applied. See Case Narrative for Description

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801197

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

REPORTING CONVENTIONS FOR THIS REPORT

B0801197

<u>TestPkgName</u>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
150.1/150.1 (Aqueous) - pH	As Received	2	Report to PQL
160.1/160.1 (Aqueous) - TDS	As Received	2	Report to PQL
300.0/300.0 (Aqueous) - Anions by IC	As Received	2	Report to PQL
310.1/310.1 (Aqueous) - Alkalinity	As Received	2	Report to PQL
6010B/3010A (Aqueous) - Total	As Received	2	Report to PQL
7470A/7470A (Aqueous) - Total Hg	As Received	2	Report to PQL



Cooler Receipt Form

Client: Applied Hydrology Associates Client Code: 030188
Project: Navajo Mine Extension Leaching Study

Order #: B0801197

Cooler ID: 1

A. Preliminary Examination Phase:

Date cooler opened: 1/29/2008
Cooler opened by: gp

Signature: GP

- 1. Was airbill Attached? N/A Airbill #: Carrier Name: Other
- 2. Custody Seals? N/A How many? 0 Location: Seal Name:
- 3. Seals intact? N/A
- 4. COC Attached? Yes Properly Completed? Yes Signed by AEL employee? Yes
- 5. Project Identification from custody paper: Navajo Mine Extension Leaching Study
- 6. Preservative: None Temperature: 20.0 deg. C

Designated person initial here to acknowledge receipt: GP Date: 1/29/08

COMMENTS: Tumbled in house by R. Seeman. Successive Ash leaching study.

B. Log-In Phase: Samples Log-in Date: 1/29/2008 Log-in By: gp

- 1. Packing Type: Other
- 2. Were samples in separate bags? N/A
- 3. Were containers intact? Yes Labels agree with COC? Yes
- 4. Number of bottles received: 4 Number of samples received: 2
- 5. Correct containers used? Yes Correct preservatives added? Yes
- 6. Sufficient sample volume? Yes
- 7. Bubbles in VOA samples? N/A
- 8. Was Project manager called and status discussed? No
- 9. Was anyone called? No Who was called? _____ By whom? _____ Date: _____

COMMENTS:



Analytica Environmental
Laboratories, Inc.
12189 Pennsylvania Street
Thornton, CO 80241
Phone: 303-469-8868
Fax: 303-469-5254

2/21/2008

Applied Hydrology Associates, Inc.
950 South Cherry Street
Suite 810
Denver, CO 80246
Attn: Art O'Hayre

Work Order #: B0801210
Date: 2/21/2008
Work ID: Navajo Mine Extension Leaching Study
Date Received: 1/31/2008
Proj #: none

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
B0801210-01	MB Successive #2	B0801210-02	Ash Successive #2
B0801210-03	MB Successive #3	B0801210-04	Ash Successive #3

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. Listings of data qualifiers, analytical codes, key dates, and QC relationships are provided at the end of the report.

Sincerely,

Kristen Stone
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

Analytica Environmental Laboratories, Inc.

Work Order: B0801210

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Methods for Chemical Analysis of Water and Wastes, USEPA 600/4-79-020, March 1983.

Pfaff, J. D., C. A. Brockhoff and J. W. O'Dell. 1994. The Determination of Inorganic Anions in Water by Ion Chromatography. Method 300.0 A. U. S. Environmental Protection Agency. Environmental Monitoring Systems Lab.

Test Methods for Evaluating Solid Waste, USEPA SW-846, Third Edition, Revision 4, December 1996.

PLEASE NOTE: THIS (2/21/08) IS A RE-ISSUE OF THE REPORT. ALL RESULTS ARE UNCHANGED EXCEPT FOR THE ICP METALS RESULTS. THE DATA VALIDATOR CONTACTED THE LABORATORY NOTING THAT THE ION BALANCE WAS OUT OF CONTROL FOR ALL SAMPLES ON THIS SDG, AND REQUESTED REANALYSIS FOR METALS. THE METALS WERE REANALYZED WITH THE EXCEPTION OF THE MATRIX SPIKES, FOR WHICH THERE WAS NOT SUFFICIENT SAMPLE. RESULTS WERE HIGHER, AND THE DATA VALIDATOR INDICATED THAT THE ION BALANCE WAS NOW IN CONTROL. THEREFORE THESE RESULTS ARE PREFERRED AND ARE SUBMITTED WITH THIS REPORT.

SAMPLE RECEIPT:

Four (4) samples were received on 1/31/2008 3:05:00 PM., at a temperature of 3 deg C., at Analytica-Thornton. The samples were received in good condition and in order per chain of custody.

REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN

A summary of our review is shown below.

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries is kept on file in our office and is available upon request.

All method specifications were met for the following tests:

Test Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg - Aqueous

Test Method: 150.1 - pH, Electrometric - pH - Aqueous

Test Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS - Aqueous

Test Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity - Aqueous

Test Method: Inorganic Anions by Ion Chromatography - Anions by IC - Aqueous

Test Method: SW6010B - ICP - Total - Aqueous

CLOSING CONTINUING CALIBRATIONS:

The closing CCV immediately following these samples was slightly elevated for Sodium. The samples are high in Sodium and this is due to small amounts of carryover. A subsequent CCV was analyzed and is in control. The results are not expected to be significantly impacted and are submitted as they are. There is not sufficient sample remaining for reanalysis.

Case Narrative

Analytica Environmental Laboratories, Inc.

Work Order: B0801210

(continued)

RunDate	Data File	Analyte	Recovery	LCL	UCL
2/19/2008 3:01:00 PM	E02198A	Sodium	111.	90	110

MS/MSD and DUP OUTLIERS:

As shown below, the MS/MSD were outside of limits for a number of targets. With the exception of Cadmium, Aluminum, Potassium, and Boron, these samples had target concentrations greater than four times the spike amount. In these cases it is not appropriate to calculate recoveries. The results should be used as replicates. Although reanalyses were conducted, there was not sufficient sample remaining to re-spike for the targets that are out of limits. These should be reviewed for potential low bias.

MS/MSD and DUP OUTLIERS:

Type	Client	Sample	LabSample	Analyte	Recovery	LCL	UCL	Parent	Spike
MS	Ash	Successive #2	B0801210-02A	Aluminum	71.9	75	125	0.984	2.00
MS	Ash	Successive #3	B0801210-04A	Boron	72.9	75	125	0.341	0.500
MS	Ash	Successive #3	B0801210-04A	Cadmium	71.9	75	125	-0.00124	0.0500
MS	Ash	Successive #3	B0801210-04A	Potassium	59.6	75	125	12.4	10.0
MS	Ash	Successive #3	B0801210-04A	Sodium	-291	75	125	1270	10.0
MS	Ash	Successive #2	B0801210-02A	Cadmium	67.8	75	125	-0.00148	0.0500
MS	Ash	Successive #2	B0801210-02A	Sodium	-272	75	125	1220	10.0
MSD	Ash	Successive #2	B0801210-02A	Potassium	70.4	75	125	11.5	10.0
MSD	Ash	Successive #2	B0801210-02A	Sodium	-247	75	125	1220	10.0
MSD	Ash	Successive #3	B0801210-04A	Boron	72.4	75	125	0.341	0.500
MSD	Ash	Successive #3	B0801210-04A	Cadmium	72.1	75	125	-0.00124	0.0500
MSD	Ash	Successive #3	B0801210-04A	Potassium	60.6	75	125	12.4	10.0
MSD	Ash	Successive #3	B0801210-04A	Sodium	-290	75	125	1270	10.0
MSD	Ash	Successive #2	B0801210-02A	Aluminum	73.8	75	125	0.984	2.00
MSD	Ash	Successive #2	B0801210-02A	Boron	69.9	75	125	0.345	0.500
MSD	Ash	Successive #2	B0801210-02A	Cadmium	69.0	75	125	-0.00148	0.0500

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Successive #2**

Matrix: Aqueous Collection Date: 1/30/2008 11:20:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801210-01A	Analysis Date:	2/5/2008 4:57:34PM
Prep Date:	2/5/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B020508W.W
Reg. Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080205004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	2

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801210-01A	Analysis Date:	2/19/2008 2:36:00PM
Prep Date:	2/5/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E02198A
Reg. Method ID:	6010B	Dilution Factor:	1
Prep Batch Number:	T080205002	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.051		mg/L	0.050	0.014	2
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.089		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.31		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	3.0		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.3		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.010		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	12		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Successive #2**

Matrix: Aqueous Collection Date: 1/30/2008 11:20:00AM

Lab Sample Number: B0801210-01A Analysis Date: 2/19/2008 2:36:00PM
Prep Date: 2/5/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E02198A
Reg. Method ID: 6010B Dilution Factor: 1
Prep Batch Number: T080205002
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	2
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-01B Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Reg. Method ID: 310.1 Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		1,100		mg/L	5.0	1.5	1
Carbonate		320		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-01B Analysis Date: 1/31/2008 11:25:00AM
Prep Date: 1/31/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Reg. Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080201007
Report Basis: As Received Analyst Initials: R. Seeman
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		9.1		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Successive #2**

Matrix: Aqueous Collection Date: 1/30/2008 11:20:00AM

Lab Sample Number: B0801210-01B Analysis Date: 2/12/2008 10:07:15AM
Prep Date: 2/6/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Reg. Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080207003
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,000		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-01B Analysis Date: 2/4/2008 4:07:47PM
Prep Date: 2/4/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080204_017.D
Reg. Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080204004
Report Basis: As Received Analyst Initials: CS
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		600		mg/L	20	1.1	1

Lab Sample Number: B0801210-01B Analysis Date: 2/4/2008 7:30:06PM
Prep Date: 2/4/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080204_028.D
Reg. Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080204004
Report Basis: As Received Analyst Initials: CS
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		2.2		mg/L	0.40	0.031	2
Sulfate		280		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Successive #2**

Matrix: Aqueous

Collection Date: 1/30/2008 11:20:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801210-02A	Analysis Date:	2/5/2008 4:59:48PM
Prep Date:	2/5/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B020508W.W
Reg. Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080205004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	2

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801210-02A	Analysis Date:	2/19/2008 2:41:00PM
Prep Date:	2/5/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E02198A
Reg. Method ID:	6010B	Dilution Factor:	1
Prep Batch Number:	T080205002	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.98		mg/L	0.050	0.014	3
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	0.11		mg/L	0.10	0.015	
Barium	7440-39-3	0.053		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.34		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	3.6		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.5		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.016		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	11		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Successive #2**

Matrix: Aqueous Collection Date: 1/30/2008 11:20:00AM

Lab Sample Number: B0801210-02A Analysis Date: 2/19/2008 2:41:00PM
Prep Date: 2/5/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E02198A
Reg. Method ID: 6010B Dilution Factor: 1
Prep Batch Number: T080205002
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	1,200		mg/L	3.0	0.028	3
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	0.063		mg/L	0.010	0.00072	
Zinc	7440-66-6	0.0081		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-02B Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Reg. Method ID: 310.1 Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		1,200		mg/L	5.0	1.5	1
Carbonate		160		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-02B Analysis Date: 1/31/2008 11:25:00AM
Prep Date: 1/31/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Reg. Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080201007
Report Basis: As Received Analyst Initials: R. Seeman
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		8.8		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Successive #2**

Matrix: Aqueous Collection Date: 1/30/2008 11:20:00AM

Lab Sample Number: B0801210-02B Analysis Date: 2/12/2008 10:07:15AM
 Prep Date: 2/6/2008 Instrument: SCALE
 Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
 Reg. Method ID: 160.1 Dilution Factor: 1
 Prep Batch Number: T080207003
 Report Basis: As Received Analyst Initials: kl
 Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,100		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-02B Analysis Date: 2/4/2008 4:26:11PM
 Prep Date: 2/4/2008 Instrument: IC
 Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080204_018.D
 Reg. Method ID: 300.0 Dilution Factor: 25
 Prep Batch Number: T080204004
 Report Basis: As Received Analyst Initials: KB
 Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		610		mg/L	20	1.1	1
Sulfate		350		mg/L	38	2.8	

Lab Sample Number: B0801210-02B Analysis Date: 2/4/2008 7:48:30PM
 Prep Date: 2/4/2008 Instrument: IC
 Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080204_029.D
 Reg. Method ID: 300.0 Dilution Factor: 1
 Prep Batch Number: T080204004
 Report Basis: As Received Analyst Initials: CS
 Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		10		mg/L	0.40	0.031	2

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Successive #3**

Matrix: Aqueous

Collection Date: 1/31/2008 11:00:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801210-03A	Analysis Date:	2/5/2008 5:11:03PM
Prep Date:	2/5/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B020508W.W
Reg. Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080205004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	2

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801210-03A	Analysis Date:	2/19/2008 2:46:00PM
Prep Date:	2/5/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E02198A
Reg. Method ID:	6010B	Dilution Factor:	1
Prep Batch Number:	T080205002	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	ND		mg/L	0.050	0.014	2
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.089		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.32		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	3.0		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	0.051		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.3		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.011		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	12		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Successive #3**

Matrix: Aqueous Collection Date: 1/31/2008 11:00:00AM

Lab Sample Number: B0801210-03A Analysis Date: 2/19/2008 2:46:00PM
Prep Date: 2/5/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E02198A
Reg. Method ID: 6010B Dilution Factor: 1
Prep Batch Number: T080205002
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	1,300		mg/L	3.0	0.028	2
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-03B Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Reg. Method ID: 310.1 Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		1,200		mg/L	5.0	1.5	1
Carbonate		320		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-03B Analysis Date: 1/31/2008 11:25:00AM
Prep Date: 1/31/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Reg. Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080201007
Report Basis: As Received Analyst Initials: R. Seeman
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		9.1		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **MB Successive #3**

Matrix: Aqueous Collection Date: 1/31/2008 11:00:00AM

Lab Sample Number: B0801210-03B Analysis Date: 2/12/2008 10:07:15AM
Prep Date: 2/6/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Reg. Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080207003
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,100		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-03B Analysis Date: 2/4/2008 5:39:45PM
Prep Date: 2/4/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080204_022.D
Reg. Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080204004
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		620		mg/L	20	1.1	1

Lab Sample Number: B0801210-03B Analysis Date: 2/4/2008 9:02:06PM
Prep Date: 2/4/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080204_033.D
Reg. Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080204004
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		2.2		mg/L	0.40	0.031	2
Sulfate		280		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Successive #3**

Matrix: Aqueous

Collection Date: 1/31/2008 11:00:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801210-04A	Analysis Date:	2/5/2008 5:13:23PM
Prep Date:	2/5/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B020508W.W
Reg. Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080205004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	2

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	B0801210-04A	Analysis Date:	2/19/2008 2:51:00PM
Prep Date:	2/5/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E02198A
Reg. Method ID:	6010B	Dilution Factor:	1
Prep Batch Number:	T080205002	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	0.67		mg/L	0.050	0.014	3
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	0.070		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	0.34		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	3.3		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	1.9		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	0.013		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	12		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Successive #3**

Matrix: Aqueous Collection Date: 1/31/2008 11:00:00AM

Lab Sample Number: B0801210-04A Analysis Date: 2/19/2008 2:51:00PM
Prep Date: 2/5/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E02198A
Reg. Method ID: 6010B Dilution Factor: 1
Prep Batch Number: T080205002
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Sodium	7440-23-5	1,300		mg/L	3.0	0.028	3
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	0.031		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-04B Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Reg. Method ID: 310.1 Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
Bicarbonate		1,100		mg/L	5.0	1.5	1
Carbonate		340		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-04B Analysis Date: 1/31/2008 11:25:00AM
Prep Date: 1/31/2008 Instrument: Probe
Analytical Method ID: 150.1 - pH, Electrometric - pH File Name:
Reg. Method ID: 150.1 Dilution Factor: 1
Prep Batch Number: T080201007
Report Basis: As Received Analyst Initials: R. Seeman
Sample prep wt./vol: 10.00 ml Prep Extract Vol: 10.00 ml

Analyte	CASNo	Result	Flags	Units	PQL	MDL	run #:
pH		9.0		pH	0.10	0.10	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: **Ash Successive #3**

Matrix: Aqueous Collection Date: 1/31/2008 11:00:00AM

Lab Sample Number: B0801210-04B Analysis Date: 2/12/2008 10:07:15AM
Prep Date: 2/6/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Reg. Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080207003
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		3,100		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: B0801210-04B Analysis Date: 2/4/2008 5:58:09PM
Prep Date: 2/4/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080204_023.D
Reg. Method ID: 300.0 Dilution Factor: 25
Prep Batch Number: T080204004
Report Basis: As Received Analyst Initials: KB
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		620		mg/L	20	1.1	1

Lab Sample Number: B0801210-04B Analysis Date: 2/4/2008 9:20:30PM
Prep Date: 2/4/2008 Instrument: IC
Analytical Method ID: Inorganic Anions by Ion Chromatography - Anions by IC File Name: 080204_034.D
Reg. Method ID: 300.0 Dilution Factor: 1
Prep Batch Number: T080204004
Report Basis: As Received Analyst Initials: CS
Sample prep wt./vol: 20.00 ml Prep Extract Vol: 20.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Fluoride		4.7		mg/L	0.40	0.031	2
Sulfate		290		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name: **MB**

Matrix: Aqueous Collection Date: 2/5/2008 12:00:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	T080205004-MB	Analysis Date:	2/5/2008 4:23:51PM
Prep Date:	2/5/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B020508W.W
Reg. Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080205004	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.000200	0.000050	2

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	T080205002-MB	Analysis Date:	2/5/2008 4:27:00PM
Prep Date:	2/5/2008	Instrument:	ICP_2
Analytical Method ID:	SW6010B - ICP - Total	File Name:	E02058A
Reg. Method ID:	6010B	Dilution Factor:	1
Prep Batch Number:	T080205002	Analyst Initials:	rm
Report Basis:	As Received	Prep Extract Vol:	50.00 ml
Sample prep wt./vol:	50.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Aluminum	7429-90-5	ND		mg/L	0.050	0.014	1
Antimony	7440-36-0	ND		mg/L	0.050	0.0067	
Arsenic	7440-38-2	ND		mg/L	0.10	0.015	
Barium	7440-39-3	ND		mg/L	0.010	0.00016	
Beryllium	7440-41-7	ND		mg/L	0.0010	0.000060	
Boron	7440-42-8	ND		mg/L	0.050	0.0018	
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051	
Calcium	7440-70-2	ND		mg/L	0.10	0.013	
Chromium	7440-47-3	ND		mg/L	0.010	0.0018	
Cobalt	7440-48-4	ND		mg/L	0.0050	0.0016	
Copper	7440-50-8	ND		mg/L	0.0050	0.0019	
Iron	7439-89-6	ND		mg/L	0.050	0.0027	
Lead	7439-92-1	ND		mg/L	0.050	0.011	
Lithium	7439-93-2	ND		mg/L	0.10	0.00072	
Magnesium	7439-96-4	ND		mg/L	0.10	0.012	
Manganese	7439-96-5	ND		mg/L	0.010	0.00066	
Molybdenum	7439-98-7	ND		mg/L	0.010	0.0018	
Nickel	7440-02-0	ND		mg/L	0.040	0.0027	
Potassium	7440-09-7	ND		mg/L	1.0	0.31	
Selenium	7784-49-2	ND		mg/L	0.10	0.026	
Silver	7440-22-4	ND		mg/L	0.015	0.00066	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous Collection Date: 2/5/2008 12:00:00AM

Lab Sample Number: T080205002-MB Analysis Date: 2/5/2008 4:27:00PM
Prep Date: 2/5/2008 Instrument: ICP_2
Analytical Method ID: SW6010B - ICP - Total File Name: E02058A
Reg. Method ID: 6010B Dilution Factor: 1
Prep Batch Number: T080205002
Report Basis: As Received Analyst Initials: rm
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Sodium	7440-23-5	ND		mg/L	3.0	0.028	1
Thallium	7440-28-0	ND		mg/L	0.40	0.011	
Vanadium	7440-62-2	ND		mg/L	0.010	0.00072	
Zinc	7440-66-6	ND		mg/L	0.0050	0.0010	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080205001-MB Analysis Date: 2/4/2008 9:52:02AM
Prep Date: 2/4/2008 Instrument: Titrametric
Analytical Method ID: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity File Name:
Reg. Method ID: 310.1 Dilution Factor: 1
Prep Batch Number: T080205001
Report Basis: As Received Analyst Initials: cs
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 100.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Bicarbonate		ND		mg/L	5.0	1.5	1
Carbonate		ND		mg/L	7.0	1.2	

The following test was conducted by: Analytica - Thornton

Lab Sample Number: T080207003-MB Analysis Date: 2/12/2008 10:07:15AM
Prep Date: 2/6/2008 Instrument: SCALE
Analytical Method ID: 160.1 - Total Dissolved Solids dried at 180°C - TDS File Name:
Reg. Method ID: 160.1 Dilution Factor: 1
Prep Batch Number: T080207003
Report Basis: As Received Analyst Initials: kl
Sample prep wt./vol: 100.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Total Dissolved Solids		ND		mg/L	10	8.2	1

The following test was conducted by: Analytica - Thornton

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Report Section: Method Blank Report

Client Sample Name: **MB**

Matrix: Aqueous Collection Date: 2/4/2008 12:00:00AM

Lab Sample Number:	T080204004-MB	Analysis Date:	2/4/2008 2:54:13PM
Prep Date:	2/4/2008	Instrument:	IC
Analytical Method ID:	Inorganic Anions by Ion Chromatography - Anions by IC	File Name:	080204_013.D
Reg. Method ID:	300.0	Dilution Factor:	1
Prep Batch Number:	T080204004	Analyst Initials:	CS
Report Basis:	As Received	Prep Extract Vol:	20.00 ml
Sample prep wt./vol:	20.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Chloride		ND		mg/L	0.80	0.042	1
Fluoride		ND		mg/L	0.40	0.031	
Sulfate		ND		mg/L	1.5	0.11	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado
 Workorder (SDG): B0801210
 Project: Navajo Mine Extension Leaching Study
 Project Number: **QUALITY CONTROL REPORT**
 Prep Batch: **T080205002**

SAMPLE DUPLICATE REPORT

Analysis: SW6010B - ICP - Total Base Sample: B0801210-02A
Prep Date: 2/5/2008

Samp. Anal. Date: 2/19/2008 2:41:00PM Units: mg/L
 DUP Anal. Date: 2/5/2008 4:52:00PM Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Aluminum	0.984	0.855	14.0	20	
Antimony	ND	ND	0.0	20	
Arsenic	0.108	ND	0.0	20	
Barium	0.0533	0.0470	12.6	20	
Beryllium	ND	ND	0.0	20	
Boron	0.345	0.309	11.0	20	
Cadmium	ND	ND	0.0	20	
Calcium	3.61	3.34	7.8	20	
Chromium	ND	ND	0.0	20	
Cobalt	ND	ND	0.0	20	
Copper	ND	ND	0.0	20	
Iron	ND	ND	0.0	20	
Lead	ND	ND	0.0	20	
Magnesium	1.50	1.36	9.8	20	
Manganese	ND	ND	0.0	20	
Molybdenum	0.0160	0.0193	18.7	20	
Nickel	ND	ND	0.0	20	
Potassium	11.5	10.2	12.0	20	
Selenium	ND	ND	0.0	20	
Silver	ND	ND	0.0	20	
Sodium	1,220	994	20.4	20	OUT
Thallium	ND	ND	0.0	20	
Vanadium	0.0630	0.0540	15.4	20	
Zinc	0.00809	0.00785	3.0	20	
Lithium	ND	ND	0.0	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205002

SAMPLE DUPLICATE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801210-04A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/19/2008 2:51:00PM

Units: mg/L

DUP Anal. Date: 2/5/2008 6:06:00PM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Aluminum	0.674	0.601	11.5	20	
Antimony	ND	ND	0.0	20	
Arsenic	ND	ND	0.0	20	
Barium	0.0701	0.0615	13.1	20	
Beryllium	ND	ND	0.0	20	
Boron	0.341	0.311	9.2	20	
Cadmium	ND	ND	0.0	20	
Calcium	3.27	2.96	10.0	20	
Chromium	ND	ND	0.0	20	
Cobalt	ND	ND	0.0	20	
Copper	ND	ND	0.0	20	
Iron	ND	ND	0.0	20	
Lead	ND	ND	0.0	20	
Magnesium	1.88	1.65	13.0	20	
Manganese	ND	ND	0.0	20	
Molybdenum	0.0127	0.0147	14.6	20	
Nickel	ND	ND	0.0	20	
Potassium	12.4	10.4	17.5	20	
Selenium	ND	ND	0.0	20	
Silver	ND	ND	0.0	20	
Sodium	1,270	1,040	19.9	20	
Thallium	ND	ND	0.0	20	
Vanadium	0.0313	0.0268	15.5	20	
Zinc	ND	ND	0.0	20	
Lithium	ND	ND	0.0	20	

LCS/LCSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205002

LCS/LCSD REPORT

Analysis: SW6010B - ICP - Total

MB: T080205002-MB

Prep Date: 2/5/2008

MB Anal. Date: 2/5/2008 4:27:00PM

Units: mg/L

LCS Anal. Date: 2/5/2008 4:32:00PM LCSD Anal. Date: 2/5/2008 4:37:00PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Aluminum	ND	1.91	1.92	2.00	2.00	95.5	96.0	0.5	89 - 117	20	
Antimony	ND	0.445	0.442	0.500	0.500	89.0	88.4	0.7	82 - 117	20	
Arsenic	ND	1.81	1.82	2.00	2.00	90.5	91.0	0.6	86 - 116	20	
Barium	ND	1.89	1.91	2.00	2.00	94.5	95.5	1.1	86 - 116	20	
Beryllium	ND	0.0497	0.0500	0.0500	0.0500	99.4	100.0	0.6	87 - 111	20	
Boron	ND	0.458	0.461	0.500	0.500	91.6	92.2	0.7	76 - 130	20	
Cadmium	ND	0.0425	0.0428	0.0500	0.0500	85.0	85.6	0.7	79 - 113	20	
Calcium	ND	9.41	9.45	10.0	10.0	94.1	94.5	0.4	79 - 119	20	
Chromium	ND	0.191	0.191	0.200	0.200	95.5	95.5	0.0	86 - 117	20	
Cobalt	ND	0.468	0.471	0.500	0.500	93.6	94.2	0.6	82 - 118	20	
Copper	ND	0.233	0.235	0.250	0.250	93.2	94.0	0.9	86 - 117	20	
Iron	ND	1.01	1.02	1.00	1.00	101.0	102.0	1.0	83 - 121	20	
Lead	ND	0.456	0.465	0.500	0.500	91.2	93.0	2.0	83 - 121	20	
Magnesium	ND	9.99	10.0	10.0	10.0	99.9	100.0	0.1	83 - 118	20	
Manganese	ND	0.472	0.474	0.500	0.500	94.4	94.8	0.4	82 - 121	20	
Molybdenum	ND	0.464	0.467	0.500	0.500	92.8	93.4	0.6	82 - 120	20	
Nickel	ND	0.483	0.484	0.500	0.500	96.6	96.8	0.2	84 - 117	20	
Potassium	ND	8.29	8.02	10.0	10.0	82.9	80.2	3.3	74 - 110	20	
Selenium	ND	1.87	1.87	2.00	2.00	93.5	93.5	0.0	87 - 117	20	
Silver	ND	0.248	0.250	0.250	0.250	99.2	100.0	0.8	80 - 127	20	
Sodium	ND	9.48	9.59	10.0	10.0	94.8	95.9	1.2	87 - 113	20	
Thallium	ND	0.212	0.206	0.200	0.200	106.0	103.0	2.9	89 - 113	20	
Vanadium	ND	0.483	0.485	0.500	0.500	96.6	97.0	0.4	87 - 119	20	
Zinc	ND	0.455	0.457	0.500	0.500	91.0	91.4	0.4	81 - 120	20	
Lithium	ND	0.477	0.482	0.500	0.500	95.4	96.4	1.0	80 - 120	20	

MS/MSD REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205002

MS/MSD REPORT

Analysis: SW6010B - ICP - Total

Parent: B0801210-02A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/19/2008 2:41:00PM

Units: mg/L

MS Anal. Date: 2/5/2008 4:57:00PM MSD Anal. Date: 2/5/2008 5:02:00PM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLev	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Aluminum	0.984	2.42	2.46	2.00	2.00	71.8	73.8	1.6	75 - 125	20	lowMS lowMSD
Antimony	ND	0.395	0.403	0.500	0.500	79.0	80.6	2.0	75 - 125	20	
Arsenic	0.108	1.69	1.74	2.00	2.00	79.1	81.6	2.9	75 - 125	20	
Barium	0.0533	1.57	1.61	2.00	2.00	75.8	77.8	2.5	75 - 125	20	
Beryllium	ND	0.0421	0.0432	0.0500	0.0500	84.2	86.4	2.6	75 - 125	20	
Boron	0.345	0.737	0.694	0.500	0.500	78.4	69.8	6.0	75 - 125	20	lowMSD
Cadmium	ND	0.0339	0.0345	0.0500	0.0500	67.8	69.0	1.8	75 - 125	20	lowMS lowMSD
Calcium	3.61	11.4	11.6	10.0	10.0	77.9	79.9	1.7	75 - 125	20	
Chromium	ND	0.165	0.169	0.200	0.200	82.5	84.5	2.4	75 - 125	20	
Cobalt	ND	0.403	0.412	0.500	0.500	80.6	82.4	2.2	75 - 125	20	
Copper	ND	0.198	0.202	0.250	0.250	79.2	80.8	2.0	75 - 125	20	
Iron	ND	0.891	0.907	1.00	1.00	89.1	90.7	1.8	75 - 125	20	
Lead	ND	0.405	0.414	0.500	0.500	81.0	82.8	2.2	75 - 125	20	
Magnesium	1.50	9.70	9.90	10.0	10.0	82.0	84.0	2.0	75 - 125	20	
Manganese	ND	0.400	0.409	0.500	0.500	80.0	81.8	2.2	75 - 125	20	
Molybdenum	0.0160	0.414	0.424	0.500	0.500	79.6	81.6	2.4	75 - 125	20	
Nickel	ND	0.415	0.423	0.500	0.500	83.0	84.6	1.9	75 - 125	20	
Potassium	11.5	19.7	18.5	10.0	10.0	82.0	70.0	6.3	75 - 125	20	lowMSD
Selenium	ND	1.69	1.75	2.00	2.00	84.5	87.5	3.5	75 - 125	20	
Silver	ND	0.215	0.214	0.250	0.250	86.0	85.6	0.5	75 - 125	20	
Sodium	1,220	945	970	10.0	10.0	-2,750.0	-2,500.0	2.6	75 - 125	20	NOTE 2 NOTE 2
Thallium	ND	0.181	0.153	0.200	0.200	90.5	76.5	16.8	75 - 125	20	
Vanadium	0.0630	0.460	0.473	0.500	0.500	79.4	82.0	2.8	75 - 125	20	
Zinc	0.00809	0.417	0.424	0.500	0.500	81.8	83.2	1.7	75 - 125	20	
Lithium	ND	0.482	0.495	0.500	0.500	96.4	99.0	2.7	75 - 125	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205002

MS/MSD REPORT

Analysis: SW6010B - ICP - Total

Parent: B0801210-04A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/19/2008 2:51:00PM

Units: mg/L

MS Anal. Date: 2/5/2008 6:11:00PM MSD Anal. Date: 2/5/2008 6:16:00PM Matrix: Aqueous

Analyte Name	SampResult	MSRes.	MSDRes	SPLev	SPDLv	Recov.	MSD Rec.	RPD	Recov Lim	RPDLim	Flag
Aluminum	0.674	2.32	2.29	2.00	2.00	82.3	80.8	1.3	75 - 125	20	
Antimony	ND	0.434	0.444	0.500	0.500	86.8	88.8	2.3	75 - 125	20	
Arsenic	ND	1.76	1.77	2.00	2.00	88.0	88.5	0.6	75 - 125	20	
Barium	0.0701	1.71	1.71	2.00	2.00	82.0	82.0	0.0	75 - 125	20	
Beryllium	ND	0.0424	0.0420	0.0500	0.0500	84.8	84.0	0.9	75 - 125	20	
Boron	0.341	0.705	0.703	0.500	0.500	72.8	72.4	0.3	75 - 125	20	lowMS lowMSD
Cadmium	ND	0.0359	0.0361	0.0500	0.0500	71.8	72.2	0.6	75 - 125	20	lowMS lowMSD
Calcium	3.27	12.6	12.5	10.0	10.0	93.3	92.3	0.8	75 - 125	20	
Chromium	ND	0.170	0.169	0.200	0.200	85.0	84.5	0.6	75 - 125	20	
Cobalt	ND	0.417	0.416	0.500	0.500	83.4	83.2	0.2	75 - 125	20	
Copper	ND	0.217	0.215	0.250	0.250	86.8	86.0	0.9	75 - 125	20	
Iron	ND	1.02	1.02	1.00	1.00	102.0	102.0	0.0	75 - 125	20	
Lead	ND	0.428	0.418	0.500	0.500	85.6	83.6	2.4	75 - 125	20	
Magnesium	1.88	10.3	10.3	10.0	10.0	84.2	84.2	0.0	75 - 125	20	
Manganese	ND	0.427	0.425	0.500	0.500	85.4	85.0	0.5	75 - 125	20	
Molybdenum	0.0127	0.446	0.443	0.500	0.500	86.7	86.1	0.7	75 - 125	20	
Nickel	ND	0.425	0.419	0.500	0.500	85.0	83.8	1.4	75 - 125	20	
Potassium	12.4	18.3	18.4	10.0	10.0	59.0	60.0	0.5	75 - 125	20	lowMS lowMSD
Selenium	ND	1.76	1.75	2.00	2.00	88.0	87.5	0.6	75 - 125	20	
Silver	ND	0.222	0.219	0.250	0.250	88.8	87.6	1.4	75 - 125	20	
Sodium	1,270	982	983	10.0	10.0	-2,880.0	-2,870.0	0.1	75 - 125	20	NOTE 2 NOTE 2
Thallium	ND	0.170	0.160	0.200	0.200	85.0	80.0	6.1	75 - 125	20	
Vanadium	0.0313	0.469	0.467	0.500	0.500	87.5	87.1	0.4	75 - 125	20	
Zinc	ND	0.448	0.444	0.500	0.500	89.6	88.8	0.9	75 - 125	20	
Lithium	ND	0.512	0.512	0.500	0.500	102.4	102.4	0.0	75 - 125	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205002

POST DIGESTION SPIKE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801210-02A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/19/2008 2:41:00PM

Units: mg/L

PDS Anal. Date: 2/5/2008 5:46:00PM

Matrix: Aqueous

Analyte Name	SampResult	PDSRes.	SPLev	Recov.	Recov Lim	Flag
Aluminum	0.984	2.79	2.00	90.2	75 - 117	
Antimony	ND	0.473	0.500	93.2	75 - 117	
Arsenic	0.108	1.97	2.00	93.1	75 - 116	
Barium	0.0533	1.85	2.00	89.7	75 - 116	
Beryllium	ND	0.0459	0.0500	92.3	75 - 111	
Boron	0.345	0.780	0.500	87.0	75 - 130	
Cadmium	ND	0.0350	0.0500	73.0	75 - 113	lowPDS
Calcium	3.61	12.5	10.0	88.6	75 - 119	
Chromium	ND	0.185	0.200	90.6	75 - 117	
Cobalt	ND	0.452	0.500	90.2	75 - 118	
Copper	ND	0.229	0.250	89.9	75 - 117	
Iron	ND	0.971	1.00	92.9	75 - 121	
Lead	ND	0.455	0.500	90.5	75 - 121	
Magnesium	1.50	10.6	10.0	91.4	75 - 118	
Manganese	ND	0.457	0.500	91.0	75 - 121	
Molybdenum	0.0160	0.481	0.500	93.0	75 - 120	
Nickel	ND	0.455	0.500	90.8	75 - 117	
Potassium	11.5	18.8	10.0	73.6	75 - 110	lowPDS
Selenium	ND	1.96	2.00	93.6	75 - 117	
Silver	ND	0.237	0.250	95.2	75 - 127	
Sodium	1,220	1,070	10.0	-1,516.8	75 - 113	lowPDS Note 2
Thallium	ND	0.185	0.200	85.5	75 - 113	
Vanadium	0.0630	0.540	0.500	95.4	75 - 119	
Zinc	0.00809	0.477	0.500	93.8	75 - 120	
Lithium	ND	0.558	0.500	94.8	75 - 120	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205002

POST DIGESTION SPIKE REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801210-04A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/19/2008 2:51:00PM

Units: mg/L

PDS Anal. Date: 2/5/2008 6:21:00PM

Matrix: Aqueous

Analyte Name	SampResult	PDSRes.	SPLev	Recov.	Recov Lim	Flag
Aluminum	0.674	2.33	2.00	82.8	75 - 117	
Antimony	ND	0.433	0.500	85.3	75 - 117	
Arsenic	ND	1.77	2.00	86.4	75 - 116	
Barium	0.0701	1.74	2.00	83.7	75 - 116	
Beryllium	ND	0.0425	0.0500	85.5	75 - 111	
Boron	0.341	0.712	0.500	74.2	75 - 130	lowPDS
Cadmium	ND	0.0330	0.0500	68.5	75 - 113	lowPDS
Calcium	3.27	12.6	10.0	93.5	75 - 119	
Chromium	ND	0.172	0.200	84.0	75 - 117	
Cobalt	ND	0.418	0.500	82.7	75 - 118	
Copper	ND	0.219	0.250	87.1	75 - 117	
Iron	ND	1.04	1.00	100.4	75 - 121	
Lead	ND	0.422	0.500	84.6	75 - 121	
Magnesium	1.88	10.4	10.0	85.3	75 - 118	
Manganese	ND	0.429	0.500	85.4	75 - 121	
Molybdenum	0.0127	0.449	0.500	87.2	75 - 120	
Nickel	ND	0.424	0.500	84.9	75 - 117	
Potassium	12.4	18.1	10.0	57.7	75 - 110	lowPDS
Selenium	ND	1.74	2.00	87.0	75 - 117	
Silver	ND	0.222	0.250	89.9	75 - 127	
Sodium	1,270	996	10.0	-2,766.0	75 - 113	lowPDS Note 2
Thallium	ND	0.165	0.200	78.9	75 - 113	
Vanadium	0.0313	0.473	0.500	88.3	75 - 119	
Zinc	ND	0.449	0.500	89.5	75 - 120	
Lithium	ND	0.523	0.500	86.7	75 - 120	

SERIAL DILUTION REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205002

SERIAL DILUTION REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801210-02A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/19/2008 2:41:00PM

Units: mg/L

SER DIL. Date: 2/5/2008 5:51:00PM

Matrix: Aqueous

Analyte Name	SampResult	PQL	MDL	SerialRes.	SerPQL	RPD	Flag
Aluminum	0.984	0.050	0.014	1.04	0.25	5.5	
Antimony	ND	0.050	0.0067	ND	0.25		
Arsenic	0.108	0.10	0.015	ND	0.50		
Barium	0.0533	0.0100	0.00016	0.0576	0.050	7.7	
Beryllium	ND	0.0010	0.000060	ND	0.0050		
Boron	0.345	0.050	0.0018	0.348	0.25	0.8	
Cadmium	ND	0.0060	0.00051	ND	0.030		
Calcium	3.61	0.10	0.013	3.63	0.50	0.5	
Chromium	ND	0.0100	0.0018	ND	0.050		
Cobalt	ND	0.0050	0.0016	ND	0.025		
Copper	ND	0.0050	0.0019	ND	0.025		
Iron	ND	0.050	0.0027	ND	0.25		
Lead	ND	0.050	0.011	ND	0.25		
Magnesium	1.50	0.10	0.012	1.50	0.50	0.0	
Manganese	ND	0.0100	0.00066	ND	0.050		
Molybdenum	0.0160	0.0100	0.0018	ND	0.050		
Nickel	ND	0.040	0.0027	ND	0.20		
Potassium	11.5	1.0	0.31	11.7	5.0	1.7	
Selenium	ND	0.10	0.026	ND	0.50		
Silver	ND	0.015	0.00066	ND	0.075		
Sodium	1,220	3.0	0.028	1,100	15	10.3	OUT
Thallium	ND	0.40	0.011	ND	2.0		
Vanadium	0.0630	0.0100	0.00072	0.0681	0.050	7.7	
Zinc	0.00809	0.0050	0.0010	ND	0.025		
Lithium	ND	0.10	0.00072	ND	0.50		

Analysis: SW6010B - ICP - Total

Base Sample: B0801210-04A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/19/2008 2:51:00PM

Units: mg/L

SER DIL. Date: 2/5/2008 6:26:00PM

Matrix: Aqueous

Analyte Name	SampResult	PQL	MDL	SerialRes.	SerPQL	RPD	Flag
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: **T080205002**

SERIAL DILUTION REPORT

Analysis: SW6010B - ICP - Total

Base Sample: B0801210-04A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/19/2008 2:51:00PM

Units: mg/L

SER DIL. Date: 2/5/2008 6:26:00PM

Matrix: Aqueous

Analyte Name	SampResult	PQL	MDL	SerialRes.	SerPQL	RPD	Flag
Aluminum	0.674	0.050	0.014	0.749	0.25	10.5	Note 4
Antimony	ND	0.050	0.0067	ND	0.25		
Arsenic	ND	0.10	0.015	ND	0.50		
Barium	0.0701	0.0100	0.00016	0.0688	0.050	1.8	
Beryllium	ND	0.0010	0.000060	ND	0.0050		
Boron	0.341	0.050	0.0018	0.331	0.25	2.9	
Cadmium	ND	0.0060	0.00051	ND	0.030		
Calcium	3.27	0.10	0.013	3.24	0.50	0.9	
Chromium	ND	0.0100	0.0018	ND	0.050		
Cobalt	ND	0.0050	0.0016	ND	0.025		
Copper	ND	0.0050	0.0019	ND	0.025		
Iron	ND	0.050	0.0027	ND	0.25		
Lead	ND	0.050	0.011	ND	0.25		
Magnesium	1.88	0.10	0.012	1.81	0.50	3.7	
Manganese	ND	0.0100	0.00066	ND	0.050		
Molybdenum	0.0127	0.0100	0.0018	ND	0.050		
Nickel	ND	0.040	0.0027	ND	0.20		
Potassium	12.4	1.0	0.31	11.7	5.0	5.8	
Selenium	ND	0.10	0.026	ND	0.50		
Silver	ND	0.015	0.00066	ND	0.075		
Sodium	1,270	3.0	0.028	1,080	15	16.1	OUT
Thallium	ND	0.40	0.011	ND	2.0		
Vanadium	0.0313	0.0100	0.00072	ND	0.050		Note 4
Zinc	ND	0.0050	0.0010	ND	0.025		
Lithium	ND	0.10	0.00072	ND	0.50		

Prep Batch: **T080205004**

SAMPLE DUPLICATE REPORT

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205004

SAMPLE DUPLICATE REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Base Sample: B0801210-02A
Prep Date: 2/5/2008

Samp. Anal. Date: 2/5/2008 4:59:48PM

Units: mg/L

DUP Anal. Date: 2/5/2008 5:02:05PM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>DUPRes.</u>	<u>RPD</u>	<u>RPDLim</u>	<u>Flag</u>
Mercury	ND	ND	0.0	20	

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Base Sample: B0801210-04A
Prep Date: 2/5/2008

Samp. Anal. Date: 2/5/2008 5:13:23PM

Units: mg/L

DUP Anal. Date: 2/5/2008 5:20:14PM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>DUPRes.</u>	<u>RPD</u>	<u>RPDLim</u>	<u>Flag</u>
Mercury	ND	ND	0.0	20	

LCS/LCSD REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg MB: T080205004-MB
Prep Date: 2/5/2008

MB Anal. Date: 2/5/2008 4:23:51PM

Units: mg/L

LCS Anal. Date: 2/5/2008 4:26:44PM LCSD Anal. Date: 2/5/2008 4:29:07PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>LCSRes.</u>	<u>SDRes.</u>	<u>SPLev</u>	<u>SPDLev</u>	<u>Recov.</u>	<u>SD Recov</u>	<u>RPD</u>	<u>Recov Lim</u>	<u>RPDLim</u>	<u>Flag</u>
Mercury	ND	0.00223	0.00227	0.00200	0.0020	111.5	113.5	1.8	80 - 120	20	

MS/MSD REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Parent: B0801210-02A
Prep Date: 2/5/2008

Samp. Anal. Date: 2/5/2008 4:59:48PM

Units: mg/L

MS Anal. Date: 2/5/2008 5:04:18PM MSD Anal. Date: 2/5/2008 5:06:23PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>MSRes.</u>	<u>MSDRes</u>	<u>SPLev</u>	<u>SPDLev</u>	<u>Recov.</u>	<u>MSD Rec.</u>	<u>RPD</u>	<u>Recov Lim</u>	<u>RPDLim</u>	<u>Flag</u>
Mercury	ND	0.00217	0.00209	0.00200	0.00200	108.5	104.5	3.8	70 - 130	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080205004

MS/MSD REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Parent: B0801210-04A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/5/2008 5:13:23PM

Units: mg/L

MS Anal. Date: 2/5/2008 5:22:59PM MSD Anal. Date: 2/5/2008 5:25:08PM Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>MSRes.</u>	<u>MSDRes</u>	<u>SPLev</u>	<u>SPDLev</u>	<u>Recov.</u>	<u>MSD Rec.</u>	<u>RPD</u>	<u>Recov Lim</u>	<u>RPDLim</u>	<u>Flag</u>
Mercury	ND	0.00215	0.00209	0.00200	0.00200	107.5	104.5	2.8	70 - 130	20	

POST DIGESTION SPIKE REPORT

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Base Sample: B0801210-02A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/5/2008 4:59:48PM

Units: mg/L

PDS Anal. Date: 2/5/2008 5:08:38PM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>PDSRes.</u>	<u>SPLev</u>	<u>Recov.</u>	<u>Recov Lim</u>	<u>Flag</u>
Mercury	ND	0.00211	0.00200	109.4	80 - 120	

Analysis: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg Base Sample: B0801210-04A

Prep Date: 2/5/2008

Samp. Anal. Date: 2/5/2008 5:13:23PM

Units: mg/L

PDS Anal. Date: 2/5/2008 5:27:21PM

Matrix: Aqueous

<u>Analyte Name</u>	<u>SampResult</u>	<u>PDSRes.</u>	<u>SPLev</u>	<u>Recov.</u>	<u>Recov Lim</u>	<u>Flag</u>
Mercury	ND	0.00208	0.00200	109.4	80 - 120	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080204004

SAMPLE DUPLICATE REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC

Base Sample: B0801210-02B

Prep Date: 2/4/2008

Samp. Anal. Date: 2/4/2008 7:48:30PM

Units: mg/L

DUP Anal. Date: 2/4/2008 8:06:54PM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Fluoride	10.2	10.2	0.0	30	
Chloride	607	609	0.3	30	
Sulfate	349	352	0.9	30	

LCS/LCSD REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC

MB: T080204004-MB

Prep Date: 2/4/2008

MB Anal. Date: 2/4/2008 2:54:13PM

Units: mg/L

LCS Anal. Date: 2/4/2008 3:12:36PM

LCSD Anal. Date: 2/4/2008 3:31:00PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLim	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Fluoride	ND	2.46	2.43		2.50		97.2	1.2	90 - 110	20	
Chloride	ND	5.15	5.14		5.00		102.8	0.2	90 - 110	20	
Sulfate	ND	37.1	37.1		37.5		98.9	0.0	90 - 110	20	

MS REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC

Parent: B0801210-02B

Prep Date: 2/4/2008

Samp. Anal. Date: 2/4/2008 7:48:30PM

Units: mg/L

MS Anal. Date: 2/4/2008 8:25:18PM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Fluoride	10.2	12.8	2.50	104.0	70 - 130	NOTE 2
Chloride	607	743	125	108.8	70 - 130	NOTE 2
Sulfate	349	1,270	938	98.2	70 - 130	

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC

Parent: B0801210-04B

Prep Date: 2/4/2008

Samp. Anal. Date: 2/4/2008 9:20:30PM

Units: mg/L

MS Anal. Date: 2/4/2008 9:38:55PM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080204004

MS REPORT

Analysis: Inorganic Anions by Ion Chromatography - Anions by IC

Parent: B0801210-04B

Prep Date: 2/4/2008

Samp. Anal. Date: 2/4/2008 9:20:30PM

Units: mg/L

MS Anal. Date: 2/4/2008 9:38:55PM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Fluoride	4.72	7.14	2.50	96.8	70 - 130	
Chloride	624	757	125	106.4	70 - 130	NOTE 2
Sulfate	285	321	37.5	96.0	70 - 130	NOTE 2

Prep Batch: T080207003

SAMPLE DUPLICATE REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS

Base Sample: B0801210-02B

Prep Date: 2/6/2008

Samp. Anal. Date: 2/12/2008 10:07:15AM

Units: mg/L

DUP Anal. Date: 2/12/2008 10:07:15AM

Matrix: Aqueous

Analyte Name	SampResult	DUPRes.	RPD	RPDLim	Flag
Total Dissolved Solids	3,070	3,050	0.7	20	

LCS/LCSD REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS

MB: T080207003-MB

Prep Date: 2/6/2008

MB Anal. Date: 2/12/2008 10:07:15AM

Units: mg/L

LCS Anal. Date: 2/12/2008 10:07:15AM LCSD Anal. Date: 2/12/2008 10:07:15AM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Total Dissolved Solids	ND	797	845	821	821	97.0	102.9	5.8	80 - 120	20	

MS REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS

Parent: B0801210-02B

Prep Date: 2/6/2008

Samp. Anal. Date: 2/12/2008 10:07:15AM

Units: mg/L

MS Anal. Date: 2/12/2008 10:07:15AM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
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Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

Tests Run at: Analytica Environmental Laboratories - Thornton, Colorado

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Project Number:

QUALITY CONTROL REPORT

Prep Batch: T080207003

MS REPORT

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS Parent: B0801210-02B

Prep Date: 2/6/2008

Samp. Anal. Date: 2/12/2008 10:07:15AM

Units: mg/L

MS Anal. Date: 2/12/2008 10:07:15AM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Total Dissolved Solids	3,070	3,890	821	99.8	70 - 130	

Analysis: 160.1 - Total Dissolved Solids dried at 180°C - TDS

Parent: B0801210-04B

Prep Date: 2/6/2008

Samp. Anal. Date: 2/12/2008 10:07:15AM

Units: mg/L

MS Anal. Date: 2/12/2008 10:07:15AM

Matrix: Aqueous

Analyte Name	SampResult	MSRes.	SPLev	Recov.	Recov Lim	Flag
Total Dissolved Solids	3,060	3,930	821	105.9	70 - 130	

Prep Batch: T080205001

LCS/LCSD REPORT

Analysis: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity MB: T080205001-MB

Prep Date: 2/4/2008

MB Anal. Date: 2/4/2008 9:52:02AM

Units: mg/L

LCS Anal. Date: 2/4/2008 9:52:02AM LCSD Anal. Date: 2/4/2008 9:52:02AM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Bicarbonate	ND	24.0	27.0	25.0	25.0	96.0	108.0	11.8	80 - 120	20	
Carbonate	ND	50.0	51.0	50.0	50.0	100.0	102.0	2.0	80 - 120	20	

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: **83,686** Lab Project Number: **B0801210**

Prep Date: 2/4/2008

Lab Method Blank Id: T080204004-MB

Prep Batch ID: T080204004

Method: Inorganic Anions by Ion Chromatography - Anions by IC

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
T080204004-LCS	LCS	080204_014.DXD	2/4/2008 3:12:36PM
T080204004-LCSD	LCSD	080204_015.DXD	2/4/2008 3:31:00PM
B0801210-01B	MB Successive #2	080204_017.DXD	2/4/2008 4:07:47PM
B0801210-02B	Ash Successive #2	080204_018.DXD	2/4/2008 4:26:11PM
B0801210-02B-DUP	DUP	080204_019.DXD	2/4/2008 4:44:34PM
B0801210-02B-MS	MS	080204_020.DXD	2/4/2008 5:02:58PM
B0801210-03B	MB Successive #3	080204_022.DXD	2/4/2008 5:39:45PM
B0801210-04B	Ash Successive #3	080204_023.DXD	2/4/2008 5:58:09PM
B0801210-04B-MS	MS	080204_024.DXD	2/4/2008 6:16:33PM
B0801210-01B	MB Successive #2	080204_028.DXD	2/4/2008 7:30:06PM
B0801210-02B	Ash Successive #2	080204_029.DXD	2/4/2008 7:48:30PM
B0801210-02B-DUP	DUP	080204_030.DXD	2/4/2008 8:06:54PM
B0801210-02B-MS	MS	080204_031.DXD	2/4/2008 8:25:18PM
B0801210-03B	MB Successive #3	080204_033.DXD	2/4/2008 9:02:06PM
B0801210-04B	Ash Successive #3	080204_034.DXD	2/4/2008 9:20:30PM
B0801210-04B-MS	MS	080204_035.DXD	2/4/2008 9:38:55PM

Prep Date: 2/4/2008

Lab Method Blank Id: T080205001-MB

Prep Batch ID: T080205001

Method: 310.1 - Alkalinity, Titrimetric (pH 4.5) - Alkalinity

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801191-04B	Batch QC		2/4/2008 9:52:02AM
B0801210-01B	MB Successive #2		2/4/2008 9:52:02AM
B0801210-02B	Ash Successive #2		2/4/2008 9:52:02AM
B0801210-03B	MB Successive #3		2/4/2008 9:52:02AM
B0801210-04B	Ash Successive #3		2/4/2008 9:52:02AM
T080205001-LCS	LCS		2/4/2008 9:52:02AM
T080205001-LCSD	LCSD		2/4/2008 9:52:02AM
B0801191-04B-DUP	DUP		2/4/2008 9:52:02AM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 83,686 Lab Project Number: B0801210

Prep Date: 2/5/2008

Lab Method Blank Id: T080205002-MB
Prep Batch ID: T080205002
Method: SW6010B - ICP - Total

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
T080205002-LCS	LCS	E02058A	2/5/2008 4:32:00PM
T080205002-LCSD	LCSD	E02058A	2/5/2008 4:37:00PM
B0801210-02A-DUP	DUP	E02058A	2/5/2008 4:52:00PM
B0801210-04A-DUP	DUP	E02058A	2/5/2008 6:06:00PM
B0801210-02A-MS	MS	E02058A	2/5/2008 4:57:00PM
B0801210-04A-MS	MS	E02058A	2/5/2008 6:11:00PM
B0801210-02A-MSD	MSD	E02058A	2/5/2008 5:02:00PM
B0801210-04A-MSD	MSD	E02058A	2/5/2008 6:16:00PM
B0801210-02A-PDS	PDS	E02058A	2/5/2008 5:46:00PM
B0801210-04A-PDS	PDS	E02058A	2/5/2008 6:21:00PM
T080205002-LCS	LCS	E02068A	2/6/2008 1:59:00PM
T080205002-LCSD	LCSD	E02068A	2/6/2008 2:04:00PM
B0801210-02A-MS	MS	E02068A	2/6/2008 2:09:00PM
B0801210-04A-MS	MS	E02068A	2/6/2008 2:19:00PM
B0801210-02A-MSD	MSD	E02068A	2/6/2008 2:14:00PM
B0801210-04A-MSD	MSD	E02068A	2/6/2008 2:24:00PM
B0801210-01A	MB Successive #2	E02198A	2/19/2008 2:36:00PM
B0801210-02A	Ash Successive #2	E02198A	2/19/2008 2:41:00PM
B0801210-03A	MB Successive #3	E02198A	2/19/2008 2:46:00PM
B0801210-04A	Ash Successive #3	E02198A	2/19/2008 2:51:00PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 83,686 Lab Project Number: B0801210

Prep Date: 2/5/2008

Lab Method Blank Id: T080205004-MB

Prep Batch ID: T080205004

Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801197-02A	Batch QC	B020508W.WKS	2/5/2008 4:38:47PM
B0801210-01A	MB Successive #2	B020508W.WKS	2/5/2008 4:57:34PM
B0801210-02A	Ash Successive #2	B020508W.WKS	2/5/2008 4:59:48PM
B0801210-03A	MB Successive #3	B020508W.WKS	2/5/2008 5:11:03PM
B0801210-04A	Ash Successive #3	B020508W.WKS	2/5/2008 5:13:23PM
T080205004-LCS	LCS	B020508W.WKS	2/5/2008 4:26:44PM
T080205004-LCSD	LCSD	B020508W.WKS	2/5/2008 4:29:07PM
B0801197-02A-DUP	DUP	B020508W.WKS	2/5/2008 4:41:14PM
B0801210-02A-DUP	DUP	B020508W.WKS	2/5/2008 5:02:05PM
B0801210-04A-DUP	DUP	B020508W.WKS	2/5/2008 5:20:14PM
B0801197-02A-MS	MS	B020508W.WKS	2/5/2008 4:43:28PM
B0801210-02A-MS	MS	B020508W.WKS	2/5/2008 5:04:18PM
B0801210-04A-MS	MS	B020508W.WKS	2/5/2008 5:22:59PM
B0801197-02A-MSD	MSD	B020508W.WKS	2/5/2008 4:46:03PM
B0801210-02A-MSD	MSD	B020508W.WKS	2/5/2008 5:06:23PM
B0801210-04A-MSD	MSD	B020508W.WKS	2/5/2008 5:25:08PM
B0801197-02A-PDS	PDS	B020508W.WKS	2/5/2008 4:52:53PM
B0801210-02A-PDS	PDS	B020508W.WKS	2/5/2008 5:08:38PM
B0801210-04A-PDS	PDS	B020508W.WKS	2/5/2008 5:27:21PM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 83,686 Lab Project Number: B0801210

Prep Date: 2/6/2008

Lab Method Blank Id: T080207003-MB

Prep Batch ID: T080207003

Method: 160.1 - Total Dissolved Solids dried at 180°C - TDS

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
B0801210-01B	MB Successive #2		2/12/2008 10:07:15AM
B0801210-02B	Ash Successive #2		2/12/2008 10:07:15AM
B0801210-03B	MB Successive #3		2/12/2008 10:07:15AM
B0801210-04B	Ash Successive #3		2/12/2008 10:07:15AM
T080207003-LCS	LCS		2/12/2008 10:07:15AM
T080207003-LCSD	LCSD		2/12/2008 10:07:15AM
B0801210-02B-DUP	DUP		2/12/2008 10:07:15AM
B0801210-02B-MS	MS		2/12/2008 10:07:15AM
B0801210-04B-MS	MS		2/12/2008 10:07:15AM

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

DATA FLAGS AND DEFINITIONS

The PQL is the Method Quantitation Limit as defined by USACE.

Reporting Limit: Limit below which results are shown as "ND". This may be the PQL, MDL, or a value between. See the report conventions below.

Result Field:

ND = Not Detected at or above the Reporting Limit

NA = Analyte not applicable (see Case Narrative for discussion)

Qualifier Fields:

LOW = Recovery is below Lower Control Limit

HIGH = Recovery, RPD, or other parameter is above Upper Control Limit

E = Reported concentration is above the instrument calibration upper range

Organic Analysis Flags:

B = Analyte was detected in the laboratory method blank

J = Analyte was detected above MDL or Reporting Limit but below the Quant Limit (PQL)

Inorganic Analysis Flags:

J = Analyte was detected above the Reporting Limit but below the Quant Limit (PQL)

W = Post digestion spike did not meet criteria

S = Reported value determined by the Method of Standard Additions (MSA)

Several ways of defining the limit of detection and quantitation are prevalent in the laboratory industry and may appear in Analytica reports. These include the following:

MRL = "minimum reporting level", from the EPA Safe Drinking Water program (SDW)

PQL = "practical quantitation limit", from SW-846

EQL = "estimated quantitation limit", from SW-846

LOQ = "limit of quantitation", from a number of authoritative sources

In Analytica's work, all of these terms have the same meaning, equivalent to the EPA definition of the MRL. This reporting level is supported by a satisfactory calibration data point which is at that level or lower, and also is supported by a method detection limit (MDL) determined by the procedure in 40CFR. The MDL is lower than the MRL and represents an estimate of the level where positive detections have a 99% probability of being real, but where quantitation accuracy is unknown.

The MRL as defined by Analytica is the lowest demonstrated point of known quantitation accuracy.

The MRL should not be confused with the MCL, which is the EPA-defined "maximum contaminant level" allowed for certain regulated targets under specific regulations, such as the National Primary Drinking Water Regulations. Normally, the MRL is set at a level which is much lower than the MCL in order to ensure that levels are well below those limits. Not all target analytes have MCL levels established.

Other Flags may be applied. See Case Narrative for Description

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0801210

Project: Navajo Mine Extension Leaching Study

Client: Applied Hydrology Associates, Inc.

Client Project Number: none

REPORTING CONVENTIONS FOR THIS REPORT

B0801210

<u>TestPkgName</u>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
150.1/150.1 (Aqueous) - pH	As Received	2	Report to PQL
160.1/160.1 (Aqueous) - TDS	As Received	2	Report to PQL
300.0/300.0 (Aqueous) - Anions by IC	As Received	2	Report to PQL
310.1/310.1 (Aqueous) - Alkalinity	As Received	2	Report to PQL
6010B/3010A (Aqueous) - Total	As Received	2	Report to PQL
7470A/7470A (Aqueous) - Total Hg	As Received	2	Report to PQL



12189 Pennsylvania St
 Thornton, CO 80241 (303) 469-8868 (303) 469-5254 fax
 4307 Arctic Boulevard Anchorage, AK 99503 (907) 258-2155 (907) 259-6634 fax
 475 Hall St. Fairbanks, AK 99701 (907) 456-3116 (907) 456-3125 fax
 5438 Shauna Drive Juneau, AK 99901 (907) 780-6666 (907) 780-6670 fax

Analytica Chain of Custody Form

Chain of Custody No: **63254**

Client Name & Address:
Applied Hydrology Associates, INC

Public Water System (PWS) ID#: _____
 Project Name: _____

Navajo Mine Extension Leaching Study
Turnaround Time for Results (TAT)

Report to: _____
 Phone No: _____ Standard _____ Expedited (< 10 days, prior authorization required)
 Fax No: _____ (please specify due date below; add'l charges may apply)

E-mail: _____ Requested Due Date for Results: _____

Special Instructions/Comments:

P.O. or Contract No: _____

Ash Successive Leaching Study

Requested Analysis/Method

Kit Prep/Shipping Charge: \$ _____

Client Sample Identification / Location

Date Sampled	Time Sampled	Matrix (S-DW-WW-Other)	No. of Containers	Requested Analysis/Method							Field Preserved	Field Filtered	MS/MSD ?			
				6010B/3010A Tl ₂	7420A/7420A Hg	150.1 Pb	160.1 TDS	300.0 Anions IC	310.1 Alk.							
MB Successive #2	1/30/08	11:30	2	X	X	X	X	X	X	X	X	X	X	X	X	X
ASH Successive #2			2	X	X	X	X	X	X	X	X	X	X	X	X	X
MB Successive #3	1/31/08	11:00	2	X	X	X	X	X	X	X	X	X	X	X	X	X
ASH Successive #3			2	X	X	X	X	X	X	X	X	X	X	X	X	X

Section To Be Completed by Analytica

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____
 Relinquished by: **R. Seeman** Date: **1/31/08** Time: **15:05** Received by: **AK [Signature]** Date: _____ Time: _____

Condition of Custody Seal? THO _____ ANC _____ JNU _____ FBKS _____
 Initialed By: _____
 Temp/Loc: **3.0**
 Thermo ID#: _____
 Shipped Via: **Ryan Seeman**

Name of Sampler: (printed)

