WHITEHORSE COPPER TAILINGS REPROCESSING
GEOENVIRONMENTAL CHARACTERIZATION REPORT

February 2011

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1.0 INTRODUCTION

Eagle Industrial Minerals Corp (The Project) is proposing to re-process and reclaim tailings deposits at the former Whitehorse Copper Mine site in Whitehorse, Yukon Territory, Canada. The primary objective of the Project is to recover magnetite from the tailings and to reclaim the existing tailings areas in order to reduce their environmental impact. Reclamation of the area currently used for tailings storage may involve ensuring the land is suitable for industrial or other activities. The magnetite remove removed from the tailings during re-processing will be sold as iron ore for use in the steel-making industry. Access Consulting Group (ACG) was retained by The Project to conduct a geochemical assessment of the tailings in support of the development of a Yukon Environmental and Socio-Economic Assessment Act (YESAA) project proposal.

1.1 Background

The Whitehorse Copper Mine (Little Chief deposit) was the largest of a number deposits hosted within the Whitehorse Copper Belt producing 7.25 million tonnes of ore grading 1.5% copper (Tenney, 1981). The Whitehorse Copper Belt is a northwest trending zone of copper bearing skarns 30 km long approximately 5 km to the west of the city of Whitehorse. Whitehorse Copper Mines Ltd. produced from six small open pits between 1967-1971 and from the Little Chief underground mine between 1972-1980. The site has been inactive since 1982 when mining and processing operations ceased. The site was closed in compliance with all regulatory requirements of the day.

The original Whitehorse Copper mill produced a copper sulphide concentrate which was shipped for smelting. Tailings from the mining activities are stored in three storage facilities. The Old Pond storage facility contains tailings produced during the open pit mining phase while the A Valley and B Valley storage facilities contain tailings produced during the underground mining phase. Magnetite will be removed from the tailings by using magnetic separation techniques which is expected to remove approximately 90-95% of the magnetite contained in the tailings.

1.2 Site Description

The Whitehorse Copper Mine site is in the southern Yukon, Canada (Figure 1). The site lies approximately 8 kilometers south of downtown area of the City of Whitehorse. Primary access to the site is via the Mount Sima Road off the Alaska Highway, as shown on Figure 2. The Little Chief Pit and three tailings storage facilities at the site are also shown on Figure 2.

Table 1 contains some summary information on the three tailings storage facilities. The Old Pond tailings storage facility is the oldest of the facilities and has several dams constructed to contain the tailings. The dams were not designed to retain water and as such there is seepage at a number of locations from the Old Pond. The A Valley and B Valley dams were constructed to retain water and Copper Lake is the site of the former seepage reclaim system that was used when these facilities were active.

Table 1 Whitehorse Copper Tailings Information

Tailings Facility	Area (acres)	Avg. Depth (m)	Tailings Mass (million tonnes)
Old Pond	49.0	7.5	6.1
A Valley	12.6	10.5	2.0
B Valley	7.3	9.5	1.0
Totals	*68.9*		*9.1*

The A Valley and B Valley facilities were constructed in two narrow steep sided valleys where there was good bedrock confinement. These facilities are relatively deep compared with the Old Pond which was constructed on a benched area immediately up-gradient of A Valley and B Valley.

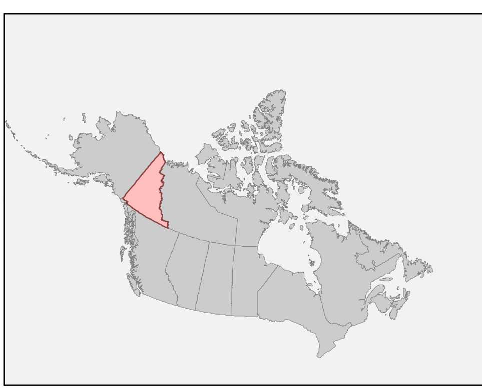

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FIGURE 1

PROJECT LOCATION

Datum: NAD 83; Map Projection: UTM Zone 8N

1:50,000 (when printed on 11 x17 inch paper)

0 0.5 1 2 3 Kilometres

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FIGURE 2

REGIONAL OVERVIEW

DRAWN BY MD	DECEMBER 2010	VERIFIED BY EA

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2.0 DETERMINATION OF SAMPLING REQUIREMENTS

Table 2 contains the estimated volume and calculated tonnage of the individual tailings storage areas (A Valley, B Valley, and Old Pond). Each of these facilities was treated as an individual unit for the purposes of determining the necessary sampling requirements.

Table 2 Summary of Tailings Areas Sampling

Tailings Facility	Tailings (million tonnes)	# Samples ABA	# Samples Carbon – Sulphur, ICP Metals	Total Static Testing Samples,	# Samples Shake Flask Extraction
Old Pond	6.1	21	41	62	16
A Valley	2.0	10	31	41	8
B Valley	1.0	11	30	41	7
Totals	*9.1*	*42*	*102*	*144*	*31*

The Yukon Environmental and Socio-economic Assessment Board (YESAB) has indicated that proponents are to follow the sampling requirements identified in MEND 2009. The MEND 2009 guidance on sample size contains very broad guidance so Figure 3 from MEND (1992) was used to better define sampling requirements. The MEND 1992 curve indicates the recommended minimum number of samples required for geochemical characterization of each geologic unit and is consistent with MEND 2009. The Project has collected a total of 189 tailings samples in support of the geochemical characterization from the three tailings storage facilities. Of these 189 samples, 102 were selected for static geoenvironmental testing. All 102 samples were analysed for Carbon, Sulphur and ICP metals, while a subset of this group were also submitted for ABA testing (42 samples) and shake flask testing (31 samples).

As can be seen in Table 2, the number of analyses conducted for each tailings facility is consistent with recommendations for adequate sampling for geochemical characterization.

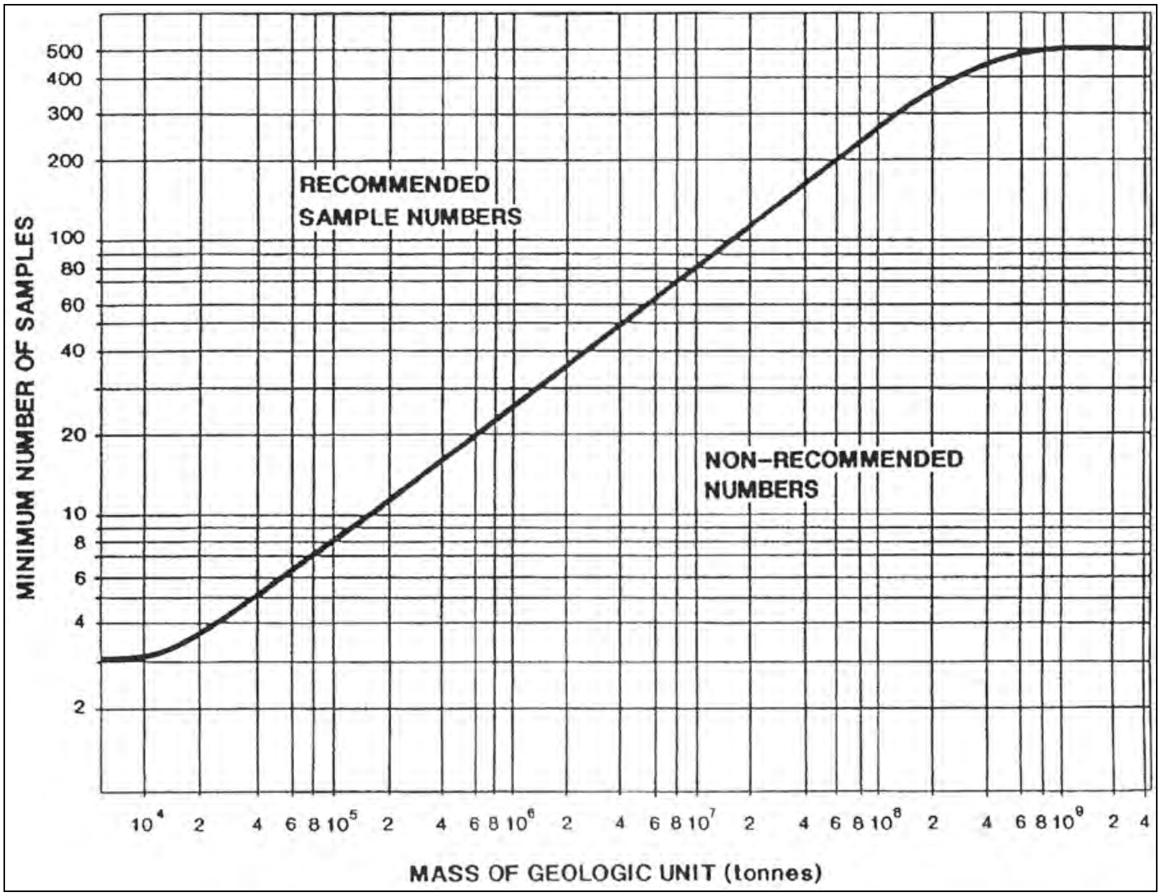


Figure 3 Statistical Sampling Requirements for Geochemical Characterization

In addition to the tailings samples identified in Table 2, six samples of waste rock were collected and submitted for ABA and ICP-MS analyses, with three samples submitted for shake flask testing. These waste rock samples were collected in order to conduct a screening assessment of the suitability of existing waste rock as a cover material for final closure.

Some additional sampling and geochemical characterization may be required in order to achieve a statistically adequate representation of the waste rock materials as recommended by MEND 2009, should the waste rock be used for closure related activities.

2.1 ACG 2010 Tailings Sampling Program

A total of fourteen boreholes were drilled in the three tailings facilities between September 21 and September 24, 2010 using a track mounted auger drill. Discrete samples were collected on 5 foot intervals for all holes with the exception of 921-1 and 921-2, which were sampled on 10 foot intervals. Samples were logged as to hole location, depth, and characteristics (fineness, dampness, and color). With the exception of 921-1 and 921-2, all holes were stopped at the tailings/original ground surface interface so that the entire tailings column was sampled. Borehole locations are shown on and the drill logs are contained in Appendix A. The September sampling resulted in the collection of 121 samples from which 94 discrete samples were selected for analysis.

Seven additional tailings samples were collected during late October and early November from the B Valley tailings storage facility during installation of shallow monitoring wells to sample groundwater within this facility. These seven discrete samples were also submitted for analysis. Groundwater samples collected from a depth of approximately 3 m below the current ground surface and were submitted for analysis.

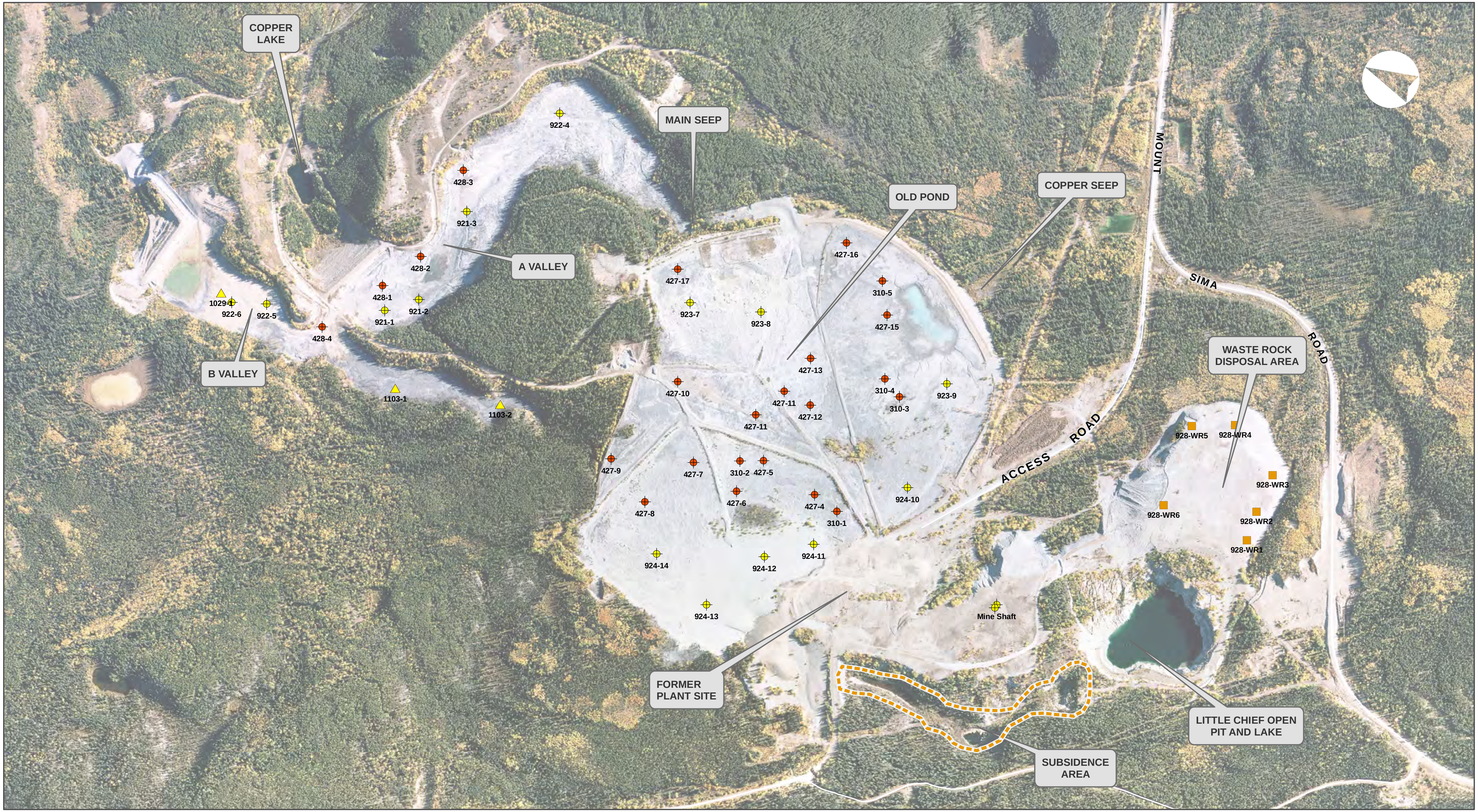
2.2 Previous Tailings Sampling Programs

Three rounds of sampling were undertaken of the tailings in 2010 by the Project. The location of all borehole and testpit locations where samples were taken is indicated on Figure 4. Drillhole logs for sampling undertaken by the Project shown in Appendix B.

In March and April, drilling was conducted using a truck-mounted auger, and samples were taken from various locations within the tailings facilities at a variety of depths. The samples collected in March 2010 included 16 separate samples from 5 holes. The samples collected in April 2010 included 52 separate samples from 19 holes. The March and April samples were sent to Inspectorate Group (International Plasma Lab) in Vancouver for testing including particle size, moisture content, acid base accounting, rinse tests and chemical assays.

Sampling conducted in August was done with an excavator and were of larger volume (approximately 25 kg) to allow for metallurgical testwork to be conducted. Samples were logged as to hole location, depth, and characteristics (fineness, dampness, and color) when obtained. The August samples were sent to Midland Research in Minnesota for laboratory and pilot plant testing. 5 of the samples collected in August 2010 with an excavator and 3 of the samples collected during March and April 2010 were composited sent to Maxxam Analytics in Burnaby for ABA, ICP, and shake flask testing. These 8 samples have been incorporated into the data analysis of this report.

In 1984, Kilborn Limited sent Lakefield Research a total of 88 samples for testing. Lakefield tested particle size distribution and moisture content, conducted some metallurgical testing, and limited chemical assaying. The location and depth of the samples submitted in the Kilborn Study are not known and therefore the analytical results are only useful for comparative purposes.



National Topographic Data Base (NTDB) compiled by Natural Resources Canada at a scale of 1:50,000. Cadastral data compiled by Natural Resources Canada. Reproduced underlicense from © Her Majesty the Queen in Right of Canada,Department of Natural Resources Canada. All rights reserved. Aerial imagery (2006) obtained from Yukon Geomatics.

Datum: NAD 83; Map Projection: UTM Zone 8N

1:8,000 (when printed on 11 x17 inch paper)

0 100 200 400 600 Meters

- 2010 ACG Borehole
- 2010 EIM Sampling Location
- 2010 Monitoring Well
- 2010 Waste Rock Sample Location

SAMPLE ID: 3 10 - 4

MONTH DAY HOLE OR SAMPLE NUMBER

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FIGURE 4

SAMPLE BOREHOLE AND MONITORING WELL LOCATIONS

DRAWN BY MD	JANUARY 2011	VERIFIED BY EA

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2.3 Tailings Sample Selection Methodology

Discrete 2-3 kg samples (either on 5 or 10 foot intervals from top to bottom of hole) were selected by ACG from the samples collected during the September field program. The samples were selected in order to achieve adequate horizontal and vertical spatial distribution within the tailings facilities.

Initial rounds of sampling conducted in March, April and August by the Project were based on discrete samples which were then composited over the entire borehole prior to static test work. The analytical results from these samples are useful in understanding the average characteristics of the tailings at these locations but do not provide any information on the variability of tailings chemistry vertically.

2.4 ACG 2010 Waste Rock Sampling Program

A total of six waste rock samples were collected by ACG on September 28, 2010. Small test pits were dug by hand to between 25 and 40 cm, and then samples taken from the bottom of the pit. Approximately 3 kg of material was collected from each sample site. A brief physical description and visual mineralogical estimate was undertaken in the field. Waste rock samples were taken from near the crest of the main waste rock disposal area north of the Little Chief Open Pit (see Figure 4).

3.0 ACID ROCK DRAINAGE AND METAL LEACHING CHARACTERIZATION METHODS

The basic method used for the evaluation of the potential for Acid Rock Drainage (ARD) geological materials is through acid base accounting (ABA). The samples selected for testing should be representative of the materials that will be disturbed.

3.1 Determination of ARD Potential

Acid-Base Accounting (ABA) is an analytical procedure that calculates and compares the acid generating (MPA) and acid neutralizing (NP) constituents of a material. The resulting comparison can be represented quantitatively as either net neutralization potential (NNP = NP-MPA) or neutralization potential ratio (NPR = NP/MPA).

There are a number of accepted ABA tests and procedures that have been developed to characterize geological materials. The most conservative ABA test relies on the carbonate neutralization potential (Carbonate NP) because carbonate minerals provide fast reacting and generally readily available neutralization potential. Bulk neutralization potential as measured through other NP measurement methods (e.g. Sobek, Modified ABA) can include some less readily available (slower reacting) NP associated with other mineral constituents such as Mn and Fe carbonates and aluminosilicate minerals. Reitveld XRD analysis is recommended to quantify the proportion of different carbonate minerals (MEND, 2009) along with identifying the presence of any Fe or Mn carbonates which could affect the NP of the materials.

The generally accepted standards for the classification of geological materials (as described in MEND 2009) with respect to their potential for the generation of acidity are indicated below in Table 3.

Table 3 Geological Materials Acid Rock Drainage Classification System

NPR	ARD Classification	Description
NPR < 1	Potentially acid-generating	Expected to produce acidic drainage due to insufficient neutralization potential
NPR ≥1 and ≤ 2	Non-acid-generating – additional testing required	Expected to be non-acid-generating; however, additional confirmatory testing to be conducted
NPR >2	Non-acid-generating	No acid drainage associated with geological materials

3.2 Static Testing Procedures

3.2.1 Acid Base Accounting

All ABA, carbon-sulphur, shake flask testing, and ICP metals testing presented in this study were conducted by Maxxam Analytics of Burnaby, BC. The following parameters were measured or calculated as part of the ABA testing:

- Total sulphur (%-S), sulphate sulphur, sulphide sulphur;
- Total carbon (%-C), total inorganic carbon ($\%C_{inorg}$), total organic carbon ($\%C_{org}$);
- Maximum Potential Acidity (MPA) also reported as Acid Potential (AP)
- Modified ABA ($NP_{Mod\ ABA}$) and carbonate (NP_{Carb}) neutralization potential;
- Net neutralization potential (NNP); and,
- Modified ABA ($NP_{Mod\ ABA}$) and Carbonate (NPR_{Carb}) Neutralization Potential Ratio.

The results of the ABA testing were used to provide more characterization information on tailings and waste rock which may be disturbed by the proposed development. The results may also be used to support the C-S method for characterization of geological materials on the Whitehorse Copper project.

3.2.2 Carbon – Sulphur Analysis

In addition to a modified ABA procedure, an analysis of carbon and sulphur is often used as a simplified ABA method which allows for an increased number of samples to be analysed at a lower cost than traditional ABA techniques while also providing quick turnaround times, which can be critical during a mining development. Once correlated with the ABA results, the C-S method may be as reliable as the ABA tests. The C-S method requires correlation of carbon content with neutralization potential and sulphur content with acid potential. Sulphur speciation was determined for all 102 tailings samples and all 6 waste rock samples submitted for ABA testing in order to support the development of a C-S relationship if required.

Where significant organic carbon may exist it can be necessary to determine the relation between carbonate carbon to total carbon. A review of the available mineralogic information from the area (Tenney, 1980) and field observations indicated that there was no significant source of organic carbon present in the deposit. The carbon content reported on plots and tables was calculated stoichiometrically from the CO_2 value measured by the lab.

3.3 Mineralogy

Mineralogical information is important for geochemical characterization in order to help interpret the results of the static testing program. A subset of 6 tailings samples from the three tailings facilities were submitted for Reitveld XRD analysis in order to provide quantitative mineralogical data. All Reitveld XRD analyses were conducted at the University of British Columbia. The 6 waste rock samples collected had geologic descriptions prepared but were not submitted for XRD analysis.

3.4 Determination of Metal Leaching Potential

The evaluation of metal leaching (ML) is an important part of understanding potential environmental effects of a project. The importance of ML must be considered regardless of the results of static ABA testing given that ML can occur under neutral pH conditions.

Shake flask testing was undertaken to help determine the potential for ML. Under the current MEND method, rock samples are mixed with de-ionized water at a 3:1 water to solids ratio and continuously agitated for 24 hours. The leachate was then filtered and analyzed for general parameters and dissolved metal concentrations. The dissolved metal concentrations are compared to the relevant water quality objectives from the Canadian Council of the Minister's of the Environment (CCME) for the site in order to determine whether there was a potential for elevated metals concentrations to occur in water draining from the site. It is important to note that there are no surface connections between the site and the Yukon River and that any discharges from the site will all report to groundwater.

Shake flask testing according to the MEND method was undertaken for the 6 waste rock samples to represent drainage conditions under which meteoric water might be come in contact with waste rock material should it be used as a cover material.

The 20 tailings samples submitted for shake flask testing by ACG from the September 2010 sampling used pit lake water as the extraction fluid instead of de-ionized water. The use of pit lake water was intended to predict potential ML conditions should pit lake water be used as the source of process water during the magnetite recovery process.

The 8 shake flask samples from previous sampling programs conducted by the Project used de-ionized water (MEND method) as the extraction fluid during that testing program. 3 shake flask samples submitted from tailings collected by ACG in late October/early November from B Valley also used de-ionized water (MEND method) as the extraction fluid. The results of these samples would be indicative of meteorological waters in contact with the re-processed tailings.

3.5 Kinetic Testing

Humidity test cells have been established to provide information on the long-term behavior of the tailings materials. The original kinetic testing program was proposed to utilize samples from the original metallurgical testing program conducted by the Project. Samples were shipped to Maxxam for testing but damage occurred during shipping which resulted in sample contamination. As a result of the loss of these initial samples, ACG conducted magnetic separation on dried tailings samples from the September sampling. Three samples have been established as humidity cells and are currently being conducted by Maxxam Analytics for the Project. All three cells are composed of Whitehorse Copper tailings, with one discrete sample from each of the tailing storage areas (A Valley, B Valley, and Old Pond). The humidity cells were started on February 11, 2011 and are being sampled weekly for ICP metals and other standard parameters. The MEND method as described in MEND report 1.20.1 pages 19-1 to 19-19 is being used.

As a compliment to the static testwork already completed, the results of the humidity cells will be used confirm the metal leaching characteristics of the tailing. In addition to the historical site monitoring data and static testing, the results of the kinetic testing will be used to help better inform the project during its operational phase as well as being input to the reclamation and closure plan. Preliminary results from humidity cells are included as Appendix Humidity cell analytical results and interpretive memos will be issued periodically as the results become available in order to provide timely flow of information on this project.

In addition to kinetic testing using humidity cells, site monitoring data provides valuable kinetic information. Groundwater monitoring wells data from down gradient of the Whitehorse Copper site are available from 1991 with additional sampling conducted in 2010. Samples were collected by the Project from these monitoring wells in 2010. A comparison between the 1991 compared with 2010 data is essentially a site scale kinetic test, showing the change in the receiving groundwater environment over the past 19 years. This comparison shows that, almost without exception, levels of all contaminants of concern (dissolved metals, i.e. Cu, Cd, Zn) decreased significantly between 1991 and 2010. The results of groundwater studies are discussed further in Section 5.3 and in Volume 2 of the Project Proposal.

3.6 Other Water Chemistry Assessment

3.6.1 Pore Water Chemistry

Three monitoring wells were installed on October 29 and November 3 in B Valley ACG so that in situ tailings pore water chemistry could be assessed. The locations of these wells are shown on Figure 4. Samples of water collected from these wells were sent for a standard set of water quality analyses including total and dissolved metals and general parameters and anions.

3.6.2 Pit Lake Water Chemistry

The Project has proposed to use water from Pit Lake as process water during the magnetite removal. As discussed above, shake flasks testing requested by ACG on tailings was conducted using Pit Lake water in order to understand processing effects on water and what the quality of any potential discharge of this water from the site may be. Analytical results from standard water quality analyses of Pit Lake water are presented in Section 4.

4.0 ANALYTICAL TESTING RESULTS

4.1 Static Testing Results

This section contains the results of all static testing conducted on the Whitehorse Copper project in support of the proposal. Results from the initial round of static testing conducted by the Project during 2010 have also been complied to allow for a statistically supported characterization of geological materials.

4.1.1 Acid Base Accounting Results

A total of 38 tailings samples were submitted for ABA analysis as part of the static testing program. A summary of results of these analyses are presented as Table 4 through Table 6. Analytical certificates for these samples are presented in Appendix C. Selected plots showing graphical representation of the data are presented in Figure 7 through Figure 15, which are included at the end of the report for ease of reference.

I. Sulphide vs Sulphate

As can be seen in Figure 7, there are some distinctions between waste rock and the different tailings facilities. Generally higher sulphide contents between 0.16 and 0.34% were observed in the waste rock samples, with virtually all of the sulphur occurring as sulphide. The high portion of sulphides within the waste rock indicates only minimal oxidation has occurred.

Sulphide content in tailings facilities varied between 0.03 and 0.20% with the most variability and a slightly higher mean in the Old Pond than in A Valley and B Valley. The degree of sulphide weathering as indicated by the proportion of sulphur as sulphide compared with the total sulphur was lower in most tailings samples as compared with waste rock, and was lower in Old Pond as compared with A Valley and B Valley. Sulphate sulphur concentrations were generally higher near to the surface of the tailings in A Valley and B Valley which indicates that there has been little weathering of these tailings.

Table 4a. Tailings Acid Base Accounting Analytical Results Summary

Sample Number	Sample Type	Area	Sample ID	Paste pH	Fizz Rating	CO2	C	Ca	S Total	S as SO4	S as Sulphide	MPA	Carb NP	Mod ABA NP	Carb NPR	Mod ABA NPR	NNP
Units				pH Units	4 Class Ordinal	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	kg CaCO3 /tonne	kg CaCO3 /tonne	kg CaCO3 /tonne	MPA /Carb NP	MPA /Mod ABA NP	MPA /Mod ABA NP
1	Discrete	A Valley	921-1 1b-10			2.09	0.78	1.87	0.08	0.03	0.05	1.6	47.5		30.4		
2	Discrete		921-1 1d-20	9.5	Strong	1.62	0.61	1.39	0.08	0.03	0.05	1.6	36.8	56.8	23.6	36.3	55.2
3	Discrete		921-1 1f-30			1.50	0.56	1.62	0.15	0.03	0.12	3.8	34.1		9.1		
4	Discrete		921-1 1h-40			3.53	1.32	3.25	0.15	0.03	0.12	3.8	80.2		21.4		
5	Discrete		921-1 1j-50	10.0	Strong	9.20	3.45	6.25	0.12	0.03	0.09	2.8	209.1	265.9	74.3	94.5	263.0
6	Discrete		921-1 1l-60			8.58	3.22	5.83	0.07	0.01	0.06	1.9	195.0		104.0		
7	Discrete		921-2 2a-5			8.98	3.37	6.53	0.13	0.03	0.10	3.1	204.1		65.3		
8	Discrete		921-2 2b-15			2.21	0.83	2.07	0.11	0.02	0.09	2.8	50.2		17.9		
9	Discrete		921-2 2c-25	9.4	Strong	1.22	0.46	1.24	0.12	0.01	0.11	3.4	27.7	51.3	8.1	14.9	47.8
10	Discrete		921-2 2d-35			4.69	1.76	3.15	0.12	0.01	0.11	3.4	106.6		31.0		
11	Discrete		921-2 2e-45			7.77	2.92	4.75	0.10	0.01	0.09	2.8	176.6		62.8		
12	Discrete		921-2 2f-55			7.00	2.63	4.32	0.09	0.01	0.08	2.5	159.1		63.6		
13	Discrete		921-2 2g-65			4.91	1.84	3.54	0.09	0.01	0.08	2.5	111.6		44.6		
14	Discrete		921-3 3a-5			7.48	2.81	5.49	0.09	0.02	0.07	2.2	170.0		77.7		
15	Discrete		921-3 3b-10	9.6	Strong	3.25	1.22	3.06	0.06	0.01	0.05	1.6	73.9	91.6	47.3	58.6	90.1
16	Discrete		921-3 3c-15			2.85	1.07	2.75	0.08	0.02	0.06	1.9	64.8		34.5		
17	Discrete		921-3 3d-20			2.03	0.76	2.09	0.09	0.02	0.07	2.2	46.1		21.1		
18	Discrete		921-3 3e-25	9.2	Strong	4.29	1.61	3.18	0.14	0.05	0.09	2.8	97.5	116.3	34.7	41.3	113.4
19	Discrete		921-3 3f-30			4.44	1.67	3.03	0.12	0.02	0.10	3.1	100.9		32.3		
20	Discrete		921-3 3g-35			3.20	1.20	2.59	0.13	0.02	0.11	3.4	72.7		21.2		
21	Discrete		921-3 3h-40			8.07	3.03	5.64	0.10	0.02	0.08	2.5	183.4		73.4		
22	Discrete		921-3 3i-45	9.9	Strong	6.45	2.42	4.29	0.09	0.01	0.08	2.5	146.6	165.5	58.6	66.2	163.0
23	Discrete		921-3 3j-50			4.69	1.76	3.28	0.09	0.01	0.08	2.5	106.6		42.6		
24	Discrete		921-3 3k-55			5.57	2.09	4.15	0.09	0.01	0.08	2.5	126.6		50.6		
25	Discrete		922-4 4a-5			7.41	2.78	5.31	0.10	0.02	0.08	2.5	168.4		67.4		
26	Discrete		922-4 4c-15			3.10	1.16	3.32	0.16	0.10	0.06	1.9	70.5		37.6		
27	Discrete		922-4 4e-25	9.3	Strong	4.22	1.58	3.15	0.12	0.04	0.08	2.5	95.9	114.5	38.4	45.8	112.0
28	Discrete		922-4 4g-35			6.23	2.34	4.34	0.07	0.01	0.06	1.9	141.6		75.5		
29	Discrete		922-4 4i-45	10.1	Strong	7.66	2.87	4.84	0.07	0.01	0.06	1.9	174.1	189.9	92.8	101.3	188.0
3a	Composite		428-3	9.3	Strong	3.21	1.20	3.29	0.05	0.01	0.04	1.3	73.0	109.2	58.4	87.4	108.0
8a	Composite		803-5	9.1	Strong	5.39	2.02	4.23	0.11	0.04	0.07	2.2	122.5	157.3	56.0	71.9	155.2
30	Discrete	B Valley	922-5 5a-5			7.66	2.87	4.72	0.12	0.02	0.10	3.1	174.1		55.7		
31	Discrete		922-5 5b-10	9.0	Strong	8.32	3.12	6.16	0.11	0.04	0.07	2.2	189.1	198.9	86.4	90.9	196.8
32	Discrete		922-5 5c-15			4.07	1.53	3.19	0.10	0.05	0.05	1.6	92.5		59.2		
33	Discrete		922-5 5d-20			4.88	1.83	3.3	0.12	0.05	0.07	2.2	110.9		50.7		
34	Discrete		922-5 5e-25	9.4	Strong	3.60	1.35	2.7	0.08	0.02	0.06	1.9	81.8	89.8	43.6	47.9	87.9
35	Discrete		922-5 5f-30			0.79	0.30	1.6	0.09	0.01	0.08	2.5	18.0		7.2		
36	Discrete		922-5 5g-35			1.72	0.65	2.04	0.09	0.01	0.08	2.5	39.1		15.6		
37	Discrete		922-5 5h-40			0.56	0.21	1.24	0.08	0.01	0.07	2.2	12.7		5.8		
38	Discrete		922-5 5i-45			1.26	0.47	2.09	0.09	0.02	0.07	2.2	28.6		13.1		
39	Discrete		922-5 5j-50	9.6	Strong	0.67	0.25	1.17	0.10	0.01	0.09	2.8	15.2	48.0	5.4	17.1	45.2
40	Discrete		922-6 6a-5	9.3	Strong	5.68	2.13	4.76	0.10	0.02	0.08	2.5	129.1	163.8	51.6	65.5	161.3
41	Discrete		922-6 6b-10			4.99	1.87	3.98	0.09	0.01	0.08	2.5	113.4		45.4		
42	Discrete		922-6 6c-15			4.66	1.75	4.18	0.07	0.02	0.05	1.6	105.9		67.8		
43	Discrete		922-6 6d-20	9.2	Strong	2.92	1.10	2.84	0.08	0.04	0.04	1.3	66.4	94.0	53.1	75.2	92.8
44	Discrete		922-6 6e-25			3.62	1.36	3.17	0.07	0.04	0.03	0.9	82.3		87.8		
45	Discrete		922-6 6f-30			1.67	0.63	2.44	0.07	0.02	0.05	1.6	38.0		24.3		
46	Discrete		922-6 6g-35	9.8	Strong	1.71	0.64	2.15	0.06	0.01	0.05	1.6	38.9	79.8	24.9	51.0	78.2
47	Discrete		922-6 6h-40			1.36	0.51	1.97	0.07	0.01	0.06	1.9	30.9		16.5		
48	Discrete		922-6 6i-45			1.50	0.56	1.89	0.10	0.01	0.09	2.8	34.1		12.1		
49	Discrete		922-6 6j-50	9.8	Strong	0.89	0.33	1.35	0.08	0.01	0.07	2.2	20.2	61.5	9.2	28.1	59.3
50	Discrete		922-6 6k-55			1.41	0.53	2.21	0.04	0.01	0.03	0.9	32.0		34.2		
51	Discrete		923-6 6l-60			1.24	0.47	1.87	0.14	0.01	0.13	4.1	28.2		6.9		
52	Discrete		923-6 6m-65			0.89	0.33	1.71	0.09	0.01	0.08	2.5	20.2		8.1		
1b	Discrete		1029-1 1A-5			5.10	1.91	115.9	0.09	0.02	0.07	2.2	115.9		53.0		
2b	Discrete		1029-1 1B-8'	9.1	Strong	4.39	1.65	99.8	0.14	0.02	0.12	3.8	99.8	111.0	26.6	29.6	107.2
3b	Discrete		1103-1 1A 5'	9.1	Strong	5.19	1.95	118.0	0.14	0.05	0.09	2.8	118.0	93.2	41.9	33.1	90.4
4b	Discrete		1103-1 1B 9'			4.58	1.72	104.1	0.13	0.05	0.08	2.5	104.1		41.6		
5b	Discrete		1103-2 1A 5'	9.1	Strong	5.16	1.94	117.3	0.15	0.06	0.09	2.8	117.3	135.7	41.7	48.3	132.9
6b	Discrete		1103-2 1B 10'			3.73	1.40	84.8	0.14	0.06	0.08	2.5	84.8		33.9		
7b	Discrete		1103-2 1C 13'	8.8	Strong	3.95	1.48	89.8	0.11	0.04	0.07	2.2	89.8	110.4	41.0	50.4	108.2

Table 4b. Tailings Acid Base Accounting Analytical Results Summary

Sample Number	Sample Type	Area	Sample ID	Paste pH	Fizz Rating	CO2	C	Ca	S Total	S as SO4	S as Sulphide	MPA	Carb NP	Mod ABA NP	Carb NPR	Mod ABA NPR	NNP
Units				pH Units	4 Class Ordinal	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	kg CaCO3 /tonne	kg CaCO3 /tonne	kg CaCO3 /tonne	MPA /Carb NP	MPA /Mod ABA NP	MPA /Mod ABA NP
53	Discrete	Old Pond	923-7 7a-5			3.35	1.26	3.71	0.03	0.01	0.02	0.6	76.1		121.8		
54	Discrete		923-7 7b-10	9.7	Strong	6.93	2.60	6.02	0.10	0.02	0.08	2.5	157.5	231.5	63.0	92.6	229.0
55	Discrete		923-7 7c-15			2.63	0.99	5.22	0.14	0.02	0.12	3.8	59.8		15.9		
56	Discrete		923-7 7d-20	9.5	Moderate	1.60	0.60	3.29	0.08	0.03	0.05	1.6	36.4	74.3	23.3	47.5	72.7
57	Discrete		923-7 7e-25			3.08	1.16	4.42	0.09	0.02	0.07	2.2	70.0		32.0		
58	Discrete		923-7 7f-30	9.7	Strong	6.49	2.44	5.59	0.14	0.05	0.09	2.8	147.5	210.2	52.4	74.7	207.4
59	Discrete		923-7 7g-35			4.14	1.55	3.6	0.10	0.02	0.08	2.5	94.1		37.6		
60	Discrete		923-7 7h-40			5.10	1.91	3.66	0.09	0.01	0.08	2.5	115.9		46.4		
61	Discrete		923-7 7i-45	9.9	Strong	4.80	1.80	3.56	0.09	0.01	0.08	2.5	109.1	135.3	43.6	54.1	132.8
62	Discrete		923-7 7j-50			8.51	3.19	5.48	0.30	0.03	0.27	8.4	193.4		22.9		
63	Discrete		923-8 8a-5			5.43	2.04	3.46	0.05	0.01	0.04	1.3	123.4		98.7		
64	Discrete		923-8 8b-10	9.5	Strong	4.51	1.69	3.67	0.07	0.04	0.03	0.9	102.5	127.5	109.3	136.0	126.6
65	Discrete		923-8 8c-15			2.73	1.02	2.57	0.07	0.05	0.02	0.6	62.0		99.3		
66	Discrete		923-8 8d-20	8.9	Strong	3.62	1.36	5.68	0.20	0.17	0.03	0.9	82.3	109.4	87.8	116.7	108.4
67	Discrete		923-8 8e-25			5.02	1.88	4.85	0.15	0.04	0.11	3.4	114.1		33.2		
68	Discrete		923-8 8f-30	9.8	Strong	2.68	1.01	2.67	0.11	0.01	0.10	3.1	60.9	106.8	19.5	34.2	103.6
69	Discrete		923-8 8g-35			3.81	1.43	3.45	0.08	0.01	0.07	2.2	86.6		39.6		
70	Discrete		923-9 9a-5	9.2	Strong	1.56	0.59	2.29	0.14	0.10	0.04	1.3	35.5	84.5	28.4	67.6	83.3
71	Discrete		923-9 9b-10			3.89	1.46	4.63	0.20	0.09	0.11	3.4	88.4		25.7		
72	Discrete		923-9 9c-15			2.18	0.82	2.82	0.14	0.03	0.11	3.4	49.5		14.4		
73	Discrete		924-10 10a-5	9.3	Strong	2.20	0.83	2.83	0.09	0.07	0.02	0.6	50.0	95.0	80.0	152.0	94.4
74	Discrete		924-10 1b-10			0.61	0.23	0.979	0.12	0.06	0.06	1.9	13.9		7.4		
75	Discrete		924-11 11a-5			1.70	0.64	2.17	0.06	0.01	0.05	1.6	38.6		24.7		
76	Discrete		924-11 11b-10	9.5	Strong	5.13	1.93	7.95	0.05	0.02	0.03	0.9	116.6	147.6	124.4	157.5	146.7
77	Discrete		924-12 12a-5			1.64	0.62	2.02	0.05	0.01	0.04	1.3	37.3		29.8		
78	Discrete		924-12 12b-10	9.7	Strong	1.20	0.45	1.76	0.03	0.01	0.02	0.6	27.3	55.6	43.6	89.0	55.0
79	Discrete		924-12 12c-15			3.62	1.36	7.04	0.06	0.04	0.02	0.6	82.3		131.6		
80	Discrete		924-13 13a-5			1.42	0.53	2.2	0.05	0.01	0.04	1.3	32.3		25.8		
81	Discrete		924-13 13b-10	9.5	Strong	0.77	0.29	1.65	0.09	0.01	0.08	2.5	17.5	61.0	7.0	24.4	58.5
82	Discrete		924-13 13c-15			1.95	0.73	4.84	0.07	0.02	0.05	1.6	44.3		28.4		
83	Discrete		924-13 13d-20	9.1	Strong	2.04	0.77	4.03	0.10	0.01	0.09	2.8	46.4	81.3	16.5	28.9	78.4
84	Discrete		924-13 13e-25			1.38	0.52	4.3	0.10	0.03	0.07	2.2	31.4		14.3		
85	Discrete		924-14 14a-5	9.4	Strong	1.28	0.48	1.82	0.08	0.04	0.04	1.3	29.1	71.0	23.3	56.8	69.8
86	Discrete		924-14 14b-10	9.8	Strong	2.27	0.85	3.02	0.05	0.02	0.03	0.9	51.6	87.8	55.0	93.6	86.8
87	Discrete		924-14 14c-15			2.27	0.85	4.3	0.17	0.06	0.11	3.4	51.6		15.0		
1op	Composite		310-4	9.1	Strong	5.39	2.02	3.39	0.13	0.02	0.11	3.4	122.5	150.9	35.6	43.9	147.4
2op	Composite		427-10	9.3	Strong	4.03	1.51	2.96	0.08	0.03	0.05	1.6	91.6	136.7	58.6	87.5	135.1
4op	Composite		803-1	9.4	Strong	3.28	1.23	2.59	0.05	0.01	0.04	1.3	74.5	107.5	59.6	86.0	106.2
5op	Composite		803-2	9.3	Strong	10.01	3.76	7.34	0.10	0.04	0.06	1.9	227.5	249.8	121.3	133.2	248.0
6op	Composite		803-3	9.6	Strong	6.31	2.37	4.87	0.08	0.01	0.07	2.2	143.4	175.2	65.6	80.1	173.1
7op	Composite		803-4	9.1	Strong	4.14	1.55	3.7	0.09	0.02	0.07	2.2	94.1	117.7	43.0	53.8	115.5

Table 5. Tailings Acid Base Accounting Summary Statistics

A Valley	Paste pH	CO2	C	S Total	S as SO4	S as Sulphide	MPA	Carb NP	Mod ABA NP	Carb NPR	Mod ABA NPR	NNP
Count	10	31	31	31	31	31	31	31	10	31	10	10
Max	10.1	9.20	3.45	0.16	0.10	0.12	3.8	209.1	265.9	104.0	101.3	263.0
Min	9.1	1.22	0.46	0.05	0.01	0.04	1.3	27.7	51.3	8.1	14.9	47.8
Mean	9.6	4.93	1.85	0.10	0.02	0.08	2.5	112.1	131.8	47.6	61.8	129.6
Standard Deviation	0.34	2.41	0.91	0.03	0.02	0.02	0.7	54.9	64.9	24.3	27.8	64.8
10th Percentile	9.19	2.03	0.76	0.07	0.01	0.05	1.6	46.1	56.2	21.1	34.2	54.5
Median	9.48	4.69	1.76	0.10	0.02	0.08	2.5	106.6	115.4	44.6	62.4	112.7
90th Percentile	10.03	8.07	3.03	0.14	0.04	0.11	3.4	183.4	197.5	75.5	95.2	195.5

B Valley	Paste pH	CO2	C	S Total	S as SO4	S as Sulphide	MPA	Carb NP	Mod ABA NP	Carb NPR	Mod ABA NPR	NNP
Count	11	30	30	30	30	30	30	30	11	30	11	11
Max	9.8	8.32	3.12	0.15	0.06	0.13	4.1	189.1	198.9	87.8	90.9	196.8
Min	8.8	0.56	0.21	0.04	0.01	0.03	0.9	12.7	48.0	5.4	17.1	45.2
Mean	9.3	3.27	1.23	0.10	0.03	0.07	2.3	74.4	107.8	35.5	48.8	105.5
Standard Deviation	0.3	2.12	0.80	0.03	0.02	0.02	0.7	48.2	44.1	23.3	21.9	44.1
10th Percentile	9.0	0.88	0.33	0.07	0.01	0.05	1.5	20.0	61.5	7.2	28.1	59.3
Median	9.2	3.61	1.35	0.09	0.02	0.07	2.2	82.0	94.0	37.6	48.3	92.8
90th Percentile	9.8	5.24	1.97	0.14	0.05	0.09	2.8	119.1	163.8	60.1	75.2	161.3

Old Pond	Paste pH	CO2	C	S Total	S as SO4	S as Sulphide	MPA	Carb NP	Mod ABA NP	Carb NPR	Mod ABA NPR	NNP
Count	21	41	41	41	41	41	41	41	21	41	21	21
Max	9.9	10.01	3.76	0.30	0.17	0.27	8.4	227.5	249.8	131.6	157.5	248.0
Min	8.9	0.61	0.23	0.03	0.01	0.02	0.6	13.9	55.6	7.0	24.4	55.0
Mean	9.4	3.53	1.32	0.10	0.03	0.07	2.1	80.2	124.6	49.4	81.4	122.8
Standard Deviation	0.3	2.10	0.79	0.05	0.03	0.04	1.4	47.8	54.5	35.7	39.5	54.2
10th Percentile	9.1	1.38	0.52	0.05	0.01	0.02	0.6	31.4	71.0	15.0	34.2	69.8
Median	9.5	3.28	1.23	0.09	0.02	0.06	1.9	74.5	109.4	37.6	80.1	108.4
90th Percentile	9.8	6.31	2.37	0.15	0.06	0.11	3.4	143.4	210.2	109.3	136.0	207.4

Table 6. Waste Rock Acid Base Accounting Data Summary and Statistics

Sample	Sample ID	Paste pH	CO2	C Total	S Total	S as SO4	S as Sulphide	MPA	Carb NP	Mod ABA NP	Carb NPR	Mod ABA NPR	NNP
Units		pH Units	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	kg CaCO3 /tonne	kg CaCO3 /tonne	kg CaCO3 /tonne	MPA /Carb NP	MPA /Mod ABA NP	MPA /Mod ABA NP
1	928-WR1	9.1	5.10	1.91	0.16	0.01	0.15	4.7	115.9	116.3	24.7	24.8	111.6
2	928-WR2	9.4	4.55	1.71	0.23	0.01	0.22	6.9	103.4	114.4	15.0	16.6	107.5
3	928-WR3	9.2	7.08	2.66	0.11	0.01	0.10	3.1	160.9	158.8	51.5	50.8	155.6
4	928-WR4	9.3	16.32	6.13	0.18	0.01	0.17	5.3	370.9	363.3	69.8	68.4	358.0
5	928-WR5	9.3	1.63	0.61	0.16	0.01	0.15	4.7	37.0	73.5	7.9	15.7	68.8
6	928-WR6	9.5	3.52	1.32	0.34	0.01	0.33	10.3	80.0	92.0	7.8	8.9	81.7
Waste Rock Statistical Summary													
Count		6	6	6	6	6	6	6	6	6	6	6	6
Max		9.5	16.32	6.13	0.34	0.01	0.33	10.3	370.9	363.3	69.8	68.4	358.0
Min		9.1	1.63	0.61	0.11	0.01	0.10	3.1	37.0	73.5	7.8	8.9	68.8
Mean		9.3	6.37	2.39	0.20	0.01	0.19	5.8	144.7	153.0	29.5	30.9	147.2
Standard Deviation		0.1	5.20	1.95	0.08	0.00	0.08	2.5	118.1	106.9	25.6	23.5	107.5
10th Percentile		9.1	2.58	0.97	0.14	0.01	0.13	3.9	58.5	82.8	7.8	12.3	75.3
Median		9.3	4.83	1.81	0.17	0.01	0.16	5.0	109.7	115.3	19.9	20.7	109.5
90th Percentile		9.5	11.70	4.39	0.29	0.01	0.28	8.6	265.9	261.0	60.7	59.6	256.8

Paste pH values are all alkaline (>pH 8.5) and show no discernable relationship with sulphide sulphur (Figure 8). Paste pH values are similarly high for all Carbonate NP values (Figure 9).

II. Neutralization Potential

The neutralization potential for the tailings was calculated by two methods. Samples submitted for full ABA had the modified-NP determined in the lab. The second method for estimating the NP was to calculate the carbonate NP based on the available lab data. It can be seen from the summary statistics in Table 5 that all three tailings facilities have available neutralization potential in excess of the acid potential.

Figure 10 compares Carbonate NP with Modified ABA NP. The linear relationship and slightly lower Carbonate NP values indicates that while most of the NP was from carbonate minerals, a fraction of the indicated NP resulted from other sources, most likely Fe and Al hydroxides contained within silicate minerals (e.g. biotite). The carbonate neutralization potential ratio (NPR) for the three facilities (Figure 11, Figure 12, Figure 14) ranged from 5.4 to 131.6 which indicates that there is no potential concerns associated with acidic drainage occurring.

The presence of iron and manganese carbonates (e.g. ankerite, siderite) may result in an over estimation of available NP. However, no measurable iron and manganese carbonates were indicated by Reitveld XRD tailings (see Section 4.5), indicating that the Carbonate NP values are accurate.

Figure 15 compares the Calcium content with total Carbon. If all the calcium (carbon was assumed to be contained exclusively in carbonate minerals at the site) in the sample was contained within the primary NP mineral Calcite ($CaCO_3$), the ratio between Calcium to Carbon would be 1:1. The majority of the samples fall near or slightly above the 2:1 line, indicating that significant amounts of calcium are contained within other mineral constituents, i.e. calc-silicate minerals such as clinozoisite, actinolite, and augite. Old Pond tailings samples show the highest Ca:C ratios with many exceeding 3:1. This is corroborated by the observation of many greenish tailings (calc-silicates) probably indicating subtle differences in mineralogy of the open pit deposit (Old Pond) compared with the underground mine (A and B Valley tailings). Although non carbonate minerals can contribute a significant and available source of NP, the conservative use of the carbonate NP assumes that neutralization is only provided by fast reacting carbonate mineralization within the tailings.

III. Acid Potential

The highest observed Maximum Potential Acidity (MPA) value for all tailings samples was less than 8.44 kg/tonne CaCO3 equivalent while the waste rock sample with the highest MPA was 10.3 kg/tonne CaCO3. The highest median MPA values were observed in A Valley (2.50) while the lowest were observed in Old Pond (1.88). The low MPA values support the assertion that acidic drainage is not a concern for this project.

4.2 Results of Shake Flask Tests for Metal Leaching Potential

Shake flask testing is a method of determining whether there are metal leaching concerns associated with a project. The shake flask testing conducted in support of the Project involved the use of de-ionized water in addition to testing conducted using water from the Little Chief Pit. The use of de-ionized water (MEND method) provides information on the influence of water draining through the tailings and waste rock while the use of the open pit water is considered to be representative of the process water that will be generated as a result of the tailings re-processing. The results of the shake flask testing on the tailings showed that there were frequent exceedences of the CCME-FAL for a number of parameters including: cadmium, copper, molybdenum and selenium. The exceedences were for samples leached using both de-ionized water and pit lake water as the extractive fluid. There were also five tailings samples that had an exceedence for chromium and a singular exceedence for arsenic from the Old Pond.

Table 8 and Table 9 contain a summary of the results of the shake flask extraction testing conducted on samples for the tailings and waste rock samples. Analytical certificates from the shake flask testing are contained in Appendix C. These tables also show the magnitude of any exceedence of the Canadian Council of Ministers of the Environment guidelines for the protection of Freshwater Aquatic Life (CCME 2006, hereafter referred to as CCME-FAL) that were identified based on the testing.

It is important to note that in most mining projects, CCME-FAL are the standard criteria to which proposed mining effluent are compared, because mining projects typically discharge to freshwater aquatic environments. In the case of the Whitehorse Copper Project, the area does not discharge directly to any fish bearing aquatic environment but instead reports to groundwater. The nearest potential receiving environment receptors are domestic groundwater wells downgradient of the site. Thus, more appropriate guidelines for the site might be CCREM or Health Canada Drinking Water Guidelines. It is important to note that the standards for drinking water guidelines (CCREM or Health Canada) are, for most parameters, orders of magnitude higher than CCME-FAL guidelines (see Table 7) especially for potential parameters of concern at the Whitehorse Copper site (Cu, Cd, Se). However, for consistency with conventional mining applications and as a conservative precaution, the results of all shake flask testing were compared with CCME-FAL.

Table 7 A Comparison of Some Canadian Water Quality Criteria for Selected Metals

Parameter	Units	CCREM Drinking Water (1987)	Health Canada Drinking Water Guidelines	CCREM Aquatic Freshwater Guidelines (1987)	CCME-FAL Guidelines (2006)
Arsenic (As)	µg/L	50	10	50	5
Cadmium (Cd)	µg/L	5	5	0.0018	0.017*
Chromium (Cr)	µg/L	50	50	20	8.9
Copper (Cu)	µg/L	1000	1000	4	2 - 4*
Lead (Pb)	µg/L	50	10	7	1 - 7*
Molybdenum (Mo)	µg/L	--	--	--	73
Nickel (Ni)	µg/L	--	--	110	25 - 150*
Selenium (Se)	µg/L	10	10	1	1
Silver (Ag)	µg/L	50	--	0.1	0.1
Zinc (Zn)	µg/L	5000	5000	30	30

*Hardness dependant

The results of the shake flask testing on the tailings showed that there were frequent exceedences of the CCME-FAL for a number of parameters including: cadmium, copper, molybdenum and selenium. The exceedences were for samples leached using both de-ionized water and pit lake water as the extractive fluid. There were also five tailings

Table 8. Analytical Results from Shake Flask Testing on Tailings Samples from Whitehorse Copper

		Parameter	Wt. of sample used	Volume of water used[1]	pH (24h)	Electric Conductivity (24h)	Dissolved Sulphate	Total Alkalinity CaCO3 (to pH 4.5)	Dissolved Hardness (CaCO3)	Dissolved Aluminum	Dissolved Arsenic	Dissolved Cadmium	CCME-FAL (calculated)	Magnitude of CCME-FAL exceedance	Dissolved Chromium	Magnitude of CCME-FAL exceedance	Dissolved Copper	CCME-FAL (calculated)	Magnitude of CCME-FAL exceedance	Dissolved Iron	Dissolved Lead	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenum	Magnitude of CCME-FAL exceedance	Dissolved Nickel	Dissolved Selenium	Magnitude of CCME-FAL exceedance	Dissolved Uranium	Dissolved Zinc	Dissolved Calcium	Dissolved Magnesium	Dissolved Potassium	Dissolved Sodium
		Units	g	ml	pH Units	µS/cm	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L		mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		Method	Weighing Scale	Graduated Cylinder	pH Meter	Conductivity Meter	Auto Turbidity	Titration/ Calculation	Calculation from Mg & Ca	ICP-MS	ICP-MS	ICP-MS			ICP-MS		ICP-MS			ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS		ICP-MS	ICP-MS		ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S. No:		Reportable Detection Limit	0.01	5	0.01	1	1	1	0.5	0.001	0.0001	0.00003			0.0005		0.0003			0.005	0.00003	0.0003	0.00002	0.0003		0.0001	0.0002		0.00001	0.0005	0.3	0.3	0.3	0.3
		Method Blank		750	5.9	1.8																												
1		921-1 1d-20	250	750 PL	8.2	1476	718	117	801	0.005	0.0012	0.00015	0.000198		0.0008		0.107	0.004	26.8	<0.005	0.00004	0.0341		0.543	7.4	0.0006	0.0117	11.7	0.0078	0.0019	111	127	16.5	18.7
2		921-1 1j-50	250	750 PL	8.7	1457	663	100	611	0.003	0.0021	0.00035	0.000157	2.2	0.002	2	0.0082	0.004	2.1	<0.005	<0.00003	0.0019		1.22	16.7	0.0001	0.012	12	0.00247	0.0008	47.2	120	24.4	60.2
3		921-3 3b-10	250	750 PL	8.2	1352	684	112	671	0.004	0.0022	0.00018	0.000170	1.1	0.001		0.0302	0.004	7.6	<0.005	<0.00003	0.0112		0.591	8.1	0.0004	0.0106	10.6	0.00197	0.0023	86.5	111	13.1	18.5
4	A Valley	921-3 3i-45	250	750 PL	8.5	1331	623	107	629	0.003	0.0017	0.00027	0.000161	1.7	0.0022	2.2	0.0094	0.004	2.4	<0.005	<0.00003	0.0039		0.935	12.8	0.0003	0.01	10	0.00867	0.0013	69.7	111	15.3	28.6
5		922-4 4e-25	250	750 PL	8.2	1551	799	108	787	0.007	0.0017	0.00021	0.000195	1.1	0.0005		0.0189	0.004	4.7	<0.005	<0.00003	0.0212		0.647	8.9	0.0006	0.009	9	0.0111	0.0022	115	121	19.1	27.1
6		922-4 4i-45	250	750 PL	8.5	1325	615	101	653	0.002	0.0019	0.00025	0.000166	1.5	0.0007		0.0082	0.004	2.1	<0.005	<0.00003	0.0033		0.919	12.6	0.0004	0.0097	9.7	0.0151	0.0009	75.3	113	13.2	26.7
		428-3	175	525 DI	8.9	165	30	41	59	0.004	0.0013	0.00004	0.000021	1.9	<0.001		0.0044	0.002	2.2	<0.005	<0.0002	0.001	<0.00002	0.059		<0.001	0.0081	8.1	<0.0001	<0.005	6.6	10.4	8.07	1.65
		803-5	250	750 DI	9.0	617	299	36	310	<0.003	0.0014	0.00007	0.000088		<0.001		0.0037	0.004		<0.005	<0.0002	<0.001	<0.00002	0.116	1.6	<0.001	0.0017	1.7	<0.0001	<0.005	11.9	68	13.4	13.1
		A Valley Max			9.0	1551	799	117	801	0.007	0.00220	0.00035			0.0022		0.1070			BDL	0.00004	0.0341	BDL	1.220		0.0006	0.0120		0.0151	0.0023	115.0	127	24.4	60.2
		A Valley Avg.			8.2	1031	554	90	565	0.004	0.00169	0.00019	0.000147	1.3	0.0012	1.2	0.0238	0.0040	5.9	BDL	BDL	0.0109	BDL	0.629	8.6	0.0004	0.0091	9.1	0.00785	0.00157	65.4	98	15.4	24.3
7		922-5 5e-25	250	750 PL	8.1	1390	642	135	701	0.009	0.0037	0.00025	0.000177	1.4	0.0009		0.0188	0.004	4.7	0.006	0.00003	0.0238		0.756	10.4	0.0009	0.0094	9.4	0.0312	0.0046	99.2	110	17.4	24.6
8		922-5 5j-50	250	750 PL	8.2	1342	630	121	665	0.01	0.002	0.00022	0.000169	1.3	<0.0005		0.0226	0.004	5.7	<0.005	0.00004	0.0344		0.854	11.7	0.0011	0.0094	9.4	0.0282	0.0041	92.6	105	15.4	27.5
9		922-6 6d-20	250	750 PL	8.2	1715	901	122	900	0.006	0.002	0.00022	0.000219	1.0	0.0006		0.0529	0.004	13.2	<0.005	0.00004	0.0516		0.702	9.6	0.0005	0.0115	11.5	0.0153	0.0016	107	153	19	28.7
		922-6 6j-50	250	750 PL	8.2	1385	617	125	666	0.004	0.002	0.00019	0.000169	1.1	0.0013	1.3	0.0166	0.004	4.2	0.007	<0.00003	0.0254		0.74	10.1	0.0006	0.0093	9.3	0.0357	0.0018	98.7	102	13.1	25.2
10	B Valley	922-6 6j-50 Duplicate	250	750 PL	8.3	1350	633	114																										
2		1029-1 1B 8'	250	750 DI	8.8	230	79	22	90	0.004	0.0002	0.00028	0.000030	9.2	<0.001		0.0086	0.004	2.2	<0.005	<0.0002	0.003	<0.02	0.101	1.4	<0.001	0.0026	2.6	<0.0001	0.006	14.2	13.3	7.95	1.54
3		1103-1 1A 5'	250	750 DI	8.7	650	293	22	310	0.004	0.0002	0.00008	0.000088		<0.001		0.0157	0.004	3.9	0.006	<0.0002	0.003	<0.02	0.097	1.3	<0.001	0.0019	1.9	<0.0001	<0.005	21.3	62.5	11.4	10.6
		1103-2 1A 5'	250	750 DI	8.8	851	468	28	476	<0.003	0.0002	0.0001	0.000127		<0.001		0.0082	0.004	2.1	<0.005	<0.0002	0.003	<0.02	0.15	2.1	<0.001	0.0252	25.2	<0.0001	<0.005	21.8	102	12	3.83
5		1103-2 1A 5' Duplicate								<0.003	0.0002	0.0001			<0.001		0.0084	0.004	2.1	<0.005	<0.0002	0.003	<0.02	0.152	2.1	<0.001	0.0252	25.2	<0.0001	<0.005				
		B Valley Max			8.3	1715	901	135	900	0.010	0.00370	0.00025			0.0013		0.0529			0.007	0.00004	0.0516	BDL	0.854		0.0011	0.0115		0.0357	0.0046	107.0	153	19.0	28.7
		B Valley Avg.			8.2	1436	685	123	733	0.007	0.00243	0.00022	0.000184	1.2	0.0009		0.0277	0.0040	6.9	0.0065	BDL	0.0338	BDL	0.763	10.5	0.0008	0.0099	9.9	0.02760	0.00303	99.4	118	16.2	26.5
11		923-7 7d-20	250	750 PL	8.1	1473	704	124	772	0.007	0.0039	0.00021	0.000192	1.1	<0.0005		0.0462	0.004	11.6	0.008	0.00025	0.0616		0.72	9.9	0.0023	0.0107	10.7	0.0901	0.0024	146	98.8	11.3	17.6
12		923-7 7f-30	250	750 PL	8.5	1489	761	120	775	0.002	0.0032	0.00028	0.000193	1.5	0.0012	1.2	0.0071	0.004	1.8	<0.005	0.00005	0.0068		0.959	13.1	0.0003	0.0108	10.8	0.00397	0.0013	63.7	150	11.8	21.9
13		923-7 7i-45	250	750 PL	8.2	1339	608	116	646	0.003	0.0032	0.00028	0.000165	1.7	0.0016	1.6	0.0099	0.004	2.5	<0.005	<0.00003	0.0119		0.882	12.1	0.0005	0.0098	9.8	0.018	0.0016	84.4	106	9.9	27.1
14		923-8 8b-10	250	750 PL	8.1	1470	695	114	757	0.002	0.0011	0.0002	0.000189	1.1	0.0006		0.0788	0.004	19.7	<0.005	0.00003	0.0259		0.605	8.3	0.0003	0.0248	24.8	0.00271	0.0016	104	121	19.5	19
15		923-8 8f-30	250	750 PL	8.4	1354	611	125	658	0.002	0.003	0.0004	0.000167	2.4	0.0005		0.015	0.004	3.8	<0.005	<0.00003	0.0076		1.5	20.5	0.0005	0.0103	10.3	0.0235	0.0024	79	112	8.3	30.3
16		923-9 9a-5	250	750 PL	8.2	1968	1081	160	1080	0.002	0.0014	0.00022	0.000256		0.0005		0.0616	0.004	15.4	<0.005	<0.00003	0.0297		0.653	8.9	0.0004	0.0227	22.7	0.00215	0.0013	117	192	28.5	27
17		924-12 12b-10	250	750 PL	8.2	1337	604	122	669	0.004	0.0025	0.00019	0.000170	1.1	0.0005		0.0508	0.004	12.7	<0.005	0.00009	0.0098		0.636	8.7	0.0004	0.0149	14.9	0.028	0.0014	90.2	108	13.6	17
18		924-13 13b-10	250	750 PL	8.1	1334	603	123	679	0.002	0.0013	0.00019	0.000172	1.1	0.0005		0.0697	0.004	17.4	<0.005	<0.00003	0.0161		0.617	8.5	0.0003	0.0167	16.7	0.00253	0.0012	96.7	106	10.7	17.5
19		924-13 13d-20	250	750 PL	8.1	1347	613	132	690	0.003	0.0076	0.00019	0.000174	1.1	0.0005		0.0342	0.004	8.6	<0.005	0.00129	0.0252		0.747	10.2	0.0021	0.0131	13.1	0.0951	0.0026	110	101	10.4	17.2
	Old Pond	310-4	175	525 DI	8.6	304	113	21	131	0.003	0.0006	0.00006	0.000042	1.4	0.001		0.0128	0.004	3.2	0.005	0.0002	0.001	0.00002	0.001		0.001	0.0001		<0.0001	<0.005	20.6	19.2	8.04	2.34
		427-10	175	525 DI	8.8	532	238	25	253	<0.003	0.0006	0.00007	0.000074		0.001		0.0076	0.004	1.9	<0.005	<0.0002	0.004	<0.00002	0.086	1.2	<0.001	0.0042	4.2	<0.0001	<0.005	15	52.4	13.3	6.51
		803-1	175	525 DI	9.5	295	86	50	133	<0.003	0.0005	0.00003	0.000042		0.001		0.0077	0.003	2.6	<0.005	<0.0002	<0.001	<0.00002	0.047		<0.001	0.0095	9.5	<0.0001	<0.005	2.06	31	6.33	0.92
		803-2	175	525 DI	8.6	441	184	25	206	<0.003	0.001	0.00006	0.000062		0.001		0.0061	0.004	1.5	<0.005	<0.0002	0.001	<0.00002	0.102	1.4	<0.001	0.0158	15.8	<0.0001	<0.005	25.4	34.6	10.8	2.19
		803-3	175	525 DI	9.2	173	38	38	68	<0.003	0.0006	0.00006	0.000024	2.5	0.001		0.0032	0.002	1.6	<0.005	<0.0002	<0.001	<0.00002	0.094	1.3	<0.001	0.0076	7.6	<0.0001	<0.005	4.12	14	5.33	1.92
		803-4	250	750 DI	8.4	331	116	25	136	0.007	0.0009	0.00012	0.000043	2.8	0.001		0.006	0.003	2.0	<0.005	<0.0002	0.002	<0.00002	0.198	2.7	<0.001	0.0018	1.8	<0.0001	<0.005	21.1	20.1	9.17	2.55
		924-14 14b-10	250	750 PL	8.6	1492	689	122	743	0.002	0.002	0.0002	0.000186	1.1	0.0005		0.0182	0.004	4.6	<0.005	<0.00003	0.0029		0.623	8.5	0.0004	0.0211	21.1	0.00326	0.0016	80.3	132	12.3	18.5
20		924-14 14b-10 Duplicate	250	750 PL	8.5	1490	742	119																										
		Old Pond Max			9.5	1968	1081	160	1080	0.007	0.00760	0.00040	0.000256		0.0016		0.0788			0.008	0.00129	0.0616	0.00002	1.500		0.0023	0.0248		0.0951	0.0026	146.0	192	28.5	30.3
		Old Pond Max			8.5	1042	484	90	525	0.003	0.00209	0.00017	0.000138	1.3	0.0008	1.1000	0.0272	0.0040	6.8	BDL	0.00032	0.0147	BDL	0.529	7.3	BDL	0.0121	12.1	0.02693	0.00174	66.2	87	11.8	14.3
Pit Lake Water		Summer		750	8.2	1321			509	>0.003	0.0037	0.00025	0.000134	1.9	>0.001		0.0084	0.004	2.1	>0.005	>0.0002	0.002	>0.00002	0.508	7.0	>0.001	0.0073	7.3	0.0877	>0.005	0.0802	0.0749	0.00293	0.0129
		Fall							636	0.003	0.0049	0.00032	0.000163	2.0	>0.001		0.0129	0.004	3.2	>0.005	>0.0002	0.004	>0.00002	0.688	9.4	>0.001	0.0091	9.1	0.112	>0.005	0.0952	0.0967	0.0039	0.0176
CCME Guidelines for the Protection of Freshwater Aquatic Life											0.005		see above		0.001		0.003			0.3	0.004			0.073			0.001			0.03				

[1]September samples run using Pit Lake water (PL), all other samples were run with conventional method using deionized water (DI).

Table 9. Shake Flask Analyitical Results Whitehorse Copper Waste Rock Samples

S. No:		Parameter	Wt. of sample used	Vol. of DI water used	pH (24h)	Electric Conductivity (24h)	Dissolved Sulphate	Total Alkalinity CaCO3 (to pH 4.5)	Dissolved Hardness (CaCO3)	Dissolved Aluminum (Al)	Dissolved Antimony (Sb)	Dissolved Arsenic (As)	Magnitude of Exceedance	Dissolved Barium (Ba)	Dissolved Cadmium (Cd)	Dissolved Cesium (Cs)	Dissolved Chromium (Cr)	Dissolved Cobalt (Co)
		Units	g	ml	pH Units	µS/cm	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L
		Method	Weighing Scale	Graduated Cylinder	pH Meter	Conductivity Meter	Auto Turbidity	Titration/ Calculation	Calculation from Mg & Ca	ICP-MS	ICP-MS	ICP-MS		ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S. No:		**Detection Limit**	0.01	5	0.01	1	1	1	0.5	0.001	0.0001	0.0001		0.0001	0.00003	0.0003	0.0005	0.00003
1	**Sample ID**	**928-WR2**	250	750	9.1	82	9	25	34	0.0293	0.163	0.0116	2.32	0.102	0.000014	0.00012	<0.0001	0.000013
2	**Sample ID**	**928-WR4**	250	750	8.9	71	7	25	29	0.0163	0.00518	0.00155		0.0683	0.000008	0.00018	<0.0001	0.000007
3	**Sample ID**	**928-WR6**	250	750	9.2	67	4	25	30	0.108	0.00266	0.024	4.8	0.0399	<0.000005	0.00021	0.0006	0.000009
		Waste Rock Max			9.2	82	9	25	34	0.108	0.16300	0.02400		0.1020	BDL	0.0002	0.0006	0.00001
		Waste Rock Avg.			9.1	73	7	25	31	0.051	0.05695	0.01238		0.0701	BDL	0.0002	0.0006	0.00001
CCME Guidelines for the Protection of Freshwater Aquatic Life												0.005		0.000017		0.001		

S. No:		Parameter	Dissolved Copper (Cu)	Magnitude of Exceedance	Dissolved Iron (Fe)	Dissolved Lead (Pb)	Dissolved Lithium (Li)	Dissolved Manganese (Mn)	Dissolved Molybdenum (Mo)	Dissolved Nickel (Ni)	Dissolved Phosphorus (P)	Dissolved Rubidium (Rb)	Dissolved Selenium (Se)	Magnitude of Exceedance	Dissolved Silicon (Si)	Dissolved Silver (Ag)	Dissolved Strontium (Sr)	Dissolved Tin (Sn)
		Units	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L	mg/L
		Method	ICP-MS		ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS		ICP-MS	ICP-MS	ICP-MS	ICP-MS
S. No:		**Detection Limit**	0.0003		0.005	0.00003	0.003	0.0003	0.0003	0.0001	0.01	0.0003	0.0002		0.5	0.00003	0.0003	0.00005
1	**Sample ID**	**928-WR2**	0.0109	3.633333333	0.007	0.000056	0.0008	0.00082	0.0434	0.00007	0.006	0.00456	0.00363	3.63	1.7	0.000006	0.0996	<0.00001
2	**Sample ID**	**928-WR4**	0.00933	3.11	0.004	0.000185	<0.0005	0.00058	0.0125	0.00003	0.004	0.0044	0.00597	5.97	1.8	<0.000005	0.0459	<0.00001
3	**Sample ID**	**928-WR6**	0.0105	3.5	0.011	0.00005	<0.0005	0.00061	0.00738	0.00041	0.008	0.0052	0.00277	2.77	2	<0.000005	0.0364	<0.00001
		Waste Rock Max	0.0109		0.011	0.00019	0.001	0.0008	0.0434	0.0004	0.01	0.0052	0.0060		2.0	0.00001	0.0996	BDL
		Waste Rock Avg.	0.0102		0.007	0.00010	BDL	0.0007	0.0211	0.0002	0.01	0.0047	0.0041		1.8	BDL	0.0606	BDL
CCME Guidelines			0.003		0.3	0.004			0.073				0.001			0.0001		

S. No:		Parameter	Dissolved Titanium (Ti)	Dissolved Tungsten (W)	Dissolved Uranium (U)	Dissolved Vanadium (V)	Dissolved Zinc (Zn)	Dissolved Zirconium (Zr)	Dissolved Calcium (Ca)	Dissolved Magnesium (Mg)	Dissolved Potassium (K)	Dissolved Sodium (Na)	Dissolved Sulphur (S)
		Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S. No:		**Detection Limit**	0.003	0.00005	0.00001	0.001	0.0005	0.0005	0.3	0.3	0.3	0.3	50
1	**Sample ID**	**928-WR2**	<0.0005	0.00249	0.000054	0.0006	0.0006	<0.0001	8.29	3.24	1.9	0.55	<10
2	**Sample ID**	**928-WR4**	<0.0005	0.00991	0.000003	0.0004	0.0003	<0.0001	5.99	3.52	1.12	0.27	<10
3	**Sample ID**	**928-WR6**	<0.0005	0.00168	0.000076	0.0006	0.0007	<0.0001	7.31	2.79	1.47	0.35	<10
		Waste Rock Max	BDL	0.00991	0.00008	0.001	0.0007	BDL	8.29	3.52	1.90	0.55	BDL
		Waste Rock Avg.	BDL	0.00469	0.00004	0.001	0.0005	BDL	7.20	3.18	1.50	0.39	BDL
CCME Guidelines for the Protection of Freshwater Aquatic Life							0.03						

All samples conducted using deionized water samples that had an exceedence for chromium and a singular exceedence for arsenic from the Old Pond. The results from two rounds of sampling of the pit lake also identified that the lake water exceeded the CCME-FAL for cadmium, copper, molybdenum and selenium. The cadmium CCME-FAL guideline is a function of the hardness. Hardness is noted to be high at Whitehorse Copper based on the analytical results. The CCME-FAL guideline for copper is a range between 0.002-0.004 mg/L depending hardness. Because of the high hardness, the upper value of the range (0.004 mg/L) was chosen. Table 10 summarizes the magnitude of exceedences for the elements mentioned above as well as the magnitude of exceedence for the average concentration from all of the samples from each facility.

Table 10 Magnitude of CCME-FAL Exceedences

Element	Pit Lake	A Valley	B Valley	Old Pond
Cadmium Range:	1.9x – 2.0x	1.1x – 2.2x	1.1x – 1.4x	1.1x – 2.8x
Average:		1.3x	1.2x	1.3x
Chromium Range:	1.1 – 1.6x	2x – 2.2x	1.3x	1.2x – 1.6x
Average:		1.2x	< CCME-FAL	< CCME-FAL
Copper Range:	2.1x – 3.2x	2.1x – 26.8x	4.2x – 13.2x	1.5x – 19.7x
Average:		5.9x	6.9x	6.8x
Molybdenum Range:	7x – 9.4x	1.6x – 16.7	9.6x – 11.7x	1.2x – 20.5x
Average:		8.6x	10.5x	7.3x
Selenium Range:	7.3x – 9.1x	1.7x – 12x	9.3x – 11.5x	1.8x – 24.8x
Average:		9.1x	9.9x	12.1x

The results of Table 10 show that on average the magnitude of exceedence of the CCME-FAL are less than 10x. The importance of dilution based on drainage areas and implications for operational scenarios is discussed in Section 5.2.

The results of the shake flask extraction testing on the waste rock indicated that there were exceedences for arsenic, copper and selenium. The exceedences for the waste rock were all within a factor of 10x the relevant CCME-FAL criteria.

A comparison between shake flask extraction tests which used de-ionized water, Pit Lake water, the Pit Lake water itself, and tailings pore water collected from B Valley is included below in Section 4.3.3.

4.3 Water Chemistry

4.3.1 Tailings Pore Water Chemistry

Field investigations conducted at the site determined that the tailings in B Valley contained higher moisture than in A Valley and the Old Pond. Saturated conditions were identified in B Valley deposit boreholes near the surface (<3 m depth), and as evidenced by surface ponding. Boreholes in A Valley were damp but did not appear to be fully saturated until a much greater depth, usually >10 m. The majority of the Old Pond facility was observed to have the largest proportion of tailings which were not fully saturated. The results of the sampling of the pore water in B Valley are contained in Appendix E. Table 11 contains a summary of the results of sampling of pore water within B Valley. One sample, 1103-3, was not taken from a borehole but was taken from a shallow surface water pond in B Valley, approximately 15 m to the west of monitoring well 1103-3. This sample is interpreted to be a surface expression of surrounding pore water, and as can be seen in Table 11, is similar in chemistry to B Valley tailings pore water samples.

The results of the pore water sampling indicate that there were exceedences of the CCME-FAL for copper (25–120x), molybdenum (10-21x), selenium (1.4-11.6x) and zinc (3.9-72.3x). Chromium may also have exceeded CCME-FAL but the results samples were less than detection limit so it is not possible to determine the magnitude of exceedence, if any.

Table 11. B Valley Pore Water Sampling

Sample No.	Parameter		pH (24h)	Electric Conductivity (24h)	Dissolved Sulphate	Total Alkalinity CaCO3 (to pH 4.5)	Dissolved Hardness	Dissolved Aluminum	Dissolved Arsenic	Dissolved Cadmium	CCME-FAL (calculated)	Dissolved Chromium	Dissolved Copper	Magnitude of CCME exceedance
	Units		pH Units	µS/cm	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	Method		pH Meter	Conductivity Meter	Auto Turbidity	Titration/ Calculation	Calculation from Mg & Ca	ICP-MS	ICP-MS	ICP-MS		ICP-MS	ICP-MS	
	CCME-FAL		6.5-9		----	----	----	0.1	0.005	fn Hardness		0.001	0.002 - 0.004	
1029-1			7.94	1530	800	<0.5	53	0.005	0.0005	0.00034	0.0192	<0.001	0.0908	45.4
1103-1			8.12	4610	3400	<0.5	55	0.006	0.0022	0.00026	0.0198	<0.002	0.0494	24.7
1103-2			8.32	8800	8500	2	240	0.02	0.0022	0.00089	0.0703	<0.004	0.479	119.8
1103-3			8.55	1220	250	25	530	0.011	0.0021	0.00022	0.1390	<0.001	0.134	33.5

Sample No.	Parameter		Dissolved Iron	Dissolved Lead	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenum	Magnitude of CCME exceedance	Dissolved Nickel	Dissolved Selenium	Magnitude of CCME exceedance	Dissolved Uranium	Dissolved Zinc	Magnitude of CCME exceedance
	Units		mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L		mg/L	mg/L	
	Method		ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS		ICP-MS	ICP-MS		ICP-MS	ICP-MS	
	CCME-FAL		0.3	0.001 - 0.007		0.004	0.073		0.025 - 0.150	0.001			0.03	
1029-1			0.006	<0.0002	0.022	<0.00002	1.25	17.1	<0.001	0.0014	1.4	0.0001	0.013	
1103-1			<0.01	0.0004	0.079	<0.0004	0.702	9.6	0.003	0.0018	1.8	0.0009	2.17	72.3
1103-2			0.027	<0.0008	0.252	<0.0008	1.56	21.4	0.005	0.0116	11.6	0.0087	0.116	3.9
1103-3			0.013	<0.0002	0.014	<0.0002	0.809	11.1	<0.001	0.0373	37.3	0.0003	<0.005	

4.3.2 Pit Lake Water Chemistry

There were two rounds of sampling conducted on the Little Chief Pit during 2010. The pit is proposed for use as a water source during the tailings re-processing and understanding the chemistry of this water body is important to determining whether any potential effects from the Project could occur. The results of the pit water sampling are included in Table 8 with the shake flask extraction results. The results show that the pit lake currently has concentrations of a number of elements including cadmium, copper, molybdenum and selenium that exceed CCME-FAL guidelines.

4.3.3 Water Chemistry and Shake Flask Extraction Test Comparison

A comparison for all parameters for which any samples exceeded CCME-FAL in shake flask extraction tests was conducted between shake flask extraction tests which used de-ionized water versus Pit Lake water. In addition, the two available analyses of Pit Lake water and tailings pore water collected from B Valley were also added to the comparison. Box plots including the CCME-FAL for each parameter are provided as Figure 5a-b.

A number of observations can be made by this comparison:

- Dissolved Cr showed similar values between shake flask tests using de-ionized water compared with Pit Lake water;
- Dissolved Cu and Mo in Pit Lake water exceeded CCME-FAL and were higher than de-ionized water extracts, and additional Cu and Mo was leached from the tailings during shake flask testing;
- Se was similar to Cu and Mo with shake flask tests conducted using Pit Lake water having higher Se contents than shake flask tests using de-ionized water, most likely due the additive effect with the Se contained in the Pit Lake water;
- In contrast, Cd and As in Pit Lake water was significantly higher than shake flask leachate using de-ionized water, Cd and As content were lower in shake flask leachates using Pit Lake water when compared with Pit Lake water, indicating some form of removal mechanism (e.g. sorption) occurring with the use of pit lake water, and;

- With the exception of Cr and As, tailings pore water showed the highest concentrations of metal loads.

The results of this analysis indicate that the use of pit lake water as water for the magnetic separation process may result in an increase in the content of some constituents (Cu, Mo, Se), other metals (Cd, As and Zn) may be significantly reduced during the processing, depending on the initial chemistry of process water.

Figure 5a Box Plots for Dissolved Metals Comparison

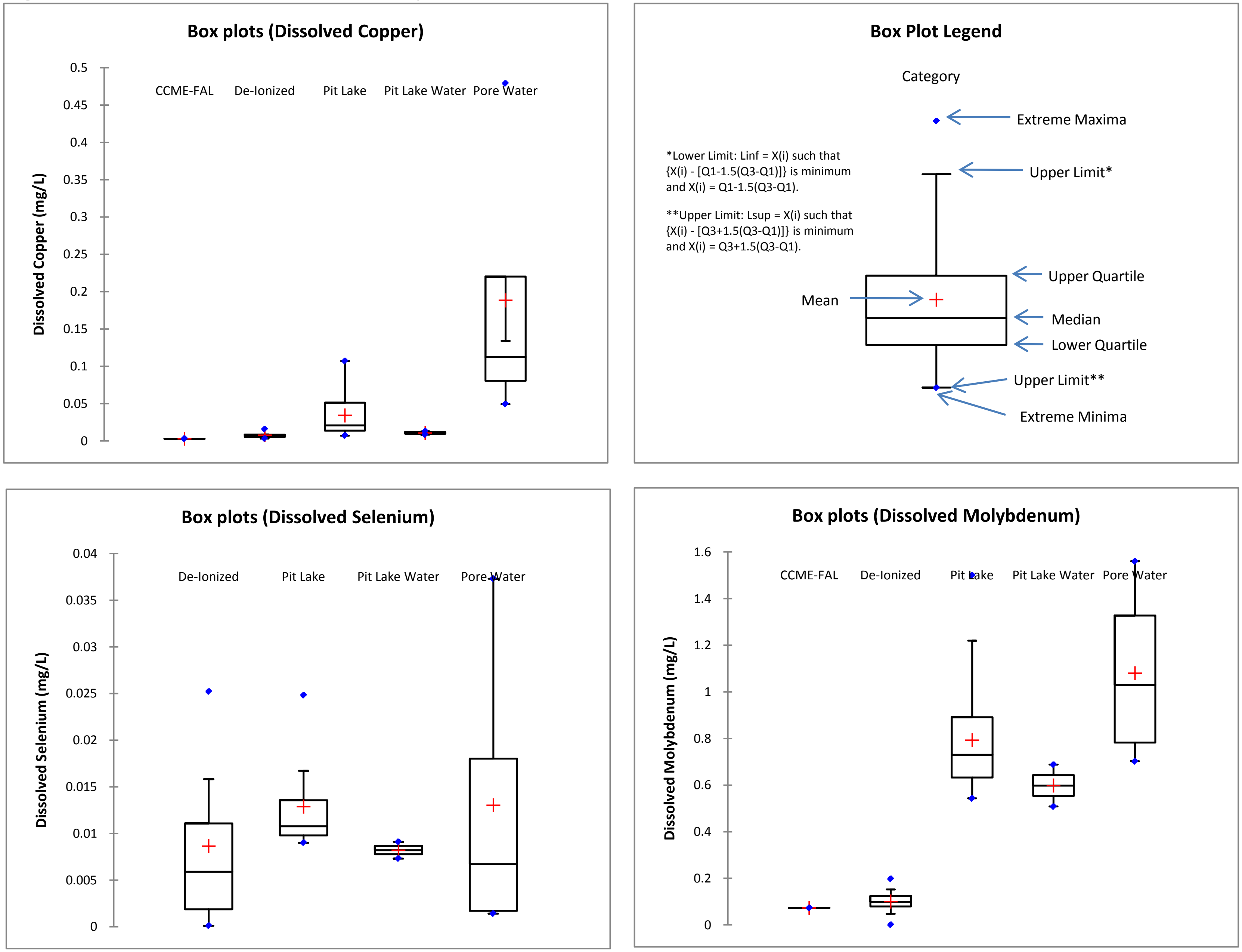
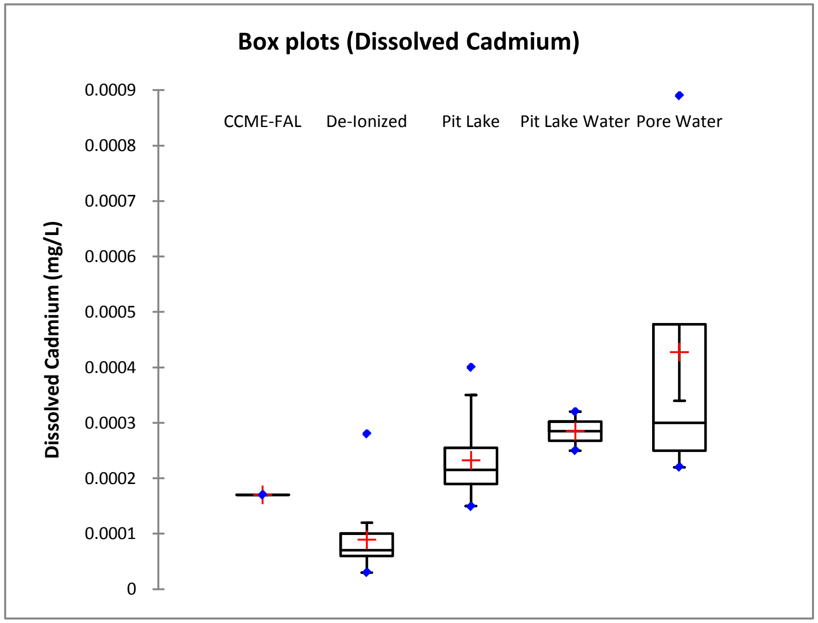
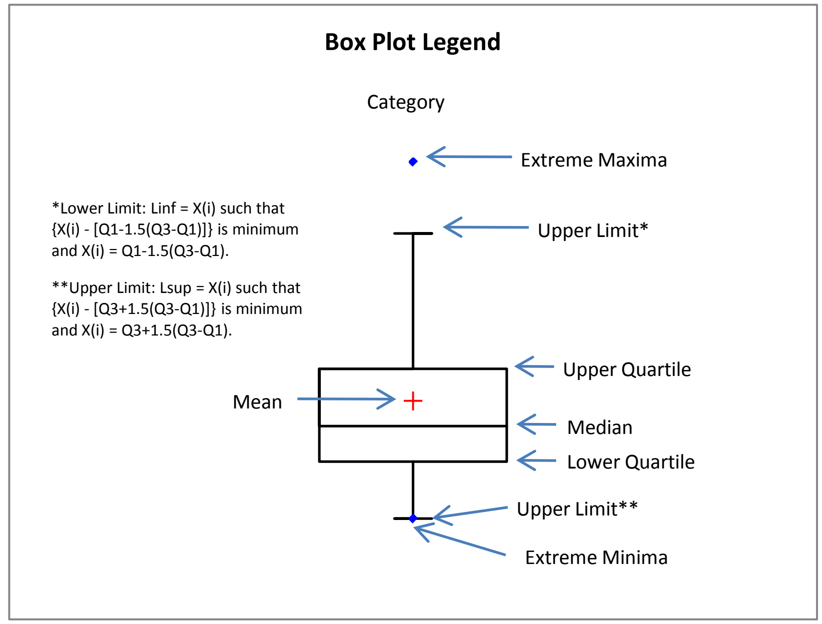
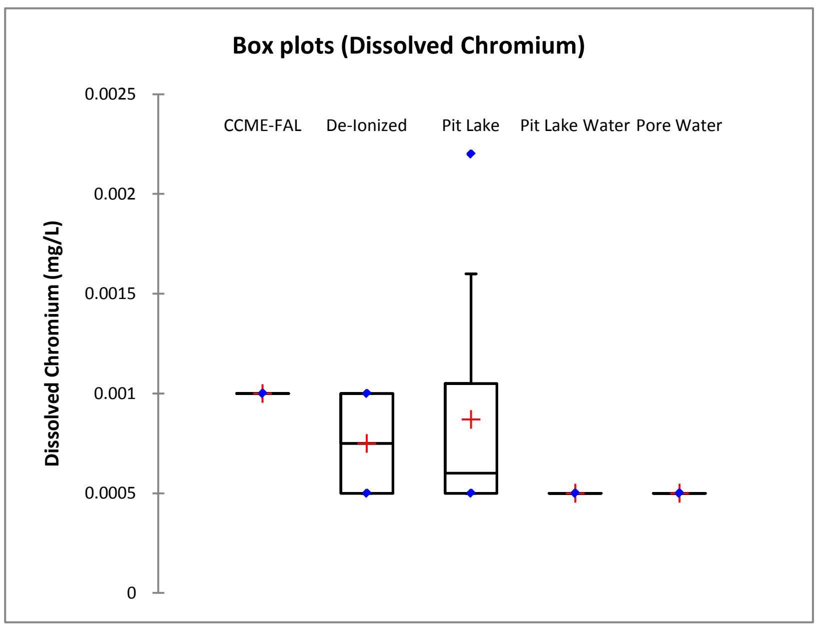
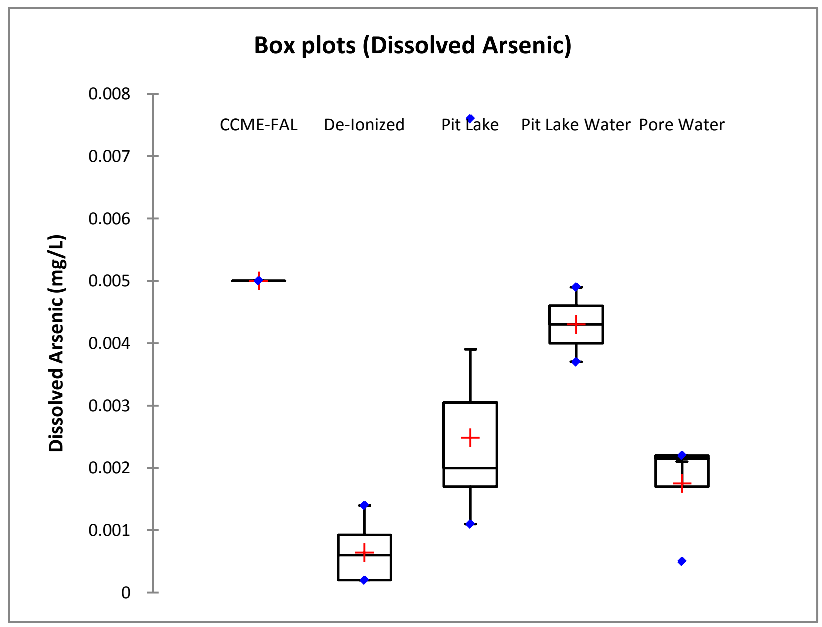


Figure 5b Box Plots for Dissolved Metals Comparison









4.4 Contained Metals

The results of the contained metals analyses by ICP-MS for tailings are presented in Table 12a-c with summary statistics contained in Table 12. The results of contained metal analysis for waste rock with summary statistics are presented in Table 14.

ICP-MS metals results were compared against the reported crustal abundance for each element. Elements with metals concentrations greater than 10 times crustal abundance were considered to be elevated. The results show that the tailings in all three facilities contain elevated concentrations of copper, molybdenum, selenium, silver and thallium. The presence of elevated metal contents within the tailings and waste rock is typical of the mineralized nature of this area and is not necessarily an indication that there will be environmental concerns associated with leaching of these metals. The mobility of each of these elevated metals is controlled by a variety of natural environmental factors, and can also be controlled appropriate materials handling. As shown by the shake flask testing (Section 3.4) some of these elevated metals (e.g. silver and thallium) show no tendency to mobilize, and as discussed in Section 5.3, of the metals which may mobilize (e.g. copper), elevated levels in the receiving groundwater environment resulting from mining activity naturally decreases over time when left undisturbed.

Table 12a. Contained Metals Analytical Results for Whitehorse Copper Tailings

Maxxam ID	Sample ID	Location	Sample Depth	Al	As	Ba	Cd	Cr	Cu	Fe	Pb	Mo	Ni	Se	Ag	Ti	Zn	Ca
Units			Feet	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
RDL				0.01	0.2	0.1	0.05	1	0.5	0.01	0.1	0.1	0.8	0.5	0.05	1	1	0.01
X97121	921-1B	A Valley	10	0.63	13.4	28.9	0.07	15	1270	9.47	2.7	11.3	13.2	0.8	0.73	221	39	1.87
X97122	921-1D		20	0.48	13.3	21.1	0.07	12	1460	8.9	2.3	9.0	11.5	1.2	0.82	118	35	1.39
X97123	921-1F		30	0.81	11.8	33.1	0.08	18	2220	12.3	3.0	10.8	16.3	1.9	1.20	233	48	1.62
X97124	921-1H		40	1.13	15.8	70.1	0.12	24	2100	10.1	4.3	18.4	18.1	1.2	1.37	407	59	3.25
X97125	921-1J		50	0.88	14.5	57.3	0.22	16	1900	7.27	5.0	27.3	13.4	1.3	1.60	254	57	6.25
X97126	921-1L		60	0.67	15.9	37.9	0.13	14	1080	11.3	3.5	17.1	12.9	0.9	0.83	212	53	5.83
X97127	921-2A		5	1.49	15.7	183	0.22	36	2280	6.31	6.3	42.2	21.5	1.2	2.07	538	65	6.53
X97128	921-2B		15	0.69	12.4	38.8	0.09	16	1830	10	3.3	6.8	13.7	1.6	1.16	184	44	2.07
X97129	921-2C		25	0.62	11.7	22.5	0.09	15	1860	16.2	2.6	18.2	14.7	1.3	1.15	217	45	1.24
X97130	921-2D		35	0.63	11.4	31.0	0.13	14	1840	11.9	2.8	23.0	13.3	1.4	1.09	182	45	3.15
X97131	921-2E		45	0.66	13.1	41.2	0.12	14	1500	11.6	3.7	13.8	12.8	1.1	1.08	177	51	4.75
X97132	921-2F		55	0.67	11.2	40.0	0.12	14	1420	14	4.4	19.2	12.9	0.9	1.10	195	52	4.32
X97133	921-2G		65	0.6	12.7	41.6	0.13	12	1540	13.1	3.9	24.8	12.2	1.1	1.18	169	51	3.54
X97134	921-3A		5	1.18	16.6	115	0.16	28	1860	10.2	4.5	22.5	18.6	0.7	1.37	373	65	5.49
X97135	921-3B		10	0.79	13.3	58.7	0.10	17	1350	7.98	3.8	14.4	13.6	0.7	1.04	241	49	3.06
X97136	921-3C		15	0.78	11.9	46.0	0.09	16	1280	7.39	3.7	14.8	12.8	0.8	0.85	222	45	2.75
X97137	921-3D		20	0.91	12.5	36.9	0.10	18	1430	12.1	2.8	19.9	16.3	1.0	1.01	322	51	2.09
X97138	921-3E		25	0.72	12.1	42.3	0.10	15	1680	9.61	3.9	19.0	13.1	1.1	1.06	207	45	3.18
X97139	921-3F		30	0.66	11.5	33.9	0.11	14	1820	10.7	2.8	14.1	12.9	1.3	1.25	185	43	3.03
X97140	921-3G		35	0.86	11.3	49.3	0.12	17	1920	13.8	2.8	25.6	14.9	1.3	1.36	261	55	2.59
X97141	921-3H		40	0.78	15.6	48.6	0.15	16	1560	12	4.1	17.8	14.2	0.7	1.21	232	56	5.64
X97142	921-3I		45	0.71	13.0	43.0	0.16	14	1570	13.8	4.4	30.1	13.3	0.9	1.25	236	54	4.29
X97143	921-3J		50	0.61	12.3	32.7	0.16	13	1580	12.1	3.5	29.4	12.1	1.1	1.16	208	47	3.28
X97144	921-3K		55	0.83	14.9	42.7	0.14	14	1570	11.8	4.6	20.8	13.1	1.1	1.23	267	53	4.15
X97145	922-4A		5	0.93	11.9	105	0.15	25	1490	12.1	5.8	25.3	17.9	0.7	1.09	338	68	5.31
X97146	922-4C		15	1.16	13.6	56.8	0.12	23	1700	10	3.7	21.4	16.9	1.2	1.28	405	55	3.32
X97147	922-4E		25	0.74	11.6	38.5	0.10	15	1560	12	3.5	24.1	13.4	1.1	0.95	244	48	3.15
X97148	922-4G		35	0.54	14.8	32.2	0.15	12	1260	9.55	3.3	12.2	11.3	0.9	0.84	141	46	4.34
X97149	922-4I		45	0.56	10.7	35.9	0.19	11	1090	15.4	3.1	33.0	12.1	1.1	0.85	154	57	4.84
W77037	428-3		Composite	1.04	16.1	52.7	0.11	24	1550	11.5	3.5	14.1	18.1	1.0	1.17	414	56	3.29
W77042	803-5		Composite	1.01	16.4	173	0.22	24	1800	14.3	4.9	15.3	20.2	0.6	1.43	343	80	4.23
Crustal abundance				8.23	1.8	425	0.15	102	60	5.63	14	1.2	84	0.05	0.075	0.565	70	4.15

RDL = Reportable Detection Limit

shading indicates concentration greater than 10x crustal abundance

Table 12b. Contained Metals Analytical Results for Whitehorse Copper Tailings

Maxxam ID	Sample ID	Location	Sample Depth	Al	As	Ba	Cd	Cr	Cu	Fe	Pb	Mo	Ni	Se	Ag	Ti	Zn	Ca
Units			Feet	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
RDL				0.01	0.2	0.1	0.05	1	0.5	0.01	0.1	0.1	0.8	0.5	0.05	1	1	0.01
X97150	922-5A	B Valley	5	0.92	14.4	108	0.40	21	1740	10.2	6.1	70.5	16.0	0.9	1.32	274	71	4.72
X97151	922-5B		10	1.3	22.6	257	0.29	23	1580	9.16	7.5	25.2	18.5	0.9	1.42	407	78	6.16
X97152	922-5C		15	1.16	10.4	108	0.12	20	1310	9.96	3.9	13.4	16.0	0.6	1.05	412	58	3.19
X97153	922-5D		20	0.78	12.9	82.4	0.11	16	1110	9.16	2.5	12.6	12.9	0.9	0.88	195	42	3.3
X97154	922-5E		25	0.91	10.8	94.5	0.10	20	1180	8.62	2.8	12.3	15.2	0.5	1.01	274	46	2.7
X97155	922-5F		30	0.67	11.6	34.9	0.09	15	1730	11.4	2.0	12.6	12.3	1.0	1.22	223	46	1.6
X97156	922-5G		35	0.63	12.4	37.6	0.10	13	1630	8.33	2.2	17.4	10.9	1.1	1.02	148	41	2.04
X97157	922-5H		40	0.55	9.6	29.0	0.11	12	1630	10.5	1.9	34.0	11.1	1.1	0.99	145	43	1.24
X97158	922-5I		45	0.7	11.5	43.4	0.13	16	1620	12.4	3.5	16.0	12.8	1.0	1.07	209	54	2.09
X97159	922-5J		50	0.63	10.0	33.1	0.09	13	1780	13	2.1	13.4	11.4	1.3	1.22	157	47	1.17
X97160	922-6A		5	1.05	14.7	172	0.28	21	1640	7.8	6.6	54.9	15.7	0.7	1.37	232	65	4.76
X97161	922-6B		10	0.66	17.1	71.6	0.33	13	1830	9.34	7.2	48.7	11.3	1.0	1.25	157	58	3.98
X97162	922-6C		15	0.9	14.5	86.8	0.26	15	1240	11.5	4.3	32.7	13.7	0.8	1.01	263	58	4.18
X97163	922-6D		20	0.78	11.0	66.1	0.12	14	1160	7.88	4.0	15.0	12.7	0.8	0.78	212	46	2.84
X97164	922-6E		25	0.98	13.0	76.2	0.10	16	1080	10.1	4.2	11.9	13.8	<0.5	0.78	264	49	3.17
X97165	922-6F		30	0.84	12.0	65.9	0.14	16	1330	9.55	3.1	18.6	13.9	0.6	0.91	197	52	2.44
X97166	922-6G		35	0.91	13.2	63.5	0.11	17	1200	9.88	2.8	22.8	14.3	0.7	0.87	224	53	2.15
X97167	922-6H		40	0.92	11.9	60.6	0.09	18	1710	11.9	3.6	17.2	15.1	0.9	1.21	271	55	1.97
X97168	922-6I		45	0.85	13.0	45.8	0.13	18	2070	11.8	2.7	13.9	15.2	1.4	1.53	236	61	1.89
X97169	922-6J		50	0.68	9.4	34.1	0.08	15	1570	14.2	2.1	12.2	13.8	0.8	1.03	230	53	1.35
X97170	922-6K		55	1.06	12.8	57.3	0.11	17	2030	13.7	3.4	13.4	14.1	1.3	1.55	349	67	2.21
X97171	923-6L		60	1	14.4	55.2	0.12	17	2370	14	2.9	17.0	14.2	1.4	1.82	298	60	1.87
X97172	923-6M		65	0.91	12.3	52.6	0.12	19	1840	13.3	3.2	18.1	15.3	1.0	1.20	230	60	1.71
Y24689	1029-1A		5	1.04	13.2	95.5	0.27	23	2000	12.6	3.8	75.8	16.1	1.1	1.32	281	71	3.58
Y24690	1029-1B		8	1.07	12.4	75.5	0.22	25	2770	11.7	5.2	51.2	17.1	1.1	1.93	345	69	3.25
Y24691	1103-1A		5	0.83	14.6	104	0.15	22	2740	19.7	4.2	15.5	18.0	0.9	1.91	292	79	3.65
Y24692	1103-1B		9	1.16	14.7	92.3	0.16	27	2330	14	3.7	25.5	19.5	1.0	1.76	411	74	3.69
Y24693	1103-1A		5	1.04	15.8	125	0.14	25	3370	19.2	4.7	13.9	18.9	1.2	2.42	316	78	3.9
Y24694	1103-1B		10	1	13.3	66.2	0.14	26	2790	16.6	6.1	27.7	19.5	1.2	1.96	319	83	3.04
Y24695	1103-1C		13	1.01	15.7	72.7	0.17	20	2140	15	4.0	22.6	16.5	0.8	1.47	297	69	3.19
Crustal abundance				8.23	1.8	425	0.15	102	60	5.63	14	1.2	84	0.05	0.075	5650	70	4.15

RDL = Reportable Detection Limit

shading indicates concentration greater than 10x crustal abundance

Table 12c. Contained Metals Analytical Results for Whitehorse Copper Tailings

Maxxam ID	Sample ID	Location	Sample Depth	Al	As	Ba	Cd	Cr	Cu	Fe	Pb	Mo	Ni	Se	Ag	Ti	Zn	Ca
Units			Feet	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
RDL				0.01	0.2	0.1	0.05	1	0.5	0.01	0.1	0.1	0.8	0.5	0.05	1	1	0.01
X97173	923-7A		5	0.9	15.9	45.4	0.16	20	2080	10.4	4.1	20.3	15.3	0.9	1.80	258	60	3.71
X97174	923-7B		10	0.96	16.4	58.4	0.22	16	2730	8.81	5.2	36.2	12.5	1.8	2.71	313	59	6.02
X97175	923-7C		15	0.68	10.0	37.7	0.12	25	944	2.58	7.0	8.5	11.0	0.6	0.79	312	23	5.22
X97176	923-7D		20	0.47	9.2	18.6	0.10	18	542	1.31	2.9	15.0	8.7	<0.5	0.41	231	16	3.29
X97177	923-7E		25	0.79	11.8	55.6	0.34	10	1430	9.88	6.6	4.7	18.1	1.2	2.30	224	63	4.42
X97178	923-7F		30	0.97	13.5	47.8	0.32	19	2280	8.83	5.5	65.2	19.5	1.8	2.79	304	109	5.59
X97179	923-7G		35	0.79	9.5	38.8	0.15	16	1700	9.08	4.5	6.4	13.8	1.5	1.67	221	77	3.6
X97180	923-7H		40	0.55	7.8	36.6	0.15	14	1550	9.5	3.4	12.0	13.5	1.2	1.42	185	64	3.66
X97181	923-7I		45	0.64	7.4	41.8	0.13	16	1440	10.5	3.5	11.2	15.5	1.3	1.52	228	62	3.56
X97182	923-7J		50	0.9	15.1	51.8	0.34	24	4370	10.3	10.8	4.5	19.2	2.1	3.99	302	92	5.48
X97183	923-8A		5	0.51	11.3	33.6	0.13	10	1330	11.2	3.5	26.0	10.1	1.4	0.97	126	43	3.46
X97184	923-8B		10	0.65	12.3	38.6	0.13	11	1720	13.2	3.8	20.1	11.2	1.2	1.33	192	48	3.67
X97185	923-8C		15	0.68	4.3	94.9	0.25	21	2440	3.46	5.3	11.6	10.9	1.4	1.22	211	29	2.57
X97186	923-8D		20	0.99	11.1	60.5	0.14	43	625	1.94	3.7	13.8	17.5	<0.5	0.53	535	23	5.68
X97187	923-8E		25	0.71	38.6	47.6	0.22	13	1890	11.1	3.7	34.1	13.1	1.3	2.34	182	82	4.85
X97188	923-8F		30	0.38	10.2	15.9	0.21	8	2130	7.15	2.4	34.1	7.9	1.8	1.96	81	65	2.67
X97189	923-8G		35	0.46	10.0	20.5	0.20	12	1470	10.8	2.5	60.1	11.4	1.2	1.39	142	62	3.45
X97190	923-9A		40	1.02	18.4	54.9	0.15	17	2140	12	3.6	33.4	15.1	1.4	1.60	273	61	2.29
X97191	923-9B		45	1.19	22.4	47.0	0.26	18	2580	8.15	6.4	43.4	13.9	1.7	2.50	413	64	4.63
X97192	923-9C		50	0.67	16.9	33.9	0.19	14	2960	9.86	4.0	21.7	10.6	2.0	2.74	218	70	2.82
X97193	924-10A	Old Pond	5	0.69	13.9	30.0	0.17	13	1350	12	3.4	36.8	12.6	1.3	1.02	208	50	2.83
X97194	924-10B		10	0.39	11.6	7.1	0.09	15	2010	10.5	1.8	5.2	34.2	1.9	1.52	107	61	0.98
X97195	924-11A		5	0.94	15.9	59.4	0.12	20	2440	11.5	4.0	21.2	16.3	1.5	1.52	292	56	2.17
X97196	924-11B		10	0.99	12.7	62.4	0.12	33	601	2.54	3.4	5.4	10.7	<0.5	0.86	462	23	7.95
X97197	924-12A		5	0.56	11.4	36.0	0.09	12	1160	6.42	4.3	12.3	9.9	1.0	0.75	140	40	2.02
X97198	924-12B		10	0.56	8.7	44.4	0.12	18	1250	5.14	2.9	7.3	11.7	0.9	0.63	165	29	1.76
X97199	924-12C		15	0.41	13.7	34.6	0.12	16	489	1.6	3.6	3.5	17.4	<0.5	0.55	146	13	7.04
X97200	924-13A		5	0.57	11.7	26.4	0.08	13	1430	6.69	2.9	5.6	10.4	0.9	0.95	135	39	2.2
X97201	924-13B		10	0.51	14.2	27.2	0.13	13	2880	10.1	3.8	19.8	12.5	2.0	1.79	141	43	1.65
X97202	924-13C		15	0.46	12.1	41.5	0.09	18	650	2.04	3.6	4.6	6.5	0.7	0.57	185	16	4.84
X97203	924-13D		20	0.5	10.5	36.0	0.14	19	722	1.69	4.0	13.2	8.1	0.6	0.62	207	18	4.03
X97204	924-13E		25	0.61	12.5	45.7	0.13	22	747	2.18	4.2	11.7	9.9	<0.5	0.53	260	22	4.3
X97205	924-14A		5	0.57	13.1	38.3	0.08	14	1660	9.33	3.0	8.8	12.3	1.0	0.99	134	41	1.82
X97206	924-14B		10	0.53	13.1	22.8	0.08	14	928	8.62	2.7	6.7	11.4	0.6	0.70	153	43	3.02
X97207	924-14C		15	0.51	7.8	27.6	0.13	17	855	1.92	2.5	11.2	6.5	0.7	0.71	223	18	4.3
W77035	310-4		Composite	0.66	14.2	35.2	0.22	16	2310	16.3	3.1	60.6	13.8	1.5	1.86	195	63	3.39
W77036	427-10		Composite	0.68	13.1	35.0	0.13	14	1720	14.3	2.9	20.3	13.6	1.4	1.42	242	58	2.96
W77038	803-1		Composite	0.5	12.5	23.5	0.12	13	1540	12.2	2.8	15.1	11.4	1.1	1.14	183	55	2.59
W77039	803-2		Composite	0.61	15.1	48.8	0.18	15	1790	15.4	3.7	37.8	12.6	1.4	1.70	179	69	7.34
W77040	803-3		Composite	1.1	14.4	84.0	0.18	24	1720	11.7	5.5	29.3	17.9	1.0	1.33	392	73	4.87
W77041	803-4		Composite	1.03	13.3	103	0.24	21	1520	11.5	4.4	38.6	16.8	1.0	1.13	291	70	3.7
Crustal abundance				8.23	1.8	425	0.15	102	60	5.63	14	1.2	84	0.05	0.075	0.565	70	4.15

RDL = Reportable Detection Limit

shading indicates concentration greater than 10x crustal abundance

Table 13. Contained Metals Summary Statistics for Whitehorse Copper Tailings

A Valley ICP Data Summary Statistics	Al	As	Ba	Cd	Cr	Cu	Fe	Pb	Mo	Ni	Se	Ag	Ti	Zn	Ca
Units	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
Average	0.80	13.32	54.51	0.13	17.29	1624.84	11.25	3.76	19.86	14.56	1.07	1.15	254.84	52.16	3.67
Max	1.49	16.6	183	0.22	36	2280	16.2	6.3	42.2	21.5	1.9	2.07	538	80	6.53
Min	0.478	10.7	21.1	0.07	11	1080	6.31	2.3	6.8	11.3	0.6	0.73	118	35	1.24
10th Percentile	0.601	11.4	31	0.09	12	1270	7.98	2.8	11.3	12.1	0.7	0.84	169	44	1.87
Median (P50)	0.743	13	41.6	0.12	15	1570	11.6	3.7	19	13.4	1.1	1.16	232	51	3.29
90th Percentile	1.13	15.9	105	0.19	24	1920	14	4.9	29.4	18.1	1.3	1.37	405	65	5.64
B Valley ICP Data Summary Statistics	Al	As	Ba	Cd	Cr	Cu	Fe	Pb	Mo	Ni	Se	Ag	Ti	Zn	Ca
Units	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
Average	0.90	13.17	78.89	0.16	18.43	1817.33	11.88	3.88	25.20	14.86	0.97	1.31	262.27	59.53	2.90
Max	1.3	22.6	257	0.4	27	3370	19.7	7.5	75.8	19.5	1.4	2.42	412	83	6.16
Min	0.549	9.4	29	0.08	12	1080	7.8	1.9	11.9	10.9	0.5	0.78	145	41	1.17
10th Percentile	0.6384	10.08	34.26	0.09	13	1164	8.388	2.1	12.36	11.32	0.61	0.872	157	43.6	1.4
Median (P50)	0.911	12.95	68.9	0.125	17.5	1720	11.6	3.65	17.3	14.7	1	1.22	263.5	58	2.94
90th Percentile	1.079	15.71	109.7	0.281	25	2743	15.16	6.15	51.57	18.54	1.3	1.912	354.8	78	4.234
Old Pond ICP Data Summary Statistics	Al	As	Ba	Cd	Cr	Cu	Fe	Pb	Mo	Ni	Se	Ag	Ti	Zn	Ca
Units	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
Average	0.69	13.11	42.65	0.16	17.20	1661.54	8.38	4.02	20.91	13.30	1.29	1.42	229.05	50.54	3.81
Max	1.19	38.6	103	0.34	43	4370	16.3	10.8	65.2	34.2	2.1	3.99	535	109	7.95
Min	0.381	4.3	7.1	0.08	8	489	1.31	1.8	3.5	6.5	0.6	0.41	81	13	0.979
10th Percentile	0.464	8.7	22.8	0.09	12	650	1.94	2.7	5.2	8.7	0.7	0.57	135	18	2.02
Median (P50)	0.648	12.5	38.6	0.14	16	1550	9.5	3.7	15	12.5	1.3	1.33	211	56	3.6
90th Percentile	1.055	14.6	129.4	0.27	20	2050	13.85	6.9	40.7	15.5	1.36	1.54	284.5	66	4.165

Table 14. Waste Rock Chemistry by ICP-MS and Statistical Summary

S. No.	Sample ID	Al	As	Ba	Cd	Cr	Cu	Fe	Pb	Mo	Ni	Ag	Ti	Zn	Ca
	Units	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	%
	RDL	0.01	1	1	0.1	1	0.1	0.01	0.1	0.1	0.1	0.1	0.001	1	0.01
1	928-WR1	4.93	11	245	0.5	27	926.6	4.46	13.5	5.5	13.8	1.3	0.206	172	12.42
2	928-WR2	3.47	17	192	0.5	48	6331.1	9.24	12.6	47.8	16.3	8.1	0.162	158	11.87
3	928-WR3	7.47	7	565	0.3	36	298.2	3.17	11.2	13.3	15.2	0.3	0.273	92	10.66
4	928-WR4	4.63	11	224	0.9	73	1977.9	4.18	34.4	9.5	21.2	2.8	0.162	131	13.83
5	928-WR5	2.22	8	36	0.5	24	3972.4	9.93	4	3	12.4	5	0.081	160	6.94
6	928-WR6	4.24	10	191	0.5	37	4198	4.95	8.1	3.1	16.4	3.5	0.161	174	12.93
Crustal abundance		8.23	1.8	425	0.15	102	60	5.63	14	1.2	84	0.075	5650	70	Ca

RDL = Reportable Detection Limit

Shading indicates concentration greater than 10x crustal abundance

Waste Rock ICP Data Summary Statistics	Al	As	Ba	Cd	Cr	Cu	Fe	Pb	Mo	Ni	Ag	Ti	Zn	Ca
Units	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
Average	4.49	11	242	0.5	41	2950.7	5.99	14.0	13.7	15.9	3.5	0.174	148	11.44
Max	7.47	17	565	0.9	73	6331.1	9.93	34.4	47.8	21.2	8.1	0.273	174	13.83
Min	2.22	7	36	0.3	24	298.2	3.17	4.0	3.0	12.4	0.3	0.081	92	6.94
10th Percentile	2.85	8	114	0.4	26	612.4	3.68	6.1	3.1	13.1	0.8	0.121	112	8.80
Median (P50)	4.44	11	208	0.5	37	2975.15	4.71	11.9	7.5	15.8	3.2	0.162	159	12.15
90th Percentile	6.2	14	405	0.7	61	5264.55	9.59	24.0	30.6	18.8	6.6	0.240	173	13.38

4.5 Mineralogy

The results of the waste rock sample descriptions and X-ray diffraction analyses of the tailings and waste rock are presented below in Table 15 and Table 16, respectively. The analytical certificates and complete report for these analyses are contained in Appendix F.

Table 15 Waste Rock Sample Descriptions

Sample Number	Description
928-WR1	Green calc-silicate skarn (hedenburgite/diposide?), epidote and serpentine, with some calcite, ferriphlogopite? No oxidation or sulphides observed.
928-WR2	Green calc-silicate skarn, epidote and serpentine, no visiblue suhphides, trace malchite and azurite.
928-WR3	Green calc-silicate skarn, brownish pink garnet, epidote, some white calcite/marble. Possibly some trace amount of till/gravel cover material mixed in.
928-WR4	White and grey limestone, green calc-silicate with malachite, azurite, trace bornite/chalcopyrite. Possibly some diorite/granodiorite mixed in.
928-WR5	Black/ dark green serpentine, epidote, green mica (phlogopite?) garnet and calc-silicate skarn. Some massive black fine grained magnetite and trace malachite.
928-WR6	Grey/green limestone, calc-silicate skarn with epdiote, serpentine. Trace chalcopyrite, bornite and malachite where oxidized.

Table 16 Reitveld X-Ray Diffraction Quantitative Phase Analysis on Tailings

Mineral	Ideal Formula	921-1h-40	921-3d-20	922-5e-25	922-6g-35	924-13b-10	924-14b-10
Quartz	SiO2	2.6	2.4	3.6	2.7	2.8	1.7
Clinochlore	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	11.6	10.0	10.5	11.1	8.2	6.6
Kaolinite	$Al_2Si_2O_5(OH)_4$	3.7	3.6	3.1	3.6	3.4	3.0
Lizardite	$Mg_3Si_2O_5(OH)_4$	5.3	4.4	2.3	5.0	4.3	2.5
Talc	$Mg_3Si_4O_{10}(OH)_2$	2.1	2.1	2.7	2.4	1.9	1.2
K-feldspar	$KAlSi_3O_8$	4.9	3.3	5.4	3.7	3.0	2.1
Plagioclase	$NaAlSi_3O_8 – CaAl_2Si_2O_8$	6.6	5.3	11.6	7.8	6.2	3.3
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	2.6	2.6	3.8	3.7	1.9	1.3
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	12.5	13.1	4.5	4.9	6.5	5.5
Augite	$(Ca,Na)(Mg,Fe,Al,Ti)(Si,Al)_2O_6$	18.6	21.1	22.1	21.8	20.5	30.0
Andradite	$Ca_3Fe_2^{3+}(SiO_4)_3$	5.4	6.2	2.5	4.1	4.7	12.5
Calcite	$CaCO_3$	6.2	4.0	5.2	3.5	3.5	4.7
Clinozoisite	$Ca_2Al_3(SiO_4)_3(OH)$	3.6	2.4	6.1	5.0	3.4	6.1
Magnetite	$Fe^{2+}Fe_2^{3+}O_4$	14.2	19.7	16.6	20.8	29.7	19.3
Total		100.0	100.0	100.0	100.0	100.0	100.0

Note: All results given in % weight

As can be seen in Table 16, a suite of silicate and calc-silicate skarn minerals formed the bulk of all samples, also with magnetite making up a considerable portion (up to 29.7% in 924-13b). Quartz content was low in all samples (<3.6%) while calcite varied between 3.5-6.2%. The considerable calcite content further confirms the observation that the Whitehorse Copper tailings contain abundant available NP in for the form of reactive carbonate minerals.

It is important to note that no sulphide minerals or carbonate minerals other than calcite were reported in the XRD analysis. Detection limits for Reitveld XRD quantitative phase analysis were not reported but are typically not higher than 0.1 – 0.2 weight % (MEND, 2009).

5.0 INTERPRETATION AND DISCUSSION OF RESULTS

5.1 Acid Rock Drainage Potential

The results of the acid base accounting testwork showed that there are no concerns associated with acid mine drainage from the re-processed tailings. There is abundant neutralization potential contained within the tailings and only minor amounts of potentially acid producing sulphide mineralization present.

The most conservative usage of only the most readily available and quick reacting fraction of neutralization potential (carbonate NP) was used for calculations of NNP and NPR ratios. Carbonate NNP and NPR were still high enough to show that no samples could generate net acidity. In particular, carbonate NPR was >3 for all samples.

A comparison of the proportions of sulphur species showed that sulphide weathering has likely already progressed in the Old Pond, where less than complete saturated conditions exist, indicating that the minor AP which exists may already be partially exhausted.

5.2 Metal Leaching Potential

The shake flask extraction testing showed that there is some potential for mobilization of a number of elements in excess of the CCME-FAL during the tailings re-processing. However, the magnitude of the CCME-FAL exceedences were all less than 10x which is approximately the necessary dilution factor for minimizing impacts to the receiving environment based on the shake flask metal testing.

Natural dilution factors that already exist occur at the site need to be considered in order to understand what the expected chemistry of any loadings from the site are expected to be.

Figure 6 shows a summary of the surface and groundwater drainage divides that have been previously reported for the site (Gadsby Consultants Ltd., 1991). Table 17 contains a summary of these drainage areas in addition to identifying the existing footprint of each tailings facility.

Table 17 Natural Dilution Factors for Whitehorse Copper Tailings Facilities

Groundwater Drainage	Area (ha)	Surface Area Tailings (ha)				Dilution Factor
		Old Pond	A Valley	B Valley	Total Area	
Little Chief/Crater Lake	452.95	13.16	--	--	13.16	34.4
A Valley	350.17	42.92	13.7	--	56.62	6.2
B Valley	357.82	4.95	--	7.18	12.13	29.5

The groundwater drainage basins have been used to calculate the level of natural dilution for each basin as there are no surface water connections from the site to the Yukon River, which is considered to be the closest receiving environment for consideration of potential impacts to aquatic life. The shake flask results provide information on the maximum anticipated concentrations that can reasonably be expected to occur. The evaluation of the dilution factors show that there should be no significant negative effects from the re-processing project on the receiving environment. Only the A Valley catchment has a dilution factor of less than 10x.

Humidity cells have been established to show the decreasing trend in metals concentrations over time in order to quantify the time frame over which elevated concentrations of metals may be expected to occur following re-processing of the tailings.

5.3 Potential Receiving Environment Groundwater Impacts

The discussions in this section are based on information collected and reported by others over a 20 year timeframe. There is significant unknown information which contributes to the uncertainty around discussions of potential groundwater impacts. These include:

- The results of only two sampling events are available which only allows for a basic statement on trends in groundwater quality;
- There is limited availability on groundwater hydraulic conductivity for the area downgradient of the project to estimate the number of years required for groundwater derived from the project to reach any of the current wells; and,

- Bedrock geology and groundwater flowpaths are only generally known in the area downgradient of the site.

As previously noted, water from the site does not report directly to any surface water body, instead reporting to ground. An evaluation of groundwater data downgradient of the Project provides additional insight into the potential for metal leaching and potential receiving environment impacts. Groundwater in the area of the Project has been showed to flow to the east (Gartner Lee Ltd. 2002). Groundwater quality downgradient of the Whitehorse Copper site was investigated during site decommissioning via sampling of nine private residential wells in the Canyon Crescent area of Whitehorse in 1991 (Gadsby 1992). The locations of these wells are shown on Figure 6. On behalf of the Project, EDI Environmental Consultants Ltd. re-sampled these wells where possible during September, 2010.

In consultation the work of Gadsby (1992) and Gartner Lee Ltd. (2002), a comparison was conducted between the results of two rounds (1991 and 2010) of groundwater monitoring conducted downgradient conducted during of the facility. Metals deemed likely to be contaminants of concern (i.e. Cd, Cu, Mo, Se) were selected for comparison based on results of shake flask extraction testing. In addition, several other common metal contaminants were retained for comparison, including Zn, Pb and As.

It is assumed that some of these downgradient wells were likely impacted by the results of mining related activates at the Whitehorse Copper Mine during the period of operations and closure (1967-1982). For the purposes of classifying the wells a determination of which of the downgradient wells were likely impacted by mining activities was made based on initial (1991) copper concentrations. Copper is considered to the best indicator of mine related impacts because of its relatively high solubility and mobility under alkaline conditions. Wells with an initial copper concentration of >10 µg/L (Table 18) were classified to have been impacted by mining activities, while wells with an initial concentration of <10 µg/L were classified as being unimpacted by mining activities (Table 19).

Table 18 Downgradient Wells Interpreted to be Impacted, 1991 versus 2010

Dissolved Metals by ICPMS	Units	CCME-FAL	Health Canada Drinking Water Guidelines	91-18 LAMMERS		Change Factor*	91-17 D. BOYD		Change Factor*	91-15 PIONEER		Change Factor*	91-1 BOYD		Change Factor*	91-2 LOWRY		Change Factor*	91-3 MCKINNON		Change Factor*	Average Change Factor
Sampling Date				1991	2010		1991	2010		1991	2010		1991	2010		1991	2010		1991	2010		
Arsenic (As)	µg/L	5	10	1.6	1.4	0.9	1.6	1.5	0.9	0.8	0.2	0.3	0.5	0.6	1.2	0.7	0.4	0.6	0.7	1.1	1.6	1.0
Cadmium (Cd)	µg/L	0.017	5	0.1	0.30	3.0	<0.2	<0.2	1.0	0.1	0.13	***1.3***	0.3	0.3	1.0	0.1	0.21	2.1	0.3	0.36	1.2	1.5
Copper (Cu)	µg/L	4	1000	143	33.7	0.2	82	21	0.3	605	12.5	0.0	14	2.1	0.2	47	22.8	0.5	28	16.4	0.6	0.3
Lead (Pb)	µg/L	7	10	<1	<0.2	1.0	2	0.1	0.1	37	0.1	0.0	0.5	0.4	0.8	<1	<0.2	1.0	0.2	0.1	0.5	0.6
Molybdenum (Mo)	µg/L	73	-	15	1	0.1	15	2	0.1	15	3	0.2	15	2	0.1	15	2	0.1	15	5	0.3	0.2
Selenium (Se)	µg/L	1	10	0.25	0.8	3.2	0.25	0.2	0.8	0.25	0.05	0.2	0.25	0.3	1.2	0.25	0.05	0.2	0.25	0.05	0.2	0.9
Zinc (Zn)	µg/L	30	5000	70	17	0.2	51	7	0.1	106	30	0.3	364	6	0.0	20	64	3.2	419	73	0.2	0.7

*Change factor is 2010 value divided by 1991 value for each parameter

Table 19 Downgradient Wells Interpreted to be Unimpacted, 1991 versus 2010

Dissolved Metals by ICPMS	Units	CCME-FAL	Health Canada Drinking Water Guidelines	91-19 C. BOYD		Change Factor*	91-20 G. BOYD		Change Factor*	Aerage Change Factor
Sampling Date				1991	2010		1991	2010		
Arsenic (As)	µg/L	5	10	1.4	1.9	1.4	1.6	1.4	0.9	1.1
Cadmium (Cd)	µg/L	0.017	5	<0.2	<0.2	1.0	<0.2	<0.2	1.0	1.0
Copper (Cu)	µg/L	4	1000	5	5.2	1.0	5	14.3	2.9	2.0
Lead (Pb)	µg/L	7	10	1	0.1	0.1	<1	<0.2	1.0	0.6
Molybdenum (Mo)	µg/L	73	-	15	2	0.1	15	1	0.1	0.1
Selenium (Se)	µg/L	1	10	0.25	0.05	0.2	0.25	0.2	0.8	0.5
Zinc (Zn)	µg/L	30	5000	177	15	0.1	12	12	1.0	0.5

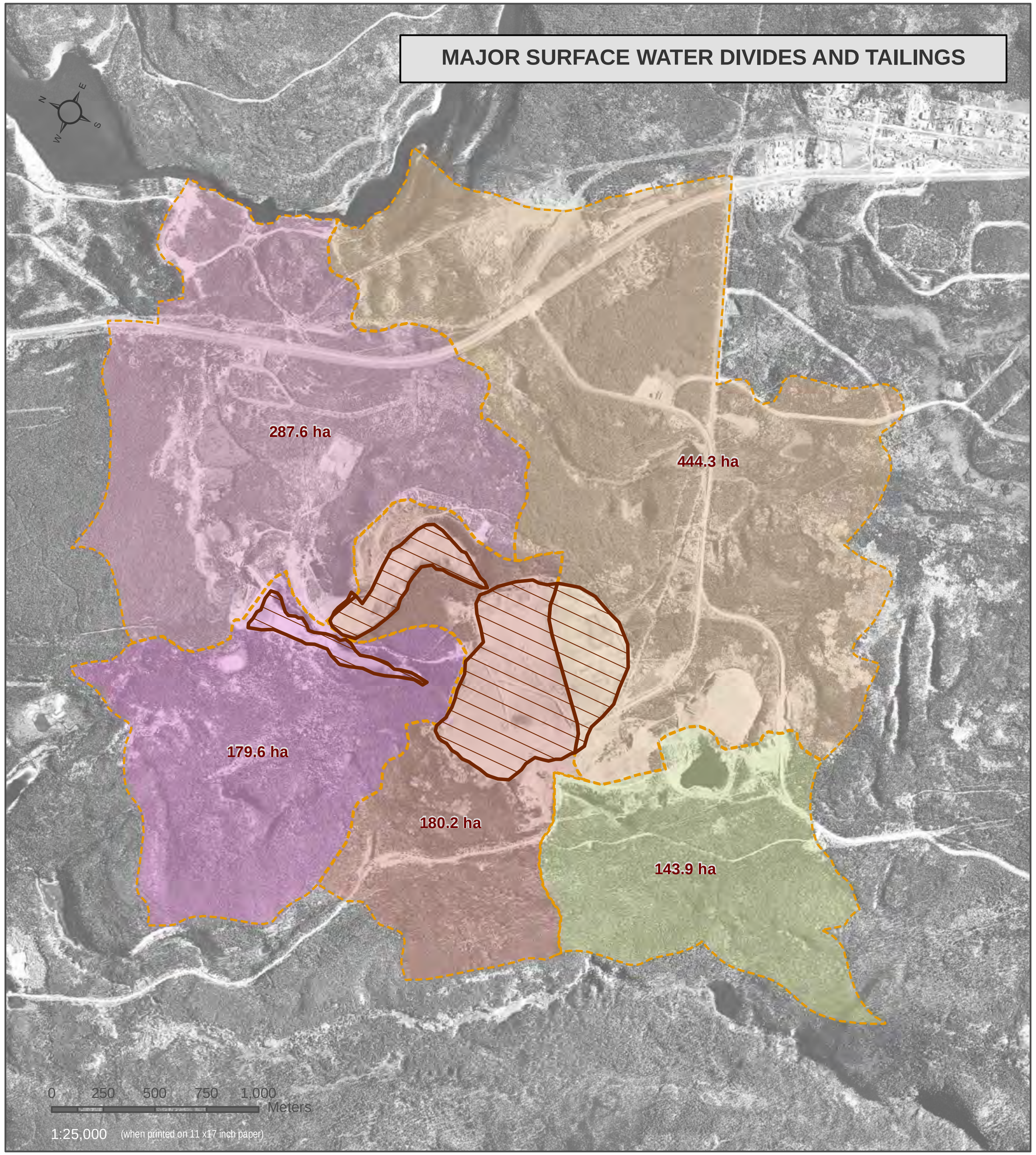
*Change factor is 2010 value divided by 1991 value for each parameter

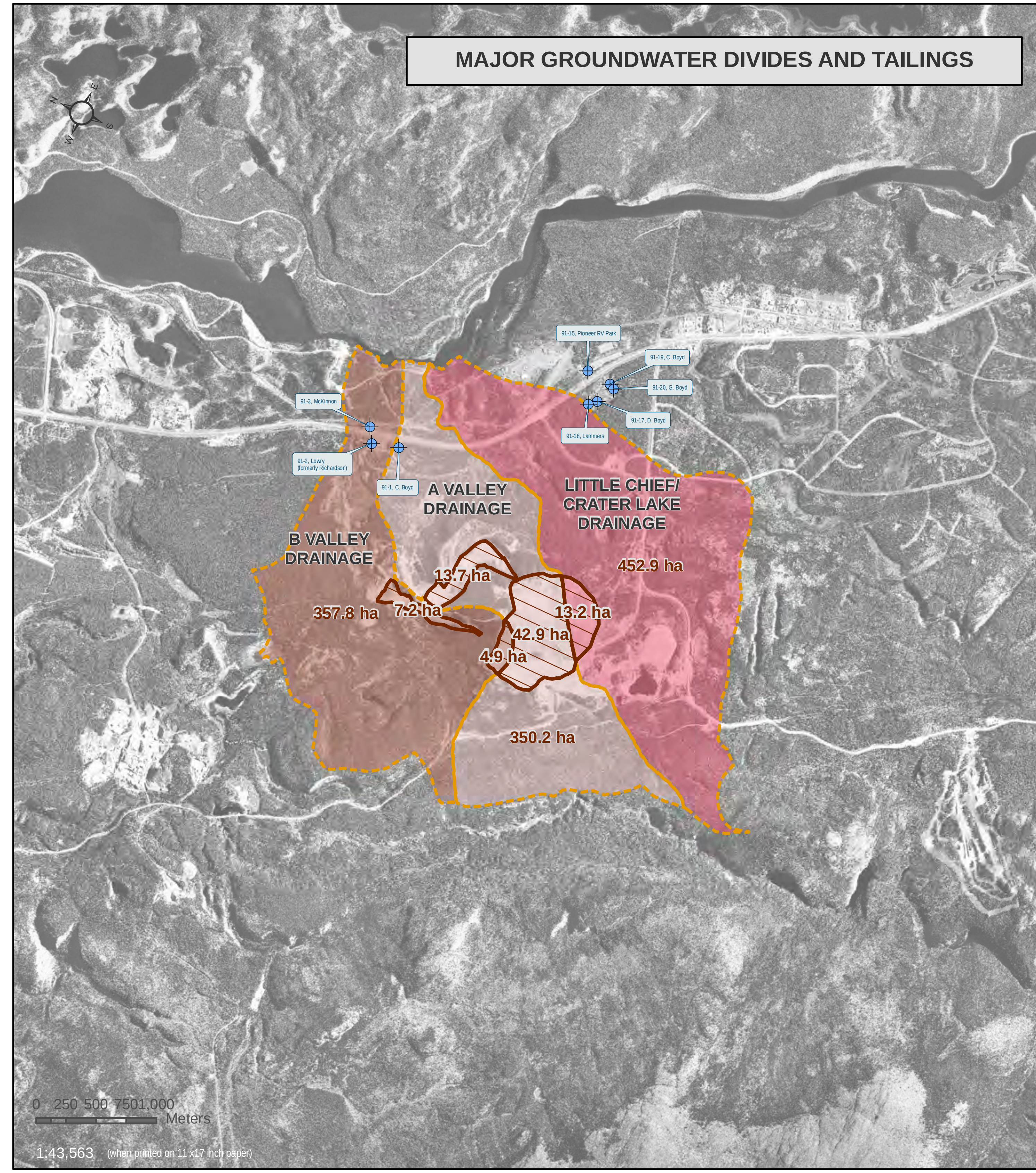
Exceeds Health Canada Drinking Water Guidelines
Exceeds CCME-FAL
Change Factor <1
Change Factor >1

Notes

Values below detection limit were replaced with half detection limit

Where both 1991 and 2010 samples were below detection limit but detection limit differed, values were assumed to be equal





National Topographic Data Base (NTDB) compiled by Natural Resources Canada at a scale of 1:50,000. Cadastral data compiled by Natural Resources Canada. Reproduced underlicense from © Her Majesty the Queen in Right of Canada,Department of Natural Resources Canada. All rights reserved. Aerial imagery (2006) obtained from Yukon Geomatics. Surface and groundwater divides digitized from Gadsby Consultants Ltd. (1991). Whitehorse Copper Mine Conceptual Decommissioning Plan. Report prepared for Hudson Bay Mining and Smelting Co. Ltd.

Datum: NAD 83; Map Projection: UTM Zone 8N

Down-Gradient Groundwater Wells

Tailings Intersected with Major Divides

Major Divides

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WHITEHORSE COPPER TAILINGS REPROCESSING
GEOENVIRONMENTAL CHARACTERIZATION REPORT

FIGURE 6

SURFACE AND GROUNDWATER DIVIDES AND TAILINGS

DRAWN BY MD	JANUARY 2011	VERIFIED BY EA

Whitehorse_Copper\GIS\Maps\Projects\2010_GeoEnvironmental_Characterization_Report\6_Ground_SurfaceWater_20110216.mxd

Although none of the analyses exceeded Health Canada Drinking Water Guidelines, a number of the groundwater samples exceeded CCME-FAL for Cu, Cd, and Zn. This comparison shows that, with the exception of Cd, over the time period all other contaminants of concern decreased markedly in the wells interpreted to have been impacted by mining. The results for the wells which were identified as unimpacted were less clear, but still showed a reduction in metal levels for all parameters except for copper and arsenic over the sampling period.

These data suggest that the groundwater quality in wells downgradient of the site showed the influence of historic mining activity during the 1991 sampling. The concentration of a number metals in these wells have significantly decreased over the past two decades. The level of disturbance associated which the Project is less than original mining operation and will be limited to seasonal operations over a seven year period. It can be reasonably assumed that any potential impacts to the receiving environment groundwater quality from the Project would not be significant and would only have a very limited temporal effect.

5.4 Process Water and Changes to Existing Site Discharge Quality

The results of the shake flask extraction testing conducted using the pit lake water is a useful surrogate for the process water that would be produced as a result of the re-processing. The magnitude of change in water chemistry resulting from the use of pit water as a source for the re-processing is shown below in Table 20.

Table 20 shows that the concentrations of copper, manganese, molybdenum and selenium would be increased in the process water by a factor of up to 2x. A number of elements such as cadmium and zinc actually decrease in concentration.

Table 20 Effect of Re-processing on Pit Lake Water Chemistry

Element	Average Magnitude of Change from Pit Lake Chemistry
Cadmium	Decrease in concentration from 0.6x to 0.7x
Copper	Increase in concentration from 1.7x to 2x
Manganese	Increase in concentration from 3x to 10x
Molybdenum	Increase in concentration by 1.1x
Selenium	Increase in concentration up to 1.3x
Zinc	Decrease in concentration from 0.4x to 0.6x

5.5 Potential Changes to Dilution Factors Resulting from Tailings Placement

The basic reclamation plan (see Section 3.2.1 of Volume 1) for the tailings re-processing would see the tailings from all three tailings storage areas placed into the Little Chief pit and adjacent subsidences, with the remainder of the total returned to the Old Pond facility. Under the basic reclamation plan, the pit would be backfilled to an elevation of approximately 820 m while the subsidence would be backfilled to an elevation of approximately 810 m. Approximately 2.5 million cubic meters of reprocessed tailings will be stored in the pit and adjacent subsidences, while 2.8 million cubic meters will remain. This would allow A Valley and B Valley to be left empty of tailings, their dams decommissioned, and natural revegetation would be allowed to take place. These remaining 2.8 million cubic meters amount to 80% of the current volume of tailings held in the Old Pond facility, and will be returned to the Old Pond facility after processing. The reprocessed tailings slurry will be directed into specific parts of the Old Pond by moving the discharge pipe to the desired area. The original ground topography favours the majority of the tailings to be stored in the eastern half of the Old Pond area, but the exact location of tailings placement will be determined in consultation with the City of Whitehorse and Government of Yukon in order to optimize this area for industrial land use. With this caveat, the final placement of tailings in the Old Pond area is assumed to be entirely within the Little Chief/Crater Lake and A Valley drainages, with no tailings placed in the B Valley drainage.

Table 21 shows the revised dilution factors that would result from this tailings placement. The dilution factor for the Old Pond is based on an assumption that the 80% of current tailings volume would entirely fill the areas within A Valley and Little Chief/Crater Lake Drainage (92% of the area); however, it is likely that some portions of these areas would not have tailings placement. The placement of tailings into the pit and subsidence area would result in an overall reduction in the tailings footprint from 81.91 ha to 67.38 ha which is a footprint reduction of 17.7%. This change and reduction in tailings footprint results in the elimination of tailings within one of the three drainages (B Valley) and is expected to reduce the overall potential for metal leaching compared to the present state of the site by a similar factor.

Table 21 Dilution Factors for Whitehorse Copper Tailings Facilities under Basic Reclamation Plan

		Surface Area Tailings (ha)				Dilution Factor
Groundwater Drainage	Area (ha)	Old Pond	Pit	Subsidence	Total Area	
Little Chief/Crater Lake	452.95	13.16	6.4		19.56	23.2
A Valley	350.17	42.92		4.9	47.82	7.3
B Valley	357.82	0			4.95	-

In addition to the reduction in tailings footprint, a number of additional remediation measures proposed by the Project including dust control and improving meteoric drainage provisions will improve overall site conditions.

6.0 LIMITATIONS

This report was prepared for the exclusive use of Eagle Industrial Minerals and is based on data and information collected during site investigations, supplemented by data collected during a recent environmental site assessment. Access Consulting Group has followed standard professional procedures in conducting the site assessment and in preparing the contents of this report. The material in this report reflects Access Consulting Group's best judgment in light of the information available at the time of the preparation of this report. Any use that a third party makes of this report, or any reliance on decisions to be made based on it, are the responsibility of the third parties. Access Consulting Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. Access Consulting Group believes that the contents of this report are substantively correct.

The information and data contained in this report, including without limitation, the results of any sampling and analyses conducted by Access Consulting Group, are based solely on the conditions observed at the time of the field assessment and have been developed or obtained through the exercise of Access Consulting Group's professional judgment and are set to the best of Access Consulting Group's knowledge, information, and belief. Although every effort has been made to confirm that all such information and data is factual, complete and accurate, Access Consulting Group offers no guarantees or warranties, either expressed or implied, with respect to such information or data.

Access Consulting Group shall not by the act of issuing this report be deemed to have represented that any sampling and analyses conducted by it have been exhaustive or will identify all contaminants or contamination of the site, and persons relying on the results thereof do so at their own risk.

7.0 CLOSURE

We trust that this report is sufficient for your needs at this time. Should you have any questions regarding this report, or require further information, please contact the undersigned at Access Consulting Group in Whitehorse, Yukon.

Respectfully submitted,

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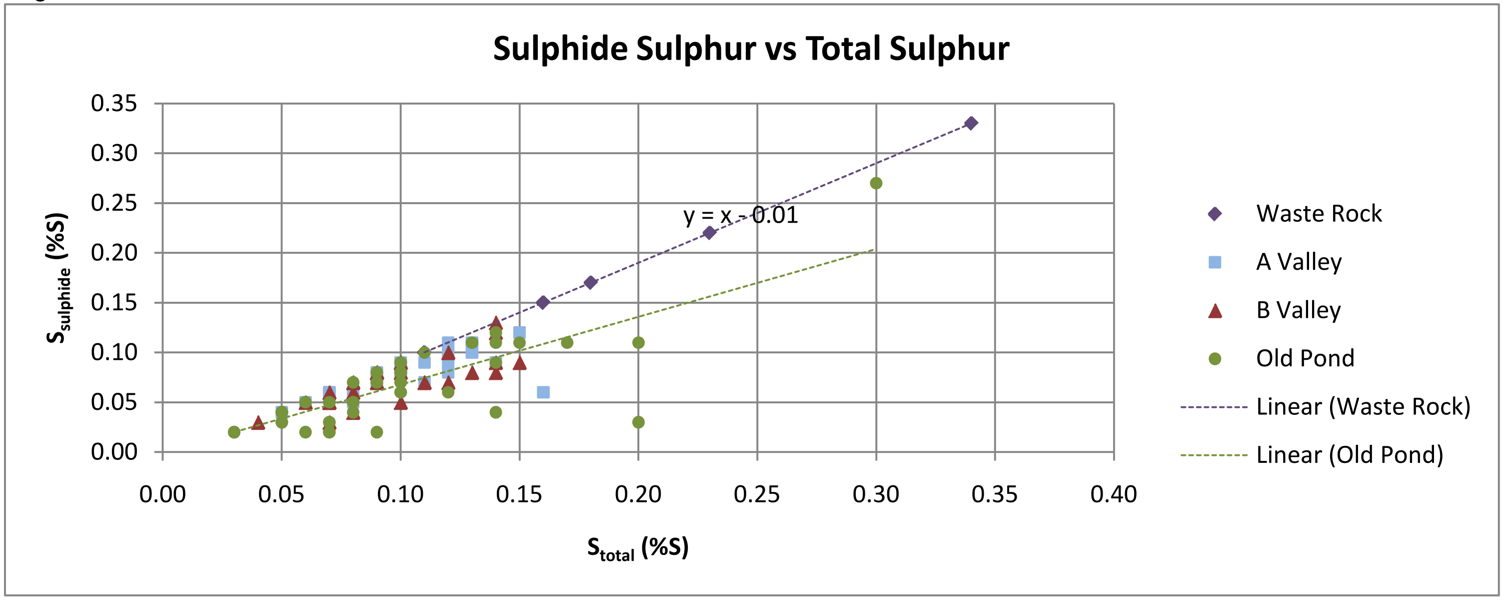
Additional Figures

Figure 7



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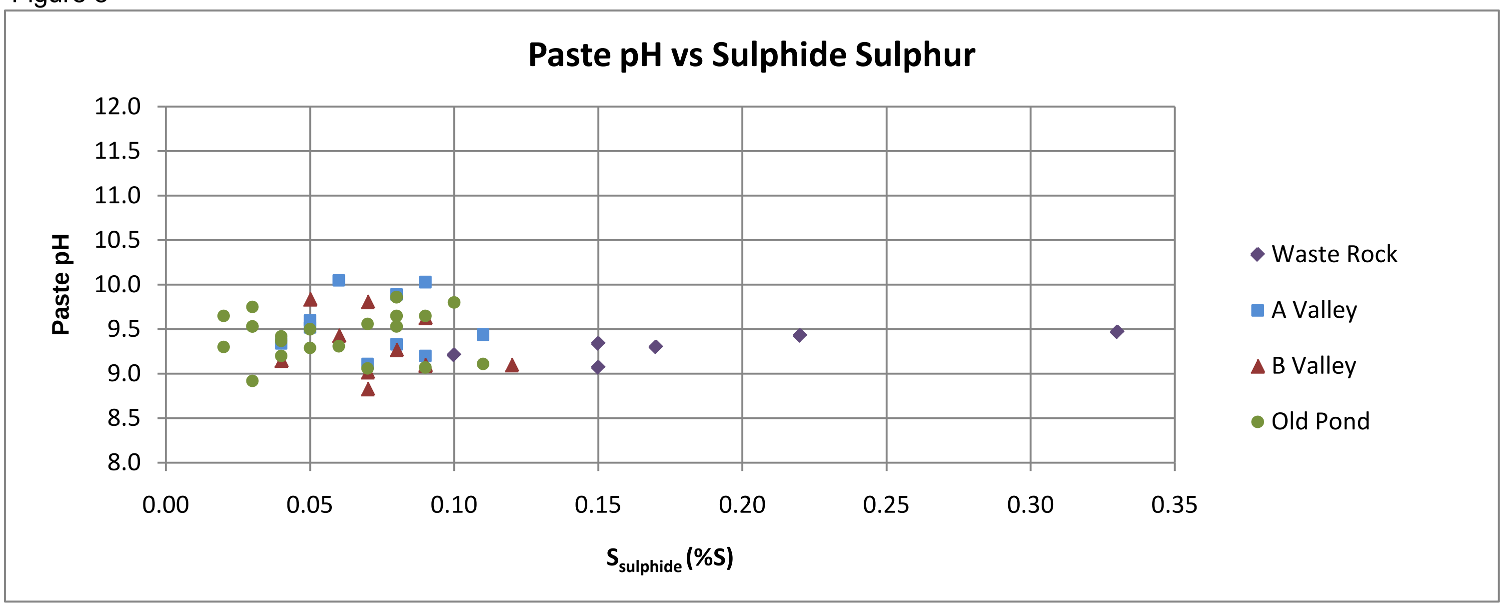

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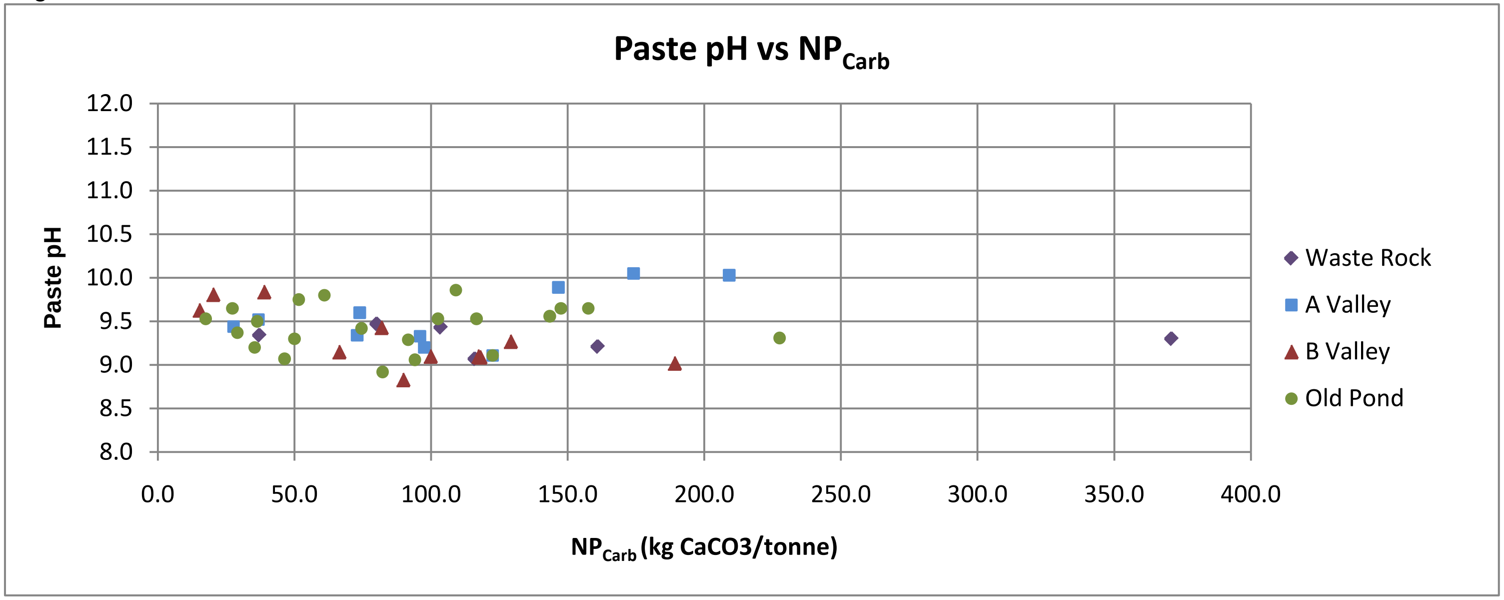

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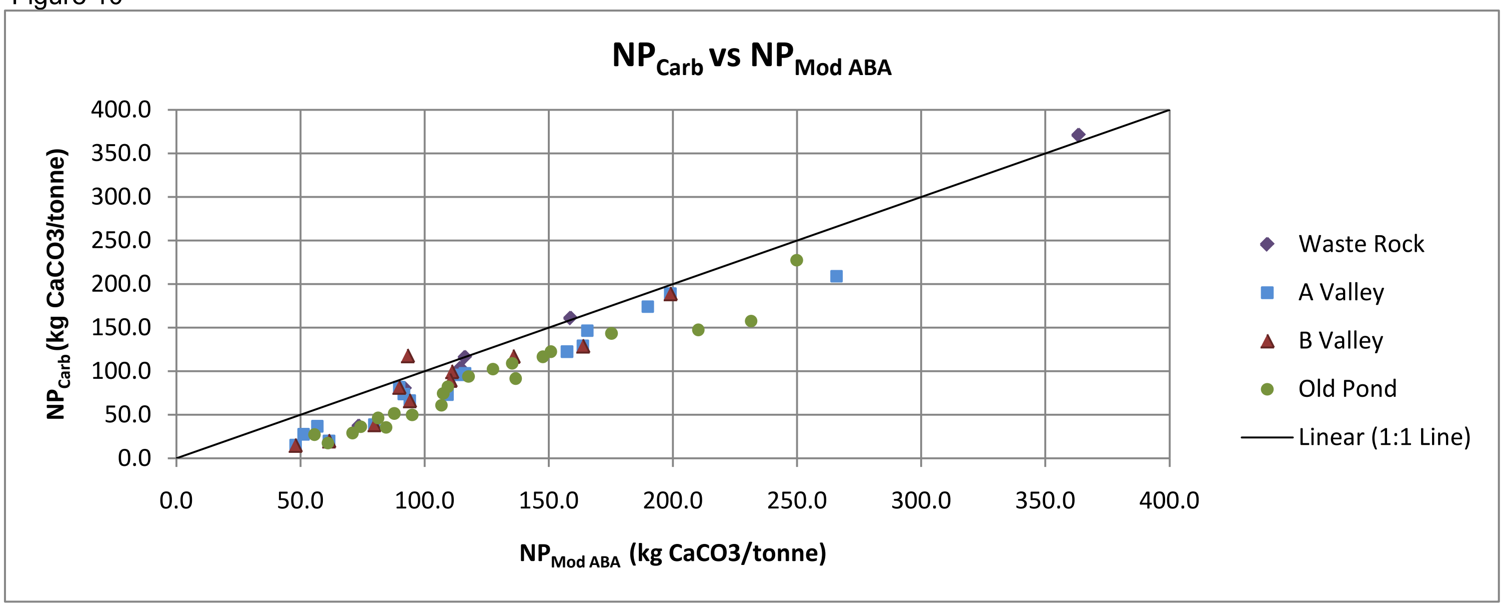

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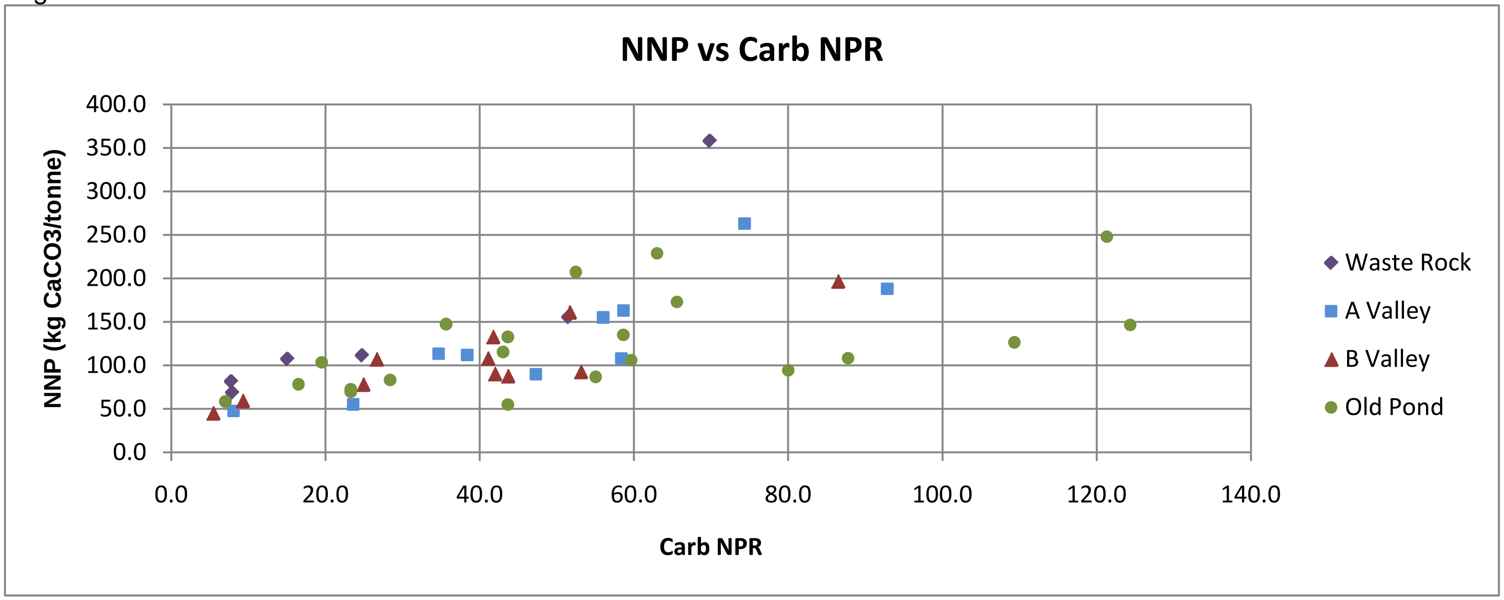

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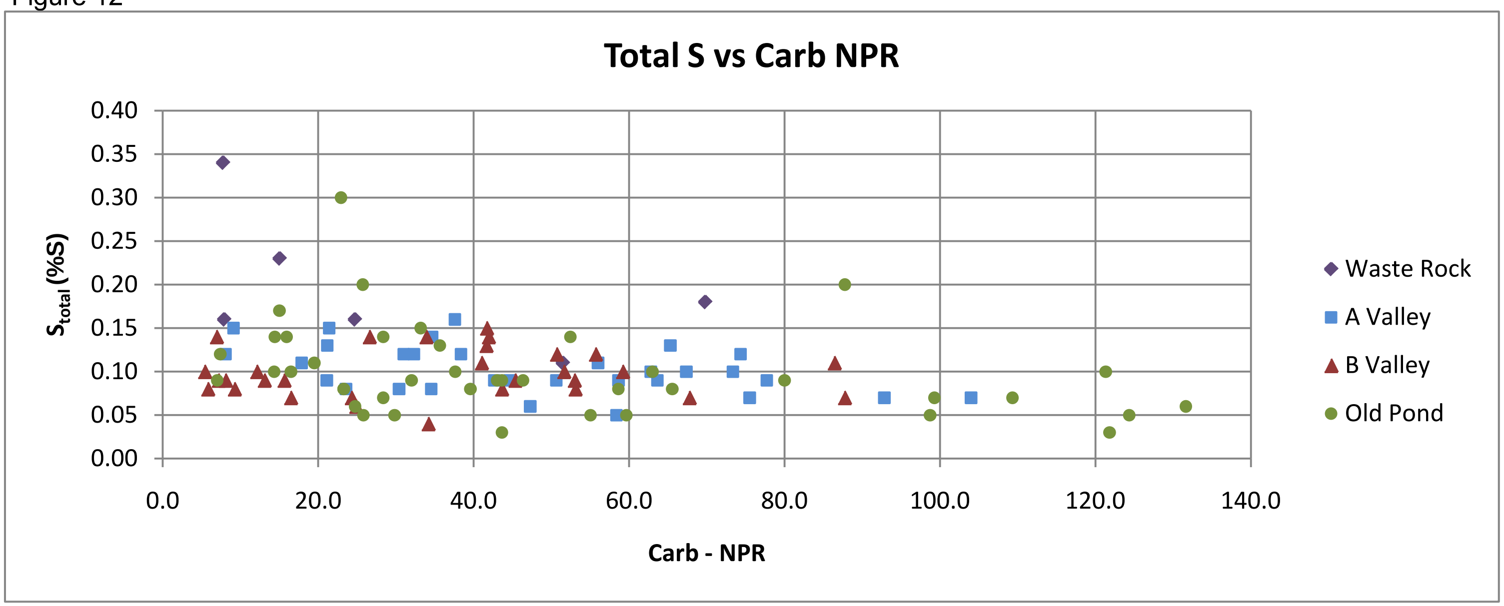

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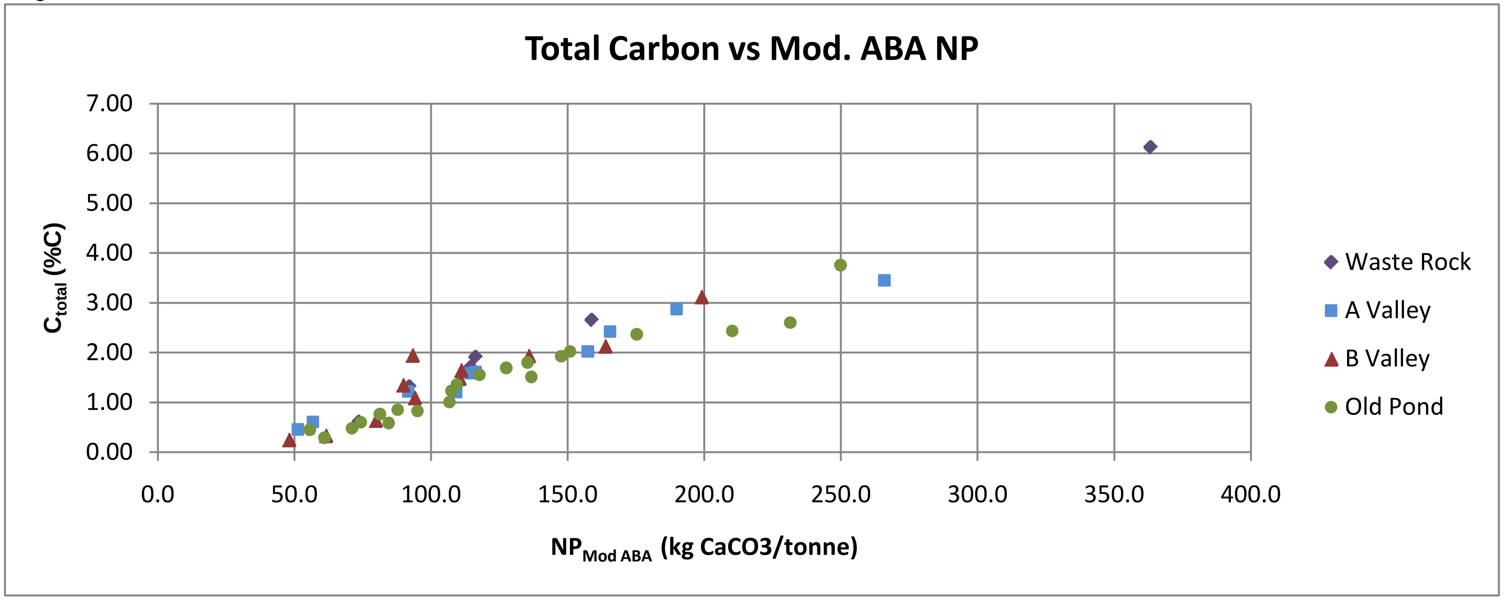


Figure 14

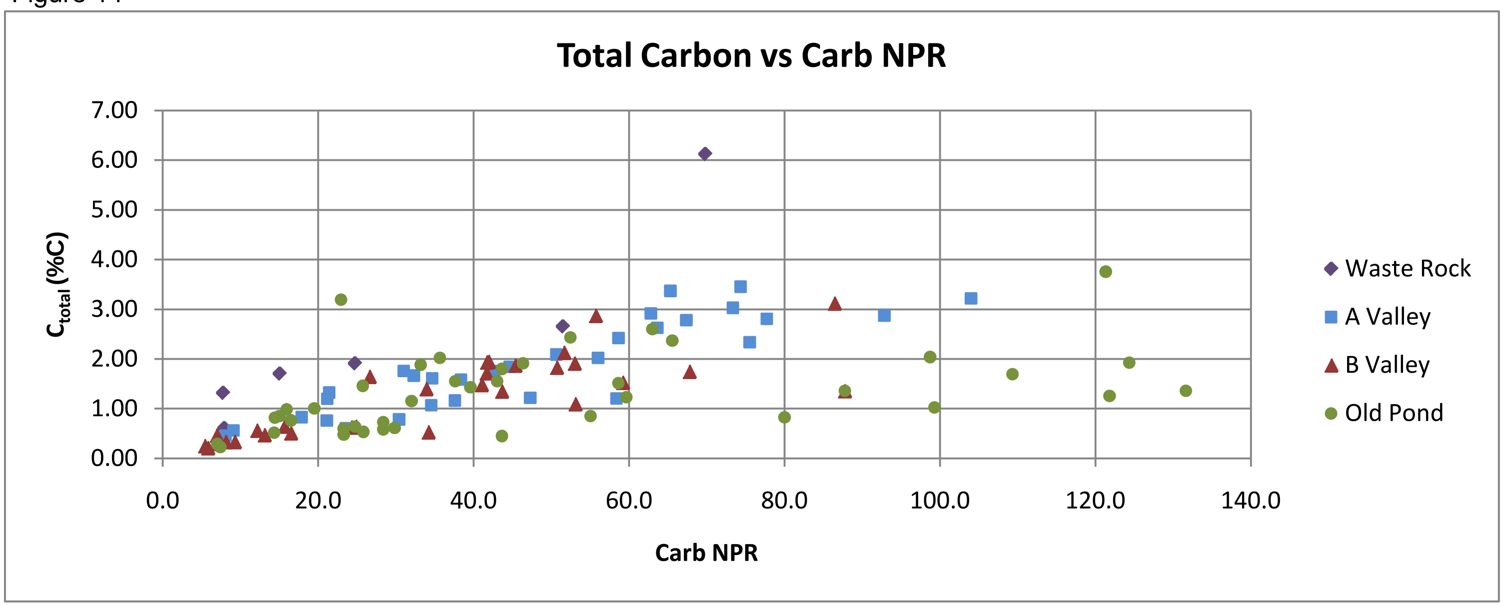
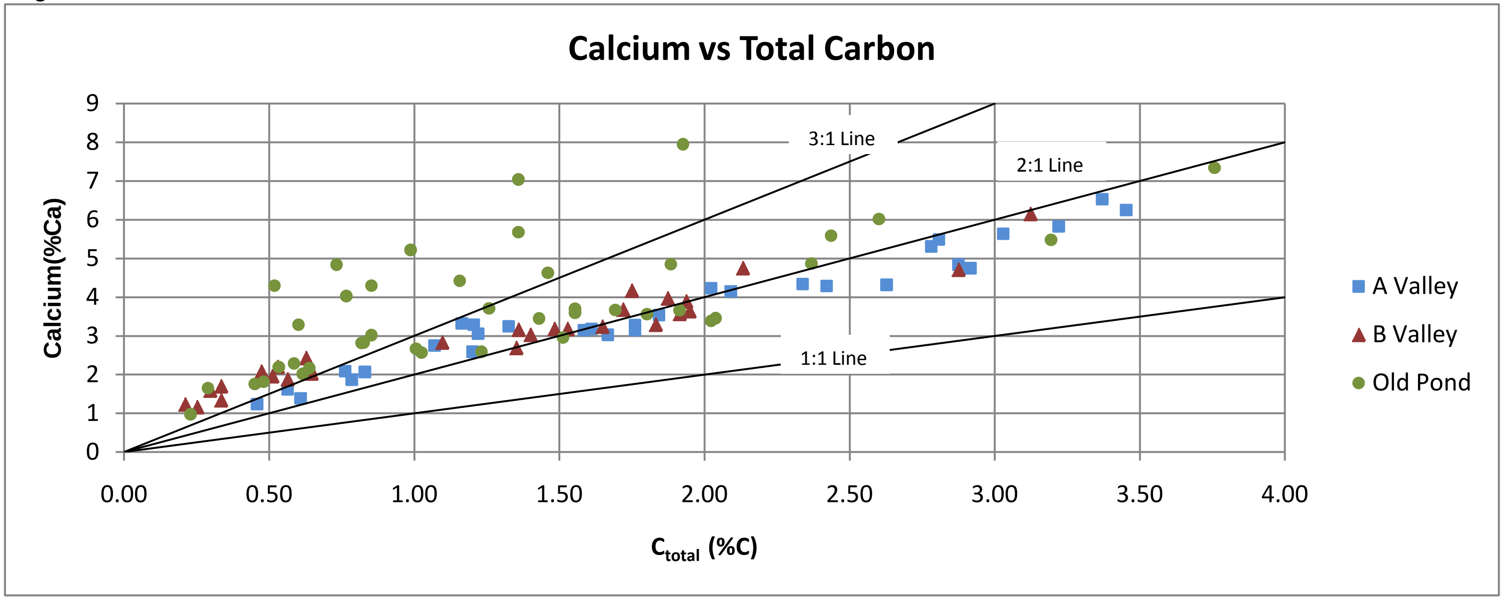


Figure 15


Calcium vs Total Carbon
Calcium(%Ca)
9
8
7
6
5
4
3
2
1
0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
Ctotal (%C)
3:1 Line
2:1 Line
1:1 Line
A Valley
B Valley
Old Pond

2010 ACG TAILINGS BOREHOLE LOGS AND SAMPLING SCHEDULE

Appendix A

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Hole ID	Sample	Depth	ICP-MS	ABA	T-S + TIC + Sulphate	Shake Flask	XRD	Colour	Comments
921-1	1a	5						light grey	moist silty material, no mottling
921-1	1b	10	X		X			light grey	dry silty sand, minimal moisture
921-1	1c	15						grey/brown	dry silty sand, minimal moisture
921-1	1d	20	X	X		X		grey/brown	dry silty sand, minimal moisture
921-1	1e	25						grey/brown	dry silty sand, minimal moisture
921-1	1f	30	X		X			dark grey	clumps on auger rut
921-1	1g	35						med dark grey	moist/dry
921-1	1h	40	X		X		X	med dark grey	moist/dry
921-1	1i	45						med dark grey	moist/dry
921-1	1j	50	X	X		X		med grey	moist silty material
921-1	1k	55						med grey	moist silty material
921-1	1l	60	X		X			dark grey	wet silty material
921-1	1m	65						dark grey	wet silty material
921-2	2a	5	X		X			light grey	moist sandy silt
921-2	2b	15	X		X			med grey	dry, minimal moisture in sample
921-2	2c	25	X	X				med grey	damp
921-2	2d	35	X		X			med grey	wet & icy, frozen ground below 32'
921-2	2e	45	X		X			med grey	damp cold, some minor ice on auger
921-2	2f	55	X		X			dark grey	wet/cool/no ice; 32' probably a lense
921-2	2g	65	X		X			med grey	damp, no ice
921-3	3a	5	X		X			light grey	dry silty sand
921-3	3b	10	X	X		X		light grey	damp silty sand
921-3	3c	15	X		X			light grey	damp fine sand
921-3	3d	20	X		X		X	med grey	damp silty sand
921-3	3e	25	X	X				med grey	damp silt trace sand
921-3	3f	30	X		X			med grey	damp to ice lenses 28'-32'
921-3	3g	35	X		X			med grey	wet & icy
921-3	3h	40	X		X			dark grey	wet & icy, some lensing up auger
921-3	3i	45	X	X		X		dark grey	wet & icy, silty sand
921-3	3j	50	X		X			dark grey	wet & icy, silty sand
921-3	3k	55	X		X			dark grey	wet & icy, silty sand, visible ice
921-3	3l	60						red brown	wet peat, peat from 60'-62'
921-3	3m	65						grey brown	wet, no ice, coarse silty sand w/ mica
922-4	4a	5	X		X			light grey	moist, fine grain sand
	4b	10						med grey	damp silty sand
	4c	15	X		X			med grey	fine silt, trace sand
	4d	20						med grey	silty sand
	4e	25	X	X		X		med grey	damp silty sand w/ layer of clay
	4f	30						med grey	damp, frozen silty sand, no ice
	4g	35	X		X			med grey	damp silty sand
	4h	40						med grey	damp silty sand, frozen bits

	4i	45	X	X		X		med grey	damp/wet silty sand, frozen bits
	4j	50						dark grey	wet, coarse silt, no ice
	4k	55						dark grey	wet, decomposed granite
922-5	5a	5	X		X			med grey	wet, 3' till cover at surfacem, silty sand below
	5b	10	X	X				med grey	wet, fine silty sand
	5c	15	X		X			med grey	wet silty sand
	5d	20	X		X			med grey	wet silty sand
	5e	25	X	X		X	X	med grey	wet silty sand
	5f	30	X		X			med grey	wet fairly clean sand
	5g	35	X		X			med grey	wet sand, trace silt
	5h	40	X		X			med grey	wet fine sand, trace silt
	5i	45	X		X			med grey	wet fine sand, trace silt
	5j	50	X	X		X		dark grey	wet sandy silt
	5k	55						brown/grey	wet gravelly till
922-6	6a	5	X	X				med grey	wet sand, silty clay
	6b	10	X		X			light/med grey	wet silty sand
	6c	15	X		X			med grey	wet silty sand
	6d	20	X	X		X		med grey	wet silty sand
	6e	25	X		X			med grey	wet silty sand
	6f	30	X		X			med grey	wet silty sand
	6g	35	X	X			X	med/dark grey	wet sandy silt
	6h	40	X		X			dark grey	wet silt w/ sand
	6i	45	X		X			dark grey	wet & sticky, silt/clay, some sand
	6j	50	X	X		X		dark grey	wet silty sand
	6k	55	X		X			dark grey	wet & sticky, silt/clay, some sand
923-6	6l	60	X		X			dark grey	wet & sticky, fine silt w/ trace sand
	6m	65	X		X			dark grey	wet & sticky, fine silt w/ trace sand
	6n	70						red brown	wet & sticky, organic till w/ gravel
923-7	7a	5	X		X			med grey	damp silt and sand
	7b	10	X	X				light/med grey	damp and plastic, silt and clay
	7c	15	X		X			very light grey	damp sand, light grey sand at 12'
	7d	20	X	X		X		very light grey	damp sand back to dark grey at 22'
	7e	25	X		X			med grey	silt and sand
	7f	30	X	X		X		med grey	damp/plastic, fine sticky silt
	7g	35	X		X			med grey	damp/plastic, silt with fine sand
	7h	40	X		X			med grey	damp silty sand
	7i	45	X	X		X		med/dark grey	damp silty sand
	7j	50	X		X			med/dark grey	damp and plastic, silt and clay
	7k	55						red brown	damp peat
	7l	60						grey brown	damp peat and organic gravel
923-8	8a	5	X		X			med grey	dry/moist fine sand
	8b	10	X	X		X		med grey	damp/plastic sand and silt
	8c	15	X		X			very light grey	dry/moistsand, light sand at 12'

	8d	20	X	X				white/grey	damp fine sand/silt, ashey, rootlet observed
	8e	25	X		X			med grey	damp/dry silty sand
	8f	30	X	X		X		greenish grey	damp/dry fine sand
	8g	35	X		X			med grey	damp sand and fine silt
	8h	40						med grey	damp/wet sandy silt, some peat and gravel
923-9	9a	5	X	X		X		med/dark grey	damp silt
	9b	10	X		X			med/dark grey	plastic fine silt/clay
	9c	15	X		X			med grey	damp/plastic sand and silt, sand at 6'
	9d	20						brown/light grey	damp/plastic, 3' of white clay to 19', 6' gravel
	9e	25						brown	damp silt till w/ gravel
924-10	10a	5	X	X				dark grey	dry/damp sand, trace silt
	10b	10	X		X			dark grey	dry/damp sand, a silt layer
	10c	15						brown	damp sand and gravel
924-11	11a	5	X		X			med/dark grey	damp sand and silt
	11b	10	X	X				very light grey	damp and sticky silt, 6'-8' sand, 8'-10' silt
	11c	15						brown/light grey	damp silty cobbly till
924-12	12a	5	X		X			med grey	damp/dry sand
	12b	10	X	X		X		med/light grey	damp/dry sand, becoming light at 9'
	12c	15	X		X			light grey	damp/dry sand
	12d	17						red brown	damp silt till, rootlets, a few rocks
924-13	13a	5	X		X			med grey	damp sand
	13b	10	X	X		X	X	dark grey	damp sand, trace silt
	13c	15	X		X			light grey	damp, becoming light grey sand at 12'
	13d	20	X	X		X		light grey	damp sand
	13e	25	X		X			med grey	damp sand and gravel till
	13f	30						med grey	sand and gravel, sample spun up
924-14	14a	5	X	X				med/dark grey	damp sand w/trace silt
	14b	10	X	X		X	X	med grey	damp sand w/trace silt
	14c	15	X		X			very light grey	sand, becoming light grey at 12'
	14d	19						grey/dark brown	grey clay w/organics and woody debris
1029-1	1a	5	x		x			med gray	wet sandy silt
	1b	8	x	x		x		med gray	wet sandy silt
1103-1	1a	5	x	x		x		med gray	wet sandy silt
	1b	9	x		x			med gray	wet sandy silt
1103-2	1a	5	x	x		x		dark grayish green	dry/moistsilty sand
	1b	10	x		x			dark gray	dry/moist wet
	1c	13	x	x				dark gray	wet sandy silt

2010 EIM TAILINGS BOREHOLE LOGS

Appendix B

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	Location (UTM meters)		Depth	Field Comments		H2O	Wt	Mag	Mag	+ 150 mesh			- 150 mesh			- 200 mesh			- 270 mesh			Weighted Average	
																						All	Less + 150
Hole	North	East	ft	Moisture	Color	%	g	g	%	g	%	Fe %	g	%	Fe %	g	%	Fe %	g	%	Fe %	Fe %	Fe %
WH 310-1	6,722,996	496,740	5	Damp	Lt gray	22.5%	86.48	13.36	15.4%	1.98	14.8%	20.8%	1.71	12.8%	56.3%	2.70	20.2%	65.8%	6.97	52.2%	68.3%	59.2%	65.9%
			10	Dry/damp	Brownish	10.6%	111.59	10.62	9.5%	1.19	11.2%	28.7%	1.46	13.7%	60.2%	2.21	20.8%	66.5%	5.76	54.2%	68.6%	62.5%	66.8%
			20	Wet	Brownish	21.8%	103.20	2.22	2.2%	0.15	6.8%	20.3%	0.24	10.8%	54.7%	0.33	14.9%	63.8%	1.50	67.6%	66.6%	61.8%	64.8%
		Not bottom	25	Damp	Dk gray	16.9%	105.31	38.45	36.5%	8.40	21.8%	40.2%	6.01	15.6%	59.8%	7.79	20.3%	64.4%	16.25	42.3%	67.5%	59.7%	65.2%
WH 310-2	6,723,232	496,750	5	Damp/wet	Dk gray	16.3%	121.67	24.62	20.2%	1.59	6.5%	19.8%	2.06	8.4%	54.4%	3.77	15.3%	63.3%	17.20	69.9%	67.1%	62.4%	65.3%
			15	Dry/damp	Dk gray	10.1%	105.62	39.49	37.4%	9.28	23.5%	35.9%	7.56	19.1%	61.3%	8.86	22.4%	65.0%	13.79	34.9%	66.9%	58.1%	65.0%
		Not bottom	25	Damp/wet	Lt gray	20.4%	107.92	5.45	5.1%	1.50	27.5%	34.0%	0.97	17.8%	62.2%	0.94	17.2%	65.6%	2.04	37.4%	67.4%	57.0%	65.7%
WH 310-3	6,722,981	4,970,303 Bottom at 10'	5	Wet	Lt gray	21.6%	125.51	16.16	12.9%	0.80	5.0%	15.4%	0.83	5.1%	44.5%	1.95	12.1%	61.0%	12.58	77.8%	66.7%	62.4%	64.8%
WH 310-4	6,723,025	497,055	5	Dry/damp	Dk gray	8.8%	133.92	32.70	24.4%	2.79	8.5%	22.5%	3.58	10.9%	53.7%	6.68	20.4%	63.0%	19.65	60.1%	67.5%	61.2%	64.8%
			15	Dry/damp	Dk gray	8.6%	112.55	37.77	33.6%	11.24	29.8%	45.5%	7.77	20.6%	63.1%	7.00	18.5%	66.5%	11.76	31.1%	67.4%	59.9%	65.9%
			25	Damp	Lt gray	15.6%	135.36	20.99	15.5%	5.08	24.2%	23.3%	3.37	16.1%	51.6%	4.14	19.7%	60.9%	8.40	40.0%	65.4%	52.1%	61.3%
		Not bottom	35	Damp	Dk gray	19.7%	134.25	29.61	22.1%	2.70	9.1%	18.8%	2.24	7.6%	47.3%	4.38	14.8%	59.4%	20.29	68.5%	66.6%	59.7%	63.8%
WH 310-5	6,723,119	497,252	5	Damp	Dk gray	17.7%	129.78	24.580	18.9%	0.150	0.6%	9.6%	0.340	1.4%	21.2%	1.420	5.8%	55.1%	22.670	92.2%	67.2%	65.5%	65.8%
			15	Damp	Dk gray	21.6%	122.21	28.610	23.4%	1.020	3.6%	16.2%	1.510	5.3%	47.4%	4.160	14.5%	61.5%	21.920	76.6%	67.3%	63.6%	65.3%
			25	Wet	Lt gray	28.2%	124.12	10.160	8.2%	0.160	1.6%	15.5%	0.360	3.5%	36.7%	0.680	6.7%	54.7%	8.960	88.2%	65.5%	63.0%	63.7%
		Bottom at 28'	28	Wet	Dk gray	26.4%	116.87	14.570	12.5%	0.100	0.7%	12.9%	0.420	2.9%	33.3%	1.090	7.5%	54.0%	12.960	88.9%	65.5%	63.3%	63.7%
	Sums						1876.36	349.36		48.13			40.43			58.10			202.70				
	Weighted averages					17.9%			18.6%			23.2%			49.9%			61.7%			66.9%	60.7%	64.8%
WH 427-1	6,722,940	496,695	None																				
WH 427-2	6,722,927	496,719	None																				
WH 427-3			5	Damp	Dk gray																		
WH 427-4	6,723,055	496,752	5	Dry/damp	Dk gray																		
WH 427-5	6,723,186	496,773	5	Damp	Dk gray																		
			15	Dry/damp	Lt/Dk gray																		
WH 427-6	*6,723,209*	496,685	5	Dry	Med gray																		
			15	Damp	Lt gray																		
WH 427-7	6,723,321	496,703	5	Wet clumpy	Lt&dk gray																		
			15	Dry/damp	Lt&dk gray																		
WH 427-8	6,723,379	496,576	5	Dry	Lt gray																		
WH 427-9	6,723,486	496,631	5	Wet clumpy	Dk gray																		
WH 427-10	6,723,424	496,852	5	Wet sticky	Lt&dk gray																		
			15	Damp sandy	Med gray																		
WH 427-11	6,723,208 Coord by Brian	496,933	5	Damp sandy	Med gray																		
WH 427-12	6,723,147 Coord by Brian	496,930	5	Damp sandy	Med gray																		
WH 427-13	6,723,186 Coord by Brian	497,025	5	Damp fines	Med gray																		
			25	Damp sandy	Med gray Loggged but no baggie?																		
			35	Wet sandy	Med gray																		
			45	Wet sandy	Med gray																		

Exhibit 5.2

																						Weighted Average	
	Location (UTM meters)		Depth		Field Comments	H2O	Wt	Mag	Mag	+ 150 mesh			- 150 mesh			- 200 mesh			- 270 mesh			All	Less + 150
Hole	North	East	ft	Moisture	Color	%	g	g	%	g	%	Fe %	g	%	Fe %	g	%	Fe %	g	%	Fe %	Fe %	Fe %
			55	Wet fines	Med gray																		
WH 427-14	6,723,242	496,859	15	Damp sandy	Dk gray																		
	Coord by Brian		25	Damp sandy	Med gray																		
WH 427-15	6,723,078	497,186	5	Damp fines	Med gray																		
			15	Wet fines	Med gray																		
			19	Wet fines	Med gray																		
			32	Wet fines	Med gray																		
WH 427-16	6,723,222	497,293	5	Dry/damp	Dk gray																		
			15	Damp fines	Dk gray																		
WH 427-17	6,723,527	497,081	5	Damp clump	Lt gray																		
			39	Very wet goo	Lt gray																		
WH 428-1	6,724,087	496,766	5	Damp sandy	Dk gray																		
			15	Damp sandy	Dk gray																		
			25	Damp fines	Dk gray																		
			35	Damp sandy	Dk gray																		
			45	Damp fines	Dk gray																		
			55	Damp fines	Dk gray																		
			65	Damp fines	Lt&dk gray																		
			75	Wet fines	Med gray																		
			82	Wet fines	Meg gray																		
WH 428-2	6,724,039	496,863	5	Damp fines	Med gray																		
			15	Damp fines	Lt/med gray																		
			25	Wet fines	Med gray																		
WH 428-3	6,724,035	497,077	5	Damp fines	Dk/med gray																		
			15	Wet fines	Med gray																		
			25	Wet sandy	Med gray																		
			35	Wet fines	Lt gray																		
			45			Not logged																	
WH 428-4	6,724,166	496,626	5	Wet sticky	Med gray																		
			15	Wet sticky	Med gray																		
			25	Very wet sticky	Med gray																		
			35	Wet sandy	Dk gray																		
			45	Very wet sandy	Dk gray																		
			55	Very wet sandy	Dk gray																		

Exhibit 5.2

ANALYITICAL CERTIFICATES FOR ACID BASE ACCOUNTING AND SHAKE FLASK EXTRACTION ANALYSES

Appendix C

www.accessconsulting.ca

Maxxam

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Final Report+Invoice to Ashley Nivison: 9-Nov-10

EDI Environmental Dynamics Inc., (6+87) EIM-10-01, 4-Oct-10

Table 1: ABA Test Results for 6+87 EIM-10-01 Samples - November 2010

									Mod. ABA NP		
S. No.	Sample ID	Paste pH	CO2 (Wt.%)	CaCO3 Equiv.* (Kg CaCO3/Tonne)	Total Sulphur (Wt.%)	Sulphate Sulphur (Wt.%)	Sulphide Sulphur** (Wt.%)	Maximum Potential Acidity*** (Kg CaCO3/Tonne)	Neutralization Potential (Kg CaCO3/Tonne)	Net Neutralization Potential**** (Kg CaCO3/Tonne)	Fizz Rating
On 6 Waste Rock Samples:											
1	928-WR1	9.1	5.10	115.9	0.16	0.01	0.15	4.7	116.3	111.6	Strong
2	928-WR2	9.4	4.55	103.4	0.23	0.01	0.22	6.9	114.4	107.5	Strong
3	928-WR3	9.2	7.08	160.9	0.11	0.01	0.10	3.1	158.8	155.6	Strong
4	928-WR4	9.3	16.32	370.9	0.18	0.01	0.17	5.3	363.3	358.0	Strong
5	928-WR5	9.3	1.63	37.0	0.16	0.01	0.15	4.7	73.5	68.8	Strong
6	928-WR6	9.5	3.52	80.0	0.34	0.01	0.33	10.3	92.0	81.7	Strong
On 87 Tailing Samples:											
1	921-1 1b-10		2.09	47.5	0.08	0.03	0.05	1.6			
2	921-1 1d-20	9.5							56.8		Strong
3	921-1 1f-30		1.50	34.1	0.15	0.03	0.12	3.8			
4	921-1 1h-40		3.53	80.2	0.15	0.03	0.12	3.8			
5	921-1 1j-50	10.0							265.9		Strong
6	921-1 1l-60		8.58	195.0	0.07	0.01	0.06	1.9			
7	921-2 2a-5		8.98	204.1	0.13	0.03	0.10	3.1			
8	921-2 2b-15		2.21	50.2	0.11	0.02	0.09	2.8			
9	921-2 2c-25	9.4							51.3		Strong
10	921-2 2d-35		4.69	106.6	0.12	0.01	0.11	3.4			
11	921-2 2e-45		7.77	176.6	0.10	0.01	0.09	2.8			
12	921-2 2f-55		7.00	159.1	0.09	0.01	0.08	2.5			
13	921-2 2g-65		4.91	111.6	0.09	0.01	0.08	2.5			
14	921-3 3a-5		7.48	170.0	0.09	0.02	0.07	2.2			
15	921-3 3b-10	9.6							91.6		Strong
16	921-3 3c-15		2.85	64.8	0.08	0.02	0.06	1.9			
17	921-3 3d-20		2.03	46.1	0.09	0.02	0.07	2.2			
18	921-3 3e-25	9.2							116.3		Strong
19	921-3 3f-30		4.44	100.9	0.12	0.02	0.10	3.1			
20	921-3 3g-35		3.20	72.7	0.13	0.02	0.11	3.4			
21	921-3 3h-40		8.07	183.4	0.10	0.02	0.08	2.5			
22	921-3 3i-45	9.9							165.5		Strong
23	921-3 3j-50		4.69	106.6	0.09	0.01	0.08	2.5			
24	921-3 3k-55		5.57	126.6	0.09	0.01	0.08	2.5			
25	922-4 4a-5		7.41	168.4	0.10	0.02	0.08	2.5			
26	922-4 4c-15		3.10	70.5	0.16	0.10	0.06	1.9			
27	922-4 4e-25	9.3							114.5		Strong
28	922-4 4g-35		6.23	141.6	0.07	0.01	0.06	1.9			
29	922-4 4i-45	10.1							189.9		Strong
30	922-5 5a-5		7.66	174.1	0.12	0.02	0.10	3.1			
31	922-5 5b-10	9.0							198.9		Strong
32	922-5 5c-15		4.07	92.5	0.10	0.05	0.05	1.6			
33	922-5 5d-20		4.88	110.9	0.12	0.05	0.07	2.2			
34	922-5 5e-25	9.4							89.8		Strong
35	922-5 5f-30		0.79	18.0	0.09	0.01	0.08	2.5			
36	922-5 5g-35		1.72	39.1	0.09	0.01	0.08	2.5			
37	922-5 5h-40		0.56	12.7	0.08	0.01	0.07	2.2			
38	922-5 5i-45		1.26	28.6	0.09	0.02	0.07	2.2			
39	922-5 5j-50	9.6							48.0		Strong
40	922-6 6a-5	9.3							163.8		Strong

41	922-6 6b-10		4.99	113.4	0.09	0.01	0.08	2.5			
42	922-6 6c-15		4.66	105.9	0.07	0.02	0.05	1.6			
43	922-6 6d-20	9.2							94.0		Strong
44	922-6 6e-25		3.62	82.3	0.07	0.04	0.03	0.9			
45	922-6 6f-30		1.67	38.0	0.07	0.02	0.05	1.6			
46	922-6 6g-35	9.8							79.8		Strong
47	922-6 6h-40		1.36	30.9	0.07	0.01	0.06	1.9			
48	922-6 6i-45		1.50	34.1	0.10	0.01	0.09	2.8			
49	922-6 6j-50	9.8							61.5		Strong
50	922-6 6k-55		1.41	32.0	0.04	0.01	0.03	0.9			
51	923-6 6l-60		1.24	28.2	0.14	0.01	0.13	4.1			
52	923-6 6m-65		0.89	20.2	0.09	0.01	0.08	2.5			
53	923-7 7a-5		3.35	76.1	0.03	0.01	0.02	0.6			
54	923-7 7b-10	9.7							231.5		Strong
55	923-7 7c-15		2.63	59.8	0.14	0.02	0.12	3.8			
56	923-7 7d-20	9.5							74.3		Moderate
57	923-7 7e-25		3.08	70.0	0.09	0.02	0.07	2.2			
58	923-7 7f-30	9.7							210.2		Strong
59	923-7 7g-35		4.14	94.1	0.10	0.02	0.08	2.5			
60	923-7 7h-40		5.10	115.9	0.09	0.01	0.08	2.5			
61	923-7 7i-45	9.9							135.3		Strong
62	923-7 7j-50		8.51	193.4	0.30	0.03	0.27	8.4			
63	923-8 8a-5		5.43	123.4	0.05	0.01	0.04	1.3			
64	923-8 8b-10	9.5							127.5		Strong
65	923-8 8c-15		2.73	62.0	0.07	0.05	0.02	0.6			
66	923-8 8d-20	8.9							109.4		Strong
67	923-8 8e-25		5.02	114.1	0.15	0.04	0.11	3.4			
68	923-8 8f-30	9.8							106.8		Strong
69	923-8 8g-35		3.81	86.6	0.08	0.01	0.07	2.2			
70	923-9 9a-5	9.2							84.5		Strong
71	923-9 9b-10		3.89	88.4	0.20	0.09	0.11	3.4			
72	923-9 9c-15		2.18	49.5	0.14	0.03	0.11	3.4			
73	924-10 10a-5	9.3							95.0		Strong
74	924-10 1b-10		0.61	13.9	0.12	0.06	0.06	1.9			
75	924-11 11a-5		1.70	38.6	0.06	0.01	0.05	1.6			
76	924-11 11b-10	9.5							147.6		Strong
77	924-12 12a-5		1.64	37.3	0.05	0.01	0.04	1.3			
78	924-12 12b-10	9.7							55.6		Strong
79	924-12 12c-15		3.62	82.3	0.06	0.04	0.02	0.6			
80	924-13 13a-5		1.42	32.3	0.05	0.01	0.04	1.3			
81	924-13 13b-10	9.5							61.0		Strong
82	924-13 13c-15		1.95	44.3	0.07	0.02	0.05	1.6			
83	924-13 13d-20	9.1							81.3		Strong
84	924-13 13e-25		1.38	31.4	0.10	0.03	0.07	2.2			
85	924-14 14a-5	9.4							71.0		Strong
86	924-14 14b-10	9.8							87.8		Strong
87	924-14 14c-15		2.27	51.6	0.17	0.06	0.11	3.4			
Detection Limits		*0.5*	*0.02*	*0.5*	*0.02*	*0.01*	*0.01*	*0.6*			
Maxxam SOP No:		*7160*	*Leco*	*Calculation*	*Leco*	*7410*	*Calculation*	*Calculation*	*7150*	*Calculation*	*7150*

Notes:

CO2 for samples # 1-6 is complimentary data.

Total sulphur and carbonate carbon (CO2; HCl direct method) by Leco furnace done at Acme Labs.

CO2 Analysis: A 0.2g of pulp sample is digested with 6ml of 1.8N HCl in a hot water bath of 70˚C for 30 minutes. The CO2 that evolves is trapped in a gas chamber that is controlled with a stopcock, once the stopcock is opened the CO2 gas is swept into the Leco analyser with an oxygen carrier gas. Leco then determines the CO2 as total-carbon which is calculated to total CO2.

Calculations:

*CaCO3 equivalents is based on carbonate carbon.

**Sulphide sulphur is based on difference between total sulphur and sulphate sulphur.

***MPA (Maximum Potential Acidity) is based on sulphide sulphur .

**** NNP (Net Neutralization Potential) is based on difference between Neutralization Potential (NP) and MPA.

References:

Reference for Modified ABA NP Method (Maxxam SOP No. 7150): MEND Acid Rock Drainage Prediction Manual, MEND Project 1.16.1b (pages 6.2-11 to 17), March 1991.

Table 2: QAQC for 6+87 EIM-10-01 Samples - November 2010

Table 2a: QA/QC for Paste pH & NP Determination

Sample ID	Paste pH (pH Units)	
Duplicates - Paste pH	**Reported**	**Duplicate**
921-3 3b-10	9.6	9.7
922-6 6g-35	9.8	9.8
924-10 10a-5	9.3	9.3
Sample ID	**Neutralization Potential (KgCaCO3/Tonne)**	
Duplicates - Modified ABA NP	**Reported**	**Duplicate**
921-3 3b-10	91.6	91.3
922-6 6g-35	79.8	75.8
924-10 10a-5	95.0	94.8
Reference Material		
KZK-1 Reference (NP = 58.9) for slight fizz rating	55.8	

Table 2b: QA/QC for Sulphur Speciation

Sample ID	Total Sulphur (Wt.%) (Acme)	
Duplicates- Total Sulphur	**Reported**	**Duplicate**
922-4 4a-5	0.10	0.09
Reference Material		
Maxxam Ref. (0.11% S)	0.11	0.11
Maxxam Ref. (0.11% S)	0.11	
STD CSC (4.25% S)	4.21	4.22
STD CSC (4.25% S)	4.17	4.19
STD OREAS76A (18.00% S)	17.17	17.46
STD OREAS76A (18.00% S)	17.80	16.99
Sample ID	**Sulphate Sulphur (Wt.%)**	
Duplicates - Sulphate Sulphur	**Reported**	**Duplicate**
921-2 2g-65	0.01	0.01
922-4 4c-15	0.10	0.10
922-6 6c-15	0.02	0.01
923-7 7e-25	0.02	0.02
924-10 1b-10	0.06	0.05
928-WR1	0.01	0.01
Reference Material		
Maxxam Ref. (0.27% SO4-S)	0.26	0.26

Table 2c: QA/QC for Carbon Speciation

Sample ID	Carbonate Carbon (CO2; Wt.%)	
QAQC- CO2	**Reported**	**Duplicate**
Reference Material		
STD CSC (1.55% CO2)	1.58	1.40
STD CSC (1.55% CO2)	1.63	1.58

Table 3: Results of MEND-Shakeflask Extraction on 3 (of 6) & Custom-Shakeflask Extraction on 20 (of 87) EIM-10-01 Samples - November 2010

				Using DI Water as reagent				Using Pit Lake Water as reagent										
S. No:				1	2	3	Method Blank	1	2	3	4	5	6	7	8	9	10	
Parameter	Units	Method	Reportable Detection Limit	Sample ID														
				928-WR2	928-WR4	928-WR6		921-1 1d-20	921-1 1j-50	921-3 3b-10	921-3 3i-45	922-4 4e-25	922-4 4i-45	922-5 5e-25	922-5 5j-50	922-6 6d-20	922-6 6j-50	922-6 6j-50 Duplicate
Weight of sample used	g	Weighing Scale	0.01	250	250	250		250	250	250	250	250	250	250	250	250	250	250
Volume of DI water used	ml	Graduated Cylinder	5	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
pH (24h)	pH Units	pH Meter	0.01	9.1	8.9	9.2	5.9	8.2	8.7	8.2	8.5	8.2	8.5	8.1	8.2	8.2	8.2	8.3
Electric Conductivity (24h)	µS/cm	Conductivity Meter	1	82	71	67	1.8	1476	1457	1352	1331	1551	1325	1390	1342	1715	1385	1350
Dissolved Sulphate	mg/L	Auto Turbidity	1	9	7	4		718	663	684	623	799	615	642	630	901	617	633
Total Alkalinity CaCO3 (to pH 4.5)	mg CaCO3/L	Titration/Calculation	1	25	25	25		117	100	112	107	108	101	135	121	122	125	114
Dissolved Chloride	mg/L	IC	0.5	<0.5	<0.5	<0.5		4.6	14.0	4.9	7.0	8.2	6.1	6.4	5.3	6.5	6.7	
Nitrate (NO3-N)	mg/L	IC	0.05	0.028	<0.02	0.019		0.014	0.049	0.028	0.027	0.013	0.026	0.048	0.037	0.148	0.046	
Nitrite (NO2-N)	mg/L	Colorimetry	0.005	0.012	<0.005	0.011		0.016	0.061	0.032	0.043	0.047	0.044	0.022	0.053	0.052	0.094	
Nitrate plus Nitrite (N)	mg/L	Calculation f	0.02	0.04	<0.02	0.03		0.03	0.11	0.06	0.07	0.06	0.07	0.07	0.09	0.20	0.14	
Total Phosphorous	mgP/L	Colorimetry	0.005	0.016	0.026	0.014		<0.005	0.008	0.018	0.022	<0.005	<0.005	0.074	<0.005	<0.005	0.018	
Low Level Dissolved Metals (CCME DLs):																		
Dissolved Hardness (CaCO3)	mg/L	Calculation from Mg & Ca	0.5	34	29	30		801	611	671	629	787	653	701	665	900	666	
Dissolved Aluminum (Al)	mg/L	ICP-MS	0.001	0.0293	0.0163	0.108		0.005	0.003	0.004	0.003	0.007	0.002	0.009	0.01	0.006	0.004	
Dissolved Antimony (Sb)	mg/L	ICP-MS	0.0001	0.163	0.00518	0.00266		0.0039	0.0067	0.0046	0.0055	0.0043	0.0055	0.0051	0.0046	0.0046	0.0045	
Dissolved Arsenic (As)	mg/L	ICP-MS	0.0001	0.0116	0.00155	0.024		0.0012	0.0021	0.0022	0.0017	0.0017	0.0019	0.0037	0.002	0.002	0.002	
Dissolved Barium (Ba)	mg/L	ICP-MS	0.0001	0.102	0.0683	0.0399		0.0428	0.0437	0.0289	0.0978	0.0289	0.0665	0.0577	0.154	0.0542	0.131	
Dissolved Beryllium (Be)	mg/L	ICP-MS	0.00005	<0.00001	<0.00001	<0.00001		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	
Dissolved Bismuth (Bi)	mg/L	ICP-MS	0.00003	0.000009	0.000012	0.000015		<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	
Dissolved Boron (B)	mg/L	ICP-MS	0.3	<0.05	<0.05	<0.05		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	
Dissolved Cadmium (Cd)	mg/L	ICP-MS	0.00003	0.000014	0.000008	<0.000005		0.00015	0.00035	0.00018	0.00027	0.00021	0.00025	0.00025	0.00022	0.00022	0.00019	
Dissolved Cesium (Cs)	mg/L	ICP-MS	0.0003	0.00012	0.00018	0.00021		0.0006	0.0004	0.0003	0.0004	0.0005	0.0004	0.0007	0.0003	0.0009	0.0004	
Dissolved Chromium (Cr)	mg/L	ICP-MS	0.0005	<0.0001	<0.0001	0.0006		0.0008	0.002	0.001	0.0022	0.0005	0.0007	0.0009	<0.0005	0.0006	0.0013	
Dissolved Cobalt (Co)	mg/L	ICP-MS	0.00003	0.000013	0.000007	0.000009		0.00014 (1)	<0.00003	0.00009	<0.00003	0.00005	0.00003	0.00011	0.00006	0.00015	0.00004	
Dissolved Copper (Cu)	mg/L	ICP-MS	0.0003	0.0109	0.00933	0.0105		0.107	0.0082	0.0302	0.0094	0.0189	0.0082	0.0188	0.0226	0.0529	0.0166	
Dissolved Iron (Fe)	mg/L	ICP-MS	0.005	0.007	0.004	0.011		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.007	
Dissolved Lanthanum (La)	mg/L	ICP-MS	0.0003	<0.00005	<0.00005	<0.00005		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Dissolved Lead (Pb)	mg/L	ICP-MS	0.00003	0.000056	0.000185	0.00005		0.00004	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	0.00003	0.00004	0.00004	<0.00003	
Dissolved Lithium (Li)	mg/L	ICP-MS	0.003	0.0008	<0.0005	<0.0005		0.004	0.003	0.004	0.003	0.004	<0.003	0.004	<0.003	0.004	0.003	
Dissolved Manganese (Mn)	mg/L	ICP-MS	0.0003	0.00082	0.00058	0.00061		0.0341	0.0019	0.0112	0.0039	0.0212	0.0033	0.0238	0.0344	0.0516	0.0254	
Dissolved Molybdenum (Mo)	mg/L	ICP-MS	0.0003	0.0434	0.0125	0.00738		0.543	1.22	0.591	0.935	0.647	0.919	0.756	0.854	0.702	0.74	
Dissolved Nickel (Ni)	mg/L	ICP-MS	0.0001	0.00007	0.00003	0.00041		0.0006 (2)	0.0001	0.0004	0.0003	0.0006	0.0004	0.0009	0.0011	0.0005	0.0006	
Dissolved Phosphorus (P)	mg/L	ICP-MS	0.01	0.006	0.004	0.008		0.02	0.02	0.04	0.02	0.03	0.02	0.04	0.02	0.03	0.03	
Dissolved Rubidium (Rb)	mg/L	ICP-MS	0.0003	0.00456	0.0044	0.0052		0.0499	0.0401	0.0328	0.0363	0.0402	0.0362	0.035	0.0334	0.0422	0.0294	
Dissolved Selenium (Se)	mg/L	ICP-MS	0.0002	0.00363	0.00597	0.00277		0.0117	0.012	0.0106	0.01	0.009	0.0097	0.0094	0.0094	0.0115	0.0093	
Dissolved Silicon (Si)	mg/L	ICP-MS	0.5	1.7	1.8	2		4	2.6	3.8	3.3	4.2	3.6	4.8	4.1	3.7	4.6	
Dissolved Silver (Ag)	mg/L	ICP-MS	0.00003	0.000006	<0.000005	<0.000005		<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	
Dissolved Strontium (Sr)	mg/L	ICP-MS	0.0003	0.0996	0.0459	0.0364		1.48	1.59	3.27	2.02	2.53	1.81	7.55	2.68	3.81	2.68	
Dissolved Tellurium (Te)	mg/L	ICP-MS	0.0001	<0.00002	0.00002	0.00002		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Dissolved Thallium (Tl)	mg/L	ICP-MS	0.00001	0.000013	0.000007	0.000007		0.00005	0.00005	0.00002	0.00004	0.00004	0.00003	0.00005	0.00003	0.00005	0.00004	
Dissolved Thorium (Th)	mg/L	ICP-MS	0.00003	<0.000005	<0.000005	<0.000005		<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	
Dissolved Tin (Sn)	mg/L	ICP-MS	0.00005	<0.00001	<0.00001	<0.00001		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	
Dissolved Titanium (Ti)	mg/L	ICP-MS	0.003	<0.0005	<0.0005	<0.0005		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	
Dissolved Tungsten (W)	mg/L	ICP-MS	0.00005	0.00249	0.00991	0.00168		0.00967	0.294	0.0136	0.117	0.0163	0.0836	0.0172	0.0213	0.0105	0.0145	
Dissolved Uranium (U)	mg/L	ICP-MS	0.00001	0.000054	0.000003	0.000076		0.0078	0.00247	0.00197	0.00867	0.0111	0.0151	0.0312	0.0282	0.0153	0.0357	
Dissolved Vanadium (V)	mg/L	ICP-MS	0.001	0.0006	0.0004	0.0006		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Dissolved Zinc (Zn)	mg/L	ICP-MS	0.0005	0.0006	0.0003	0.0007		0.0019	0.0008	0.0023	0.0013	0.0022	0.0009	0.0046	0.0041	0.0016	0.0018	
Dissolved Zirconium (Zr)	mg/L	ICP-MS	0.0005	<0.0001	<0.0001	<0.0001		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Dissolved Calcium (Ca)	mg/L	ICP-MS	0.3	8.29	5.99	7.31		111	47.2	86.5	69.7	115	75.3	99.2	92.6	107	98.7	
Dissolved Magnesium (Mg)	mg/L	ICP-MS	0.3	3.24	3.52	2.79		127	120	111	111	121	113	110	105	153	102	
Dissolved Potassium (K)	mg/L	ICP-MS	0.3	1.9	1.12	1.47		16.5	24.4	13.1	15.3	19.1	13.2	17.4	15.4	19	13.1	
Dissolved Sodium (Na)	mg/L	ICP-MS	0.3	0.55	0.27	0.35		18.7	60.2	18.5	28.6	27.1	26.7	24.6	27.5	28.7	25.2	
Dissolved Sulphur (S)	mg/L	ICP-MS	50	<10	<10	<10		251	247	215	207	262	215	223	219	304	210	

Ion Balance:																		
Anions				0.68	0.64	0.58		17.30	15.81	16.49	15.12	18.81	14.82	16.08	15.55	21.21	15.36	
Cations				0.76	0.63	0.66		17.24	15.48	14.60	14.26	17.38	14.56	15.53	14.86	19.68	14.76	
Balance %				-5.5	0.3	-6.1		0.2	1.1	6.1	2.9	4.0	0.9	1.7	2.2	3.8	2.0	

Notes:

(1) Duplicate RPD exceeds acceptance criteria. 10% of analytes failure in multielement scan is allowed.

(2) Matrix Spike exceeds acceptance criteria. 10% of analytes failure in multielement scan is allowed.

Extraction Method: Using gyratory shaker for 24 h (gentle agitation).

Liquid:Solid ratio used:

For Tailings - 3:1; 750 ml DI H2O/Pit Lake Water:250g of as-rec'd homogenized sample.

For Waste Rocks: 3:1; 750 ml DI H2O/Pit Lake Water:250g of cone-crushed (<9.5mm) sample.

Method Reference: Prediction Manual for Drainage Chemistry from Sulphidic Geologic Material, MEND Report 1.20.1; Version 0 - Dec. 2009. Section 11.5; Pages 11-8 to 11-9.

11	12	13	14	15	16	17	18	19	20		Pit Lake Water
Sample ID											
923-7 7d-20	923-7 7f-30	923-7 7i-45	923-8 8b-10	923-8 8f-30	923-9 9a-5	924-12 12b-10	924-13 13b-10	924-13 13d-20	924-14 14b-10	924-14 14b-10 Duplicate	
250	250	250	250	250	250	250	250	250	250	250	
750	750	750	750	750	750	750	750	750	750	750	750
8.1	8.5	8.2	8.1	8.4	8.2	8.2	8.1	8.1	8.6	8.5	8.2
1473	1489	1339	1470	1354	1968	1337	1334	1347	1492	1490	1321
704	761	608	695	611	1081	604	603	613	689	742	
124	120	116	114	125	160	122	123	132	122	119	
4.4	8.9	6.6	4.8	7.3	7.7	4.6	4.6	4.8	4.9		
0.024	0.05	0.02	0.038	0.095	0.019	0.014	0.027	0.014	0.023		
0.016	0.160	0.070	0.092	0.335	0.031	0.056	0.073	0.006	0.107		
0.04	0.21	0.09	0.13	0.43	0.05	0.07	0.10	0.02	0.13		
0.007	0.011	0.005	0.017	0.006	0.060	0.016	<0.005	0.006	0.021		
772	775	646	757	658	1080	669	679	690	743		
0.007	0.002	0.003	0.002	0.002	0.002	0.004	0.002	0.003	0.002		
0.0059	0.0057	0.0054	0.004	0.0055	0.0035	0.0049	0.0041	0.0095	0.0063		
0.0039	0.0032	0.0032	0.0011	0.003	0.0014	0.0025	0.0013	0.0076	0.002		
0.0375	0.044	0.163	0.038	0.0675	0.0275	0.0415	0.0336	0.0461	0.0271		
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		
<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003		
<0.3	<0.3	<0.3	<0.3	<0.3	0.5	<0.3	<0.3	<0.3	<0.3		
0.00021	0.00028	0.00028	0.0002	0.0004	0.00022	0.00019	0.00019	0.00019	0.0002		
<0.0003	0.0003	0.0003	0.0006	0.0007	0.0006	0.0004	0.0008	<0.0003	0.0007		
<0.0005	0.0012	0.0016	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
0.00058	0.00003	0.00006	0.00024	0.00003	0.00016	0.00011	0.00018	0.00019	<0.00003		
0.0462	0.0071	0.0099	0.0788	0.015	0.0616	0.0508	0.0697	0.0342	0.0182		
0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003		
0.00025	0.00005	<0.00003	0.00003	<0.00003	<0.00003	0.00009	<0.00003	0.00129	<0.00003		
0.004	0.003	<0.003	0.004	<0.003	0.007	0.003	<0.003	0.003	0.003		
0.0616	0.0068	0.0119	0.0259	0.0076	0.0297	0.0098	0.0161	0.0252	0.0029		
0.72	0.959	0.882	0.605	1.5	0.653	0.636	0.617	0.747	0.623		
0.0023	0.0003	0.0005	0.0003	0.0005	0.0004	0.0004	0.0003	0.0021	0.0004		
0.04	0.03	0.04	0.03	0.02	0.03	0.02	0.02	0.03	0.01		
0.0153	0.0258	0.0159	0.0844	0.0212	0.0819	0.0379	0.0457	0.0096	0.0391		
0.0107	0.0108	0.0098	0.0248	0.0103	0.0227	0.0149	0.0167	0.0131	0.0211		
5.6	2.7	4.4	3.2	3.6	2.8	4.4	3.6	10.3	3		
<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003		
1.76	1.55	1.7	2.41	1.37	2.32	1.39	1.44	1.31	1.22		
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		
0.00004	0.00005	0.00005	0.00006	0.00003	0.00003	0.00003	0.00003	0.00003	0.00001		
<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003		
<0.00005	<0.00005	0.00015	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
0.00979	0.347	0.0396	0.0128	0.162	0.0104	0.0106	0.0105	0.0105	0.0213		
0.0901	0.00397	0.018	0.00271	0.0235	0.00215	0.028	0.00253	0.0951	0.00326		
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
0.0024	0.0013	0.0016	0.0016	0.0024	0.0013	0.0014	0.0012	0.0026	0.0016		
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
146	63.7	84.4	104	79	117	90.2	96.7	110	80.3		
98.8	150	106	121	112	192	108	106	101	132		
11.3	11.8	9.9	19.5	8.3	28.5	13.6	10.7	10.4	12.3		
17.6	21.9	27.1	19	30.3	27	17	17.5	17.2	18.5		
241	261	216	245	222	390	200	206	202	241		

17.15	18.26	14.99	16.76	15.24	25.72	15.02	15.02	15.41	16.80		
16.49	16.79	14.38	16.49	14.70	23.56	14.49	14.60	14.83	16.00		
2.0	4.2	2.1	0.8	1.8	4.4	1.8	1.4	1.9	2.4		

Table 4: Sample List 6+87 (93) Waste Rock Samples (from Kimberley W 4-Oct-10)

		Analyses Requested						
S. No.	Sample	ABA + SO4-S	ICP	Shake Flask*	Description	Depth of Sample (cm)	Easting	Northing
1	928-WR1	X	X		Green calc-silicate skarn (hedenburgite/diposide?), epidote and serpentine, with some calcite, ferriphlogopite? No oxidation or sulphides observed.	20	497062	6722146
2	928-WR2	X	X	X	Green calc-silicate skarn, epidote and serpentine, no visiblue suhphides, trace malchite and azurite.	25	497127	6722153
3	928-WR3	X	X		Green calc-silicate skarn, brownish pink garnet, epidote, some white calcite/marble. Possibly some trace amount of till/gravel cover material mixed in.	40	497216	6722154
4	928-WR4	X	X	X	White and grey limestone, green calc-silicate with malachite, azurite, trace bornite/chalcopyrite. Possibly some diorite/granodiorite mixed in.	35	497280	6722276
5	928-WR5	X	X		Black/ dark green serpentine, epidote, green mica (phlogopite?) garnet and calc-silicate skarn. Some massive black fine grained magnetite and trace malachite.	35	497237	6722359
6	928-WR6	X	X	X	Grey/green limestone, calc-silicate skarn with epdiote, serpentine. Trace chalcopyrite, bornite and malachite where oxidized.	40	492054	6722343

*Use deionized water for SFE.

							Analyses Requested			
S. No.	Hole ID	Sample	Depth	ICP-MS	Comments	Colour	ABA	TS + TIC +SO4-S	Shake Flask*	XRD
1	921-1	1b	10	X	dry silty sand, minimal moisture	light grey		X		
2	921-1	1d	20	X	dry silty sand, minimal moisture	grey/brown	X		X	
3	921-1	1f	30	X	clumps on auger rut	dark grey		X		
4	921-1	1h	40	X	moist/dry	med dark grey		X		X
5	921-1	1j	50	X	moist silty material	med grey	X		X	
6	921-1	1l	60	X	wet silty material	dark grey		X		
7	921-2	2a	5	X	moist sandy silt	light grey		X		
8	921-2	2b	15	X	dry, minimal moisture in sample	med grey		X		
9	921-2	2c	25	X	damp	med grey	X			
10	921-2	2d	35	X	wet & icy, frozen ground below 32'	med grey		X		
11	921-2	2e	45	X	damp cold, some minor ice on auger	med grey		X		
12	921-2	2f	55	X	wet/cool/no ice; 32' probably a lense	dark grey		X		
13	921-2	2g	65	X	damp, no ice	med grey		X		
14	921-3	3a	5	X	dry silty sand	light grey		X		
15	921-3	3b	10	X	damp silty sand	light grey	X		X	
16	921-3	3c	15	X	damp fine sand	light grey		X		
17	921-3	3d	20	X	damp silty sand	med grey		X		X
18	921-3	3e	25	X	damp silt trace sand	med grey	X			
19	921-3	3f	30	X	damp to ice lenses 28'-32'	med grey		X		
20	921-3	3g	35	X	wet & icy	med grey		X		
21	921-3	3h	40	X	wet & icy, some lensing up auger	dark grey		X		
22	921-3	3i	45	X	wet & icy, silty sand	dark grey	X		X	
23	921-3	3j	50	X	wet & icy, silty sand	dark grey		X		
24	921-3	3k	55	X	wet & icy, silty sand, visible ice	dark grey		X		
25	922-4	4a	5	X	moist, fine grain sand	light grey		X		
26	922-4	4c	15	X	fine silt, trace sand	med grey		X		
27	922-4	4e	25	X	damp silty sand w/ layer of clay	med grey	X		X	
28	922-4	4g	35	X	damp silty sand	med grey		X		
29	922-4	4i	45	X	damp/wet silty sand, frozen bits	med grey	X		X	
30	922-5	5a	5	X	wet, 3' till cover at surfacem, silty sand below	med grey		X		
31	922-5	5b	10	X	wet, fine silty sand	med grey	X			
32	922-5	5c	15	X	wet silty sand	med grey		X		
33	922-5	5d	20	X	wet silty sand	med grey		X		
34	922-5	5e	25	X	wet silty sand	med grey	X		X	X
35	922-5	5f	30	X	wet fairly clean sand	med grey		X		
36	922-5	5g	35	X	wet sand, trace silt	med grey		X		
37	922-5	5h	40	X	wet fine sand, trace silt	med grey		X		
38	922-5	5i	45	X	wet fine sand, trace silt	med grey		X		
39	922-5	5j	50	X	wet sandy silt	dark grey	X		X	
40	922-6	6a	5	X	wet sand, silty clay	med grey	X			
41	922-6	6b	10	X	wet silty sand	light/med grey		X		
42	922-6	6c	15	X	wet silty sand	med grey		X		
43	922-6	6d	20	X	wet silty sand	med grey	X		X	
44	922-6	6e	25	X	wet silty sand	med grey		X		
45	922-6	6f	30	X	wet silty sand	med grey		X		
46	922-6	6g	35	X	wet sandy silt	med/dark grey	X			X
47	922-6	6h	40	X	wet silt w/ sand	dark grey		X		
48	922-6	6i	45	X	wet & sticky, silt/clay, some sand	dark grey		X		
49	922-6	6j	50	X	wet silty sand	dark grey	X		X	
50	922-6	6k	55	X	wet & sticky, silt/clay, some sand	dark grey		X		
51	923-6	6l	60	X	wet & sticky, fine silt w/ trace sand	dark grey		X		
52	923-6	6m	65	X	wet & sticky, fine silt w/ trace sand	dark grey		X		
53	923-7	7a	5	X	damp silt and sand	med grey		X		
54	923-7	7b	10	X	damp and plastic, silt and clay	light/med grey	X			
55	923-7	7c	15	X	damp sand, light grey sand at 12'	very light grey		X		
56	923-7	7d	20	X	damp sand back to dark grey at 22'	very light grey	X		X	
57	923-7	7e	25	X	silt and sand	med grey		X		
58	923-7	7f	30	X	damp/plastic, fine sticky silt	med grey	X		X	
59	923-7	7g	35	X	damp/plastic, silt with fine sand	med grey		X		
60	923-7	7h	40	X	damp silty sand	med grey		X		
61	923-7	7i	45	X	damp silty sand	med/dark grey	X		X	
62	923-7	7j	50	X	damp and plastic, silt and clay	med/dark grey		X		
63	923-8	8a	5	X	dry/moist fine sand	med grey		X		
64	923-8	8b	10	X	damp/plastic sand and silt	med grey	X		X	
65	923-8	8c	15	X	dry/moistsand, light sand at 12'	very light grey		X		
66	923-8	8d	20	X	damp fine sand/silt, ashey, rootlet observed	white/grey	X			
67	923-8	8e	25	X	damp/dry silty sand	med grey		X		
68	923-8	8f	30	X	damp/dry fine sand	greenish grey	X		X	
69	923-8	8g	35	X	damp sand and fine silt	med grey		X		
70	923-9	9a	5	X	damp silt	med/dark grey	X		X	
71	923-9	9b	10	X	plastic fine silt/clay	med/dark grey		X		
72	923-9	9c	15	X	damp/plastic sand and silt, sand at 6'	med grey		X		
73	924-10	10a	5	X	dry/damp sand, trace silt	dark grey	X			
74	924-10	10b	10	X	dry/damp sand, a silt layer	dark grey		X		
75	924-11	11a	5	X	damp sand and silt	med/dark grey		X		
76	924-11	11b	10	X	damp and sticky silt, 6'-8' sand, 8'-10' silt	very light grey	X			
77	924-12	12a	5	X	damp/dry sand	med grey		X		
78	924-12	12b	10	X	damp/dry sand, becoming light at 9'	med/light grey	X		X	
79	924-12	12c	15	X	damp/dry sand	light grey		X		
80	924-13	13a	5	X	damp sand	med grey		X		
81	924-13	13b	10	X	damp sand, trace silt	dark grey	X		X	X
82	924-13	13c	15	X	damp, becoming light grey sand at 12'	light grey		X		
83	924-13	13d	20	X	damp sand	light grey	X		X	
84	924-13	13e	25	X	damp sand and gravel till	med grey		X		
85	924-14	14a	5	X	damp sand w/trace silt	med/dark grey	X			
86	924-14	14b	10	X	damp sand w/trace silt	med grey	X		X	X
87	924-14	14c	15	X	sand, becoming light grey at 12'	very light grey		X		
				87			30	57	20	6

*Use pit lake water, provided in red jerry cans

Maxxam Analytics 4606 Canada Way, Burnaby, BC Canada V5G 1K5 Tel: 604 734 7276 Fax: 604 731 2386 www.maxxam.ca

Sample Summary:	EDI Environmental Dynamics Inc., (6+87) EIM-10-01, 4-Oct-10 Page 5 of 5
Date Samples Received:	4-Oct-10
Date Instructions Received:	Final confirmation from Ethan Allen by email dated 1-Oct-10.
Sample Prep:	**Tailings:** ABA SO4-S CO2: Air dried, split and pulverized to >80% of <200 mesh. MEND-SFE: Used as-rec'd homogenized sample. **Waste Rocks:** ABA SO4-S CO2: Air dried, cone-crushed, split and pulverized to >80% of <200 mesh. MEND-SFE: Used cone-crush (<9.5mm) sample.
Date of Analysis:	ABA: 2/3-Nov-10; SO4-S: 3-Nov-10; SFE: 19/20-Oct-10
Other Analysis Requested:	Rietveld XRD on 6 samples.

Client:	EDI Environmental Dynamics Inc.
Client Project Name:	EIM-10-01
Client Project No:	Not provided
Contact Person(s):	Lyndsay Doetzel, R.P.Bio 3-478 Range Road, Whitehorse, YT Y1A 3A2
E-mail Address:	ldoetzel@edynamics.com
Billing & Mailing Address:	**Internal Invoice Attn: Ashley Nivison, AScT (anivison@maxxam.ca)** **Client Services Project Manager** **Maxxam Analytics Inc., 4606 Canada Way, Burnaby, BC V5G 1K5.**
Contact No:	**Lyndsay Doetzel:** 867-393-4882; Cell: 867-333-9629
Fax No:	**Lyndsay Doetzel:** 867-393-4883

	Sign: Ivy Rajan
Report Released by:	Ivy Rajan
Position:	Lab Manager, ARD Division, Maxxam Analytics Inc.
Report Verified by:	John Chiang
Position:	Analyst, ARD Division, Maxxam Analytics Inc.
Report Validated by:	Tim O'Hearn
Position:	Director, ARD Division, Maxxam Analytics Inc.
ARD Project No:	2-21-900
Maxxam Job Number:	B081228
Contact No:	604-734-7276 x5029; Direct: 604-638-5029 (Ivy Rajan)
Contact No:	604-734-7276 x2219 (John Chiang)
Contact No:	604-734-7276 x5031; Direct: 604-638-5031 (Tim O'Hearn)

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Final Report to Ashley Nivison: 20-Sep-10

EDI Environmental Dynamics Inc.-Whitehorse Copper, 8-Sep-10

Table 1: ABA Test Results for 8 Whitehorse Copper Samples - September 2010

S. No.	Sample ID	Paste pH	CO2 (Wt.%)	CaCO3 Equiv.* (Kg CaCO3/Tonne)	Total Sulphur (Wt.%)	Sulphate Sulphur (Wt.%)	Sulphide Sulphur** (Wt.%)	Maximum Potential Acidity*** (Kg CaCO3/Tonne)	Mod. ABA NP Neutralization Potential (Kg CaCO3/Tonne)	Net Neutralization Potential**** (Kg CaCO3/Tonne)	Fizz Rating
1	W77035	9.1	5.39	122.5	0.13	0.02	0.11	3.4	150.9	147.4	Strong
2	W77036	9.3	4.03	91.6	0.08	0.03	0.05	1.6	136.7	135.1	Strong
3	W77037	9.3	3.21	73.0	0.05	0.01	0.04	1.3	109.2	108.0	Strong
4	W77038	9.4	3.28	74.5	0.05	0.01	0.04	1.3	107.5	106.2	Strong
5	W77039	9.3	10.01	227.5	0.10	0.04	0.06	1.9	249.8	248.0	Strong
6	W77040	9.6	6.31	143.4	0.08	0.01	0.07	2.2	175.2	173.1	Strong
7	W77041	9.1	4.14	94.1	0.09	0.02	0.07	2.2	117.7	115.5	Strong
8	W77042	9.1	5.39	122.5	0.11	0.04	0.07	2.2	157.3	155.2	Strong
Detection Limits		*0.5*	*0.02*	*0.5*	*0.02*	*0.01*	*0.01*	*0.6*			
Maxxam SOP No:		*7160*	*Leco*	*Calculation*	*Leco*	*7410*	*Calculation*	*Calculation*	*7150*	*Calculation*	*7150*

Notes:

Total sulphur and carbonate carbon (CO2; HCl direct method) by Leco furnace done at Acme Labs.

CO2 Analysis: A 0.2g of pulp sample is digested with 6ml of 1.8N HCl in a hot water bath of 70˚C for 30 minutes. The CO2 that evolves is trapped in a gas chamber that is controlled with a stopcock, once the stopcock is opened the CO2 gas is swept into the Leco analyser with an oxygen carrier gas. Leco then determines the CO2 as total-carbon which is calculated to total CO2.

Calculations:

*CaCO3 equivalents is based on carbonate carbon.

**Sulphide sulphur is based on difference between total sulphur and sulphate sulphur.

***MPA (Maximum Potential Acidity) is based on sulphide sulphur .

**** NNP (Net Neutralization Potential) is based on difference between Neutralization Potential (NP) and MPA.

References:

Reference for Modified ABA NP Method (Maxxam SOP No. 7150): MEND Acid Rock Drainage Prediction Manual, MEND Project 1.16.1b (pages 6.2-11 to 17), March 1991.

EDI Environmental Dynamics Inc.-Whitehorse Copper, 8-Sep-10

Table 2: QAQC for 8 Whitehorse Copper Samples - September 2010

Table 2a: QA/QC for Paste pH & NP Determination

Sample ID	Paste pH (pH Units)	
Duplicates - Paste pH	**Reported**	**Duplicate**
W77035	9.1	9.1
Sample ID	**Neutralization Potential (KgCaCO3/Tonne)**	
Duplicates - Modified ABA NP	**Reported**	**Duplicate**
W77035	150.9	150.6
Reference Material		
KZK-1 Reference (NP = 58.9) for slight fizz rating	57.2	

Table 2b: QA/QC for Sulphur Speciation

Sample ID	Total Sulphur (Wt.%) (Acme)	
QAQC - Total Sulphur	**Reported**	**Duplicate**
Reference Material		
Maxxam Ref. (0.11% S)	0.09	
STD CSC (4.25% S)	4.09	
STD OREAS76A (18.00% S)	17.37	
Sample ID	**Sulphate Sulphur (Wt.%)**	
Duplicates - Sulphate Sulphur	**Reported**	**Duplicate**
W77035	0.02	0.02
Reference Material		
Maxxam Ref. (0.27% SO4-S)	0.27	

Table 2c: QA/QC for Carbon Speciation

Sample ID	Carbonate Carbon (CO2; Wt.%)	
QAQC- CO2	**Reported**	**Duplicate**
Reference Material		
STD CSC (1.55% CO2)	1.47	

Table 3: Results of MEND-Shakeflask Extraction on 8 Whitehorse Copper Samples - September 2010

S. No:				1	2	3	4	5	6	7	8	Method Blank
				Sample ID								
Parameter	Units	Method	Reportable Detection Limit	W77035	W77036	W77037	W77038	W77039	W77040	W77041	W77042	
Weight of sample used	g	Weighing Scale	0.01	175	175	175	175	175	175	250	250	
Volume of DI water used	ml	Graduated Cylinder	5	525	525	525	525	525	525	750	750	750
pH (24h)	pH Units	pH Meter	0.01	8.6	8.8	8.9	9.5	8.6	9.2	8.4	9.0	5.9
Electric Conductivity (24h)	µS/cm	Conductivity Meter	1	304	532	165	295	441	173	331	617	0.7
Dissolved Sulphate	mg/L	Auto Turbidity	1	113	238	30	86	184	38	116	299	
Total Alkalinity CaCO3 (to pH 4.5)	mg CaCO3/L	Titration/Calculation	1	21	25	41	50	25	38	25	36	
Dissolved Chloride	mg/L	IC	0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	
Nitrate (NO3-N)	mg/L	IC	0.05	<0.02	0.05	0.06	0.03	0.03	0.03	0.03	0.02	
Nitrite (NO2-N)	mg/L	Colorimetry	0.002	0.055	0.043	0.060	0.056	0.069	0.073	0.030	0.031	
Nitrate plus Nitrite (N)	mg/L	Calculation f	0.02	0.07	0.09	0.12	0.08	0.10	0.10	0.06	0.05	
Total Phosphorous	mgP/L	Colorimetry	0.005	0.018	0.027	0.009	0.014	0.009	0.008	0.009	0.008	
Low Level Dissolved Metals (CCME DLs):												
Dissolved Hardness (CaCO3)	mg/L	Calculation from Mg & Ca	0.5	131	253	59	133	206	68	136	310	
Dissolved Aluminum (Al)	mg/L	ICP-MS	0.003	0.003	<0.003	0.004	<0.003	<0.003	<0.003	0.007	<0.003	
Dissolved Antimony (Sb)	mg/L	ICP-MS	0.0005	0.0038	0.0026	0.0013	0.0018	0.0052	0.003	0.0015	0.0027	
Dissolved Arsenic (As)	mg/L	ICP-MS	0.0001	0.0006	0.0006	0.0013	0.0005	0.001	0.0006	0.0009	0.0014	
Dissolved Barium (Ba)	mg/L	ICP-MS	0.001	0.024	0.022	0.045	0.016	0.027	0.052	0.047	0.03	
Dissolved Beryllium (Be)	mg/L	ICP-MS	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Dissolved Bismuth (Bi)	mg/L	ICP-MS	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Dissolved Boron (B)	mg/L	ICP-MS	0.05	<0.05	<0.05	0.05	0.05	<0.05	<0.05	<0.05	<0.05	
Dissolved Cadmium (Cd)	mg/L	ICP-MS	0.00001	0.00006	0.00007	0.00004	0.00003	0.00006	0.00006	0.00012	0.00007	
Dissolved Chromium (Cr)	mg/L	ICP-MS	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Dissolved Cobalt (Co)	mg/L	ICP-MS	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Dissolved Copper (Cu)	mg/L	ICP-MS	0.0002	0.0128	0.0076	0.0044	0.0077	0.0061	0.0032	0.006	0.0037	
Dissolved Iron (Fe)	mg/L	ICP-MS	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Dissolved Lead (Pb)	mg/L	ICP-MS	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Dissolved Lithium (Li)	mg/L	ICP-MS	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Dissolved Manganese (Mn)	mg/L	ICP-MS	0.001	0.004	0.003	0.001	<0.001	0.001	<0.001	0.002	<0.001	
Dissolved Mercury (Hg)	mg/L	ICP-MS	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	
Dissolved Molybdenum (Mo)	mg/L	ICP-MS	0.001	0.086	0.122	0.059	0.047	0.102	0.094	0.198	0.116	
Dissolved Nickel (Ni)	mg/L	ICP-MS	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Dissolved Selenium (Se)	mg/L	ICP-MS	0.0001	0.0042	0.0101	0.0081	0.0095	0.0158	0.0076	0.0018	0.0017	
Dissolved Silicon (Si)	mg/L	ICP-MS	0.1	0.4	0.5	0.8	0.3	0.6	0.5	0.9	0.7	
Dissolved Silver (Ag)	mg/L	ICP-MS	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	
Dissolved Strontium (Sr)	mg/L	ICP-MS	0.001	0.648	0.458	0.436	0.152	1.2	1.16	3.08	4.59	
Dissolved Thallium (Tl)	mg/L	ICP-MS	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	
Dissolved Tin (Sn)	mg/L	ICP-MS	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Dissolved Titanium (Ti)	mg/L	ICP-MS	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Dissolved Uranium (U)	mg/L	ICP-MS	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Dissolved Vanadium (V)	mg/L	ICP-MS	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Dissolved Zinc (Zn)	mg/L	ICP-MS	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Dissolved Zirconium (Zr)	mg/L	ICP-MS	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Dissolved Calcium (Ca)	mg/L	ICP-MS	0.05	20.6	15	6.6	2.06	25.4	4.12	21.1	11.9	
Dissolved Magnesium (Mg)	mg/L	ICP-MS	0.05	19.2	52.4	10.4	31	34.6	14	20.1	68	
Dissolved Potassium (K)	mg/L	ICP-MS	0.05	8.04	13.3	8.07	6.33	10.8	5.33	9.17	13.4	
Dissolved Sodium (Na)	mg/L	ICP-MS	0.05	2.34	6.51	1.65	0.92	2.19	1.92	2.55	13.1	
Dissolved Sulphur (S)	mg/L	ICP-MS	3	42	93	10	32	70	15	45	116	

Extraction Method: Using gyratory shaker for 24 h (gentle agitation).

Liquid:Solid ratio used: 3:1; 750 ml DI H2O:250g of Used as-rec'd homogenized sample.

Method Reference: Prediction Manual for Drainage Chemistry from Sulphidic Geologic Material, MEND Report 1.20.1; Version 0 - Dec. 2009. Section 11.5; Pages 11-8 to 11-9.

Ion Balance:												
Anions				2.77	5.48	1.44	2.79	4.33	1.55	2.91	6.96	
Cations				2.92	5.69	1.46	2.86	4.49	1.58	3.06	7.10	
Balance %				-2.5	-1.9	-0.9	-1.1	-1.9	-0.8	-2.5	-1.0	

Sample Summary: EDI Environmental Dynamics Inc.-Whitehorse Copper, 8-Sep-10
Page 4 of 4

Date Samples Received: 8-Sep-10

Date Instructions Received: Final confirmation from Ashley Nivison by email dated 8-Sep-10.

Sample Prep: ABA SO4-S CO2: Air dried, split and pulverized to >80% of <200 mesh.
MEND-SFE: Used as-rec'd homogenized sample.

Date of Analysis: ABA: 13/14-Sep-10; SO4-S: 17-Sep-10; SFE: 12/13-Sep-10.

Other Analysis Requested: None.

Client: EDI Environmental Dynamics Inc.
Client Project Name: Whitehorse Copper
Client Project No: Not provided

Contact Person(s): Lyndsay Doetzel, R.P.Bio
3-478 Range Road, Whitehorse, YT Y1A 3A2

E-mail Address: ldoetzel@edynamics.com

Billing & Mailing Address: **Internal Invoice Attn: Ashley Nivison, AScT (anivison@maxxam.ca)**
Client Services Project Manager
Maxxam Analytics Inc., 4606 Canada Way, Burnaby, BC V5G 1K5.

Contact No: **Lyndsay Doetzel:** 867-393-4882; Cell: 867-333-9629

Fax No: **Lyndsay Doetzel:** 867-393-4883

Sign: Ivy Rajan

Report Released by: Ivy Rajan
Position: Lab Manager, ARD Division, Maxxam Analytics Inc.
Report Verified by: John Chiang
Position: Analyst, ARD Division, Maxxam Analytics Inc.
Report Validated by: Tim O'Hearn
Position: Director, ARD Division, Maxxam Analytics Inc.

ARD Project No: 2-21-900
Maxxam Job Number: B081228

Contact No: 604-734-7276 x5029; Direct: 604-638-5029 (Ivy Rajan)
Contact No: 604-734-7276 x2219 (John Chiang)
Contact No: 604-734-7276 x5031; Direct: 604-638-5031 (Tim O'Hearn)

Sample List:

S. No.	Sample ID	Wet Sample Wt. Rec'd (g)	Dry Sample Wt. Rec'd (g)	Sample Type & Condition
1	W77035	245.0	230.0	Wet Tails
2	W77036	290.0	250.0	Wet Tails
3	W77037	330.0	265.0	Wet Tails
4	W77038	245.0	230.0	Wet Tails
5	W77039	270.0	230.0	Wet Tails
6	W77040	295.0	265.0	Wet Tails
7	W77041	365.0	320.0	Wet Tails
8	W77042	435.0	330.0	Wet Tails

EAGLE INDUSTRIAL MINERALS

ANALYTICAL CERTIFICATES FOR ICP METALS ANALYSES

Appendix D

ACCESS
CONSULTING GROUP

www.accessconsulting.ca

Site: WHITEHORSE COPPER
Your C.O.C. #: 08324291, 08324292, 08324293

Attention: LYNDSAY DOETZEL
EDI ENVIRONMENTAL DYNAMICS
3-478 RANGE ROAD
WHITEHORSE, BC
CANADA Y1A 3A2

Report Date: 2010/11/05

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0A3599
Received: 2010/10/26, 12:28

Sample Matrix: Soil
Samples Received: 87

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICPMS (total)	8	2010/10/28	2010/10/28	BRN SOP-00203 R5.0	Based on EPA 200.8
Elements by ICPMS (total)	79	2010/10/28	2010/10/29	BRN SOP-00203 R5.0	Based on EPA 200.8
pH (2:1 DI Water Extract)	27	2010/10/28	2010/10/28	BRN SOP-00266 R6.0	Carter, SSMA 16.2
pH (2:1 DI Water Extract)	60	2010/10/28	2010/10/29	BRN SOP-00266 R6.0	Carter, SSMA 16.2

* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

ASHLEY NIVISON, BBY Customer Service
Email: ANivison@maxxam.ca
Phone# (604) 639-2616 Ext:230

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97121		X97122		X97123		X97124		X97125		
COC#		08324291		08324291		08324291		08324291		08324291		
	Units	**921-1B**	**QC Batch**	**921-1D**	**QC Batch**	**921-1F**	**QC Batch**	**921-1H**	**QC Batch**	**921-1J**	**RDL**	**QC Batch**
Physical Properties												
Soluble (2:1) pH	pH Units	8.89	4379767	8.76	4379631	8.51	4379733	8.88	4379767	9.58	0.01	4379747
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	6290	4379758	4780	4379623	8080	4379652	11300	4379758	8770	100	4379737
Total Antimony (Sb)	mg/kg	0.5	4379758	0.4	4379623	0.4	4379652	1.1	4379758	1.0	0.1	4379737
Total Arsenic (As)	mg/kg	13.4	4379758	13.3	4379623	11.8	4379652	15.8	4379758	14.5	0.2	4379737
Total Barium (Ba)	mg/kg	28.9	4379758	21.1	4379623	33.1	4379652	70.1	4379758	57.3	0.1	4379737
Total Beryllium (Be)	mg/kg	<0.1	4379758	<0.1	4379623	<0.1	4379652	0.2	4379758	0.1	0.1	4379737
Total Bismuth (Bi)	mg/kg	3.9	4379758	4.7	4379623	5.5	4379652	5.8	4379758	6.4	0.1	4379737
Total Cadmium (Cd)	mg/kg	0.07	4379758	0.07	4379623	0.08	4379652	0.12	4379758	0.22	0.05	4379737
Total Calcium (Ca)	mg/kg	18700	4379758	13900	4379623	16200	4379652	32500	4379758	62500	100	4379737
Total Chromium (Cr)	mg/kg	15	4379758	12	4379623	18	4379652	24	4379758	16	1	4379737
Total Cobalt (Co)	mg/kg	20.8	4379758	19.0	4379623	25.5	4379652	24.4	4379758	17.8	0.3	4379737
Total Copper (Cu)	mg/kg	1270	4379758	1460	4379623	2220	4379652	2100	4379758	1900	0.5	4379737
Total Iron (Fe)	mg/kg	94700	4379758	89000	4379623	123000	4379652	101000	4379758	72700	100	4379737
Total Lead (Pb)	mg/kg	2.7	4379758	2.3	4379623	3.0	4379652	4.3	4379758	5.0	0.1	4379737
Total Lithium (Li)	mg/kg	<5	4379758	<5	4379623	6	4379652	8	4379758	6	5	4379737
Total Magnesium (Mg)	mg/kg	39300	4379758	35700	4379623	49600	4379652	60800	4379758	67700	100	4379737
Total Manganese (Mn)	mg/kg	531	4379758	468	4379623	615	4379652	743	4379758	533	0.2	4379737
Total Mercury (Hg)	mg/kg	<0.05	4379758	<0.05	4379623	<0.05	4379652	<0.05	4379758	<0.05	0.05	4379737
Total Molybdenum (Mo)	mg/kg	11.3	4379758	9.0	4379623	10.8	4379652	18.4	4379758	27.3	0.1	4379737
Total Nickel (Ni)	mg/kg	13.2	4379758	11.5	4379623	16.3	4379652	18.1	4379758	13.4	0.8	4379737
Total Phosphorus (P)	mg/kg	399	4379758	338	4379623	406	4379652	484	4379758	383	10	4379737
Total Potassium (K)	mg/kg	1540	4379758	1550	4379623	1970	4379652	1960	4379758	1900	100	4379737
Total Selenium (Se)	mg/kg	0.8	4379758	1.2	4379623	1.9	4379652	1.2	4379758	1.3	0.5	4379737
Total Silver (Ag)	mg/kg	0.73	4379758	0.82	4379623	1.20	4379652	1.37	4379758	1.60	0.05	4379737
Total Sodium (Na)	mg/kg	<100	4379758	<100	4379623	<100	4379652	153	4379758	247	100	4379737
Total Strontium (Sr)	mg/kg	33.6	4379758	23.9	4379623	33.7	4379652	72.1	4379758	129	0.1	4379737
Total Thallium (Tl)	mg/kg	<0.05	4379758	<0.05	4379623	0.06	4379652	0.06	4379758	0.05	0.05	4379737
Total Tin (Sn)	mg/kg	0.6	4379758	0.5	4379623	0.9	4379652	1.0	4379758	0.8	0.1	4379737
Total Titanium (Ti)	mg/kg	221	4379758	118	4379623	233	4379652	407	4379758	254	1	4379737
Total Uranium (U)	mg/kg	2.62	4379758	1.86	4379623	2.25	4379652	2.52	4379758	2.11	0.05	4379737
Total Vanadium (V)	mg/kg	31	4379758	24	4379623	41	4379652	39	4379758	26	2	4379737
Total Zinc (Zn)	mg/kg	39	4379758	35	4379623	48	4379652	59	4379758	57	1	4379737
Total Zirconium (Zr)	mg/kg	1.1	4379758	0.6	4379623	1.1	4379652	2.5	4379758	1.5	0.5	4379737

RDL = Reportable Detection Limit

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97126		X97127		X97128		X97129	X97130	X97131	X97132		
COC#		08324291		08324291		08324291		08324291	08324291	08324291	08324291		
	Units	**921-1L**	**QC Batch**	**921-2A**	**QC Batch**	**921-2B**	**QC Batch**	**921-2C**	**921-2D**	**921-2E**	**921-2F**	**RDL**	**QC Batch**
Physical Properties													
Soluble (2:1) pH	pH Units	9.64	4379767	9.07	4379747	8.89	4379733	8.91	9.04	9.22	9.29	0.01	4379767
Total Metals by ICPMS													
Total Aluminum (Al)	mg/kg	6710	4379758	14900	4379737	6910	4379652	6180	6280	6580	6720	100	4379758
Total Antimony (Sb)	mg/kg	0.7	4379758	1.0	4379737	0.3	4379652	0.5	0.6	0.6	0.7	0.1	4379758
Total Arsenic (As)	mg/kg	15.9	4379758	15.7	4379737	12.4	4379652	11.7	11.4	13.1	11.2	0.2	4379758
Total Barium (Ba)	mg/kg	37.9	4379758	183	4379737	38.8	4379652	22.5	31.0	41.2	40.0	0.1	4379758
Total Beryllium (Be)	mg/kg	<0.1	4379758	0.3	4379737	<0.1	4379652	<0.1	<0.1	<0.1	<0.1	0.1	4379758
Total Bismuth (Bi)	mg/kg	3.4	4379758	7.7	4379737	4.9	4379652	5.2	5.5	4.3	4.8	0.1	4379758
Total Cadmium (Cd)	mg/kg	0.13	4379758	0.22	4379737	0.09	4379652	0.09	0.13	0.12	0.12	0.05	4379758
Total Calcium (Ca)	mg/kg	58300	4379758	65300	4379737	20700	4379652	12400	31500	47500	43200	100	4379758
Total Chromium (Cr)	mg/kg	14	4379758	36	4379737	16	4379652	15	14	14	14	1	4379758
Total Cobalt (Co)	mg/kg	23.9	4379758	17.3	4379737	22.1	4379652	29.7	24.7	25.0	27.4	0.3	4379758
Total Copper (Cu)	mg/kg	1080	4379758	2280	4379737	1830	4379652	1860	1840	1500	1420	0.5	4379758
Total Iron (Fe)	mg/kg	113000	4379758	63100	4379737	100000	4379652	162000	119000	116000	140000	100	4379758
Total Lead (Pb)	mg/kg	3.5	4379758	6.3	4379737	3.3	4379652	2.6	2.8	3.7	4.4	0.1	4379758
Total Lithium (Li)	mg/kg	<5	4379758	12	4379737	5	4379652	<5	<5	<5	<5	5	4379758
Total Magnesium (Mg)	mg/kg	53100	4379758	65200	4379737	44000	4379652	45500	51300	57100	54100	100	4379758
Total Manganese (Mn)	mg/kg	599	4379758	539	4379737	559	4379652	634	568	612	563	0.2	4379758
Total Mercury (Hg)	mg/kg	<0.05	4379758	<0.05	4379737	<0.05	4379652	<0.05	<0.05	<0.05	<0.05	0.05	4379758
Total Molybdenum (Mo)	mg/kg	17.1	4379758	42.2	4379737	6.8	4379652	18.2	23.0	13.8	19.2	0.1	4379758
Total Nickel (Ni)	mg/kg	12.9	4379758	21.5	4379737	13.7	4379652	14.7	13.3	12.8	12.9	0.8	4379758
Total Phosphorus (P)	mg/kg	334	4379758	642	4379737	428	4379652	350	330	327	310	10	4379758
Total Potassium (K)	mg/kg	1660	4379758	1460	4379737	1670	4379652	1600	1700	2120	2000	100	4379758
Total Selenium (Se)	mg/kg	0.9	4379758	1.2	4379737	1.6	4379652	1.3	1.4	1.1	0.9	0.5	4379758
Total Silver (Ag)	mg/kg	0.83	4379758	2.07	4379737	1.16	4379652	1.15	1.09	1.08	1.10	0.05	4379758
Total Sodium (Na)	mg/kg	160	4379758	121	4379737	<100	4379652	<100	<100	<100	<100	100	4379758
Total Strontium (Sr)	mg/kg	90.9	4379758	224	4379737	54.0	4379652	24.1	52.4	80.4	81.1	0.1	4379758
Total Thallium (Tl)	mg/kg	<0.05	4379758	0.05	4379737	<0.05	4379652	<0.05	<0.05	0.05	0.06	0.05	4379758
Total Tin (Sn)	mg/kg	0.5	4379758	1.0	4379737	0.6	4379652	0.8	0.6	0.6	0.6	0.1	4379758
Total Titanium (Ti)	mg/kg	212	4379758	538	4379737	184	4379652	217	182	177	195	1	4379758
Total Uranium (U)	mg/kg	1.64	4379758	2.90	4379737	2.26	4379652	1.88	1.34	1.73	1.39	0.05	4379758
Total Vanadium (V)	mg/kg	28	4379758	37	4379737	30	4379652	46	32	28	32	2	4379758
Total Zinc (Zn)	mg/kg	53	4379758	65	4379737	44	4379652	45	45	51	52	1	4379758
Total Zirconium (Zr)	mg/kg	1.0	4379758	3.0	4379737	1.0	4379652	0.8	0.8	0.8	0.9	0.5	4379758

RDL = Reportable Detection Limit

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97133		X97134		X97135	X97136		X97137		X97138		
COC#		08324291		08324291		08324291	08324291		08324291		08324291		
	Units	**921-2G**	**QC Batch**	**921-3A**	**QC Batch**	**921-3B**	**921-3C**	**QC Batch**	**921-3D**	**QC Batch**	**921-3E**	**RDL**	**QC Batch**
Physical Properties													
Soluble (2:1) pH	pH Units	9.10	4379733	9.31	4379643	8.93	8.84	4379747	8.80	4379767	8.83	0.01	4379747
Total Metals by ICPMS													
Total Aluminum (Al)	mg/kg	6010	4379652	11800	4379641	7900	7810	4379737	9130	4379758	7200	100	4379737
Total Antimony (Sb)	mg/kg	0.4	4379652	0.6	4379641	0.4	0.3	4379737	0.5	4379758	0.4	0.1	4379737
Total Arsenic (As)	mg/kg	12.7	4379652	16.6	4379641	13.3	11.9	4379737	12.5	4379758	12.1	0.2	4379737
Total Barium (Ba)	mg/kg	41.6	4379652	115	4379641	58.7	46.0	4379737	36.9	4379758	42.3	0.1	4379737
Total Beryllium (Be)	mg/kg	<0.1	4379652	0.2	4379641	0.1	0.1	4379737	0.1	4379758	<0.1	0.1	4379737
Total Bismuth (Bi)	mg/kg	4.9	4379652	6.3	4379641	4.5	4.1	4379737	4.4	4379758	5.0	0.1	4379737
Total Cadmium (Cd)	mg/kg	0.13	4379652	0.16	4379641	0.10	0.09	4379737	0.10	4379758	0.10	0.05	4379737
Total Calcium (Ca)	mg/kg	35400	4379652	54900	4379641	30600	27500	4379737	20900	4379758	31800	100	4379737
Total Chromium (Cr)	mg/kg	12	4379652	28	4379641	17	16	4379737	18	4379758	15	1	4379737
Total Cobalt (Co)	mg/kg	28.0	4379652	23.8	4379641	19.2	18.1	4379737	25.6	4379758	21.7	0.3	4379737
Total Copper (Cu)	mg/kg	1540	4379652	1860	4379641	1350	1280	4379737	1430	4379758	1680	0.5	4379737
Total Iron (Fe)	mg/kg	131000	4379652	102000	4379641	79800	73900	4379737	121000	4379758	96100	100	4379737
Total Lead (Pb)	mg/kg	3.9	4379652	4.5	4379641	3.8	3.7	4379737	2.8	4379758	3.9	0.1	4379737
Total Lithium (Li)	mg/kg	<5	4379652	9	4379641	6	6	4379737	6	4379758	6	5	4379737
Total Magnesium (Mg)	mg/kg	47900	4379652	52700	4379641	36800	39400	4379737	48700	4379758	45200	100	4379737
Total Manganese (Mn)	mg/kg	621	4379652	574	4379641	586	544	4379737	657	4379758	629	0.2	4379737
Total Mercury (Hg)	mg/kg	<0.05	4379652	<0.05	4379641	<0.05	<0.05	4379737	<0.05	4379758	<0.05	0.05	4379737
Total Molybdenum (Mo)	mg/kg	24.8	4379652	22.5	4379641	14.4	14.8	4379737	19.9	4379758	19.0	0.1	4379737
Total Nickel (Ni)	mg/kg	12.2	4379652	18.6	4379641	13.6	12.8	4379737	16.3	4379758	13.1	0.8	4379737
Total Phosphorus (P)	mg/kg	350	4379652	558	4379641	568	488	4379737	423	4379758	410	10	4379737
Total Potassium (K)	mg/kg	1780	4379652	1570	4379641	1410	1780	4379737	2240	4379758	1730	100	4379737
Total Selenium (Se)	mg/kg	1.1	4379652	0.7	4379641	0.7	0.8	4379737	1.0	4379758	1.1	0.5	4379737
Total Silver (Ag)	mg/kg	1.18	4379652	1.37	4379641	1.04	0.85	4379737	1.01	4379758	1.06	0.05	4379737
Total Sodium (Na)	mg/kg	<100	4379652	<100	4379641	<100	<100	4379737	<100	4379758	<100	100	4379737
Total Strontium (Sr)	mg/kg	65.1	4379652	153	4379641	73.4	54.0	4379737	43.1	4379758	56.9	0.1	4379737
Total Thallium (Tl)	mg/kg	<0.05	4379652	<0.05	4379641	<0.05	<0.05	4379737	0.06	4379758	<0.05	0.05	4379737
Total Tin (Sn)	mg/kg	0.5	4379652	0.6	4379641	0.6	0.6	4379737	0.9	4379758	0.8	0.1	4379737
Total Titanium (Ti)	mg/kg	169	4379652	373	4379641	241	222	4379737	322	4379758	207	1	4379737
Total Uranium (U)	mg/kg	1.54	4379652	2.59	4379641	2.20	2.18	4379737	2.80	4379758	2.17	0.05	4379737
Total Vanadium (V)	mg/kg	30	4379652	32	4379641	26	24	4379737	41	4379758	28	2	4379737
Total Zinc (Zn)	mg/kg	51	4379652	65	4379641	49	45	4379737	51	4379758	45	1	4379737
Total Zirconium (Zr)	mg/kg	0.9	4379652	2.0	4379641	1.5	1.3	4379737	1.6	4379758	1.1	0.5	4379737

RDL = Reportable Detection Limit

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97139		X97140	X97141		X97142	X97143	X97144	X97145	X97146		
COC#		08324291		08324291	08324291		08324291	08324291	08324291	08324291	08324291		
	Units	**921-3F**	**QC Batch**	**921-3G**	**921-3H**	**QC Batch**	**921-3I**	**921-3J**	**921-3K**	**922-4A**	**922-4C**	**RDL**	**QC Batch**
Physical Properties													
Soluble (2:1) pH	pH Units	9.02	4379747	9.10	9.41	4379767	9.33	9.00	9.12	9.25	8.82	0.01	4379747
Total Metals by ICPMS													
Total Aluminum (Al)	mg/kg	6560	4379737	8570	7750	4379758	7110	6090	8270	9270	11600	100	4379737
Total Antimony (Sb)	mg/kg	0.4	4379737	0.5	0.8	4379758	0.7	0.7	0.9	0.7	0.6	0.1	4379737
Total Arsenic (As)	mg/kg	11.5	4379737	11.3	15.6	4379758	13.0	12.3	14.9	11.9	13.6	0.2	4379737
Total Barium (Ba)	mg/kg	33.9	4379737	49.3	48.6	4379758	43.0	32.7	42.7	105	56.8	0.1	4379737
Total Beryllium (Be)	mg/kg	<0.1	4379737	0.1	0.1	4379758	<0.1	<0.1	0.1	0.2	<0.1	0.1	4379737
Total Bismuth (Bi)	mg/kg	5.4	4379737	5.0	4.3	4379758	5.4	5.8	5.5	4.8	4.6	0.1	4379737
Total Cadmium (Cd)	mg/kg	0.11	4379737	0.12	0.15	4379758	0.16	0.16	0.14	0.15	0.12	0.05	4379737
Total Calcium (Ca)	mg/kg	30300	4379737	25900	56400	4379758	42900	32800	41500	53100	33200	100	4379737
Total Chromium (Cr)	mg/kg	14	4379737	17	16	4379758	14	13	14	25	23	1	4379737
Total Cobalt (Co)	mg/kg	22.7	4379737	27.8	25.3	4379758	28.3	24.7	24.9	26.1	23.5	0.3	4379737
Total Copper (Cu)	mg/kg	1820	4379737	1920	1560	4379758	1570	1580	1570	1490	1700	0.5	4379737
Total Iron (Fe)	mg/kg	107000	4379737	138000	120000	4379758	138000	121000	118000	121000	100000	100	4379737
Total Lead (Pb)	mg/kg	2.8	4379737	2.8	4.1	4379758	4.4	3.5	4.6	5.8	3.7	0.1	4379737
Total Lithium (Li)	mg/kg	<5	4379737	6	5	4379758	5	<5	6	7	7	5	4379737
Total Magnesium (Mg)	mg/kg	48900	4379737	54200	61200	4379758	54900	47000	54600	49600	51100	100	4379737
Total Manganese (Mn)	mg/kg	545	4379737	652	636	4379758	644	578	630	570	696	0.2	4379737
Total Mercury (Hg)	mg/kg	<0.05	4379737	<0.05	<0.05	4379758	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4379737
Total Molybdenum (Mo)	mg/kg	14.1	4379737	25.6	17.8	4379758	30.1	29.4	20.8	25.3	21.4	0.1	4379737
Total Nickel (Ni)	mg/kg	12.9	4379737	14.9	14.2	4379758	13.3	12.1	13.1	17.9	16.9	0.8	4379737
Total Phosphorus (P)	mg/kg	364	4379737	395	348	4379758	346	329	361	557	519	10	4379737
Total Potassium (K)	mg/kg	1850	4379737	2390	1810	4379758	1950	1560	2170	1440	2470	100	4379737
Total Selenium (Se)	mg/kg	1.3	4379737	1.3	0.7	4379758	0.9	1.1	1.1	0.7	1.2	0.5	4379737
Total Silver (Ag)	mg/kg	1.25	4379737	1.36	1.21	4379758	1.25	1.16	1.23	1.09	1.28	0.05	4379737
Total Sodium (Na)	mg/kg	<100	4379737	120	107	4379758	<100	<100	100	<100	127	100	4379737
Total Strontium (Sr)	mg/kg	51.7	4379737	50.4	102	4379758	81.7	59.8	76.9	152	61.1	0.1	4379737
Total Thallium (Tl)	mg/kg	<0.05	4379737	0.07	<0.05	4379758	0.06	<0.05	0.06	<0.05	0.06	0.05	4379737
Total Tin (Sn)	mg/kg	0.7	4379737	0.9	0.6	4379758	0.7	0.6	0.7	0.5	0.9	0.1	4379737
Total Titanium (Ti)	mg/kg	185	4379737	261	232	4379758	236	208	267	338	405	1	4379737
Total Uranium (U)	mg/kg	1.74	4379737	1.62	1.89	4379758	1.76	3.89	2.11	2.24	3.79	0.05	4379737
Total Vanadium (V)	mg/kg	29	4379737	38	31	4379758	34	31	33	31	36	2	4379737
Total Zinc (Zn)	mg/kg	43	4379737	55	56	4379758	54	47	53	68	55	1	4379737
Total Zirconium (Zr)	mg/kg	0.9	4379737	1.2	1.4	4379758	1.1	1.1	1.4	1.4	2.4	0.5	4379737

RDL = Reportable Detection Limit

Maxxam Job #: B0A3599
Report Date: 2010/11/05

EDI ENVIRONMENTAL DYNAMICS

Site Reference: WHITEHORSE COPPER

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97147		X97148		X97149	X97150		X97151		X97152		
COC#		08324291		08324291		08324291	08324291		08324291		08324291		
	Units	**922-4E**	**QC Batch**	**922-4G**	**QC Batch**	**922-4I**	**922-5A**	**QC Batch**	**922-5B**	**QC Batch**	**922-5C**	**RDL**	**QC Batch**
Physical Properties													
Soluble (2:1) pH	pH Units	8.72	4379747	9.21	4379733	9.25	8.92	4379767	8.68	4379747	8.59	0.01	4379767
Total Metals by ICPMS													
Total Aluminum (Al)	mg/kg	7430	4379737	5420	4379652	5560	9200	4379758	13000	4379737	11600	100	4379758
Total Antimony (Sb)	mg/kg	0.5	4379737	0.5	4379652	0.7	1.0	4379758	0.9	4379737	0.5	0.1	4379758
Total Arsenic (As)	mg/kg	11.6	4379737	14.8	4379652	10.7	14.4	4379758	22.6	4379737	10.4	0.2	4379758
Total Barium (Ba)	mg/kg	38.5	4379737	32.2	4379652	35.9	108	4379758	257	4379737	108	0.1	4379758
Total Beryllium (Be)	mg/kg	0.1	4379737	<0.1	4379652	<0.1	0.2	4379758	0.3	4379737	0.2	0.1	4379758
Total Bismuth (Bi)	mg/kg	4.2	4379737	3.9	4379652	3.4	5.8	4379758	4.5	4379737	4.3	0.1	4379758
Total Cadmium (Cd)	mg/kg	0.10	4379737	0.15	4379652	0.19	0.40	4379758	0.29	4379737	0.12	0.05	4379758
Total Calcium (Ca)	mg/kg	31500	4379737	43400	4379652	48400	47200	4379758	61600	4379737	31900	100	4379758
Total Chromium (Cr)	mg/kg	15	4379737	12	4379652	11	21	4379758	23	4379737	20	1	4379758
Total Cobalt (Co)	mg/kg	25.4	4379737	21.2	4379652	28.7	20.6	4379758	20.7	4379737	22.9	0.3	4379758
Total Copper (Cu)	mg/kg	1560	4379737	1260	4379652	1090	1740	4379758	1580	4379737	1310	0.5	4379758
Total Iron (Fe)	mg/kg	120000	4379737	95500	4379652	154000	102000	4379758	91600	4379737	99600	100	4379758
Total Lead (Pb)	mg/kg	3.5	4379737	3.3	4379652	3.1	6.1	4379758	7.5	4379737	3.9	0.1	4379758
Total Lithium (Li)	mg/kg	5	4379737	<5	4379652	<5	7	4379758	11	4379737	8	5	4379758
Total Magnesium (Mg)	mg/kg	48800	4379737	48600	4379652	48100	40700	4379758	56200	4379737	48700	100	4379758
Total Manganese (Mn)	mg/kg	704	4379737	524	4379652	566	501	4379758	638	4379737	625	0.2	4379758
Total Mercury (Hg)	mg/kg	<0.05	4379737	<0.05	4379652	<0.05	<0.05	4379758	<0.05	4379737	<0.05	0.05	4379758
Total Molybdenum (Mo)	mg/kg	24.1	4379737	12.2	4379652	33.0	70.5	4379758	25.2	4379737	13.4	0.1	4379758
Total Nickel (Ni)	mg/kg	13.4	4379737	11.3	4379652	12.1	16.0	4379758	18.5	4379737	16.0	0.8	4379758
Total Phosphorus (P)	mg/kg	415	4379737	337	4379652	284	503	4379758	530	4379737	540	10	4379758
Total Potassium (K)	mg/kg	1970	4379737	1540	4379652	1780	1840	4379758	2150	4379737	2520	100	4379758
Total Selenium (Se)	mg/kg	1.1	4379737	0.9	4379652	1.1	0.9	4379758	0.9	4379737	0.6	0.5	4379758
Total Silver (Ag)	mg/kg	0.95	4379737	0.84	4379652	0.85	1.32	4379758	1.42	4379737	1.05	0.05	4379758
Total Sodium (Na)	mg/kg	<100	4379737	<100	4379652	<100	<100	4379758	117	4379737	144	100	4379758
Total Strontium (Sr)	mg/kg	55.1	4379737	67.5	4379652	90.5	192	4379758	264	4379737	139	0.1	4379758
Total Thallium (Tl)	mg/kg	0.05	4379737	<0.05	4379652	<0.05	0.05	4379758	0.07	4379737	0.07	0.05	4379758
Total Tin (Sn)	mg/kg	0.9	4379737	0.5	4379652	0.5	0.4	4379758	0.7	4379737	0.6	0.1	4379758
Total Titanium (Ti)	mg/kg	244	4379737	141	4379652	154	274	4379758	407	4379737	412	1	4379758
Total Uranium (U)	mg/kg	2.00	4379737	1.37	4379652	1.25	2.38	4379758	3.16	4379737	2.45	0.05	4379758
Total Vanadium (V)	mg/kg	33	4379737	24	4379652	31	33	4379758	36	4379737	36	2	4379758
Total Zinc (Zn)	mg/kg	48	4379737	46	4379652	57	71	4379758	78	4379737	58	1	4379758
Total Zirconium (Zr)	mg/kg	1.1	4379737	0.7	4379652	0.7	1.3	4379758	2.4	4379737	1.9	0.5	4379758

RDL = Reportable Detection Limit

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97153	X97154		X97155		X97156	X97157		X97158		
COC#		08324291	08324291		08324291		08324292	08324292		08324292		
	Units	**922-5D**	**922-5E**	**QC Batch**	**922-5F**	**QC Batch**	**922-5G**	**922-5H**	**QC Batch**	**922-5I**	**RDL**	**QC Batch**
Physical Properties												
Soluble (2:1) pH	pH Units	8.60	8.82	4379631	9.10	4379747	9.10	8.93	4379733	9.00	0.01	4379747
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	7770	9110	4379623	6670	4379737	6320	5490	4379652	7020	100	4379737
Total Antimony (Sb)	mg/kg	0.4	0.4	4379623	0.4	4379737	0.4	0.3	4379652	0.5	0.1	4379737
Total Arsenic (As)	mg/kg	12.9	10.8	4379623	11.6	4379737	12.4	9.6	4379652	11.5	0.2	4379737
Total Barium (Ba)	mg/kg	82.4	94.5	4379623	34.9	4379737	37.6	29.0	4379652	43.4	0.1	4379737
Total Beryllium (Be)	mg/kg	0.1	<0.1	4379623	<0.1	4379737	<0.1	<0.1	4379652	<0.1	0.1	4379737
Total Bismuth (Bi)	mg/kg	4.3	4.4	4379623	5.6	4379737	4.6	4.5	4379652	5.0	0.1	4379737
Total Cadmium (Cd)	mg/kg	0.11	0.10	4379623	0.09	4379737	0.10	0.11	4379652	0.13	0.05	4379737
Total Calcium (Ca)	mg/kg	33000	27000	4379623	16000	4379737	20400	12400	4379652	20900	100	4379737
Total Chromium (Cr)	mg/kg	16	20	4379623	15	4379737	13	12	4379652	16	1	4379737
Total Cobalt (Co)	mg/kg	19.5	19.9	4379623	27.1	4379737	20.6	26.1	4379652	28.5	0.3	4379737
Total Copper (Cu)	mg/kg	1110	1180	4379623	1730	4379737	1630	1630	4379652	1620	0.5	4379737
Total Iron (Fe)	mg/kg	91600	86200	4379623	114000	4379737	83300	105000	4379652	124000	100	4379737
Total Lead (Pb)	mg/kg	2.5	2.8	4379623	2.0	4379737	2.2	1.9	4379652	3.5	0.1	4379737
Total Lithium (Li)	mg/kg	7	7	4379623	<5	4379737	<5	<5	4379652	5	5	4379737
Total Magnesium (Mg)	mg/kg	35400	37800	4379623	43500	4379737	39800	38400	4379652	43400	100	4379737
Total Manganese (Mn)	mg/kg	513	564	4379623	689	4379737	562	639	4379652	704	0.2	4379737
Total Mercury (Hg)	mg/kg	<0.05	<0.05	4379623	<0.05	4379737	<0.05	<0.05	4379652	<0.05	0.05	4379737
Total Molybdenum (Mo)	mg/kg	12.6	12.3	4379623	12.6	4379737	17.4	34.0	4379652	16.0	0.1	4379737
Total Nickel (Ni)	mg/kg	12.9	15.2	4379623	12.3	4379737	10.9	11.1	4379652	12.8	0.8	4379737
Total Phosphorus (P)	mg/kg	417	507	4379623	401	4379737	439	391	4379652	418	10	4379737
Total Potassium (K)	mg/kg	2270	2070	4379623	1550	4379737	1680	1670	4379652	1700	100	4379737
Total Selenium (Se)	mg/kg	0.9	0.5	4379623	1.0	4379737	1.1	1.1	4379652	1.0	0.5	4379737
Total Silver (Ag)	mg/kg	0.88	1.01	4379623	1.22	4379737	1.02	0.99	4379652	1.07	0.05	4379737
Total Sodium (Na)	mg/kg	106	128	4379623	<100	4379737	<100	<100	4379652	<100	100	4379737
Total Strontium (Sr)	mg/kg	179	148	4379623	44.1	4379737	58.7	36.7	4379652	66.8	0.1	4379737
Total Thallium (Tl)	mg/kg	0.05	<0.05	4379623	<0.05	4379737	<0.05	<0.05	4379652	<0.05	0.05	4379737
Total Tin (Sn)	mg/kg	0.4	0.5	4379623	0.6	4379737	0.4	0.5	4379652	0.6	0.1	4379737
Total Titanium (Ti)	mg/kg	195	274	4379623	223	4379737	148	145	4379652	209	1	4379737
Total Uranium (U)	mg/kg	2.13	1.90	4379623	1.06	4379737	1.24	1.16	4379652	1.31	0.05	4379737
Total Vanadium (V)	mg/kg	27	30	4379623	26	4379737	21	22	4379652	28	2	4379737
Total Zinc (Zn)	mg/kg	42	46	4379623	46	4379737	41	43	4379652	54	1	4379737
Total Zirconium (Zr)	mg/kg	0.9	1.3	4379623	1.1	4379737	0.7	0.6	4379652	1.0	0.5	4379737

RDL = Reportable Detection Limit

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97159		X97160		X97161		X97162		X97163		
COC#		08324292		08324292		08324292		08324292		08324292		
	Units	**922-5J**	**QC Batch**	**922-6A**	**QC Batch**	**922-6B**	**QC Batch**	**922-6C**	**QC Batch**	**922-6D**	**RDL**	**QC Batch**
Physical Properties												
Soluble (2:1) pH	pH Units	9.00	4379631	8.71	4379643	8.92	4379733	8.96	4379767	8.63	0.01	4379733
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	6310	4379623	10500	4379641	6640	4379652	8990	4379758	7840	100	4379652
Total Antimony (Sb)	mg/kg	0.3	4379623	0.6	4379641	0.8	4379652	0.8	4379758	0.4	0.1	4379652
Total Arsenic (As)	mg/kg	10.0	4379623	14.7	4379641	17.1	4379652	14.5	4379758	11.0	0.2	4379652
Total Barium (Ba)	mg/kg	33.1	4379623	172	4379641	71.6	4379652	86.8	4379758	66.1	0.1	4379652
Total Beryllium (Be)	mg/kg	<0.1	4379623	0.2	4379641	<0.1	4379652	0.1	4379758	0.1	0.1	4379652
Total Bismuth (Bi)	mg/kg	5.2	4379623	5.7	4379641	5.2	4379652	4.3	4379758	3.5	0.1	4379652
Total Cadmium (Cd)	mg/kg	0.09	4379623	0.28	4379641	0.33	4379652	0.26	4379758	0.12	0.05	4379652
Total Calcium (Ca)	mg/kg	11700	4379623	47600	4379641	39800	4379652	41800	4379758	28400	100	4379652
Total Chromium (Cr)	mg/kg	13	4379623	21	4379641	13	4379652	15	4379758	14	1	4379652
Total Cobalt (Co)	mg/kg	31.6	4379623	17.8	4379641	18.4	4379652	21.2	4379758	18.0	0.3	4379652
Total Copper (Cu)	mg/kg	1780	4379623	1640	4379641	1830	4379652	1240	4379758	1160	0.5	4379652
Total Iron (Fe)	mg/kg	130000	4379623	78000	4379641	93400	4379652	115000	4379758	78800	100	4379652
Total Lead (Pb)	mg/kg	2.1	4379623	6.6	4379641	7.2	4379652	4.3	4379758	4.0	0.1	4379652
Total Lithium (Li)	mg/kg	<5	4379623	9	4379641	6	4379652	7	4379758	6	5	4379652
Total Magnesium (Mg)	mg/kg	42200	4379623	43400	4379641	40700	4379652	45300	4379758	39800	100	4379652
Total Manganese (Mn)	mg/kg	740	4379623	486	4379641	458	4379652	525	4379758	525	0.2	4379652
Total Mercury (Hg)	mg/kg	<0.05	4379623	<0.05	4379641	<0.05	4379652	<0.05	4379758	<0.05	0.05	4379652
Total Molybdenum (Mo)	mg/kg	13.4	4379623	54.9	4379641	48.7	4379652	32.7	4379758	15.0	0.1	4379652
Total Nickel (Ni)	mg/kg	11.4	4379623	15.7	4379641	11.3	4379652	13.7	4379758	12.7	0.8	4379652
Total Phosphorus (P)	mg/kg	410	4379623	544	4379641	395	4379652	433	4379758	475	10	4379652
Total Potassium (K)	mg/kg	2000	4379623	2210	4379641	1690	4379652	2220	4379758	2390	100	4379652
Total Selenium (Se)	mg/kg	1.3	4379623	0.7	4379641	1.0	4379652	0.8	4379758	0.8	0.5	4379652
Total Silver (Ag)	mg/kg	1.22	4379623	1.37	4379641	1.25	4379652	1.01	4379758	0.78	0.05	4379652
Total Sodium (Na)	mg/kg	<100	4379623	<100	4379641	<100	4379652	<100	4379758	113	100	4379652
Total Strontium (Sr)	mg/kg	33.9	4379623	252	4379641	150	4379652	143	4379758	106	0.1	4379652
Total Thallium (Tl)	mg/kg	<0.05	4379623	0.06	4379641	0.05	4379652	0.06	4379758	0.06	0.05	4379652
Total Tin (Sn)	mg/kg	0.7	4379623	0.4	4379641	0.5	4379652	0.5	4379758	0.4	0.1	4379652
Total Titanium (Ti)	mg/kg	157	4379623	232	4379641	157	4379652	263	4379758	212	1	4379652
Total Uranium (U)	mg/kg	0.99	4379623	2.73	4379641	1.77	4379652	2.14	4379758	2.07	0.05	4379652
Total Vanadium (V)	mg/kg	26	4379623	31	4379641	24	4379652	33	4379758	25	2	4379652
Total Zinc (Zn)	mg/kg	47	4379623	65	4379641	58	4379652	58	4379758	46	1	4379652
Total Zirconium (Zr)	mg/kg	0.9	4379623	1.3	4379641	0.8	4379652	1.2	4379758	1.1	0.5	4379652

RDL = Reportable Detection Limit

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97164		X97165	X97166	X97167		X97168		X97169	X97170		
COC#		08324292		08324292	08324292	08324292		08324292		08324292	08324292		
	Units	**922-6E**	**QC Batch**	**922-6F**	**922-6G**	**922-6H**	**QC Batch**	**922-6I**	**QC Batch**	**922-6J**	**922-6K**	**RDL**	**QC Batch**
Physical Properties													
Soluble (2:1) pH	pH Units	8.76	4379747	8.93	9.06	9.00	4379733	8.93	4379643	9.02	8.89	0.01	4379767
Total Metals by ICPMS													
Total Aluminum (Al)	mg/kg	9750	4379737	8370	9050	9190	4379652	8450	4379641	6780	10600	100	4379758
Total Antimony (Sb)	mg/kg	0.6	4379737	0.5	0.6	0.3	4379652	0.5	4379641	0.6	0.5	0.1	4379758
Total Arsenic (As)	mg/kg	13.0	4379737	12.0	13.2	11.9	4379652	13.0	4379641	9.4	12.8	0.2	4379758
Total Barium (Ba)	mg/kg	76.2	4379737	65.9	63.5	60.6	4379652	45.8	4379641	34.1	57.3	0.1	4379758
Total Beryllium (Be)	mg/kg	0.1	4379737	<0.1	0.1	<0.1	4379652	<0.1	4379641	<0.1	0.1	0.1	4379758
Total Bismuth (Bi)	mg/kg	3.7	4379737	4.0	3.4	5.0	4379652	6.4	4379641	4.4	5.2	0.1	4379758
Total Cadmium (Cd)	mg/kg	0.10	4379737	0.14	0.11	0.09	4379652	0.13	4379641	0.08	0.11	0.05	4379758
Total Calcium (Ca)	mg/kg	31700	4379737	24400	21500	19700	4379652	18900	4379641	13500	22100	100	4379758
Total Chromium (Cr)	mg/kg	16	4379737	16	17	18	4379652	18	4379641	15	17	1	4379758
Total Cobalt (Co)	mg/kg	21.8	4379737	21.3	23.0	27.0	4379652	28.9	4379641	32.6	33.0	0.3	4379758
Total Copper (Cu)	mg/kg	1080	4379737	1330	1200	1710	4379652	2070	4379641	1570	2030	0.5	4379758
Total Iron (Fe)	mg/kg	101000	4379737	95500	98800	119000	4379652	118000	4379641	142000	137000	100	4379758
Total Lead (Pb)	mg/kg	4.2	4379737	3.1	2.8	3.6	4379652	2.7	4379641	2.1	3.4	0.1	4379758
Total Lithium (Li)	mg/kg	7	4379737	6	6	6	4379652	6	4379641	<5	7	5	4379758
Total Magnesium (Mg)	mg/kg	51600	4379737	44800	47200	48000	4379652	55300	4379641	45100	58000	100	4379758
Total Manganese (Mn)	mg/kg	545	4379737	567	619	732	4379652	819	4379641	822	977	0.2	4379758
Total Mercury (Hg)	mg/kg	<0.05	4379737	<0.05	<0.05	<0.05	4379652	<0.05	4379641	<0.05	<0.05	0.05	4379758
Total Molybdenum (Mo)	mg/kg	11.9	4379737	18.6	22.8	17.2	4379652	13.9	4379641	12.2	13.4	0.1	4379758
Total Nickel (Ni)	mg/kg	13.8	4379737	13.9	14.3	15.1	4379652	15.2	4379641	13.8	14.1	0.8	4379758
Total Phosphorus (P)	mg/kg	389	4379737	453	461	508	4379652	451	4379641	377	519	10	4379758
Total Potassium (K)	mg/kg	3240	4379737	2240	2480	2340	4379652	1640	4379641	1450	1720	100	4379758
Total Selenium (Se)	mg/kg	<0.5	4379737	0.6	0.7	0.9	4379652	1.4	4379641	0.8	1.3	0.5	4379758
Total Silver (Ag)	mg/kg	0.78	4379737	0.91	0.87	1.21	4379652	1.53	4379641	1.03	1.55	0.05	4379758
Total Sodium (Na)	mg/kg	118	4379737	<100	101	116	4379652	116	4379641	<100	145	100	4379758
Total Strontium (Sr)	mg/kg	105	4379737	95.3	79.4	58.3	4379652	52.7	4379641	38.1	53.8	0.1	4379758
Total Thallium (Tl)	mg/kg	0.08	4379737	0.06	0.06	0.07	4379652	<0.05	4379641	<0.05	<0.05	0.05	4379758
Total Tin (Sn)	mg/kg	0.4	4379737	0.5	0.5	0.7	4379652	0.7	4379641	0.7	1.0	0.1	4379758
Total Titanium (Ti)	mg/kg	264	4379737	197	224	271	4379652	236	4379641	230	349	1	4379758
Total Uranium (U)	mg/kg	1.90	4379737	1.86	1.92	1.76	4379652	1.69	4379641	1.24	1.87	0.05	4379758
Total Vanadium (V)	mg/kg	29	4379737	27	29	33	4379652	30	4379641	32	35	2	4379758
Total Zinc (Zn)	mg/kg	49	4379737	52	53	55	4379652	61	4379641	53	67	1	4379758
Total Zirconium (Zr)	mg/kg	1.3	4379737	1.1	1.3	1.5	4379652	1.2	4379641	0.9	3.5	0.5	4379758

RDL = Reportable Detection Limit

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97171		X97172	X97173		X97174		X97175		X97176		
COC#		08324292		08324292	08324292		08324292		08324292		08324292		
	Units	**923-6L**	**QC Batch**	**923-6M**	**923-7A**	**QC Batch**	**923-7B**	**QC Batch**	**923-7C**	**QC Batch**	**923-7D**	**RDL**	**QC Batch**
Physical Properties													
Soluble (2:1) pH	pH Units	8.83	4379747	8.78	9.05	4379733	9.14	4379747	8.68	4379643	8.51	0.01	4379631
Total Metals by ICPMS													
Total Aluminum (Al)	mg/kg	9950	4379737	9110	9010	4379652	9580	4379737	6810	4379641	4700	100	4379623
Total Antimony (Sb)	mg/kg	0.5	4379737	0.3	0.6	4379652	1.4	4379737	0.6	4379641	0.4	0.1	4379623
Total Arsenic (As)	mg/kg	14.4	4379737	12.3	15.9	4379652	16.4	4379737	10.0	4379641	9.2	0.2	4379623
Total Barium (Ba)	mg/kg	55.2	4379737	52.6	45.4	4379652	58.4	4379737	37.7	4379641	18.6	0.1	4379623
Total Beryllium (Be)	mg/kg	<0.1	4379737	<0.1	<0.1	4379652	0.2	4379737	0.1	4379641	0.1	0.1	4379623
Total Bismuth (Bi)	mg/kg	6.1	4379737	4.6	7.1	4379652	9.5	4379737	4.4	4379641	2.7	0.1	4379623
Total Cadmium (Cd)	mg/kg	0.12	4379737	0.12	0.16	4379652	0.22	4379737	0.12	4379641	0.10	0.05	4379623
Total Calcium (Ca)	mg/kg	18700	4379737	17100	37100	4379652	60200	4379737	52200	4379641	32900	100	4379623
Total Chromium (Cr)	mg/kg	17	4379737	19	20	4379652	16	4379737	25	4379641	18	1	4379623
Total Cobalt (Co)	mg/kg	33.2	4379737	30.5	24.2	4379652	20.9	4379737	5.6	4379641	3.6	0.3	4379623
Total Copper (Cu)	mg/kg	2370	4379737	1840	2080	4379652	2730	4379737	944	4379641	542	0.5	4379623
Total Iron (Fe)	mg/kg	140000	4379737	133000	104000	4379652	88100	4379737	25800	4379641	13100	100	4379623
Total Lead (Pb)	mg/kg	2.9	4379737	3.2	4.1	4379652	5.2	4379737	7.0	4379641	2.9	0.1	4379623
Total Lithium (Li)	mg/kg	7	4379737	6	6	4379652	7	4379737	6	4379641	5	5	4379623
Total Magnesium (Mg)	mg/kg	60700	4379737	52000	61800	4379652	73600	4379737	10700	4379641	4870	100	4379623
Total Manganese (Mn)	mg/kg	895	4379737	780	673	4379652	700	4379737	366	4379641	227	0.2	4379623
Total Mercury (Hg)	mg/kg	<0.05	4379737	<0.05	<0.05	4379652	<0.05	4379737	<0.05	4379641	<0.05	0.05	4379623
Total Molybdenum (Mo)	mg/kg	17.0	4379737	18.1	20.3	4379652	36.2	4379737	8.5	4379641	15.0	0.1	4379623
Total Nickel (Ni)	mg/kg	14.2	4379737	15.3	15.3	4379652	12.5	4379737	11.0	4379641	8.7	0.8	4379623
Total Phosphorus (P)	mg/kg	523	4379737	502	411	4379652	363	4379737	716	4379641	665	10	4379623
Total Potassium (K)	mg/kg	1900	4379737	2180	1920	4379652	1840	4379737	1070	4379641	595	100	4379623
Total Selenium (Se)	mg/kg	1.4	4379737	1.0	0.9	4379652	1.8	4379737	0.6	4379641	<0.5	0.5	4379623
Total Silver (Ag)	mg/kg	1.82	4379737	1.20	1.80	4379652	2.71	4379737	0.79	4379641	0.41	0.05	4379623
Total Sodium (Na)	mg/kg	121	4379737	109	<100	4379652	<100	4379737	110	4379641	120	100	4379623
Total Strontium (Sr)	mg/kg	43.3	4379737	45.2	78.0	4379652	133	4379737	92.0	4379641	64.3	0.1	4379623
Total Thallium (Tl)	mg/kg	0.06	4379737	0.06	0.06	4379652	0.06	4379737	<0.05	4379641	<0.05	0.05	4379623
Total Tin (Sn)	mg/kg	1.1	4379737	0.8	0.8	4379652	0.9	4379737	0.3	4379641	0.2	0.1	4379623
Total Titanium (Ti)	mg/kg	298	4379737	230	258	4379652	313	4379737	312	4379641	231	1	4379623
Total Uranium (U)	mg/kg	1.77	4379737	1.59	1.64	4379652	1.90	4379737	2.77	4379641	1.54	0.05	4379623
Total Vanadium (V)	mg/kg	36	4379737	33	31	4379652	30	4379737	22	4379641	16	2	4379623
Total Zinc (Zn)	mg/kg	60	4379737	60	60	4379652	59	4379737	23	4379641	16	1	4379623
Total Zirconium (Zr)	mg/kg	1.8	4379737	1.8	1.7	4379652	1.8	4379737	1.8	4379641	1.5	0.5	4379623

RDL = Reportable Detection Limit

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97177		X97178	X97179		X97180		X97181		X97182		
COC#		08324292		08324292	08324292		08324292		08324292		08324292		
	Units	**923-7E**	**QC Batch**	**923-7F**	**923-7G**	**QC Batch**	**923-7H**	**QC Batch**	**923-7I**	**QC Batch**	**923-7J**	**RDL**	**QC Batch**
Physical Properties													
Soluble (2:1) pH	pH Units	8.82	4379747	9.02	8.89	4379733	8.99	4379643	8.96	4379733	9.05	0.01	4379643
Total Metals by ICPMS													
Total Aluminum (Al)	mg/kg	7920	4379737	9690	7860	4379652	5500	4379641	6360	4379652	9030	100	4379641
Total Antimony (Sb)	mg/kg	2.1	4379737	0.7	0.6	4379652	0.4	4379641	0.4	4379652	3.3	0.1	4379641
Total Arsenic (As)	mg/kg	11.8	4379737	13.5	9.5	4379652	7.8	4379641	7.4	4379652	15.1	0.2	4379641
Total Barium (Ba)	mg/kg	55.6	4379737	47.8	38.8	4379652	36.6	4379641	41.8	4379652	51.8	0.1	4379641
Total Beryllium (Be)	mg/kg	<0.1	4379737	0.1	0.1	4379652	<0.1	4379641	0.1	4379652	0.1	0.1	4379641
Total Bismuth (Bi)	mg/kg	11.5	4379737	11.7	5.8	4379652	4.8	4379641	5.4	4379652	15.8	0.1	4379641
Total Cadmium (Cd)	mg/kg	0.34	4379737	0.32	0.15	4379652	0.15	4379641	0.13	4379652	0.34	0.05	4379641
Total Calcium (Ca)	mg/kg	44200	4379737	55900	36000	4379652	36600	4379641	35600	4379652	54800	100	4379641
Total Chromium (Cr)	mg/kg	10	4379737	19	16	4379652	14	4379641	16	4379652	24	1	4379641
Total Cobalt (Co)	mg/kg	20.0	4379737	24.3	22.8	4379652	23.8	4379641	25.9	4379652	26.5	0.3	4379641
Total Copper (Cu)	mg/kg	1430	4379737	2280	1700	4379652	1550	4379641	1440	4379652	4370	0.5	4379641
Total Iron (Fe)	mg/kg	98800	4379737	88300	90800	4379652	95000	4379641	105000	4379652	103000	100	4379641
Total Lead (Pb)	mg/kg	6.6	4379737	5.5	4.5	4379652	3.4	4379641	3.5	4379652	10.8	0.1	4379641
Total Lithium (Li)	mg/kg	<5	4379737	6	6	4379652	<5	4379641	<5	4379652	6	5	4379641
Total Magnesium (Mg)	mg/kg	32400	4379737	83900	56400	4379652	47900	4379641	50000	4379652	58600	100	4379641
Total Manganese (Mn)	mg/kg	677	4379737	956	827	4379652	811	4379641	848	4379652	921	0.2	4379641
Total Mercury (Hg)	mg/kg	<0.05	4379737	<0.05	<0.05	4379652	<0.05	4379641	<0.05	4379652	<0.05	0.05	4379641
Total Molybdenum (Mo)	mg/kg	4.7	4379737	65.2	6.4	4379652	12.0	4379641	11.2	4379652	4.5	0.1	4379641
Total Nickel (Ni)	mg/kg	18.1	4379737	19.5	13.8	4379652	13.5	4379641	15.5	4379652	19.2	0.8	4379641
Total Phosphorus (P)	mg/kg	430	4379737	521	478	4379652	441	4379641	460	4379652	546	10	4379641
Total Potassium (K)	mg/kg	2210	4379737	1100	836	4379652	698	4379641	874	4379652	767	100	4379641
Total Selenium (Se)	mg/kg	1.2	4379737	1.8	1.5	4379652	1.2	4379641	1.3	4379652	2.1	0.5	4379641
Total Silver (Ag)	mg/kg	2.30	4379737	2.79	1.67	4379652	1.42	4379641	1.52	4379652	3.99	0.05	4379641
Total Sodium (Na)	mg/kg	<100	4379737	<100	115	4379652	<100	4379641	<100	4379652	145	100	4379641
Total Strontium (Sr)	mg/kg	48.5	4379737	87.6	53.4	4379652	49.7	4379641	49.6	4379652	70.6	0.1	4379641
Total Thallium (Tl)	mg/kg	0.08	4379737	<0.05	<0.05	4379652	<0.05	4379641	<0.05	4379652	<0.05	0.05	4379641
Total Tin (Sn)	mg/kg	0.7	4379737	1.7	1.1	4379652	0.9	4379641	1.1	4379652	1.6	0.1	4379641
Total Titanium (Ti)	mg/kg	224	4379737	304	221	4379652	185	4379641	228	4379652	302	1	4379641
Total Uranium (U)	mg/kg	1.72	4379737	2.69	1.48	4379652	1.08	4379641	1.27	4379652	1.85	0.05	4379641
Total Vanadium (V)	mg/kg	24	4379737	27	29	4379652	27	4379641	32	4379652	30	2	4379641
Total Zinc (Zn)	mg/kg	63	4379737	109	77	4379652	64	4379641	62	4379652	92	1	4379641
Total Zirconium (Zr)	mg/kg	2.4	4379737	2.4	1.6	4379652	1.0	4379641	1.3	4379652	2.2	0.5	4379641

RDL = Reportable Detection Limit

Maxxam Job #: B0A3599
Report Date: 2010/11/05

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EDI ENVIRONMENTAL DYNAMICS

Site Reference: WHITEHORSE COPPER

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97183		X97184		X97185		X97186		X97187		
COC#		08324292		08324292		08324292		08324292		08324292		
	Units	**923-8A**	**QC Batch**	**923-8B**	**QC Batch**	**923-8C**	**QC Batch**	**923-8D**	**QC Batch**	**923-8E**	**RDL**	**QC Batch**
Physical Properties												
Soluble (2:1) pH	pH Units	9.26	4379733	8.77	4379747	8.64	4379643	8.55	4379733	8.68	0.01	4379767
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	5070	4379652	6480	4379737	6790	4379641	9940	4379652	7110	100	4379758
Total Antimony (Sb)	mg/kg	0.5	4379652	0.8	4379737	0.8	4379641	0.7	4379652	0.8	0.1	4379758
Total Arsenic (As)	mg/kg	11.3	4379652	12.3	4379737	4.3	4379641	11.1	4379652	38.6	0.2	4379758
Total Barium (Ba)	mg/kg	33.6	4379652	38.6	4379737	94.9	4379641	60.5	4379652	47.6	0.1	4379758
Total Beryllium (Be)	mg/kg	0.1	4379652	0.1	4379737	0.1	4379641	0.2	4379652	0.1	0.1	4379758
Total Bismuth (Bi)	mg/kg	4.3	4379652	6.7	4379737	5.2	4379641	5.1	4379652	6.8	0.1	4379758
Total Cadmium (Cd)	mg/kg	0.13	4379652	0.13	4379737	0.25	4379641	0.14	4379652	0.22	0.05	4379758
Total Calcium (Ca)	mg/kg	34600	4379652	36700	4379737	25700	4379641	56800	4379652	48500	100	4379758
Total Chromium (Cr)	mg/kg	10	4379652	11	4379737	21	4379641	43	4379652	13	1	4379758
Total Cobalt (Co)	mg/kg	21.7	4379652	27.5	4379737	9.9	4379641	5.0	4379652	27.2	0.3	4379758
Total Copper (Cu)	mg/kg	1330	4379652	1720	4379737	2440	4379641	625	4379652	1890	0.5	4379758
Total Iron (Fe)	mg/kg	112000	4379652	132000	4379737	34600	4379641	19400	4379652	111000	100	4379758
Total Lead (Pb)	mg/kg	3.5	4379652	3.8	4379737	5.3	4379641	3.7	4379652	3.7	0.1	4379758
Total Lithium (Li)	mg/kg	<5	4379652	5	4379737	<5	4379641	10	4379652	<5	5	4379758
Total Magnesium (Mg)	mg/kg	47200	4379652	52800	4379737	13500	4379641	11200	4379652	65900	100	4379758
Total Manganese (Mn)	mg/kg	515	4379652	701	4379737	375	4379641	446	4379652	1070	0.2	4379758
Total Mercury (Hg)	mg/kg	<0.05	4379652	<0.05	4379737	<0.05	4379641	<0.05	4379652	<0.05	0.05	4379758
Total Molybdenum (Mo)	mg/kg	26.0	4379652	20.1	4379737	11.6	4379641	13.8	4379652	34.1	0.1	4379758
Total Nickel (Ni)	mg/kg	10.1	4379652	11.2	4379737	10.9	4379641	17.5	4379652	13.1	0.8	4379758
Total Phosphorus (P)	mg/kg	342	4379652	330	4379737	798	4379641	976	4379652	430	10	4379758
Total Potassium (K)	mg/kg	1450	4379652	1990	4379737	394	4379641	1500	4379652	837	100	4379758
Total Selenium (Se)	mg/kg	1.4	4379652	1.2	4379737	1.4	4379641	<0.5	4379652	1.3	0.5	4379758
Total Silver (Ag)	mg/kg	0.97	4379652	1.33	4379737	1.22	4379641	0.53	4379652	2.34	0.05	4379758
Total Sodium (Na)	mg/kg	<100	4379652	<100	4379737	<100	4379641	270	4379652	116	100	4379758
Total Strontium (Sr)	mg/kg	66.5	4379652	81.0	4379737	76.1	4379641	97.3	4379652	99.5	0.1	4379758
Total Thallium (Tl)	mg/kg	<0.05	4379652	0.06	4379737	<0.05	4379641	0.06	4379652	<0.05	0.05	4379758
Total Tin (Sn)	mg/kg	0.5	4379652	0.9	4379737	0.3	4379641	0.4	4379652	1.8	0.1	4379758
Total Titanium (Ti)	mg/kg	126	4379652	192	4379737	211	4379641	535	4379652	182	1	4379758
Total Uranium (U)	mg/kg	1.19	4379652	1.39	4379737	2.46	4379641	2.40	4379652	1.42	0.05	4379758
Total Vanadium (V)	mg/kg	26	4379652	31	4379737	29	4379641	33	4379652	25	2	4379758
Total Zinc (Zn)	mg/kg	43	4379652	48	4379737	29	4379641	23	4379652	82	1	4379758
Total Zirconium (Zr)	mg/kg	0.8	4379652	0.8	4379737	1.2	4379641	3.1	4379652	1.3	0.5	4379758

RDL = Reportable Detection Limit

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97188		X97189		X97190	X97191		X97192		X97193		
COC#		08324292		08324292		08324292	08324292		08324293		08324293		
	Units	**923-8F**	**QC Batch**	**923-8G**	**QC Batch**	**923-9A**	**923-9B**	**QC Batch**	**923-9C**	**QC Batch**	**924-10A**	**RDL**	**QC Batch**
Physical Properties													
Soluble (2:1) pH	pH Units	9.22	4379631	8.85	4379733	8.53	8.60	4379767	8.68	4379733	9.02	0.01	4379767
Total Metals by ICPMS													
Total Aluminum (Al)	mg/kg	3810	4379623	4640	4379652	10200	11900	4379758	6720	4379652	6920	100	4379758
Total Antimony (Sb)	mg/kg	0.5	4379623	0.5	4379652	0.7	3.3	4379758	0.6	4379652	0.6	0.1	4379758
Total Arsenic (As)	mg/kg	10.2	4379623	10.0	4379652	18.4	22.4	4379758	16.9	4379652	13.9	0.2	4379758
Total Barium (Ba)	mg/kg	15.9	4379623	20.5	4379652	54.9	47.0	4379758	33.9	4379652	30.0	0.1	4379758
Total Beryllium (Be)	mg/kg	<0.1	4379623	<0.1	4379652	<0.1	0.1	4379758	0.1	4379652	<0.1	0.1	4379758
Total Bismuth (Bi)	mg/kg	6.3	4379623	4.6	4379652	5.0	9.4	4379758	12.3	4379652	4.6	0.1	4379758
Total Cadmium (Cd)	mg/kg	0.21	4379623	0.20	4379652	0.15	0.26	4379758	0.19	4379652	0.17	0.05	4379758
Total Calcium (Ca)	mg/kg	26700	4379623	34500	4379652	22900	46300	4379758	28200	4379652	28300	100	4379758
Total Chromium (Cr)	mg/kg	8	4379623	12	4379652	17	18	4379758	14	4379652	13	1	4379758
Total Cobalt (Co)	mg/kg	19.6	4379623	26.2	4379652	26.9	21.0	4379758	27.8	4379652	25.5	0.3	4379758
Total Copper (Cu)	mg/kg	2130	4379623	1470	4379652	2140	2580	4379758	2960	4379652	1350	0.5	4379758
Total Iron (Fe)	mg/kg	71500	4379623	108000	4379652	120000	81500	4379758	98600	4379652	120000	100	4379758
Total Lead (Pb)	mg/kg	2.4	4379623	2.5	4379652	3.6	6.4	4379758	4.0	4379652	3.4	0.1	4379758
Total Lithium (Li)	mg/kg	<5	4379623	<5	4379652	7	7	4379758	<5	4379652	<5	5	4379758
Total Magnesium (Mg)	mg/kg	58800	4379623	48900	4379652	57200	67500	4379758	72300	4379652	48700	100	4379758
Total Manganese (Mn)	mg/kg	671	4379623	831	4379652	686	766	4379758	997	4379652	608	0.2	4379758
Total Mercury (Hg)	mg/kg	<0.05	4379623	<0.05	4379652	<0.05	<0.05	4379758	<0.05	4379652	<0.05	0.05	4379758
Total Molybdenum (Mo)	mg/kg	34.1	4379623	60.1	4379652	33.4	43.4	4379758	21.7	4379652	36.8	0.1	4379758
Total Nickel (Ni)	mg/kg	7.9	4379623	11.4	4379652	15.1	13.9	4379758	10.6	4379652	12.6	0.8	4379758
Total Phosphorus (P)	mg/kg	299	4379623	419	4379652	428	414	4379758	439	4379652	313	10	4379758
Total Potassium (K)	mg/kg	535	4379623	473	4379652	2650	1810	4379758	1350	4379652	2010	100	4379758
Total Selenium (Se)	mg/kg	1.8	4379623	1.2	4379652	1.4	1.7	4379758	2.0	4379652	1.3	0.5	4379758
Total Silver (Ag)	mg/kg	1.96	4379623	1.39	4379652	1.60	2.50	4379758	2.74	4379652	1.02	0.05	4379758
Total Sodium (Na)	mg/kg	<100	4379623	<100	4379652	<100	162	4379758	<100	4379652	<100	100	4379758
Total Strontium (Sr)	mg/kg	42.0	4379623	46.3	4379652	44.4	94.7	4379758	50.9	4379652	50.7	0.1	4379758
Total Thallium (Tl)	mg/kg	<0.05	4379623	<0.05	4379652	0.07	0.06	4379758	<0.05	4379652	0.05	0.05	4379758
Total Tin (Sn)	mg/kg	1.0	4379623	1.3	4379652	1.0	1.1	4379758	1.1	4379652	0.6	0.1	4379758
Total Titanium (Ti)	mg/kg	81	4379623	142	4379652	273	413	4379758	218	4379652	208	1	4379758
Total Uranium (U)	mg/kg	1.18	4379623	1.74	4379652	2.52	2.45	4379758	1.90	4379652	1.42	0.05	4379758
Total Vanadium (V)	mg/kg	16	4379623	22	4379652	34	33	4379758	24	4379652	34	2	4379758
Total Zinc (Zn)	mg/kg	65	4379623	62	4379652	61	64	4379758	70	4379652	50	1	4379758
Total Zirconium (Zr)	mg/kg	0.6	4379623	0.9	4379652	1.6	3.0	4379758	1.3	4379652	0.9	0.5	4379758

RDL = Reportable Detection Limit

Maxxam Job #: B0A3599
Report Date: 2010/11/05

EDI ENVIRONMENTAL DYNAMICS

Site Reference: WHITEHORSE COPPER

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97194	X97195	X97196	X97197	X97198		X97199		X97200	X97201		
COC#		08324293	08324293	08324293	08324293	08324293		08324293		08324293	08324293		
	Units	**924-10B**	**924-11A**	**924-11B**	**924-12A**	**924-12B**	**QC Batch**	**924-12C**	**QC Batch**	**924-13A**	**924-13B**	**RDL**	**QC Batch**
Physical Properties													
Soluble (2:1) pH	pH Units	8.56	8.85	9.10	9.10	9.03	4379643	8.89	4379631	8.97	8.80	0.01	4379643
Total Metals by ICPMS													
Total Aluminum (Al)	mg/kg	3870	9410	9940	5610	5600	4379641	4060	4379623	5650	5100	100	4379641
Total Antimony (Sb)	mg/kg	0.2	0.6	0.7	0.4	0.3	4379641	0.7	4379623	0.4	0.7	0.1	4379641
Total Arsenic (As)	mg/kg	11.6	15.9	12.7	11.4	8.7	4379641	13.7	4379623	11.7	14.2	0.2	4379641
Total Barium (Ba)	mg/kg	7.1	59.4	62.4	36.0	44.4	4379641	34.6	4379623	26.4	27.2	0.1	4379641
Total Beryllium (Be)	mg/kg	<0.1	<0.1	0.2	<0.1	0.1	4379641	<0.1	4379623	<0.1	<0.1	0.1	4379641
Total Bismuth (Bi)	mg/kg	5.2	6.2	3.6	3.2	2.9	4379641	2.8	4379623	4.0	9.0	0.1	4379641
Total Cadmium (Cd)	mg/kg	0.09	0.12	0.12	0.09	0.12	4379641	0.12	4379623	0.08	0.13	0.05	4379641
Total Calcium (Ca)	mg/kg	9790	21700	79500	20200	17600	4379641	70400	4379623	22000	16500	100	4379641
Total Chromium (Cr)	mg/kg	15	20	33	12	18	4379641	16	4379623	13	13	1	4379641
Total Cobalt (Co)	mg/kg	30.1	26.8	4.9	15.4	13.0	4379641	2.4	4379623	16.7	22.3	0.3	4379641
Total Copper (Cu)	mg/kg	2010	2440	601	1160	1250	4379641	489	4379623	1430	2880	0.5	4379641
Total Iron (Fe)	mg/kg	105000	115000	25400	64200	51400	4379641	16000	4379623	66900	101000	100	4379641
Total Lead (Pb)	mg/kg	1.8	4.0	3.4	4.3	2.9	4379641	3.6	4379623	2.9	3.8	0.1	4379641
Total Lithium (Li)	mg/kg	<5	6	8	<5	<5	4379641	<5	4379623	<5	<5	5	4379641
Total Magnesium (Mg)	mg/kg	57600	57100	8550	30000	18800	4379641	3050	4379623	34200	39300	100	4379641
Total Manganese (Mn)	mg/kg	1110	705	453	486	371	4379641	297	4379623	537	547	0.2	4379641
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	4379641	<0.05	4379623	<0.05	<0.05	0.05	4379641
Total Molybdenum (Mo)	mg/kg	5.2	21.2	5.4	12.3	7.3	4379641	3.5	4379623	5.6	19.8	0.1	4379641
Total Nickel (Ni)	mg/kg	34.2	16.3	10.7	9.9	11.7	4379641	17.4	4379623	10.4	12.5	0.8	4379641
Total Phosphorus (P)	mg/kg	300	454	773	416	560	4379641	487	4379623	440	345	10	4379641
Total Potassium (K)	mg/kg	742	2000	1340	1280	849	4379641	329	4379623	1040	1150	100	4379641
Total Selenium (Se)	mg/kg	1.9	1.5	<0.5	1.0	0.9	4379641	<0.5	4379623	0.9	2.0	0.5	4379641
Total Silver (Ag)	mg/kg	1.52	1.52	0.86	0.75	0.63	4379641	0.55	4379623	0.95	1.79	0.05	4379641
Total Sodium (Na)	mg/kg	<100	<100	151	<100	<100	4379641	<100	4379623	<100	<100	100	4379641
Total Strontium (Sr)	mg/kg	14.6	39.2	138	35.3	41.5	4379641	123	4379623	41.6	31.6	0.1	4379641
Total Thallium (Tl)	mg/kg	<0.05	0.06	0.06	<0.05	<0.05	4379641	<0.05	4379623	<0.05	<0.05	0.05	4379641
Total Tin (Sn)	mg/kg	1.0	0.8	0.3	0.4	0.3	4379641	0.2	4379623	0.4	0.6	0.1	4379641
Total Titanium (Ti)	mg/kg	107	292	462	140	165	4379641	146	4379623	135	141	1	4379641
Total Uranium (U)	mg/kg	1.76	2.65	3.08	1.77	1.22	4379641	2.60	4379623	1.98	1.91	0.05	4379641
Total Vanadium (V)	mg/kg	19	33	30	19	24	4379641	11	4379623	19	26	2	4379641
Total Zinc (Zn)	mg/kg	61	56	23	40	29	4379641	13	4379623	39	43	1	4379641
Total Zirconium (Zr)	mg/kg	0.5	1.4	3.2	0.8	0.7	4379641	1.4	4379623	0.8	0.7	0.5	4379641

RDL = Reportable Detection Limit

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		X97202	X97203	X97204	X97205	X97206		X97207		
COC#		08324293	08324293	08324293	08324293	08324293		08324293		
	Units	**924-13C**	**924-13D**	**924-13E**	**924-14A**	**924-14B**	**QC Batch**	**924-14C**	**RDL**	**QC Batch**
Physical Properties										
Soluble (2:1) pH	pH Units	9.10	9.06	8.33	8.85	9.22	4379643	8.84	0.01	4379631
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	4610	5040	6050	5650	5310	4379641	5070	100	4379623
Total Antimony (Sb)	mg/kg	0.5	0.5	0.6	0.5	0.7	4379641	0.7	0.1	4379623
Total Arsenic (As)	mg/kg	12.1	10.5	12.5	13.1	13.1	4379641	7.8	0.2	4379623
Total Barium (Ba)	mg/kg	41.5	36.0	45.7	38.3	22.8	4379641	27.6	0.1	4379623
Total Beryllium (Be)	mg/kg	0.2	0.2	0.2	<0.1	<0.1	4379641	<0.1	0.1	4379623
Total Bismuth (Bi)	mg/kg	3.0	3.8	4.3	4.9	3.1	4379641	4.1	0.1	4379623
Total Cadmium (Cd)	mg/kg	0.09	0.14	0.13	0.08	0.08	4379641	0.13	0.05	4379623
Total Calcium (Ca)	mg/kg	48400	40300	43000	18200	30200	4379641	43000	100	4379623
Total Chromium (Cr)	mg/kg	18	19	22	14	14	4379641	17	1	4379623
Total Cobalt (Co)	mg/kg	3.7	3.9	5.0	20.6	19.8	4379641	4.0	0.3	4379623
Total Copper (Cu)	mg/kg	650	722	747	1660	928	4379641	855	0.5	4379623
Total Iron (Fe)	mg/kg	20400	16900	21800	93300	86200	4379641	19200	100	4379623
Total Lead (Pb)	mg/kg	3.6	4.0	4.2	3.0	2.7	4379641	2.5	0.1	4379623
Total Lithium (Li)	mg/kg	<5	<5	5	<5	<5	4379641	<5	5	4379623
Total Magnesium (Mg)	mg/kg	5370	5050	6900	37200	34100	4379641	6310	100	4379623
Total Manganese (Mn)	mg/kg	297	274	305	537	562	4379641	262	0.2	4379623
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	4379641	<0.05	0.05	4379623
Total Molybdenum (Mo)	mg/kg	4.6	13.2	11.7	8.8	6.7	4379641	11.2	0.1	4379623
Total Nickel (Ni)	mg/kg	6.5	8.1	9.9	12.3	11.4	4379641	6.5	0.8	4379623
Total Phosphorus (P)	mg/kg	550	623	623	416	470	4379641	501	10	4379623
Total Potassium (K)	mg/kg	544	579	644	1400	1100	4379641	675	100	4379623
Total Selenium (Se)	mg/kg	0.7	0.6	<0.5	1.0	0.6	4379641	0.7	0.5	4379623
Total Silver (Ag)	mg/kg	0.57	0.62	0.53	0.99	0.70	4379641	0.71	0.05	4379623
Total Sodium (Na)	mg/kg	<100	<100	<100	<100	<100	4379641	105	100	4379623
Total Strontium (Sr)	mg/kg	78.1	73.1	71.3	36.4	43.5	4379641	85.6	0.1	4379623
Total Thallium (Tl)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	4379641	<0.05	0.05	4379623
Total Tin (Sn)	mg/kg	0.2	0.2	0.3	0.5	0.7	4379641	0.2	0.1	4379623
Total Titanium (Ti)	mg/kg	185	207	260	134	153	4379641	223	1	4379623
Total Uranium (U)	mg/kg	2.31	2.20	2.17	2.10	2.77	4379641	2.43	0.05	4379623
Total Vanadium (V)	mg/kg	15	17	20	25	24	4379641	17	2	4379623
Total Zinc (Zn)	mg/kg	16	18	22	41	43	4379641	18	1	4379623
Total Zirconium (Zr)	mg/kg	1.4	1.4	1.5	0.7	1.1	4379641	1.5	0.5	4379623

RDL = Reportable Detection Limit

Maxxam

Success Through Science®

Maxxam Job #: B0A3599
Report Date: 2010/11/05

EDI ENVIRONMENTAL DYNAMICS

Site Reference: WHITEHORSE COPPER

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4379623	Total Arsenic (As)	2010/10/28	93	75 - 125	99	75 - 125	<0.2	mg/kg	1.3	30	96	70 - 130
4379623	Total Beryllium (Be)	2010/10/28	93	75 - 125	97	75 - 125	<0.1	mg/kg	NC	30		
4379623	Total Cadmium (Cd)	2010/10/28	97	75 - 125	100	75 - 125	<0.05	mg/kg	NC	30	91	70 - 130
4379623	Total Chromium (Cr)	2010/10/28	89	75 - 125	96	75 - 125	<1	mg/kg	0.2	30	90	70 - 130
4379623	Total Cobalt (Co)	2010/10/28	87	75 - 125	97	75 - 125	<0.3	mg/kg	3.1	30	94	70 - 130
4379623	Total Copper (Cu)	2010/10/28	NC	75 - 125	100	75 - 125	<0.5	mg/kg	0.5	30	88	70 - 130
4379623	Total Lead (Pb)	2010/10/28	98	75 - 125	104	75 - 125	<0.1	mg/kg	6.0	35	101	70 - 130
4379623	Total Lithium (Li)	2010/10/28	93	75 - 125	97	75 - 125	<5	mg/kg	NC	30		
4379623	Total Mercury (Hg)	2010/10/28	99	75 - 125	97	75 - 125	<0.05	mg/kg	NC	35		
4379623	Total Nickel (Ni)	2010/10/28	87	75 - 125	98	75 - 125	<0.8	mg/kg	4.3	30	94	70 - 130
4379623	Total Selenium (Se)	2010/10/28	94	75 - 125	107	75 - 125	<0.5	mg/kg	NC	30		
4379623	Total Uranium (U)	2010/10/28	100	75 - 125	100	75 - 125	<0.05	mg/kg	14.1	30	92	70 - 130
4379623	Total Vanadium (V)	2010/10/28	91	75 - 125	97	75 - 125	<2	mg/kg	2.5	30	92	70 - 130
4379623	Total Zinc (Zn)	2010/10/28	NC	75 - 125	100	75 - 125	<1	mg/kg	2.4	30	86	70 - 130
4379623	Total Aluminum (Al)	2010/10/28					<100	mg/kg	1.9	35	86	70 - 130
4379623	Total Antimony (Sb)	2010/10/28					<0.1	mg/kg	NC	30	87	70 - 130
4379623	Total Barium (Ba)	2010/10/28					<0.1	mg/kg	1.2	35	97	70 - 130
4379623	Total Calcium (Ca)	2010/10/28					<100	mg/kg	0.9	30	93	70 - 130
4379623	Total Iron (Fe)	2010/10/28					<100	mg/kg	4.7	30	90	70 - 130
4379623	Total Magnesium (Mg)	2010/10/28					<100	mg/kg	0.8	30	91	70 - 130
4379623	Total Manganese (Mn)	2010/10/28					<0.2	mg/kg	3.0	30	94	70 - 130
4379623	Total Molybdenum (Mo)	2010/10/28					<0.1	mg/kg	4.8	35	93	70 - 130
4379623	Total Phosphorus (P)	2010/10/28					<10	mg/kg	1.1	30	93	70 - 130
4379623	Total Strontium (Sr)	2010/10/28					<0.1	mg/kg	3.2	35	91	70 - 130
4379623	Total Thallium (Tl)	2010/10/28					<0.05	mg/kg	NC	30	73	70 - 130
4379623	Total Titanium (Ti)	2010/10/28					<1	mg/kg	0.01	35	89	70 - 130
4379623	Total Bismuth (Bi)	2010/10/28					<0.1	mg/kg	9.3	30		
4379623	Total Potassium (K)	2010/10/28					<100	mg/kg	2.9	35		
4379623	Total Silver (Ag)	2010/10/28					<0.05	mg/kg	29.3	35		
4379623	Total Sodium (Na)	2010/10/28					<100	mg/kg	NC	35		
4379623	Total Tin (Sn)	2010/10/28					<0.1	mg/kg	3.6	35		
4379623	Total Zirconium (Zr)	2010/10/28					<0.5	mg/kg	NC	30		
4379631	Soluble (2:1) pH	2010/10/28			102	96 - 104			0.2	20		
4379641	Total Arsenic (As)	2010/10/29	94	75 - 125	97	75 - 125	<0.2	mg/kg	0.6	30	93	70 - 130
4379641	Total Beryllium (Be)	2010/10/29	100	75 - 125	94	75 - 125	<0.1	mg/kg	NC	30		
4379641	Total Cadmium (Cd)	2010/10/29	99	75 - 125	96	75 - 125	<0.05	mg/kg	NC	30	95	70 - 130
4379641	Total Chromium (Cr)	2010/10/29	91	75 - 125	93	75 - 125	<1	mg/kg	4.3	30	89	70 - 130
4379641	Total Cobalt (Co)	2010/10/29	89	75 - 125	93	75 - 125	<0.3	mg/kg	0.6	30	92	70 - 130
4379641	Total Copper (Cu)	2010/10/29	NC	75 - 125	97	75 - 125	<0.5	mg/kg	2.2	30	89	70 - 130
4379641	Total Lead (Pb)	2010/10/29	101	75 - 125	100	75 - 125	<0.1	mg/kg	1.8	35	100	70 - 130

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4379641	Total Lithium (Li)	2010/10/29	96	75 - 125	93	75 - 125	<5	mg/kg	NC	30		
4379641	Total Mercury (Hg)	2010/10/29	103	75 - 125	99	75 - 125	<0.05	mg/kg	NC	35		
4379641	Total Nickel (Ni)	2010/10/29	91	75 - 125	96	75 - 125	<0.8	mg/kg	0.8	30	94	70 - 130
4379641	Total Selenium (Se)	2010/10/29	97	75 - 125	104	75 - 125	<0.5	mg/kg	NC	30		
4379641	Total Uranium (U)	2010/10/29	101	75 - 125	97	75 - 125	<0.05	mg/kg	1.7	30	87	70 - 130
4379641	Total Vanadium (V)	2010/10/29	NC	75 - 125	92	75 - 125	<2	mg/kg	2.8	30	90	70 - 130
4379641	Total Zinc (Zn)	2010/10/29	NC	75 - 125	98	75 - 125	<1	mg/kg	2.8	30	86	70 - 130
4379641	Total Aluminum (Al)	2010/10/29					<100	mg/kg	2.4	35	87	70 - 130
4379641	Total Antimony (Sb)	2010/10/29					<0.1	mg/kg	NC	30	85	70 - 130
4379641	Total Barium (Ba)	2010/10/29					<0.1	mg/kg	0.4	35	100	70 - 130
4379641	Total Calcium (Ca)	2010/10/29					<100	mg/kg	2.4	30	94	70 - 130
4379641	Total Iron (Fe)	2010/10/29					<100	mg/kg	1	30	88	70 - 130
4379641	Total Magnesium (Mg)	2010/10/29					<100	mg/kg	2.5	30	91	70 - 130
4379641	Total Manganese (Mn)	2010/10/29					<0.2	mg/kg	0.8	30	95	70 - 130
4379641	Total Molybdenum (Mo)	2010/10/29					<0.1	mg/kg	5.8	35	79	70 - 130
4379641	Total Phosphorus (P)	2010/10/29					<10	mg/kg	4.3	30	95	70 - 130
4379641	Total Strontium (Sr)	2010/10/29					<0.1	mg/kg	1.1	35	89	70 - 130
4379641	Total Thallium (Tl)	2010/10/29					<0.05	mg/kg	NC	30	82	70 - 130
4379641	Total Titanium (Ti)	2010/10/29					<1	mg/kg	2.3	35	89	70 - 130
4379641	Total Bismuth (Bi)	2010/10/29					<0.1	mg/kg	11.7	30		
4379641	Total Potassium (K)	2010/10/29					<100	mg/kg	4.1	35		
4379641	Total Silver (Ag)	2010/10/29					<0.05	mg/kg	24.7	35		
4379641	Total Sodium (Na)	2010/10/29					<100	mg/kg	NC	35		
4379641	Total Tin (Sn)	2010/10/29					<0.1	mg/kg	4.2	35		
4379641	Total Zirconium (Zr)	2010/10/29					<0.5	mg/kg	NC	30		
4379643	Soluble (2:1) pH	2010/10/28			102	96 - 104			0.2	20		
4379652	Total Arsenic (As)	2010/10/29	95	75 - 125	98	75 - 125	0.3, RDL=0.2	mg/kg	0.7	30	93	70 - 130
4379652	Total Beryllium (Be)	2010/10/29	101	75 - 125	100	75 - 125	<0.1	mg/kg	NC	30		
4379652	Total Cadmium (Cd)	2010/10/29	102	75 - 125	99	75 - 125	<0.05	mg/kg	NC	30	89	70 - 130
4379652	Total Chromium (Cr)	2010/10/29	92	75 - 125	95	75 - 125	<1	mg/kg	0.4	30	81	70 - 130
4379652	Total Cobalt (Co)	2010/10/29	NC	75 - 125	96	75 - 125	<0.3	mg/kg	1.5	30	86	70 - 130
4379652	Total Copper (Cu)	2010/10/29	NC	75 - 125	100	75 - 125	<0.5	mg/kg	1.1	30	89	70 - 130
4379652	Total Lead (Pb)	2010/10/29	101	75 - 125	102	75 - 125	<0.1	mg/kg	3.4	35	99	70 - 130
4379652	Total Lithium (Li)	2010/10/29	100	75 - 125	97	75 - 125	<5	mg/kg	NC	30		
4379652	Total Mercury (Hg)	2010/10/29	101	75 - 125	101	75 - 125	<0.05	mg/kg	NC	35		
4379652	Total Nickel (Ni)	2010/10/29	87	75 - 125	97	75 - 125	<0.8	mg/kg	0.5	30	89	70 - 130
4379652	Total Selenium (Se)	2010/10/29	96	75 - 125	105	75 - 125	<0.5	mg/kg	NC	30		
4379652	Total Uranium (U)	2010/10/29	101	75 - 125	99	75 - 125	<0.05	mg/kg	7.1	30	87	70 - 130
4379652	Total Vanadium (V)	2010/10/29	95	75 - 125	95	75 - 125	<2	mg/kg	0.7	30	81	70 - 130
4379652	Total Zinc (Zn)	2010/10/29	NC	75 - 125	99	75 - 125	<1	mg/kg	3.1	30	86	70 - 130

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4379652	Total Aluminum (Al)	2010/10/29					<100	mg/kg	0.5	35	78	70 - 130
4379652	Total Antimony (Sb)	2010/10/29					<0.1	mg/kg	8.1	30	73	70 - 130
4379652	Total Barium (Ba)	2010/10/29					<0.1	mg/kg	0.009	35	95	70 - 130
4379652	Total Calcium (Ca)	2010/10/29					<100	mg/kg	1.7	30	94	70 - 130
4379652	Total Iron (Fe)	2010/10/29					<100	mg/kg	0.1	30	83	70 - 130
4379652	Total Magnesium (Mg)	2010/10/29					<100	mg/kg	1.2	30	85	70 - 130
4379652	Total Manganese (Mn)	2010/10/29					<0.2	mg/kg	0.7	30	91	70 - 130
4379652	Total Molybdenum (Mo)	2010/10/29					<0.1	mg/kg	8.6	35	81	70 - 130
4379652	Total Phosphorus (P)	2010/10/29					<10	mg/kg	5.0	30	92	70 - 130
4379652	Total Strontium (Sr)	2010/10/29					<0.1	mg/kg	0.8	35	89	70 - 130
4379652	Total Thallium (Tl)	2010/10/29					<0.05	mg/kg	NC	30	78	70 - 130
4379652	Total Titanium (Ti)	2010/10/29					<1	mg/kg	1.8	35	78	70 - 130
4379652	Total Bismuth (Bi)	2010/10/29					<0.1	mg/kg	13.7	30		
4379652	Total Potassium (K)	2010/10/29					<100	mg/kg	2.8	35		
4379652	Total Silver (Ag)	2010/10/29					<0.05	mg/kg	27.3	35		
4379652	Total Sodium (Na)	2010/10/29					<100	mg/kg	NC	35		
4379652	Total Tin (Sn)	2010/10/29					<0.1	mg/kg	1.9	35		
4379652	Total Zirconium (Zr)	2010/10/29					<0.5	mg/kg	NC	30		
4379733	Soluble (2:1) pH	2010/10/29			102	96 - 104			0.7	20		
4379737	Total Arsenic (As)	2010/10/29	98	75 - 125	99	75 - 125	<0.2	mg/kg	4.1	30	98	70 - 130
4379737	Total Beryllium (Be)	2010/10/29	96	75 - 125	98	75 - 125	<0.1	mg/kg	NC	30		
4379737	Total Cadmium (Cd)	2010/10/29	100	75 - 125	101	75 - 125	<0.05	mg/kg	NC	30	95	70 - 130
4379737	Total Chromium (Cr)	2010/10/29	91	75 - 125	95	75 - 125	<1	mg/kg	3.8	30	88	70 - 130
4379737	Total Cobalt (Co)	2010/10/29	NC	75 - 125	96	75 - 125	<0.3	mg/kg	0.6	30	90	70 - 130
4379737	Total Copper (Cu)	2010/10/29	NC	75 - 125	100	75 - 125	<0.5	mg/kg	2.0	30	89	70 - 130
4379737	Total Lead (Pb)	2010/10/29	104	75 - 125	106	75 - 125	<0.1	mg/kg	6.0	35	105	70 - 130
4379737	Total Lithium (Li)	2010/10/29	96	75 - 125	96	75 - 125	<5	mg/kg	NC	30		
4379737	Total Mercury (Hg)	2010/10/29	107	75 - 125	108	75 - 125	<0.05	mg/kg	NC	35		
4379737	Total Nickel (Ni)	2010/10/29	88	75 - 125	96	75 - 125	<0.8	mg/kg	4.3	30	93	70 - 130
4379737	Total Selenium (Se)	2010/10/29	92	75 - 125	107	75 - 125	<0.5	mg/kg	NC	30		
4379737	Total Uranium (U)	2010/10/29	105	75 - 125	103	75 - 125	<0.05	mg/kg	4.6	30	92	70 - 130
4379737	Total Vanadium (V)	2010/10/29	NC	75 - 125	97	75 - 125	<2	mg/kg	3.9	30	92	70 - 130
4379737	Total Zinc (Zn)	2010/10/29	NC	75 - 125	100	75 - 125	<1	mg/kg	12.2	30	85	70 - 130
4379737	Total Aluminum (Al)	2010/10/29					<100	mg/kg	9.9	35	84	70 - 130
4379737	Total Antimony (Sb)	2010/10/29					<0.1	mg/kg	9.6	30	85	70 - 130
4379737	Total Barium (Ba)	2010/10/29					<0.1	mg/kg	3.9	35	102	70 - 130
4379737	Total Calcium (Ca)	2010/10/29					<100	mg/kg	0.05	30	95	70 - 130
4379737	Total Iron (Fe)	2010/10/29					<100	mg/kg	1.1	30	90	70 - 130
4379737	Total Magnesium (Mg)	2010/10/29					<100	mg/kg	3.7	30	92	70 - 130
4379737	Total Manganese (Mn)	2010/10/29					<0.2	mg/kg	0.6	30	94	70 - 130

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4379737	Total Molybdenum (Mo)	2010/10/29					<0.1	mg/kg	5.4	35	87	70 - 130
4379737	Total Phosphorus (P)	2010/10/29					<10	mg/kg	0.7	30	96	70 - 130
4379737	Total Strontium (Sr)	2010/10/29					<0.1	mg/kg	1.6	35	93	70 - 130
4379737	Total Thallium (Tl)	2010/10/29					<0.05	mg/kg	NC	30	84	70 - 130
4379737	Total Titanium (Ti)	2010/10/29					<1	mg/kg	17.3	35	90	70 - 130
4379737	Total Bismuth (Bi)	2010/10/29					<0.1	mg/kg	11.1	30		
4379737	Total Potassium (K)	2010/10/29					<100	mg/kg	5.0	35		
4379737	Total Silver (Ag)	2010/10/29					<0.05	mg/kg	28.9	35		
4379737	Total Sodium (Na)	2010/10/29					<100	mg/kg	NC	35		
4379737	Total Tin (Sn)	2010/10/29					<0.1	mg/kg	16.1	35		
4379737	Total Zirconium (Zr)	2010/10/29					<0.5	mg/kg	NC	30		
4379747	Soluble (2:1) pH	2010/10/29			102	96 - 104			0.3	20		
4379758	Total Arsenic (As)	2010/10/29	101	75 - 125	97	75 - 125	<0.2	mg/kg	0.5	30	94	70 - 130
4379758	Total Beryllium (Be)	2010/10/29	99	75 - 125	94	75 - 125	<0.1	mg/kg	NC	30		
4379758	Total Cadmium (Cd)	2010/10/29	103	75 - 125	99	75 - 125	<0.05	mg/kg	NC	30	95	70 - 130
4379758	Total Chromium (Cr)	2010/10/29	91	75 - 125	94	75 - 125	<1	mg/kg	0.8	30	96	70 - 130
4379758	Total Cobalt (Co)	2010/10/29	NC	75 - 125	94	75 - 125	<0.3	mg/kg	1.1	30	90	70 - 130
4379758	Total Copper (Cu)	2010/10/29	NC	75 - 125	97	75 - 125	<0.5	mg/kg	0.1	30	87	70 - 130
4379758	Total Lead (Pb)	2010/10/29	105	75 - 125	103	75 - 125	<0.1	mg/kg	2.8	35	100	70 - 130
4379758	Total Lithium (Li)	2010/10/29	97	75 - 125	94	75 - 125	<5	mg/kg	NC	30		
4379758	Total Mercury (Hg)	2010/10/29	100	75 - 125	106	75 - 125	<0.05	mg/kg	NC	35		
4379758	Total Nickel (Ni)	2010/10/29	88	75 - 125	94	75 - 125	<0.8	mg/kg	1.2	30	90	70 - 130
4379758	Total Selenium (Se)	2010/10/29	97	75 - 125	103	75 - 125	<0.5	mg/kg	NC	30		
4379758	Total Uranium (U)	2010/10/29	106	75 - 125	103	75 - 125	<0.05	mg/kg	0.9	30	92	70 - 130
4379758	Total Vanadium (V)	2010/10/29	NC	75 - 125	96	75 - 125	<2	mg/kg	0.2	30	99	70 - 130
4379758	Total Zinc (Zn)	2010/10/29	NC	75 - 125	97	75 - 125	<1	mg/kg	0.5	30	84	70 - 130
4379758	Total Aluminum (Al)	2010/10/29					<100	mg/kg	0.7	35	94	70 - 130
4379758	Total Antimony (Sb)	2010/10/29					<0.1	mg/kg	4.8	30	85	70 - 130
4379758	Total Barium (Ba)	2010/10/29					<0.1	mg/kg	2.6	35	103	70 - 130
4379758	Total Calcium (Ca)	2010/10/29					<100	mg/kg	3.3	30	93	70 - 130
4379758	Total Iron (Fe)	2010/10/29					<100	mg/kg	0.5	30	91	70 - 130
4379758	Total Magnesium (Mg)	2010/10/29					<100	mg/kg	0.6	30	94	70 - 130
4379758	Total Manganese (Mn)	2010/10/29					<0.2	mg/kg	0.7	30	94	70 - 130
4379758	Total Molybdenum (Mo)	2010/10/29					<0.1	mg/kg	1.5	35	92	70 - 130
4379758	Total Phosphorus (P)	2010/10/29					<10	mg/kg	1.1	30	94	70 - 130
4379758	Total Strontium (Sr)	2010/10/29					<0.1	mg/kg	2.9	35	90	70 - 130
4379758	Total Thallium (Tl)	2010/10/29					<0.05	mg/kg	NC	30	89	70 - 130
4379758	Total Titanium (Ti)	2010/10/29					<1	mg/kg	0.9	35	97	70 - 130
4379758	Total Bismuth (Bi)	2010/10/29					<0.1	mg/kg	14.6	30		
4379758	Total Potassium (K)	2010/10/29					<100	mg/kg	0.9	35		

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4379758	Total Silver (Ag)	2010/10/29					<0.05	mg/kg	24.6	35		
4379758	Total Sodium (Na)	2010/10/29					<100	mg/kg	NC	35		
4379758	Total Tin (Sn)	2010/10/29					<0.1	mg/kg	6.5	35		
4379758	Total Zirconium (Zr)	2010/10/29					<0.5	mg/kg	NC	30		
4379767	Soluble (2:1) pH	2010/10/29			101	96 - 104			0.3	20		

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Maxxam

Success Through Science®

Validation Signature Page

Maxxam Job #: B0A3599

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

TOM SHUM, BBY Scientific Specialist

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EDI DYNAMICS ATTN: LYNDSAY DOETZEL JOB # BOA3599 08324291 1/3

Lab ID	Hole ID	Sample	Depth	ICP-MS	ABA	T-S+TIC+Sulphate	Shake Flask*	XRD	Colour
X97121	921-1	1b	10	X		X			light grey
122	921-1	1d	20	X	X		X		grey/brown
123	921-1	1f	30	X		X			dark grey
124	921-1	1h	40	X		X		X	med dark grey
125	921-1	1j	50	X	X		X		med grey
126	921-1	1l	60	X		X			dark grey
127	921-2	2a	5	X		X			light grey
128	921-2	2b	15	X		X			med grey
129	921-2	2c	25	X	X				med grey
130	921-2	2d	35	X		X			med grey
131	921-2	2e	45	X		X			med grey
132	921-2	2f	55	X		X			dark grey
133	921-2	2g	65	X		X			med grey
134	921-3	3a	5	X		X			light grey
135	921-3	3b	10	X	X		X		light grey
136	921-3	3c	15	X		X			light grey
137	921-3	3d	20	X		X		X	med grey
138	921-3	3e	25	X	X				med grey
139	921-3	3f	30	X		X			med grey
140	921-3	3g	35	X		X			med grey
141	921-3	3h	40	X		X			dark grey
142	921-3	3i	45	X	X		X		dark grey
143	921-3	3j	50	X		X			dark grey
144	921-3	3k	55	X		X			dark grey
145	922-4	4a	5	X		X			light grey
146	922-4	4c	15	X		X			med grey
147	922-4	4e	25	X	X		X		med grey
148	922-4	4g	35	X		X			med grey
149	922-4	4i	45	X	X		X		med grey
150	922-5	5a	5	X		X			med grey
151	922-5	5b	10	X	X				med grey
152	922-5	5c	15	X		X			med grey
153	922-5	5d	20	X		X			med grey
154	922-5	5e	25	X	X		X	X	med grey
155	922-5	5f	30	X		X			med grey

Job # BOA 3599

08324292

X97156	922-5	5g	35	X		X			med grey
157	922-5	5h	40	X		X			med grey
158	922-5	5i	45	X		X			med grey
159	922-5	5j	50	X	X		X		dark grey
160	922-6	6a	5	X	X				med grey
161	922-6	6b	10	X		X			light/med grey
162	922-6	6c	15	X		X			med grey
163	922-6	6d	20	X	X		X		med grey
164	922-6	6e	25	X		X			med grey
165	922-6	6f	30	X		X			med grey
166	922-6	6g	35	X	X			X	med/dark grey
167	922-6	6h	40	X		X			dark grey
168	922-6	6i	45	X		X			dark grey
169	922-6	6j	50	X	X		X		dark grey
170	922-6	6k	55	X		X			dark grey
171	923-6	6l	60	X		X			dark grey
172	923-6	6m	65	X		X			dark grey
173	923-7	7a	5	X		X			med grey
174	923-7	7b	10	X	X				light/med grey
175	923-7	7c	15	X		X			very light grey
176	923-7	7d	20	X	X		X		very light grey
177	923-7	7e	25	X		X			med grey
178	923-7	7f	30	X	X		X		med grey
179	923-7	7g	35	X		X			med grey
180	923-7	7h	40	X		X			med grey
181	923-7	7i	45	X	X		X		med/dark grey
182	923-7	7j	50	X		X			med/dark grey
183	923-8	8a	5	X		X			med grey
184	923-8	8b	10	X	X		X		med grey
185	923-8	8c	15	X		X			very light grey
186	923-8	8d	20	X	X				white/grey
187	923-8	8e	25	X		X			med grey
188	923-8	8f	30	X	X		X		greenish grey
189	923-8	8g	35	X		X			med grey
190	923-9	9a	5	X	X		X		med/dark grey
191	923-9	9b	10	X		X			med/dark grey

Job # BOA 3599

08324293

X 97 192	923-9	9c	15	X		X			med grey
193	924-10	10a	5	X	X				dark grey
194	924-10	10b	10	X		X			dark grey
195	924-11	11a	5	X		X			med/dark grey
196	924-11	11b	10	X	X				very light grey
197	924-12	12a	5	X		X			med grey
198	924-12	12b	10	X	X		X		med/light grey
199	924-12	12c	15	X		X			light grey
200	924-13	13a	5	X		X			med grey
201	924-13	13b	10	X	X		X	X	dark grey
202	924-13	13c	15	X		X			light grey
203	924-13	13d	20	X	X		X		light grey
204	924-13	13e	25	X		X			med grey
205	924-14	14a	5	X	X				med/dark grey
206	924-14	14b	10	X	X		X	X	med grey
207	924-14	14c	15	X		X			very light grey
				88	30	58	20	6	

*Use pit lake water, provided in red jerry cans

Your C.O.C. #: 08321977

Attention: LYNDSAY DOETZEL
EDI ENVIRONMENTAL DYNAMICS
3-478 RANGE ROAD
WHITEHORSE, BC
CANADA Y1A 3A2

Report Date: 2010/09/20

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B081228
Received: 2010/09/04, 09:55

Sample Matrix: Soil
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICPMS (total)	8	2010/09/12	2010/09/14	BRN SOP-00203 R5.0	Based on EPA 200.8
pH (2:1 DI Water Extract)	8	2010/09/13	2010/09/13	BRN SOP-00266 R6.0	Carter, SSMA 16.2
Sublet (Inorganics) (1)	8	N/A	2010/09/20		

* Results relate only to the items tested.

(1) This test was performed by Ext. Sublet from Vancouver

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

ASHLEY NIVISON, BBY Customer Service
Email: ashley.nivison@maxxamanalytics.com
Phone# (604) 639-2616 Ext:230

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B081228
Report Date: 2010/09/20

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		W77035	W77036	W77037	W77038	W77039	W77040	W77041	W77042		
COC#		08321977	08321977	08321977	08321977	08321977	08321977	08321977	08321977		
	Units	**310-4**	**427-10**	**428-3**	**803-1**	**803-2**	**803-3**	**803-4**	**803-5**	**RDL**	**QC Batch**
Misc. Inorganics											
Soluble (2:1) pH	pH Units	8.78	9.13	9.14	9.58	9.01	9.34	8.70	9.14	0.01	4255200
Parameter											
Subcontract Parameter	N/A	ATTACHED	ATTACHED	ATTACHED	ATTACHED	ATTACHED	ATTACHED	ATTACHED	ATTACHED	N/A	4275714

N/A = Not Applicable
RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		W77035		W77036	W77037	W77038	W77039		W77040	W77041	W77042		
COC#		08321977		08321977	08321977	08321977	08321977		08321977	08321977	08321977		
	Units	**310-4**	**QC Batch**	**427-10**	**428-3**	**803-1**	**803-2**	**QC Batch**	**803-3**	**803-4**	**803-5**	**RDL**	**QC Batch**
Total Metals by ICPMS													
Total Aluminum (Al)	mg/kg	6610	4253271	6830	10400	5000	6100	4253260	11000	10300	10100	100	4253271
Total Antimony (Sb)	mg/kg	1.3	4253271	1.0	0.6	0.8	1.3	4253260	0.8	0.8	0.7	0.1	4253271
Total Arsenic (As)	mg/kg	14.2	4253271	13.1	16.1	12.5	15.1	4253260	14.4	13.3	16.4	0.2	4253271
Total Barium (Ba)	mg/kg	35.2	4253271	35.0	52.7	23.5	48.8	4253260	84.0	103	173	0.1	4253271
Total Beryllium (Be)	mg/kg	<0.1	4253271	0.1	0.1	<0.1	0.1	4253260	0.1	0.2	0.2	0.1	4253271
Total Bismuth (Bi)	mg/kg	7.7	4253271	5.8	4.5	5.2	6.5	4253260	5.3	4.5	5.5	0.1	4253271
Total Cadmium (Cd)	mg/kg	0.22	4253271	0.13	0.11	0.12	0.18	4253260	0.18	0.24	0.22	0.05	4253271
Total Calcium (Ca)	mg/kg	33900	4253271	29600	32900	25900	73400	4253260	48700	37000	42300	100	4253271
Total Chromium (Cr)	mg/kg	16	4253271	14	24	13	15	4253260	24	21	24	1	4253271
Total Cobalt (Co)	mg/kg	35.4	4253271	30.4	25.4	26.1	36.2	4253260	25.4	23.7	29.1	0.3	4253271
Total Copper (Cu)	mg/kg	2310	4253271	1720	1550	1540	1790	4253260	1720	1520	1800	0.5	4253271
Total Iron (Fe)	mg/kg	163000	4253271	143000	115000	122000	154000	4253260	117000	115000	143000	100	4253271
Total Lead (Pb)	mg/kg	3.1	4253271	2.9	3.5	2.8	3.7	4253260	5.5	4.4	4.9	0.1	4253271
Total Lithium (Li)	mg/kg	5	4253271	<5	7	<5	<5	4253260	8	8	8	5	4253271
Total Magnesium (Mg)	mg/kg	55200	4253271	52800	43100	46200	66300	4253260	50900	42200	50400	100	4253271
Total Manganese (Mn)	mg/kg	845	4253271	762	730	664	831	4253260	657	565	658	0.2	4253271
Total Mercury (Hg)	mg/kg	<0.05	4253271	<0.05	<0.05	<0.05	<0.05	4253260	<0.05	<0.05	<0.05	0.05	4253271
Total Molybdenum (Mo)	mg/kg	60.6	4253271	20.3	14.1	15.1	37.8	4253260	29.3	38.6	15.3	0.1	4253271
Total Nickel (Ni)	mg/kg	13.8	4253271	13.6	18.1	11.4	12.6	4253260	17.9	16.8	20.2	0.8	4253271
Total Phosphorus (P)	mg/kg	314	4253271	362	534	355	324	4253260	489	483	505	10	4253271
Total Potassium (K)	mg/kg	1500	4253271	1910	1760	1140	1660	4253260	1520	2060	1680	100	4253271
Total Selenium (Se)	mg/kg	1.5	4253271	1.4	1.0	1.1	1.4	4253260	1.0	1.0	0.6	0.5	4253271
Total Silver (Ag)	mg/kg	1.86	4253271	1.42	1.17	1.14	1.70	4253260	1.33	1.13	1.43	0.05	4253271
Total Sodium (Na)	mg/kg	<100	4253271	<100	<100	<100	<100	4253260	<100	<100	113	100	4253271
Total Strontium (Sr)	mg/kg	73.3	4253271	54.0	63.7	46.8	135	4253260	143	182	178	0.1	4253271
Total Thallium (Tl)	mg/kg	<0.05	4253271	<0.05	<0.05	<0.05	<0.05	4253260	<0.05	0.06	<0.05	0.05	4253271
Total Tin (Sn)	mg/kg	0.7	4253271	0.8	0.8	0.5	0.7	4253260	0.6	0.4	0.6	0.1	4253271
Total Titanium (Ti)	mg/kg	195	4253271	242	414	183	179	4253260	392	291	343	1	4253271
Total Uranium (U)	mg/kg	1.58	4253271	1.42	1.94	1.27	2.27	4253260	2.30	2.04	2.59	0.05	4253271
Total Vanadium (V)	mg/kg	36	4253271	37	38	29	30	4253260	34	36	34	2	4253271
Total Zinc (Zn)	mg/kg	63	4253271	58	56	55	69	4253260	73	70	80	1	4253271
Total Zirconium (Zr)	mg/kg	0.9	4253271	1.1	2.1	1.0	0.9	4253260	2.5	1.5	1.6	0.5	4253271

RDL = Reportable Detection Limit

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4253260	Total Arsenic (As)	2010/09/14	98	75 - 125	98	75 - 125	<0.2	mg/kg			95	70 - 130
4253260	Total Beryllium (Be)	2010/09/14	97	75 - 125	97	75 - 125	<0.1	mg/kg				
4253260	Total Cadmium (Cd)	2010/09/14	101	75 - 125	102	75 - 125	<0.05	mg/kg			92	70 - 130
4253260	Total Chromium (Cr)	2010/09/14	96	75 - 125	97	75 - 125	<1	mg/kg			96	70 - 130
4253260	Total Cobalt (Co)	2010/09/14	97	75 - 125	100	75 - 125	<0.3	mg/kg			93	70 - 130
4253260	Total Copper (Cu)	2010/09/14	99	75 - 125	102	75 - 125	<0.5	mg/kg			88	70 - 130
4253260	Total Lead (Pb)	2010/09/14	101	75 - 125	104	75 - 125	<0.1	mg/kg	1.9	35	96	70 - 130
4253260	Total Lithium (Li)	2010/09/14	99	75 - 125	100	75 - 125	<5	mg/kg				
4253260	Total Mercury (Hg)	2010/09/14	87	75 - 125	92	75 - 125	<0.05	mg/kg				
4253260	Total Nickel (Ni)	2010/09/14	98	75 - 125	101	75 - 125	<0.8	mg/kg			94	70 - 130
4253260	Total Selenium (Se)	2010/09/14	99	75 - 125	99	75 - 125	<0.5	mg/kg				
4253260	Total Uranium (U)	2010/09/14	96	75 - 125	101	75 - 125	<0.05	mg/kg			90	70 - 130
4253260	Total Vanadium (V)	2010/09/14	NC	75 - 125	98	75 - 125	<2	mg/kg			99	70 - 130
4253260	Total Zinc (Zn)	2010/09/14	106	75 - 125	104	75 - 125	<1	mg/kg			87	70 - 130
4253260	Total Aluminum (Al)	2010/09/14					<100	mg/kg			96	70 - 130
4253260	Total Antimony (Sb)	2010/09/14					<0.1	mg/kg			87	70 - 130
4253260	Total Barium (Ba)	2010/09/14					<0.1	mg/kg			100	70 - 130
4253260	Total Calcium (Ca)	2010/09/14					<100	mg/kg			88	70 - 130
4253260	Total Iron (Fe)	2010/09/14					<100	mg/kg			93	70 - 130
4253260	Total Magnesium (Mg)	2010/09/14					<100	mg/kg			90	70 - 130
4253260	Total Manganese (Mn)	2010/09/14					<0.2	mg/kg			95	70 - 130
4253260	Total Molybdenum (Mo)	2010/09/14					<0.1	mg/kg			88	70 - 130
4253260	Total Phosphorus (P)	2010/09/14					<10	mg/kg			91	70 - 130
4253260	Total Silver (Ag)	2010/09/14					<0.05	mg/kg			64 (1)	70 - 130
4253260	Total Strontium (Sr)	2010/09/14					<0.1	mg/kg			91	70 - 130
4253260	Total Thallium (Tl)	2010/09/14					<0.05	mg/kg			78	70 - 130
4253260	Total Titanium (Ti)	2010/09/14					<1	mg/kg			98	70 - 130
4253260	Total Bismuth (Bi)	2010/09/14					<0.1	mg/kg				
4253260	Total Potassium (K)	2010/09/14					<100	mg/kg				
4253260	Total Sodium (Na)	2010/09/14					<100	mg/kg				
4253260	Total Tin (Sn)	2010/09/14					<0.1	mg/kg				
4253260	Total Zirconium (Zr)	2010/09/14					<0.5	mg/kg				
4253271	Total Arsenic (As)	2010/09/14	98	75 - 125	95	75 - 125	0.3, RDL=0.2	mg/kg			92	70 - 130
4253271	Total Beryllium (Be)	2010/09/14	91	75 - 125	94	75 - 125	<0.1	mg/kg				
4253271	Total Cadmium (Cd)	2010/09/14	100	75 - 125	100	75 - 125	<0.05	mg/kg			94	70 - 130
4253271	Total Chromium (Cr)	2010/09/14	96	75 - 125	97	75 - 125	<1	mg/kg			99	70 - 130
4253271	Total Cobalt (Co)	2010/09/14	96	75 - 125	98	75 - 125	<0.3	mg/kg			92	70 - 130
4253271	Total Copper (Cu)	2010/09/14	96	75 - 125	100	75 - 125	<0.5	mg/kg			88	70 - 130
4253271	Total Lead (Pb)	2010/09/14	100	75 - 125	100	75 - 125	<0.1	mg/kg	1.2	35	100	70 - 130
4253271	Total Lithium (Li)	2010/09/14	93	75 - 125	98	75 - 125	<5	mg/kg				

Maxxam Job #: B081228
Report Date: 2010/09/20

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4253271	Total Mercury (Hg)	2010/09/14	85	75 - 125	96	75 - 125	<0.05	mg/kg				
4253271	Total Nickel (Ni)	2010/09/14	96	75 - 125	100	75 - 125	<0.8	mg/kg			92	70 - 130
4253271	Total Selenium (Se)	2010/09/14	98	75 - 125	98	75 - 125	<0.5	mg/kg				
4253271	Total Uranium (U)	2010/09/14	98	75 - 125	96	75 - 125	<0.05	mg/kg			90	70 - 130
4253271	Total Vanadium (V)	2010/09/14	NC	75 - 125	98	75 - 125	<2	mg/kg			101	70 - 130
4253271	Total Zinc (Zn)	2010/09/14	NC	75 - 125	106	75 - 125	<1	mg/kg			92	70 - 130
4253271	Total Aluminum (Al)	2010/09/14					<100	mg/kg			98	70 - 130
4253271	Total Antimony (Sb)	2010/09/14					<0.1	mg/kg			102	70 - 130
4253271	Total Barium (Ba)	2010/09/14					<0.1	mg/kg			102	70 - 130
4253271	Total Calcium (Ca)	2010/09/14					<100	mg/kg			88	70 - 130
4253271	Total Iron (Fe)	2010/09/14					<100	mg/kg			94	70 - 130
4253271	Total Magnesium (Mg)	2010/09/14					<100	mg/kg			96	70 - 130
4253271	Total Manganese (Mn)	2010/09/14					<0.2	mg/kg			99	70 - 130
4253271	Total Molybdenum (Mo)	2010/09/14					<0.1	mg/kg			89	70 - 130
4253271	Total Phosphorus (P)	2010/09/14					<10	mg/kg			89	70 - 130
4253271	Total Silver (Ag)	2010/09/14					<0.05	mg/kg			111	70 - 130
4253271	Total Strontium (Sr)	2010/09/14					<0.1	mg/kg			91	70 - 130
4253271	Total Thallium (Tl)	2010/09/14					<0.05	mg/kg			81	70 - 130
4253271	Total Titanium (Ti)	2010/09/14					<1	mg/kg			103	70 - 130
4253271	Total Bismuth (Bi)	2010/09/14					<0.1	mg/kg				
4253271	Total Potassium (K)	2010/09/14					<100	mg/kg				
4253271	Total Sodium (Na)	2010/09/14					<100	mg/kg				
4253271	Total Tin (Sn)	2010/09/14					<0.1	mg/kg				
4253271	Total Zirconium (Zr)	2010/09/14					<0.5	mg/kg				
4255200	Soluble (2:1) pH	2010/09/13			102	96 - 104			1.8	20		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Validation Signature Page

Maxxam Job #: B081228

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

ASHLEY NIVISON, BBY Customer Service

ROB REINERT, Data Validation Coordinator

==

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08321977

NKC SAMOR
Sept 4/10 @ 9:55
7/7/8

From EDI Environmental Dynamics.

COC to follow, please hold for further instruction

ID -
310-4
427-10
428-3
803-1
803-2
803-3
803-4
803-5

Lyndsay
1-867-393-4882 (office)
1-867-333-9629 (mobile)

DAVID3

Maxxam Analytics Inc

4606 Canada Way
Burnaby, BC V5G 1K5
www.maxxamanalytics.com

Phone: (604) 734-7276
Fax.: (604) 731-2386

CHAIN-OF CUSTODY RECORD AND ANALYSIS REQUEST

PAGE 1 OF 1

LAB USE ONLY
MAXXAM JOB # B081228

ANALYSIS REQUEST

LAB USE ONLY
COC #

COMPANY NAME: EDI Environmental Dynamics	CLIENT PROJECT NO.:
COMPANY ADDRESS: 3-478 Range Road, Whitehorse, YT, Y1A 3A2	TEL.: 867-393-4882 E-MAIL: ldoetzel@edynamics.com FAX: 867-393-4883
SAMPLER NAME (PRINT): –	PROJECT MANAGER: Lyndsay Doetzel; LABORATORY CONTACT: Ashley Nivison

#	FIELD SAMPLE ID	MAXXAM LAB # (LAB USE ONLY)	GROUNDWATER	SURFACE WATER	DRINKING WATER	SOIL	OTHER : MINE TAILINGS	DATE DD/MM/YY	TIME	# CONTAINERS	TOTAL METALS	ABA ~ 50g (ARO)	3:1 DI ANIONS
1	427-10						x	August	unkn	1	x	x	x
2	310-4						x	August	unkn	1	x	x	x
3	803-1						x	August	unkn	1	x	x	x
4	428-3						x	August	unkn	1	x	x	x
5	803-3						x	August	unkn	1	x	x	x
6	803-2						x	August	unkn	1	x	x	x
7	803-5						x	August	unkn	1	x	x	x
8	803-4						x	August	unkn	1	x	x	x
9													
10													
11													
12													

please also see attached word document for all samples

TAT (Turnaround Time)
LESS THAN 5 DAY TAT MUST HAVE PRIOR APPROVAL
* Some exceptions apply - please contact laboratory

STANDARD	5 BUSINESS DAYS	X
RUSH	3 BUSINESS DAYS	
RUSH	2 BUSINESS DAYS	
URGENT	1 BUSINESS DAY	

OTHER BUSINESS DAYS ______

PO NUMBER OR QUOTE NUMBER:

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

CCME / CSR / AB TIER 1 / OTHER

LAB USE ONLY — ARRIVAL TEMPERATURE °C: / DUE DATE: / LOG IN CHECK:

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:

JARS USED:

RELINQUISHED BY	DATE DD/MM/YY	TIME	RECEIVED BY
RELINQUISHED BY SAMPLER:			RECEIVED BY:
RELINQUISHED BY: L. Doetzel	02/09/2010	afternoon	RECEIVED BY:
RELINQUISHED BY:			RECEIVED BY LABORATORY:

CUSTODY RECORD

COCFORM - BC - 20070822

EAGLE INDUSTRIAL MINERALS

ANALYTICAL CERTIFICATES FOR TAILINGS PORE AND SURFACE WATER ANALYSES

Appendix E

ACCESS
CONSULTING GROUP

www.accessconsulting.ca

Your Project #: EIM-10-01
Your C.O.C. #: 08324995

Attention: Scott Davidson
ACCESS CONSULTING GROUP
#3 Calcite
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 3C8

Report Date: 2010/11/15

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0A8539
Received: 2010/11/05, 14:00

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity - Water	4	2010/11/06	2010/11/06	BRN SOP-00264 R4.0	Based on SM2320B
Conductance - water	4	N/A	2010/11/06	BRN SOP-00264 R2.0	Based on SM-2510B
Hardness (calculated as CaCO3)	4	N/A	2010/11/15		
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	4	N/A	2010/11/15	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (dissolved)	4	N/A	2010/11/13	BRN SOP-00206	Based on EPA 200.8
Nitrate + Nitrite (N)	4	N/A	2010/11/06		Based on USEPA 353.2
Nitrite (N) by CFA	4	N/A	2010/11/06	BRN SOP-00233 R1.0	EPA 353.2
Nitrogen - Nitrate (as N)	4	N/A	2010/11/08	BBY6SOP-00010	Based on EPA 353.2
Filter and HNO3 Preserve for Metals	4	N/A	2010/11/05	BRN WI-00006 R1.0	Based on EPA 200.2
pH Water	4	N/A	2010/11/06	BRN SOP-00264 R4.0	Based on SM-4500H+B
Sulphate by Automated Colourimetry	2	N/A	2010/11/08	BRN-SOP 00243 R1.0	Based on EPA 375.4
Sulphate by Automated Colourimetry	2	N/A	2010/11/09	BRN-SOP 00243 R1.0	Based on EPA 375.4

* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

KIMBERLEY WEBBER, BBY Customer Service
Email: kwebber@maxxam.ca
Phone# (604) 638-3254

==
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B0A8539
Report Date: 2010/11/15

ACCESS CONSULTING GROUP
Client Project #: EIM-10-01

Sampler Initials: EA

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		Y24782			Y24783	Y24784			Y24785		
Sampling Date		2010/11/03 18:00			2010/11/03 14:00	2010/11/03 16:00			2010/11/03 17:00		
	Units	**1029-1**	**RDL**	**QC Batch**	**1103-1**	**1103-2**	**RDL**	**QC Batch**	**1103-3**	**RDL**	**QC Batch**
ANIONS											
Nitrite (N)	mg/L	<0.005	0.005	4405675	0.006	<0.005	0.005	4405675	<0.005	0.005	4405675
Calculated Parameters											
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Nitrate (N)	mg/L	<0.02	0.02	4401639	<0.02	0.09	0.02	4401639	<0.02	0.02	4401639
Misc. Inorganics											
Alkalinity (Total as CaCO3)	mg/L	53	0.5	4405291	55	240	0.5	4405291	530	0.5	4405291
Alkalinity (PP as CaCO3)	mg/L	<0.5	0.5	4405291	<0.5	2.0	0.5	4405291	25	0.5	4405291
Bicarbonate (HCO3)	mg/L	65	0.5	4405291	67	290	0.5	4405291	590	0.5	4405291
Carbonate (CO3)	mg/L	<0.5	0.5	4405291	<0.5	2.4	0.5	4405291	30	0.5	4405291
Hydroxide (OH)	mg/L	<0.5	0.5	4405291	<0.5	<0.5	0.5	4405291	<0.5	0.5	4405291
Anions											
Dissolved Sulphate (SO4)	mg/L	800	5	4410941	3400	8500	50	4414796	250	5	4410941
Nutrients											
Nitrate plus Nitrite (N)	mg/L	<0.02	0.02	4405674	<0.02	0.09	0.02	4405674	<0.02	0.02	4405674
Physical Properties											
Conductivity	uS/cm	1530	1	4405287	4610	8800	1	4405287	1220	1	4405287
pH	pH Units	7.94		4405274	8.12	8.32		4405274	8.55		4405274

N/A = Not Applicable
RDL = Reportable Detection Limit

Success Through Science®

Maxxam Job #: B0A8539
Report Date: 2010/11/15

ACCESS CONSULTING GROUP
Client Project #: EIM-10-01

Sampler Initials: EA

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		Y24782		Y24783		Y24784		Y24785		
Sampling Date		2010/11/03 18:00		2010/11/03 14:00		2010/11/03 16:00		2010/11/03 17:00		
	Units	**1029-1**	**RDL**	**1103-1**	**RDL**	**1103-2**	**RDL**	**1103-3**	**RDL**	**QC Batch**
Misc. Inorganics										
Dissolved Hardness (CaCO3)	mg/L	761	0.5	2870	0.5	7700	0.5	741	0.5	4405077

RDL = Reportable Detection Limit

Maxxam

Maxxam Job #: B0A8539
Report Date: 2010/11/15

ACCESS CONSULTING GROUP
Client Project #: EIM-10-01

Sampler Initials: EA

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		Y24782		Y24783		Y24784		Y24785		
Sampling Date		2010/11/03 18:00		2010/11/03 14:00		2010/11/03 16:00		2010/11/03 17:00		
	Units	**1029-1**	**RDL**	**1103-1**	**RDL**	**1103-2**	**RDL**	**1103-3**	**RDL**	**QC Batch**
Dissolved Metals by ICPMS										
Dissolved Aluminum (Al)	ug/L	5	3	6	6	20	10	11	3	4417352
Dissolved Antimony (Sb)	ug/L	1.2	0.5	3	1	<2	2	4.7	0.5	4417352
Dissolved Arsenic (As)	ug/L	0.5	0.1	2.2	0.2	2.2	0.4	2.1	0.1	4417352
Dissolved Barium (Ba)	ug/L	18	1	21	2	26	4	353	1	4417352
Dissolved Beryllium (Be)	ug/L	<0.1	0.1	<0.2	0.2	<0.4	0.4	<0.1	0.1	4417352
Dissolved Bismuth (Bi)	ug/L	<1	1	<2	2	<4	4	<1	1	4417352
Dissolved Boron (B)	ug/L	99	50	134	100	216	200	71	50	4417352
Dissolved Cadmium (Cd)	ug/L	0.34	0.01	0.26	0.02	0.89	0.04	0.22	0.01	4417352
Dissolved Chromium (Cr)	ug/L	<1	1	<2	2	<4	4	<1	1	4417352
Dissolved Cobalt (Co)	ug/L	<0.5	0.5	<1	1	<2	2	<0.5	0.5	4417352
Dissolved Copper (Cu)	ug/L	90.8	0.2	49.4	0.4	479	0.8	134	0.2	4417352
Dissolved Iron (Fe)	ug/L	6	5	<10	10	27	20	13	5	4417352
Dissolved Lead (Pb)	ug/L	<0.2	0.2	0.4	0.4	<0.8	0.8	<0.2	0.2	4417352
Dissolved Lithium (Li)	ug/L	8	5	14	10	<20	20	<5	5	4417352
Dissolved Manganese (Mn)	ug/L	22	1	79	2	252	4	14	1	4417352
Dissolved Mercury (Hg)	ug/L	<0.02	0.02	<0.04	0.04	<0.08	0.08	<0.02	0.02	4417352
Dissolved Molybdenum (Mo)	ug/L	1250	1	702	2	1560	4	809	1	4417352
Dissolved Nickel (Ni)	ug/L	<1	1	3	2	5	4	<1	1	4417352
Dissolved Selenium (Se)	ug/L	1.4	0.1	1.8	0.2	11.6	0.4	37.3	0.1	4417352
Dissolved Silicon (Si)	ug/L	799	100	847	200	1110	400	1690	100	4417352
Dissolved Silver (Ag)	ug/L	<0.02	0.02	<0.04	0.04	<0.08	0.08	0.03	0.02	4417352
Dissolved Strontium (Sr)	ug/L	11600	1	9090	2	10000	4	2750	1	4417352
Dissolved Thallium (Tl)	ug/L	0.07	0.05	<0.1	0.1	<0.2	0.2	<0.05	0.05	4417352
Dissolved Tin (Sn)	ug/L	<5	5	<10	10	<20	20	<5	5	4417352
Dissolved Titanium (Ti)	ug/L	<5	5	<10	10	<20	20	<5	5	4417352
Dissolved Uranium (U)	ug/L	0.1	0.1	0.9	0.2	8.7	0.4	0.3	0.1	4417352
Dissolved Vanadium (V)	ug/L	<5	5	<10	10	<20	20	<5	5	4417352
Dissolved Zinc (Zn)	ug/L	13	5	2170	10	116	20	<5	5	4417352
Dissolved Zirconium (Zr)	ug/L	<0.5	0.5	<1	1	<2	2	<0.5	0.5	4417352
Dissolved Calcium (Ca)	mg/L	72.4	0.05	149	0.1	129	0.2	19.0	0.05	4401636
Dissolved Magnesium (Mg)	mg/L	141	0.05	607	0.1	1790	0.2	168	0.05	4401636
Dissolved Potassium (K)	mg/L	44.3	0.05	98.9	0.1	114	0.2	22.2	0.05	4401636
Dissolved Sodium (Na)	mg/L	11.6	0.05	129	0.1	37.9	0.2	4.74	0.05	4401636
Dissolved Sulphur (S)	mg/L	268	3	1100	6	2630	10	81	3	4401636

RDL = Reportable Detection Limit

Package 1	7.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

CSR DISSOLVED METALS IN WATER (WATER) Comments

Sample Y24783-02 Elements by CRC ICPMS (dissolved): RDL raised due to sample matrix interference.

Sample Y24784-02 Elements by CRC ICPMS (dissolved): RDL raised due to sample matrix interference.

Maxxam Job #: B0A8539
Report Date: 2010/11/15

ACCESS CONSULTING GROUP
Client Project #: EIM-10-01

Sampler Initials: EA

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4405287	Conductivity	2010/11/06			101	80 - 120	<1	uS/cm	2.0(1)	20
4405291	Alkalinity (Total as CaCO3)	2010/11/06	NC	80 - 120	101	80 - 120	<0.5	mg/L	1.2	20
4405291	Alkalinity (PP as CaCO3)	2010/11/06					<0.5	mg/L	NC	20
4405291	Bicarbonate (HCO3)	2010/11/06					<0.5	mg/L	1.2	20
4405291	Carbonate (CO3)	2010/11/06					<0.5	mg/L	NC	20
4405291	Hydroxide (OH)	2010/11/06					<0.5	mg/L	NC	20
4405674	Nitrate plus Nitrite (N)	2010/11/06	NC	80 - 120	100	80 - 120	<0.02	mg/L	NC	25
4405675	Nitrite (N)	2010/11/06	NC	80 - 120	101	80 - 120	<0.005	mg/L	NC	20
4410941	Dissolved Sulphate (SO4)	2010/11/08	NC	80 - 120	101	80 - 120	<0.5	mg/L	NC	20
4414796	Dissolved Sulphate (SO4)	2010/11/09	NC	80 - 120	105	80 - 120	<0.5	mg/L	2.0	20
4417352	Dissolved Arsenic (As)	2010/11/13	96	80 - 120	100	80 - 120	<0.1	ug/L	1	20
4417352	Dissolved Beryllium (Be)	2010/11/13	104	80 - 120	96	80 - 120	<0.1	ug/L	NC	20
4417352	Dissolved Cadmium (Cd)	2010/11/13	104	80 - 120	104	80 - 120	<0.01	ug/L	7.6	20
4417352	Dissolved Chromium (Cr)	2010/11/13	102	80 - 120	99	80 - 120	<1	ug/L	NC	20
4417352	Dissolved Cobalt (Co)	2010/11/13	98	80 - 120	100	80 - 120	<0.5	ug/L	NC	20
4417352	Dissolved Copper (Cu)	2010/11/13	NC	80 - 120	106	80 - 120	<0.2	ug/L	0.1	20
4417352	Dissolved Lead (Pb)	2010/11/13	100	80 - 120	102	80 - 120	<0.2	ug/L	NC	20
4417352	Dissolved Lithium (Li)	2010/11/13	103	80 - 120	102	80 - 120	<5	ug/L	NC	20
4417352	Dissolved Nickel (Ni)	2010/11/13	94	80 - 120	97	80 - 120	<1	ug/L	NC	20
4417352	Dissolved Selenium (Se)	2010/11/13	NC	80 - 120	104	80 - 120	<0.1	ug/L	3.9	20
4417352	Dissolved Uranium (U)	2010/11/13	109	80 - 120	106	80 - 120	<0.1	ug/L	NC	20
4417352	Dissolved Vanadium (V)	2010/11/13	104	80 - 120	98	80 - 120	<5	ug/L	NC	20
4417352	Dissolved Zinc (Zn)	2010/11/13	101	80 - 120	99	80 - 120	<5	ug/L	NC	20
4417352	Dissolved Aluminum (Al)	2010/11/13					<3	ug/L	NC	20
4417352	Dissolved Antimony (Sb)	2010/11/13					<0.5	ug/L	2.4	20
4417352	Dissolved Barium (Ba)	2010/11/13					<1	ug/L	1.7	20
4417352	Dissolved Bismuth (Bi)	2010/11/13					<1	ug/L	NC	20
4417352	Dissolved Boron (B)	2010/11/13					<50	ug/L	NC	20
4417352	Dissolved Iron (Fe)	2010/11/13					<5	ug/L	NC	20
4417352	Dissolved Manganese (Mn)	2010/11/13					<1	ug/L	0.8	20
4417352	Dissolved Mercury (Hg)	2010/11/13					<0.02	ug/L	NC	20
4417352	Dissolved Molybdenum (Mo)	2010/11/13					<1	ug/L	0.8	20
4417352	Dissolved Silicon (Si)	2010/11/13					<100	ug/L	5.9	20
4417352	Dissolved Silver (Ag)	2010/11/13					<0.02	ug/L	NC	20
4417352	Dissolved Strontium (Sr)	2010/11/13					<1	ug/L	0.04	20
4417352	Dissolved Thallium (Tl)	2010/11/13					<0.05	ug/L	NC	20
4417352	Dissolved Tin (Sn)	2010/11/13					<5	ug/L	NC	20

Maxxam Job #: B0A8539
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Client Project #: EIM-10-01

Sampler Initials: EA

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
4417352	Dissolved Titanium (Ti)	2010/11/13					<5	ug/L	NC	20
4417352	Dissolved Zirconium (Zr)	2010/11/13					<0.5	ug/L	NC	20

N/A = Not Applicable
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Fails SQC rule#3. Four of 5 points in zone A or B same side of mean.

Maxxam Analytics Inc

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CHAIN-OF CUSTODY RECORD AND ANALYSIS REQUEST

PAGE 1 OF 1

08324995

LAB USE ONLY — MAXXAM JOB #: B0A8539

ANALYSIS REQUEST

LAB USE ONLY — COC #:

COMPANY NAME: Access Consulting Group	CLIENT PROJECT NO.: EIM-10-01
COMPANY ADDRESS: #3 Calcite 151 Industrial Rd. Whitehorse YT Y1A 3C8	TEL.: 867-668-6463 E-MAIL: sdavidson@accessconsulting.ca FAX: 867-667-6680

SAMPLER NAME (PRINT):	PROJECT MANAGER:	LABORATORY CONTACT:
Ethan Allen	Scott Davidson	Kimberly Webber

	FIELD SAMPLE ID	MAXXAM LAB # (LAB USE ONLY)	MATRIX: GROUNDWATER	SURFACE WATER	DRINKING WATER	SOIL	OTHER	SAMPLING: DATE DD/MM/YY	TIME	# CONTAINERS	Nitrate, Nitrite, Sulphate, PH, Alk, EC	Dissolved Metals
1	1029-1		X					11/3/2010	1800	2	X	X
2	1103-1		X					11/3/2010	1400	2	X	X
3	1103-2		X					11/3/2010	1600	2	X	X
4	1103-3			X				11/3/2010	1700	2	X	X

TAT (Turnaround Time)

LESS THAN 5 DAY TAT MUST HAVE PRIOR APPROVAL

* Some exceptions apply - please contact laboratory

STANDARD	5 BUSINESS DAYS	X
RUSH	3 BUSINESS DAYS	
RUSH	2 BUSINESS DAYS	
URGENT	1 BUSINESS DAY	

OTHER BUSINESS DAYS ____

PO NUMBER OR QUOTE NUMBER:

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

CCME / CSR / AB TIER 1 / OTHER

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:

JARS USED:

LAB USE ONLY

ARRIVAL TEMPERATURE °C:	DUE DATE:	LOG IN CHECK:
5 7 9 CS N/A		

RELINQUISHED BY	DATE (DD/MM/YY)	TIME	RECEIVED BY
RELINQUISHED BY SAMPLER:			RECEIVED BY:
RELINQUISHED BY: Ethan Allen	11/4/2010	2:00	RECEIVED BY:
RELINQUISHED BY:	05/11/10	14:00	RECEIVED BY LABORATORY: ANOI XIONG

CUSTODY RECORD

COCFORM - BC - 20070822

XRD REPORT FOR TAILINGS SAMPLES

Appendix F

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

Client: Eagle Industrial Minerals
Client Project Name: Whitehorse Copper Tailings Reprocessing
Maxxam Project No: 2-21-900

Ivy Rajan
Maxxam Analytics Inc.
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October 27, 2010

EXPERIMENTAL METHOD

The six samples of ***Access Consulting - Bellekeno*** were reduced to the optimum grain-size range for quantitative X-ray analysis (<10 μm) by grinding under ethanol in a vibratory McCrone Micronising Mill for 7 minutes. Step-scan X-ray powder-diffraction data were collected over a range 3-80°2θ with CoKa radiation on a Bruker D8 Focus Bragg-Brentano diffractometer equipped with an Fe monochromator foil, 0.6 mm (0.3°) divergence slit, incident- and diffracted-beam Soller slits and a LynxEye 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 and Search-Match software by Siemens (Bruker). X-ray powder-diffraction data of the samples were refined with Rietveld program Topas 4.2 (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.

Table 1. Results of quantitative phase analysis (wt.%)

Mineral	**Ideal Formula**	**921-1 1h-40**	**921-3 3d-20**	**922-5 5e-25**	**922-6 6g-35**	**924-13 13b-10**	**924-14 14b-10**
Quartz	SiO_2	2.6	2.4	3.6	2.7	2.8	1.7
Clinochlore	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	11.6	10.0	10.5	11.1	8.2	6.6
Kaolinite	$Al_2Si_2O_5(OH)_4$	3.7	3.6	3.1	3.6	3.4	3.0
Lizardite	$Mg_3Si_2O_5(OH)_4$	5.3	4.4	2.3	5.0	4.3	2.5
Talc	$Mg_3Si_4O_{10}(OH)_2$	2.1	2.1	2.7	2.4	1.9	1.2
K-feldspar	$KAlSi_3O_8$	4.9	3.3	5.4	3.7	3.0	2.1
Plagioclase	$NaAlSi_3O_8$ – $CaAl_2Si_2O_8$	6.6	5.3	11.6	7.8	6.2	3.3
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	2.6	2.6	3.8	3.7	1.9	1.3
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	12.5	13.1	4.5	4.9	6.5	5.5
Augite	$(Ca,Na)(Mg,Fe,Al,Ti)(Si,Al)_2O_6$	18.6	21.1	22.1	21.8	20.5	30.0
Andradite	$Ca_3Fe_2^{3+}(SiO_4)_3$	5.4	6.2	2.5	4.1	4.7	12.5
Calcite	$CaCO_3$	6.2	4.0	5.2	3.5	3.5	4.7
Clinozoisite	$Ca_2Al_3(SiO_4)_3(OH)$	3.6	2.4	6.1	5.0	3.4	6.1
Magnetite	$Fe^{2+}Fe^{3+}_2O_4$	14.2	19.7	16.6	20.8	29.7	19.3
Total		100.0	100.0	100.0	100.0	100.0	100.0

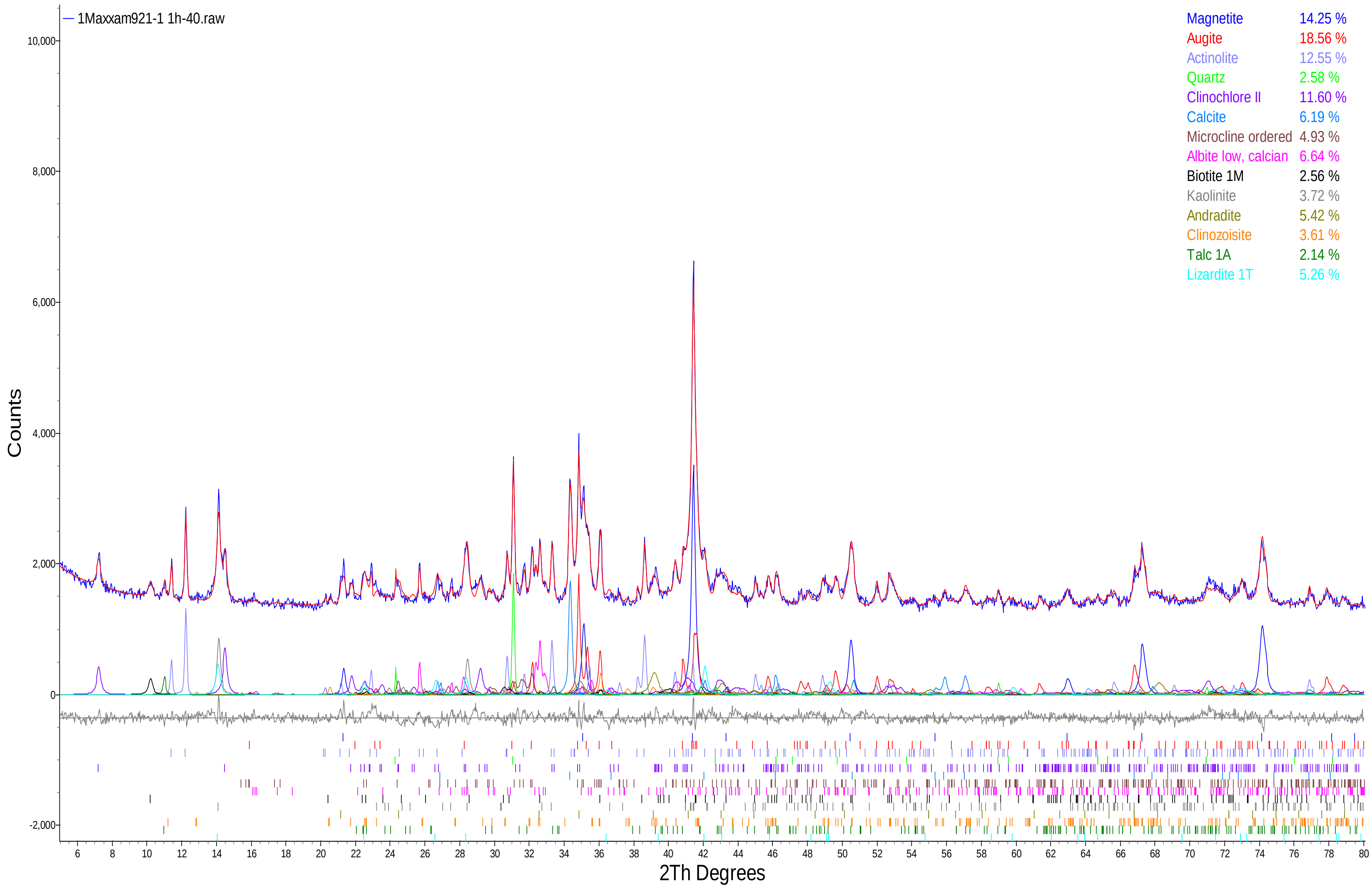

Figure 1. Rietveld refinement plot of sample **“921-1 1h-40”** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

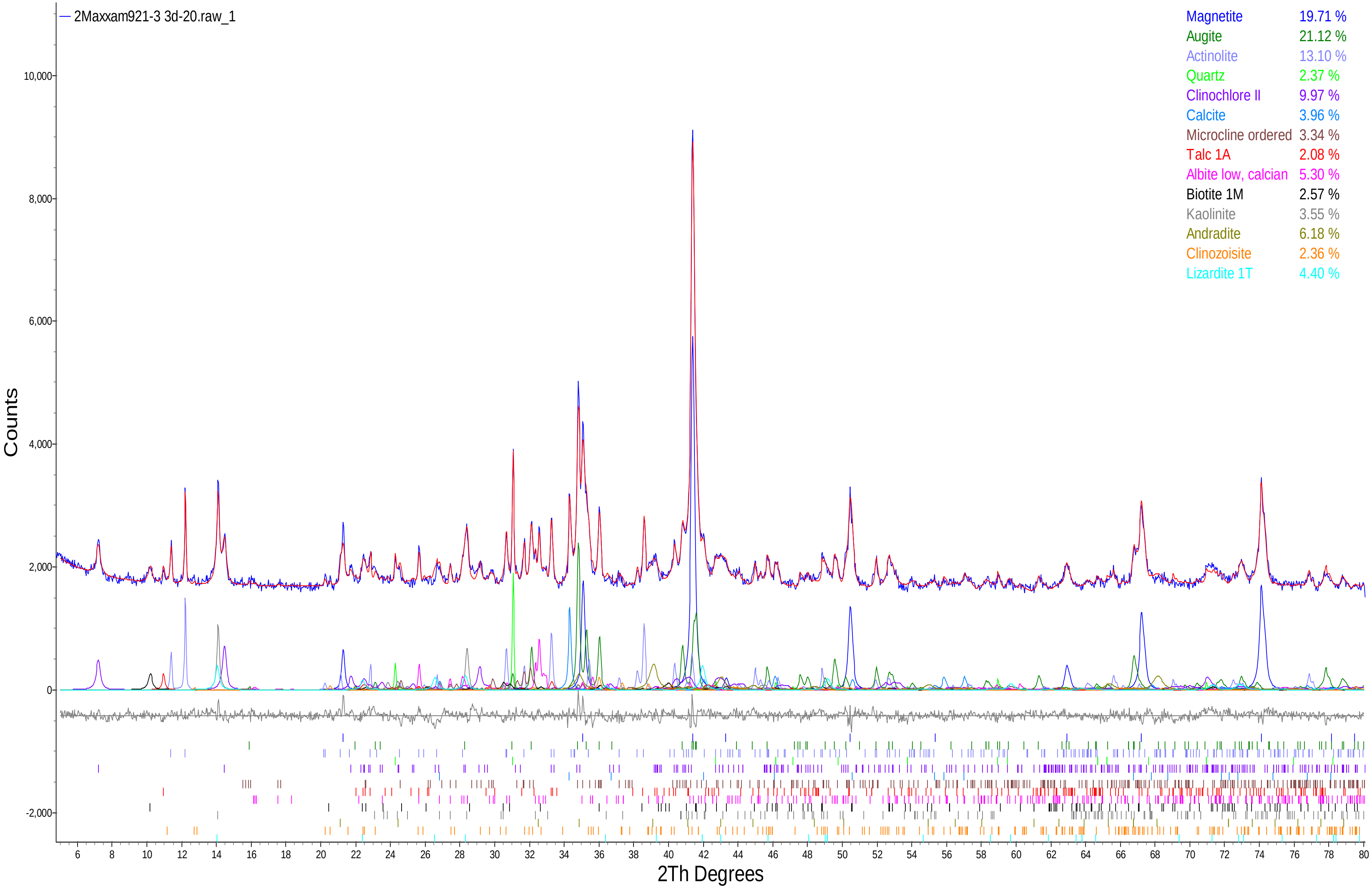

Figure 2. Rietveld refinement plot of sample **“921-3 3d-20”** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

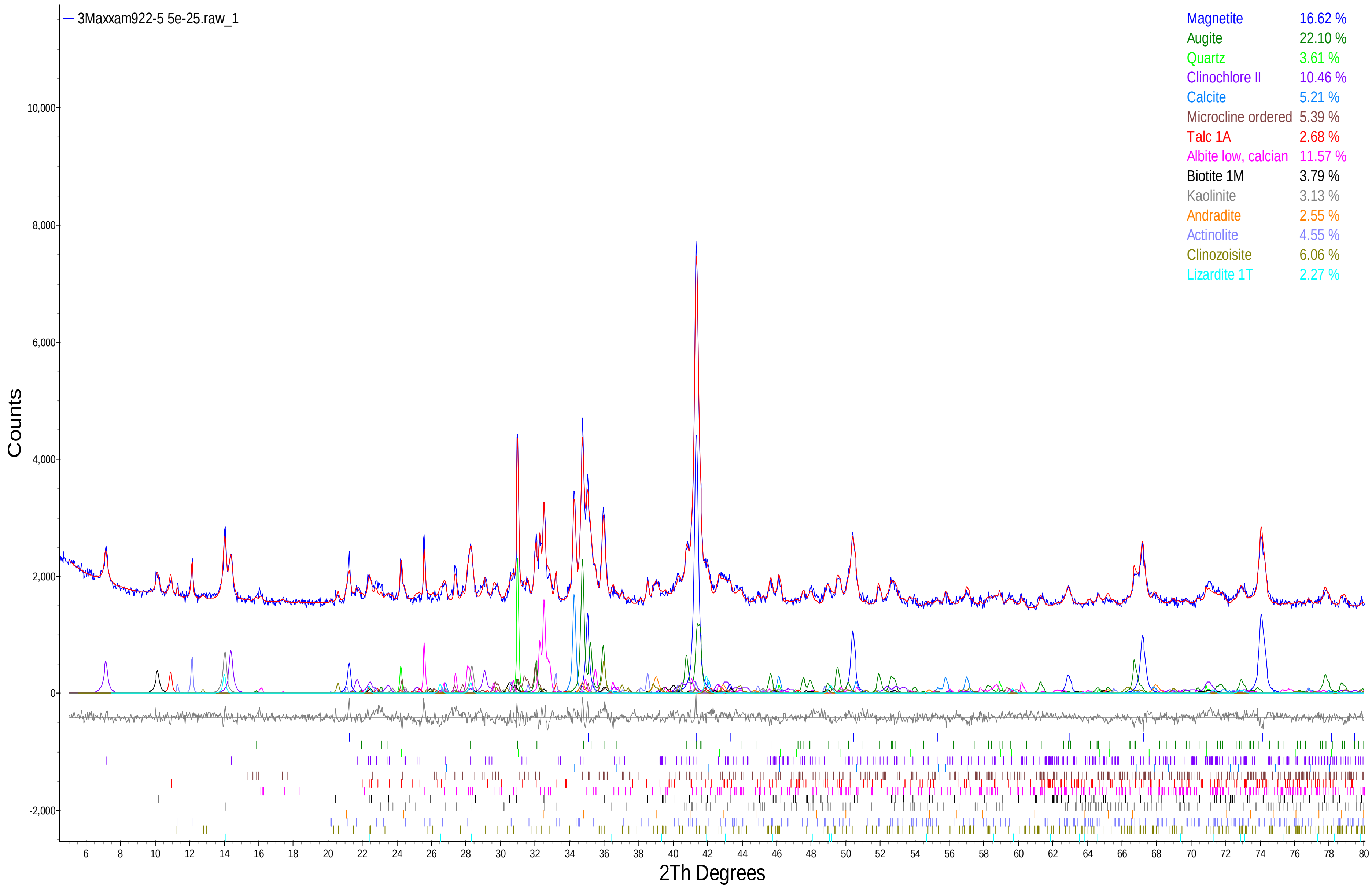

Figure 3. Rietveld refinement plot of sample **"922-5 5e-25"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

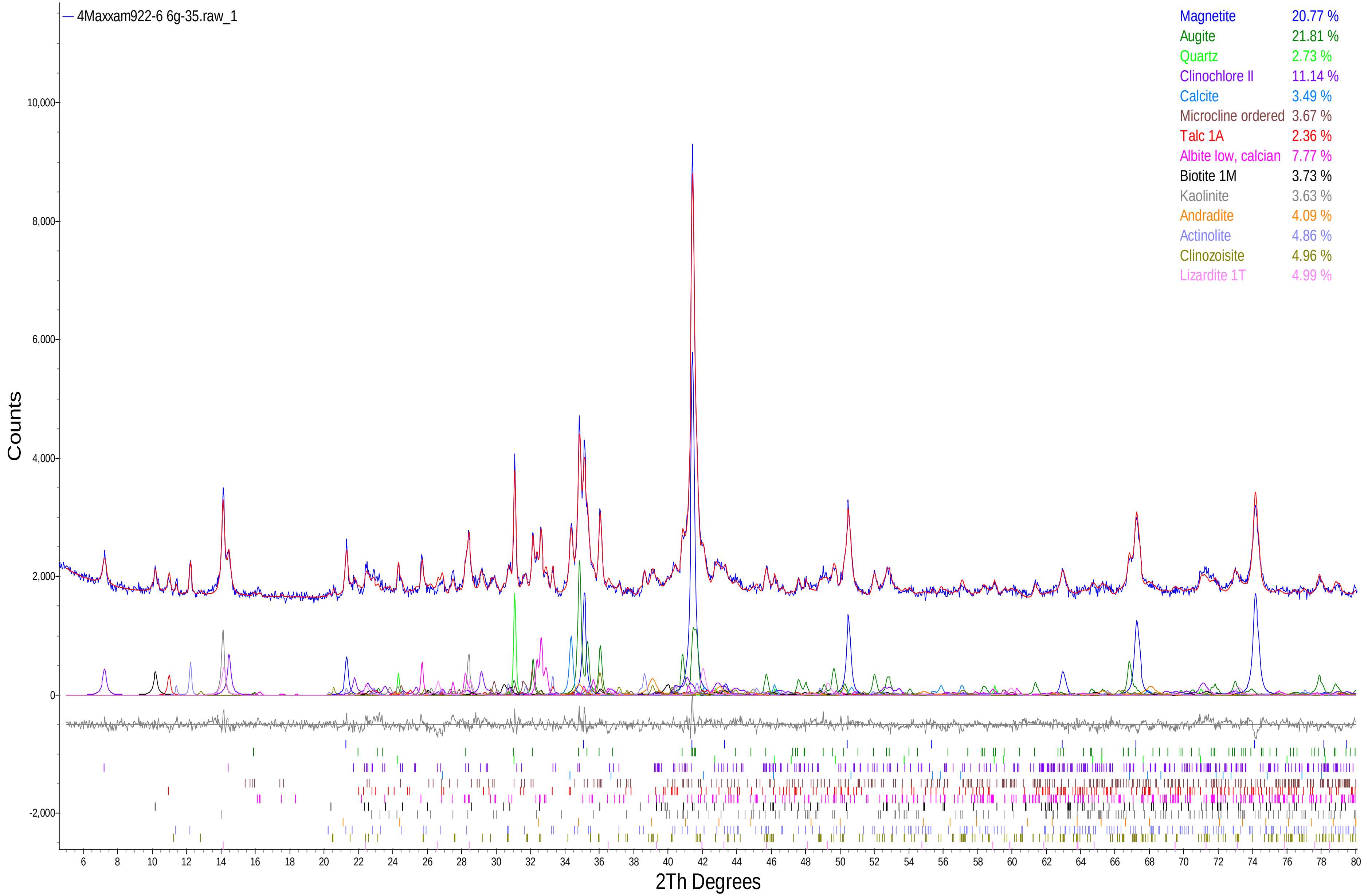

Figure 4. Rietveld refinement plot of sample **"922-6 6g-35"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

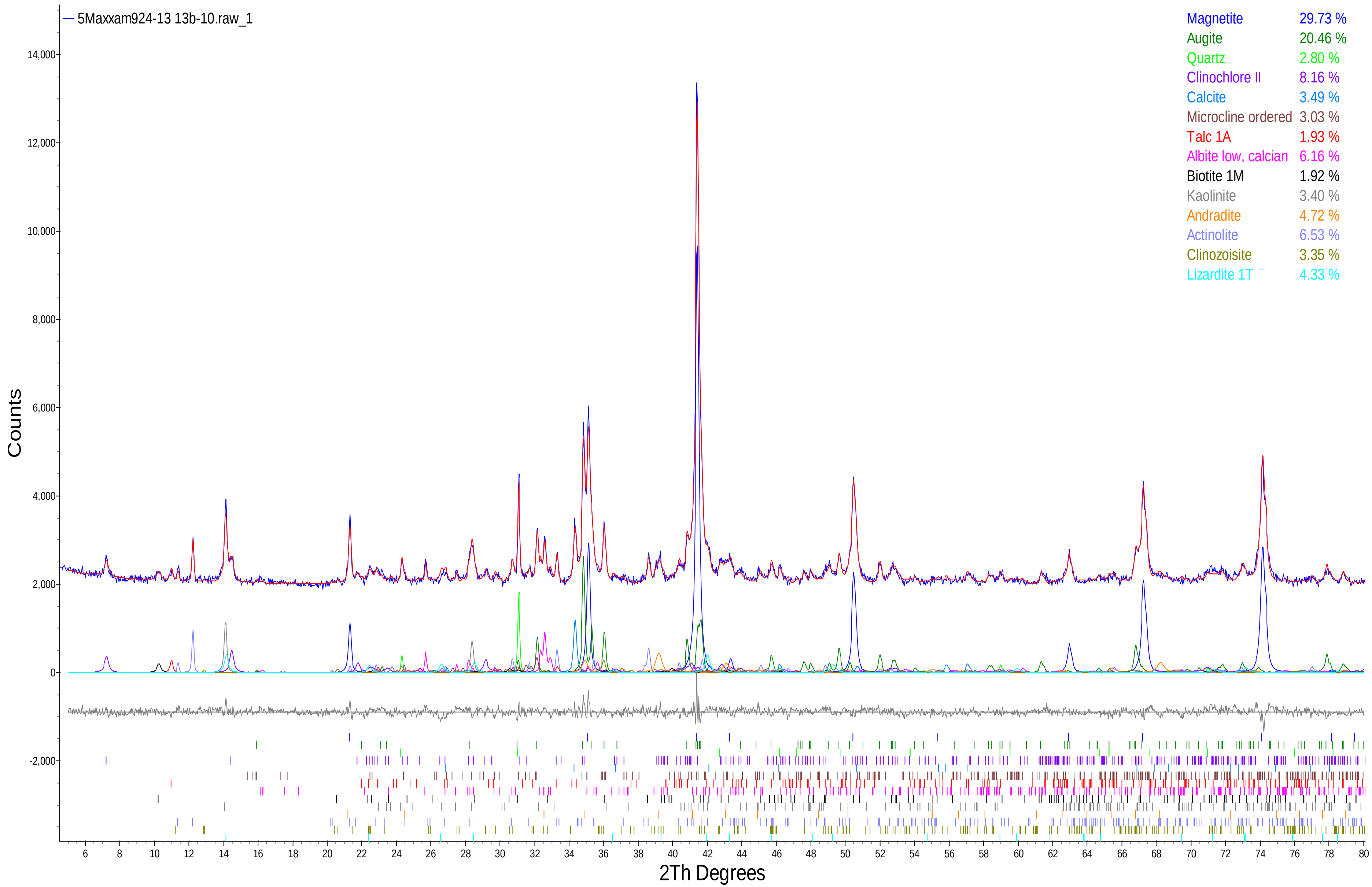

Figure 5. Rietveld refinement plot of sample **“924-13 13b-10”** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

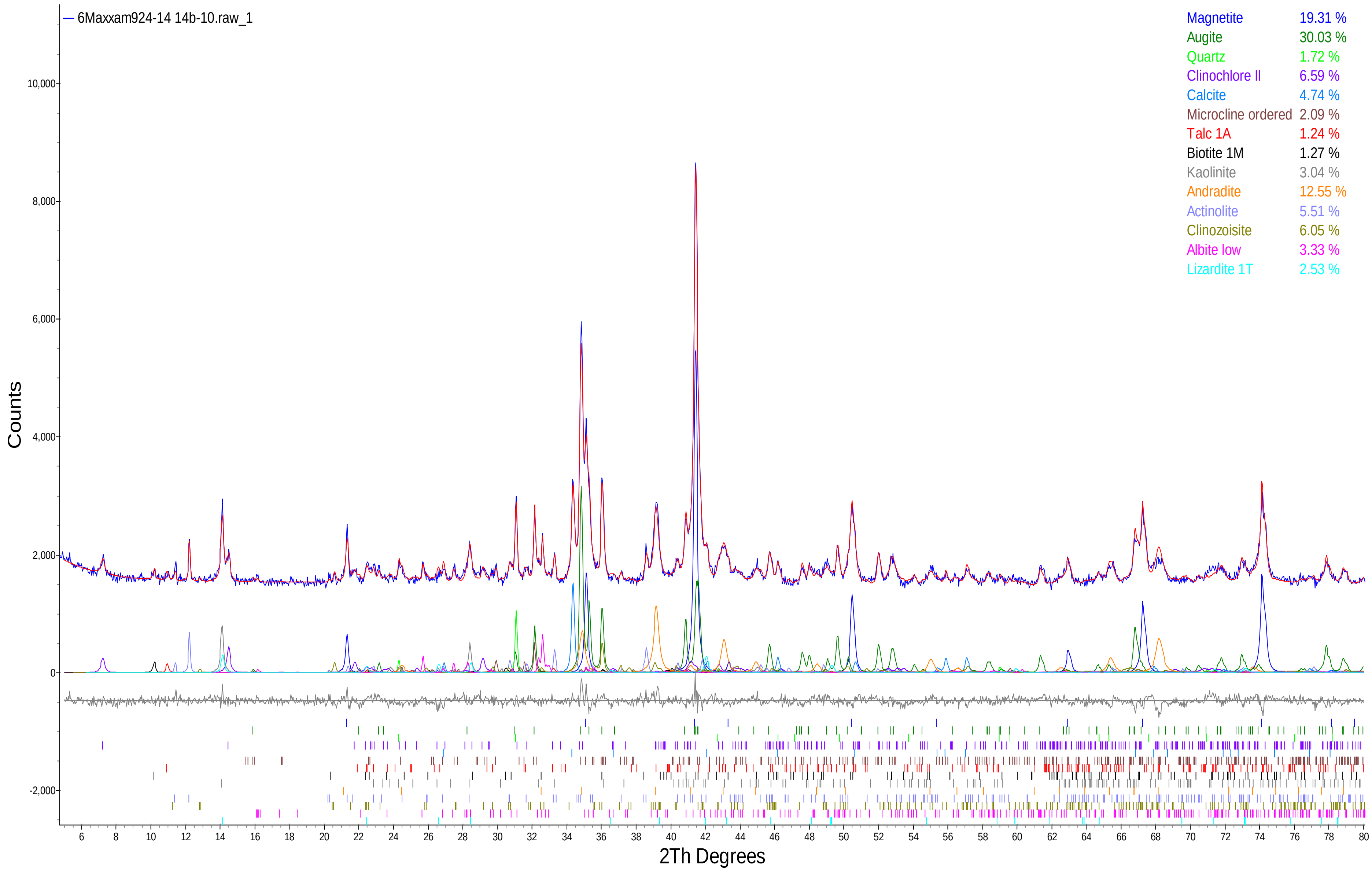

Figure 6. Rietveld refinement plot of sample **"924-14 14b-10"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

WHTIEHORSE COPPER TAILINGS HUMDITY CELL PRELIMINARY RESULTS

Appendix G

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HC-1; Sample ID: Z41843-01 (923 7C) (Tailings)
Client: Access Consulting Group
Project Name: Whitehorse Copper
Maxxam Project No: 2-21-900

Proposed no. of weeks: 20 weeks.

	Sampling Date		Detection Limits	3-Feb-11	10-Feb-11	17-Feb-11	24-Feb-11	3-Mar-11	10-Mar-11	17-Mar-11	24-Mar-11	31-Mar-11	7-Apr-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11
Method:	Week No.	Units		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Input Vol.	ml	5	750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
	Output Vol.	ml	5	450	425																			
pH Meter	pH	pH Units	0.01	8.13	8.17																			
EC Meter	EC	µS/cm	1.0	484	246																			
ORP Meter	ORP	mV	5.0	195	150																			
Auto Turbidity	Sulphate	mg/L	5.0	170																				
Titration & Calculation	Total Alkalinity to pH 4.5	mg CaCO3/L	0.5	55																				
Ion Chromato-graphy	Nitrate-N	mg/L	0.02	0.144																				
Colouri-metry	Nitrite-N	mg/L	0.005	0.136																				
Ion Chromato-graphy	Chloride	mg/L	0.5	5																				
Selective Ion Electrode	Flouride	mg/L	0.01	1.08																				
Dissolved metals by ICP-MS including Hg from ICP-MS scan	Hardness CaCO3	mg/L	Calculation	178																				
	Al	mg/L	0.001	0.012																				
	Sb	mg/L	0.0001	0.0137																				
	As	mg/L	0.0002	0.034																				
	Ba	mg/L	0.0002	0.0427																				
	Be	mg/L	0.0001	<0.00005																				
	Bi	mg/L	0.0001	<0.00003																				
	B	mg/L	0.005	<0.3																				
	Cs	mg/L	0.0001	0.00014																				
	Cd	mg/L	0.00001	<0.0003																				
	Ca	mg/L	0.01	29.9																				
	Cr	mg/L	0.0002	<0.0005																				
	Co	mg/L	0.0001	0.0001																				
	Cu	mg/L	0.0001	0.0381																				
	La	mg/L	0.0001	<0.0003																				
	Fe	mg/L	0.01	<0.005																				
	Pb	mg/L	0.00005	0.00013																				
	Li	mg/L	0.0001	0.006																				
	Mg	mg/L	0.005	25.2																				
	Mn	mg/L	0.0001	0.0178																				
	P	mg/L	0.015	0.02																				
	Hg	mg/L	0.00005	<0.00005																				
	Mo	mg/L	0.0001	0.348																				
	Ni	mg/L	0.0002	0.0012																				
	K	mg/L	0.01	21.4																				
	Rb	mg/L	0.0001	0.0096																				
	Se	mg/L	0.0002	0.0075																				
	Si	mg/L	0.05	12.3																				
	Ag	mg/L	0.00004	0.00009																				
	Na	mg/L	0.005	10.9																				
	Sr	mg/L	0.0001	0.732																				
	Te	mg/L	0.0002	<0.0001																				
	Tl	mg/L	0.00002	0.00004																				
	Th	mg/L	0.00005	<0.00003																				
	Sn	mg/L	0.0001	0.00932																				
	Ti	mg/L	0.0002	<0.003																				
	W	mg/L	0.0001	0.102																				
	U	mg/L	0.00005	0.00121																				
	V	mg/L	0.0001	<0.001																				
	Zn	mg/L	0.001	0.0116																				
	Zr	mg/L	0.0001	<0.0005																				
Ion Balance	Anions			4.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00		0.00		0.00
	Cations			4.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00		0.00		0.00
	Balance	(%)		0.55	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!

HC-2; Sample ID: Z41844-01 (922 5C) + 922-5D (Tailings)
Client: Access Consulting Group
Project Name: Whitehorse Copper
Maxxam Project No: 2-21-900

Method:	Sampling Date		Detection Limits	3-Feb-11	10-Feb-11	17-Feb-11	24-Feb-11	3-Mar-11	10-Mar-11	17-Mar-11	24-Mar-11	31-Mar-11	7-Apr-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11
	Week No.	Units		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Input Vol.	ml	5	750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
	Output Vol.	ml	5	590	365																			
pH Meter	pH	pH Units	0.01	8.09	8.10																			
EC Meter	EC	µS/cm	1.0	1275	556																			
ORP Meter	ORP	mV	5.0	165	135																			
Auto Turbidity	Sulphate	mg/L	5.0	570																				
Titration & Calculation	Total Alkalinity to pH 4.5	mg CaCO3/L	0.5	69																				
Ion Chromato-graphy	Nitrate-N	mg/L	0.02	0.297																				
Colouri-metry	Nitrite-N	mg/L	0.005	0.373																				
Ion Chromato-graphy	Chloride	mg/L	0.5	12																				
Selective Ion Electrode	Flouride	mg/L	0.01	1.16																				
Dissolved metals by ICP-MS including Hg from ICP-MS scan	Hardness CaCO3	mg/L	Calculation	497																				
	Al	mg/L	0.001	0.0104																				
	Sb	mg/L	0.0001	0.00375																				
	As	mg/L	0.0002	0.0309																				
	Ba	mg/L	0.0002	0.0319																				
	Be	mg/L	0.0001	<0.00001																				
	Bi	mg/L	0.0001	<0.000005																				
	B	mg/L	0.005	0.27																				
	Cs	mg/L	0.0001	0.000196																				
	Cd	mg/L	0.00001	0.00099																				
	Ca	mg/L	0.01	41																				
	Cr	mg/L	0.0002	0.0024																				
	Co	mg/L	0.0001	0.000148																				
	Cu	mg/L	0.0001	0.0226																				
	La	mg/L	0.0001	<0.00005																				
	Fe	mg/L	0.01	0.002																				
	Pb	mg/L	0.00005	0.000214																				
	Li	mg/L	0.0001	0.0077																				
	Mg	mg/L	0.005	95.8																				
	Mn	mg/L	0.0001	0.0228																				
	P	mg/L	0.015	0.03																				
	Hg	mg/L	0.00005	0.00002																				
	Mo	mg/L	0.0001	0.36																				
	Ni	mg/L	0.0002	0.00128																				
	K	mg/L	0.01	44.5																				
	Rb	mg/L	0.0001	0.0597																				
	Se	mg/L	0.0002	0.00439																				
	Si	mg/L	0.05	3.4																				
	Ag	mg/L	0.00004	0.000056																				
	Na	mg/L	0.005	32.1																				
	Sr	mg/L	0.0001	4.06																				
	Te	mg/L	0.0002	0.00004																				
	Tl	mg/L	0.00002	0.000069																				
	Th	mg/L	0.00005	0.000006																				
	Sn	mg/L	0.0001	0.0154																				
	Ti	mg/L	0.0002	<0.0005																				
	W	mg/L	0.0001	0.0406																				
	U	mg/L	0.00005	0.00159																				
	V	mg/L	0.0001	0.0002																				
	Zn	mg/L	0.001	0.01																				
	Zr	mg/L	0.0001	0.0002																				
Ion Balance	Anions			13.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00		0.00		0.00
	Cations			12.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00		0.00		0.00
	Balance	(%)		3.06	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!

HC-3; Sample ID: Z41845-01 (921-2D) + 921-2E (Tailings)

Client: Access Consulting Group

Project Name: Whitehorse Copper

Maxxam Project No: 2-21-900

Method:	Sampling Date		Detection Limits	3-Feb-11	10-Feb-11	17-Feb-11	24-Feb-11	3-Mar-11	10-Mar-11	17-Mar-11	24-Mar-11	31-Mar-11	7-Apr-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11
	Week No.	Units		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Input Vol.	ml	5	750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
	Output Vol.	ml	5	405	420																			
pH Meter	pH	pH Units	0.01	8.45	8.70																			
EC Meter	EC	µS/cm	1.0	905	585																			
ORP Meter	ORP	mV	5.0	160	110																			
Auto Turbidity	Sulphate	mg/L	5.0	310																				
Titration & Calculation	Total Alkalinity to	mg CaCO3/L	0.5	100																				
Ion Chromato-graphy	Nitrate-N	mg/L	0.020	0.212																				
Colouri-metry	Nitrite-N	mg/L	0.005	0.408																				
Ion Chromato-graphy	Chloride	mg/L	0.5	26																				
Selective Ion Electrode	Flouride	mg/L	0.01	1.52																				
Dissolved metals by ICP-MS including Hg from ICP-MS scan	Hardness CaCO3	mg/L	Calculation	323																				
	Al	mg/L	0.001	0.013																				
	Sb	mg/L	0.0001	0.0041																				
	As	mg/L	0.0002	0.0394																				
	Ba	mg/L	0.0002	0.0405																				
	Be	mg/L	0.0001	<0.00005																				
	Bi	mg/L	0.0001	<0.00003																				
	B	mg/L	0.005	<0.3																				
	Cs	mg/L	0.0001	0.00017																				
	Cd	mg/L	0.00001	0.0005																				
	Ca	mg/L	0.01	9																				
	Cr	mg/L	0.0002	<0.0005																				
	Co	mg/L	0.0001	0.00009																				
	Cu	mg/L	0.0001	0.0176																				
	La	mg/L	0.0001	<0.0003																				
	Fe	mg/L	0.01	<0.005																				
	Pb	mg/L	0.00005	0.00061																				
	Li	mg/L	0.0001	0.008																				
	Mg	mg/L	0.005	73																				
	Mn	mg/L	0.0001	0.0067																				
	P	mg/L	0.015	0.02																				
	Hg	mg/L	0.00005	<0.00005																				
	Mo	mg/L	0.0001	0.386																				
	Ni	mg/L	0.0002	0.0012																				
	K	mg/L	0.01	39.4																				
	Rb	mg/L	0.0001	0.0574																				
	Se	mg/L	0.0002	0.0082																				
	Si	mg/L	0.05	3.1																				
	Ag	mg/L	0.00004	0.00006																				
	Na	mg/L	0.005	25.6																				
	Sr	mg/L	0.0001	1.7																				
	Te	mg/L	0.0002	<0.0001																				
	Tl	mg/L	0.00002	0.00004																				
	Th	mg/L	0.00005	<0.00003																				
	Sn	mg/L	0.0001	0.021																				
	Ti	mg/L	0.0002	<0.003																				
	W	mg/L	0.0001	0.121																				
	U	mg/L	0.00005	0.00011																				
	V	mg/L	0.0001	<0.001																				
	Zn	mg/L	0.001	0.0087																				
	Zr	mg/L	0.0001	<0.0005																				
Ion Balance	Anions			8.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00		0.00		0.00
	Cations			8.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00		0.00		0.00
	Balance	(%)		-0.72	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!

Client: Access Consulting Group
Project Name: Whitehorse Copper
Maxxam Project No: 2-21-900

Sampling Date	Week	DI Water pH (pH Units)	DI Water EC (µS/cm)	HC Room Temperature (ºC)
Detection Limits		0.5	0.5	N/A
3-Feb-11	0	5.81/5.89	0.98	20.5
10-Feb-11	1	5.71/5.62	1.11	20.3
17-Feb-11	2			
24-Feb-11	3			
3-Mar-11	4			
10-Mar-11	5			
17-Mar-11	6			
24-Mar-11	7			
31-Mar-11	8			
7-Apr-11	9			
14-Apr-11	10			
21-Apr-11	11			
28-Apr-11	12			
5-May-11	13			
12-May-11	14			
19-May-11	15			
26-May-11	16			
2-Jun-11	17			
9-Jun-11	18			
16-Jun-11	19			

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Project Name: Whitehorse Copper

Maxxam Project No: 2-21-900

Particle Size Analysis on Composited or Individual (As-Rec'd) Head HCT Samples:

HC-1 (Tailings) (Sample ID: 923-7c)					
Screen		Mass	% Retained		%
Tyler Mesh	Opening (mm)	(g)	Interval	Cumulative	Passing
9	2.00	0.0	0.0	0.0	100.0
20	0.84	0.1	0.0	0.0	100.0
35	0.425	0.9	0.4	0.4	99.6
60	0.250	2.1	0.9	1.2	98.8
115	0.125	87.7	35.0	36.2	63.8
250	0.063	70.7	28.2	64.4	35.6
400	0.038	49.6	19.8	84.2	15.8
<400	<0.038	39.6	15.8	100.0	0.0
		250.60	100.0		

HC-2 (Tailings) (Sample ID: 922-5c + 922-5d)					
Screen		Mass	% Retained		%
Tyler Mesh	Opening (mm)	(g)	Interval	Cumulative	Passing
9	2.00	6.0	2.4	2.4	97.6
20	0.84	2.8	1.1	3.5	96.5
35	0.425	1.1	0.4	4.0	96.0
60	0.250	0.7	0.3	4.2	95.8
115	0.125	66.8	26.8	31.0	69.0
250	0.063	102.5	41.1	72.2	27.8
400	0.038	59.0	23.7	95.8	4.2
<400	<0.038	10.4	4.2	100.0	0.0
		249.30	100.0		

HC-3 (Tailings) (Sample ID: 921-2d + 921-2e)					
Screen		Mass	% Retained		%
Tyler Mesh	Opening (mm)	(g)	Interval	Cumulative	Passing
9	2.00	1.0	0.4	0.4	99.6
20	0.84	4.1	1.6	2.0	98.0
35	0.425	1.7	0.7	2.7	97.3
60	0.250	8.5	3.4	6.1	93.9
115	0.125	97.2	38.9	45.0	55.0
250	0.063	71.1	28.4	73.4	26.6
400	0.038	52.8	21.1	94.6	5.4
<400	<0.038	13.6	5.4	100.0	0.0
		250.00	100.0		