TETRA TECH EBA

TECHNICAL MEMO

ISSUED FOR USE

To:	Josée Perron (YG)	**Date:**	October 30, 2014
C:	Jeff Moore (YG), Richard Trimble (TT EBA)	**Memo No.:**	001
From:	Scott Kingston (TT EBA), Lara Reggin (TT EBA)	**File:**	704-W14103376-03
Subject:	Geochemical Characterization of Rock Material for Spillway Construction at the Mount Nansen Project, YT		

1.0 INTRODUCTION

Tetra Tech EBA Inc. (Tetra Tech EBA) was retained by Josée Perron, Project Manager for the Government of Yukon (YG) – Mount Nansen Project, to undertake a geochemical characterization for riprap material associated with a repair of the existing spillway at the Mount Nansen Tailings Facility. The characterization study was developed to assess the geochemical suitability of material from an open pit stockpile on the Mount Nansen site. At the time of sampling, material from the stockpile had been placed as riprap in the spillway channel and additional material from the stockpile was required for placement. The characterization program included samples from both the material placed in the spillway channel, and the material source at the open pit stockpile.

Acid rock drainage (ARD) results from the oxidation of sulphide minerals when exposed to oxygen and water. It is a naturally occurring process that can be exacerbated by rock disturbances, such as excavation and blasting. Metal leaching (ML) is the release of metal constituents through leachate from the rock mass, and can occur under acidic and neutral drainage conditions. This preliminary geochemical characterization considers the potential for both ARD and ML effects from the observed rock mass.

This memo summarizes the scope of work, analysis, and results for the preliminary geochemical characterization, as well as conclusions, recommendations and limitations of the work.

2.0 SITE VISIT

Mr. Richard Trimble, P.Eng, from Tetra Tech EBA in Whitehorse, YT completed a site visit on September 26, 2014, which included an observation of the riprap lithology and method of placement in the spillway channel, as well as sampling for the geochemical characterization program. The site visit was completed in conjunction with Mr. Trimble's semi-annual geotechnical inspection of the Mount Nansen site. Mr. Trimble has visited the site numerous times over the last several years. Photos 1 and 2 show the open pit stockpile material and spillway material placement.

2.1 Geology

The material placed in the spillway channel was sourced from the open pit stockpile. It was confirmed during the site visit that the material in both areas was visually the same. The material placed in the spillway channel is composed predominantly of cobble to boulder material size fraction, greater than 75 mm in diameter.

The material is composed predominantly of a single rock type that is a black and white, medium to coarse grained, granodiorite. Locally the rock mass is slightly more dioritic with an increased composition of biotite. The biotite minerals are typically coarse grained, occurring as well developed lath crystal forms. Sulphide mineralogy, including chalcopyrite and bornite, is observed in trace to moderate amounts and typically concentrated around

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biotite grains. There is moderate iron oxidation and staining and minor weathering in the material observed. No visible carbonates were noted in the rock mass, and the addition of HCl acid does not produce effervescence.

3.0 GEOCHEMICAL CHARACTERIZATION PROGRAM

3.1 Sample Program

Significant variability in rock chemistry can result from differences in mineralization, alteration, and lithology. It is important to take the appropriate number of samples to accurately characterize the natural variability. The volume of placed rock observed on site in the spillway was approximately 100 m^3. Josée Perron provided a conservative estimate for total material placement as 500-550 m^3, and assumed no void space. Assuming a 75% void space, the total material to be placed was estimated as approximately 400 m^3. Based on this volume of rock and the homogeneity of the unit observed during sample collection, it was determined that two samples would be adequate for geochemical characterization.

Table 1 provides a summary of each of the samples, including the analysis performed. The samples are presented visually in the attached Photos 3 to 4. Sample MN1 was selected from the riprap placed in the spillway channel and sample MN2 was selected from the open pit stockpile. Each sample was selected as a composite of the material in the sample area. Mr. Trimble walked the extent of the riprap material footprint in both areas and selected grab samples from multiple boulders distributed laterally throughout the footprint.

Table 1: Summary of Samples Submitted for Analysis

Sample ID	Material Type	Sample Description	Analysis Performed		
			ABA	Whole Rock Metals	Shake Flask Extraction
MN1	Granodiorite	Black-white, medium to coarse grained, granite to granodiorite, some fragments of sample are dioritic with increased biotite content, medium to coarse grained biotite lathes, trace to moderate sulphide (chalcopyrite and bornite) content concentrated around biotite, moderate iron oxidation and staining, no effervescence reaction with 10% HCl	Yes	Yes	Yes
MN2	Granodiorite	Black-white, medium grained, granodiorite, coarse grained biotite lathes, trace olivine alteration and K-feldspar content, minor sulphide content (chalcopyrite) concentrated around biotite, minor iron oxidation and alteration, no visible carbonates, no effervescence reaction with 10% HCl	Yes	Yes	Yes

3.2 Acid Rock Drainage Classification Method

Results were analyzed and interpreted based on guidelines for ARD/ML characterization referenced in the Mine Environment Neutral Drainage (MEND) Program Prediction Manual for Drainage Chemistry (Price, 2009).

The MEND guidelines state that a sample with a neutralization potential ratio (NPR) of less than one is classified as potentially acid generating (PAG) and as non-acid generating (NAG) if the NPR is greater than two. Material with an NPR value of between one and two is classified as Uncertain, and requires additional information to determine ARD potential.

4.0 LABORATORY TESTING RESULTS

Both samples were submitted for acid-base accounting (ABA) analysis, whole rock metals analysis by inductively coupled plasma mass-spectrometry (ICP-MS), and shake flask extraction (SFE) analysis. No geotechnical or materials testing was completed. Lab certificates for geochemical characterization are provided in Appendix A.

4.1 Acid-Base Accounting Analysis

ABA analysis was conducted to assess the potential for ARD to be produced from the rock. ABA analysis includes whole rock paste pH, total sulphur and sulphide sulphur by LECO furnace, sulphate sulphur by HCl leach, neutralization potential by standard Sobek method, and fizz rating. Total inorganic carbon was calculated from analytical results. Total sulphur is used to calculate the maximum potential acidity (MPA). The net neutralization potential (NNP) was determined by subtracting the MPA from the Sobek NP. The Sobek NPR is the ratio of neutralization potential to the maximum potential acidity (Sobek NP:MPA). Carbonate NP is calculated from total inorganic carbon and used to calculate a carbonate NPR (Carbonate NP:MPA). A summary of the results are included in the attached Table 2.

The Sobek NPR value is 4.27 for sample MN1, and 5.42 for sample MN2. The carbonate NPR value is 1.8 for sample MN1 and 2.2 for sample MN2. Paste pH values of 9.3 and 9.2 indicate basic conditions in the leachate from the samples at the time of analysis.

Sulphide sulphur (S%) was measured at 0.1 S% and 0.13 S% for MN1 and MN2, respectively. Total sulphur was measured at 0.12 S% and 0.13 S% for MN1 and MN2, respectively. Sulphate sulphur was measured at less than the detection limit of testing, <0.01 S%, in both samples. Measurements of inorganic carbon (CO_2%) are 0.3 CO_2% and 0.4 CO_2% for samples MN1 and MN2, respectively.

4.2 Whole Rock Metals Analysis

The results of the solid phase metal analysis were compared to the average crustal abundance for individual elements to determine presence of elevated metals concentrations, as recommended by Price, 2009. This comparison is meant as guidance, and it should be noted that some element concentrations are naturally elevated relative to average crustal abundance. The results of the whole rock metals analysis were used as a guidance tool for the parameters to consider for measurement in the shake flask extraction analysis. The whole rock metals results and comparisons to crustal abundance are presented in the attached Table 3.

Several metals were present in concentrations greater than the average crustal abundance including As, Ba, Cd, Ga, Mn, Na, P, Re, S, Sb, Sr, Zn. The concentration of Bi, Se, and Sb were measured at greater than 10 times the crustal abundance value.

4.3 Shake Flask Extraction Analysis

SFE analysis was completed to assess the potential for metal leaching from samples. SFE testing is completed using a 3:1 fluid:solid ratio with distilled water. Distilled water was used to represent neutral drainage conditions as indicated by the ABA results. Results of the SFE analysis were compared against the Canadian Council of Minister of the Environment (CCME, 2014) guidelines for the protection of freshwater aquatic life, the British Columbia Approved and Working Water Quality Guidelines (BCAWQG) for the protection of freshwater aquatic life (BCAWQG, Ministry of Environment, 2006), and the effluent quality standards listed in water use licence QZ94-004 (presented in Appendix B). This comparison provides a useful scale for evaluating leachable metal concentrations. The SFE results are presented in the attached Table 4.

The concentration of leachable aluminium was measured within an order of magnitude above the CCME guideline value for sample MN2, and slightly above an order of magnitude greater in sample MN1. Both samples MN1 and MN2 have concentrations of leachable arsenic measured within an order of magnitude above the CCME and BCAWQG values. The concentration of leachable iron is elevated above the CCME guideline value for sample MN1. The concentration of leachable vanadium is measured within an order of magnitude greater than the BCAWQG value in both samples. No metal concentrations are measured at levels above the effluent quality standards in the water licence.

The pH measured in both samples at the time of testing is above the upper bound limit of acceptable pH in all three guideline documents.

5.0 DISCUSSION

5.1 Acid Rock Drainage Analysis

The results of the ABA analysis indicate that the material is classified as NAG based on a Sobek NPR value of greater than 2. A comparison of the Sobek NPR value provided by the laboratory and the calculated carbonate NPR value was completed for reference. Carbonate NPR values represent an estimate of acid generation potential when only neutralization potential from carbonate sources is considered, and thus is the more conservative estimate of ARD potential. The carbonate NPR value is 1.8 for sample MN1 and 2.2 for sample MN2, indicating an Uncertain classification for sample MN1 and NAG classification for sample MN2.

NPR values approaching 2 indicate minor uncertainty in the potential for acid generation in the material. Localized increases in sulphide content or decreases in neutralization potential would have the potential of moving material classification towards the PAG category. Visual inspection of the material in the stockpile and spillway, indicate that the sulphide content in the material sampled and tested is representative of that which would be expected throughout the rock mass. We reference the Sobek NPR values in classifying the material as NAG (Table 5), under the assumption that silicate minerals will provide neutralization potential as per the Sobek NP measurement.

Table 5: Summary of Material Classification for ARD Potential

Material Type	ARD Classification[1] – Number of Samples			ARD Classification
	PAG	NAG	Uncertain	
Granodiorite	0	2	0	NAG
Total - 2 Samples	0	2	0	-

[1]ARD classification is based on Sobek NPR value in accordance with the MEND guidelines (Price, 2009)

5.2 Whole Rock Metals Analysis

Whole rock metals analysis indicates low concentrations of metals in the samples. Elevated element concentrations in the solid phase do not necessarily result in leachable metals. For screening purposes, a comparison to 10 times the crustal abundance was conducted to identify parameters for further investigation or scrutiny.

5.3 Shake Flask Extraction Analysis

The results of the SFE analysis indicate generally low potential for leachable metals, with the majority of measured concentrations below the CCME and BCAWQG values, or in select cases, as discussed above, within an order of magnitude greater than the guideline values. Metal concentrations are typically well below the effluent quality guideline values presented in the water licence. The pH measured in the analyzed leachate indicates basic conditions at the time of testing.

Elevated concentrations of dissolved metals in the SFE analysis do not necessarily result in elevated constituents in a field setting; instead it identifies parameters for further consideration. This test work and analysis does not take into account the water chemistry or dilution volumes for evaluating the impact of metal leaching potential on surface water receptors.

The pH value in the measured leachate is elevated above the upper bound of the CCME and BCAWQG guideline values, as well as the water licence limit range, and indicates basic conditions at the time of testing. This may suggest that leachate from the rock may act to raise the pH of surface water run-off or effluent coming in contact with the riprap material. Dilution upon contact with surface water runoff or surface receptors may also drop the pH to within the acceptable values of the effluent quality standards listed in the water licence.

5.4 Sample Numbers

Based on the uniformity of the rock mass and the proposed excavation volumes, two samples of representative material are considered sufficient for characterization of the volume of material placed in the spillway and to be sourced from the open pit stockpile. The two samples show consistent sulphide and carbonate concentrations in the ABA analysis, as well as consistent elemental concentrations in the whole rock and leachable metal tests. It is recommended that the preliminary geochemical evaluation be reviewed as the required riprap volumes are updated. Changes to the volume of rock to be used as riprap in the spillway channel will require additional samples to adequately characterize the material.

6.0 CONCLUSION

Samples tested from the project area are classified as NAG with low concentrations of leachable metals. The material is not expected to generate acidic run-off. It is anticipated that low leachable metal concentrations observed in the undiluted shake flask results would be minimized by dilution upon contact with a water receptor or precipitation. Metal concentrations observed in the shake flask analysis are below the water quality effluent standards in the water licence prior to dilution. The material analyzed appears to be suitable for use as riprap in the spillway channel, based on the results of analysis reported herein.

7.0 LIMITATIONS OF REPORT

The interpretation and analysis presented herein is based on results provided by the samples selected for analysis. The results may not be indicative of material generated from excavation areas, stockpiles or placed material adjacent to or surrounding the material that was characterized. It is recommended that active areas of the open pit and stockpiled material be mapped and reviewed by a qualified geologist during excavation to confirm that the material and volumes are consistent with the characterization presented in this memo.

This memo and its contents are intended for the sole use of the Government of Yukon and their agents. Tetra Tech EBA Inc. does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than the Government of Yukon, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech EBA's Services Agreement. Tetra Tech EBA's General Conditions are attached in Appendix C.

8.0 CLOSURE

We trust this memo meets your present requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

Sincerely,
Tetra Tech EBA Inc.

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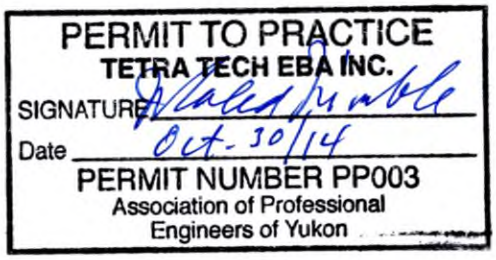

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Attachments: Tables (3)
Photos (4)
Appendix A – Laboratory Certificates
Appendix B – Effluent Quality Standards (Water Use Licence QZ94-004)
Appendix C – Tetra Tech EBA's General Conditions

REFERENCES

Ministry of Environment. 2006. British Columbia Approved and Working Water Quality Guidelines for the Protection of Freshwater Aquatic Life Water Quality.

Canadian Council of Ministers of the Environment (CCME). Water Quality Guidelines for the Protection of Aquatic Life. http://st-ts.ccme.ca/. Accessed March 15, 2014.

Price WA. 2009. Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials. MEND Report 1.20.1

TABLES

Table 2: ABA Testing Results

Lab Reported Values													Calculated Values	
Sample ID	Material Type	Paste pH	Inorganic Carbon, C %	Inorganic Carbon, CO_2 %	Total Sulphur, S%	Sulphate Sulphur (HCl leach) S%	Sulphide Sulphur, S%	Maximum Potential Acidity (kg CaCO3/tonne)	Sobek NP (kg CaCO3/tonne)	Sobek NNP (kg CaCO3/tonne)	Fizz Rating	Sobek NPR (NP:MPA)	Carbonate NP (kg CaCO3/tonne)	Carbonate NPR (Carbonate NP:MPA)
MN1	Granodiorite	9.3	0.07	0.3	0.12	<0.01	0.1	3.8	16	12	1	4.27	6.82	1.8
MN2	Granodiorite	9.2	0.11	0.4	0.13	<0.01	0.13	4.1	22	18	2	5.42	9.10	2.2

Table 3: Comparison of Metal Concentrations to Crustal Abundance

Metal	Units	MN1	MN2	Crustal Abundance (ppm)	10x Crustal Abundance (ppm)
		Granodiorite	Granodiorite		
Ag	ppm	0.04	0.05	0.075	0.75
Al	%	7.88	7.67	8.23	82.3
As	ppm	**6.4**	**7.1**	1.8	18
Ba	ppm	**1430**	**1230**	425	4250
Be	ppm	1.24	1.37	2.8	28
Bi	ppm	**0.14**	**0.17**	0.0085	0.085
Ca	%	3.29	3.99	4.15	41.5
Cd	ppm	**1.41**	**1.5**	0.15	1.5
Ce	ppm	24.3	32.6	66.5	665
Co	ppm	8.4	8.4	25	250
Cr	ppm	19	17	102	1020
Cs	ppm	1.94	2.42	3	30
Cu	ppm	7.5	24.3	60	600
Fe	%	3.57	4.04	5.63	56.3
Ga	ppm	**19.2**	**19.35**	19	190
Ge	ppm	0.1	0.13	1.5	15
Hf	ppm	0.5	0.5	3	30
In	ppm	0.057	0.068	0.16	1.6
K	%	1.54	1.37	2.09	20.9
La	ppm	11	14.4	39	390
Li	ppm	11.8	8.6	20	200
Mg	%	1.12	1.25	2.33	23.3
Mn	ppm	691	**1160**	950	9500
Mo	ppm	0.46	0.41	1.2	12
Na	%	**3.23**	**3.14**	2.36	23.6
Nb	ppm	5.2	6.7	20	200
Ni	ppm	6.2	5.1	84	840
P	ppm	**1120**	**1340**	1050	10500
Pb	ppm	9.8	9.3	14	140
Rb	ppm	31.9	25.5	90	900
Re	ppm	**0.003**	**0.002**	0.0015	0.015
S	%	**0.13**	**0.17**	0.035	0.35
Sb	ppm	**1.62**	**2.97**	0.2	2
Sc	ppm	9.5	12.5	22	220
Se	ppm	**1**	**1**	0.05	0.5
Sn	ppm	1.3	1.2	2.3	23
Sr	ppm	**818**	**824**	370	3700
Ta	ppm	0.27	0.31	2	20
Te	ppm	<0.05	<0.05	0.002	0.02
Th	ppm	1.9	2.3	9.6	96
Ti	%	0.279	0.346	0.565	5.65
Tl	ppm	0.28	0.46	0.6	6
U	ppm	0.6	0.7	2.7	27
V	ppm	89	118	120	1200
W	ppm	0.3	0.2	1.25	12.5
Y	ppm	12.4	18.3	33	330
Zn	ppm	**133**	**218**	70	700
Zr	ppm	8.8	6.6	165	1650

Metal concentrations exceeding the average crustal abundance are **bold**

Metal concentrations exceeding 10 times the average crustal abundance are **bold underlined**

Table 4: Shake Flask Analysis Results

Sample ID	MN1	MN2	Water Quality Guideline References		
ALS Sample ID	L1527592-1	L1527592-2			
Matrix	Rock	Rock	CCME - AL	BCAWQG - AL	Water Licence (QZ94-004)
Unit	Granodiorite	Granodiorite	ug/L	ug/L	ug/L
Physical Tests					
Moisture	<0.25	<0.25	-	-	-
Leachable Anions & Nutrients					
Acidity (as CaCO3)	1200	1300	-	-	-
Alkalinity, Total (as CaCO3)	31300	32700	-	-	-
Ammonia, Total Leachable (as N)	110.0	55.3	616	-	-
Bromide (Br) - ug/L	<50	<50	-	-	-
Chloride (Cl) - ug/L	1220	1770	120,000	-	-
Conductivity (uS/cm)	79.7	97.2	-	-	-
Fluoride (F) - ug/L	477	423	120	-	-
Nitrate (as N) - ug/L	9.0	5.8	13,000	-	-
Nitrite (as N) - ug/L	5.0	6.0	60	-	-
pH	***9.26***	***9.13***	6.5-9[1]	6.5-9.0[1]	6-8.5[1]
Sulfate (SO4) - ug/L	7380	10700	-	-	-
Leachable Metals (ug/L)					
Aluminum (Al)-Leachable	*1250*	*475*	100	-	-
Antimony (Sb)-Leachable	2.62	4.21	20	20	150
Arsenic (As)-Leachable	*7.0*	*9.7*	5	5	150
Barium (Ba)-Leachable	16.7	98.4	-	5,000	1,000
Beryllium (Be)-Leachable	<0.50	<0.50	-	5.3	-
Bismuth (Bi)-Leachable	<0.50	<0.50	1,000	-	-
Boron (B)-Leachable	<10	10	1,500	1,200	-
Cadmium (Cd)-Leachable	*0.276*	0.055	0.09*	0.015**	20
Calcium (Ca)-Leachable	7360	8960	-	-	-
Chromium (Cr)-Leachable	<0.50	<0.50	8.9	1	40
Cobalt (Co)-Leachable	0.14	<0.10	-	110	-
Copper (Cu)-Leachable	<1.0	<1.0	2-4*	2**	200
Iron (Fe)-Leachable	*636*	125	300	1,000	1,000
Lead (Pb)-Leachable	0.58	<0.10	1-2.4*	21**	100
Lithium (Li)-Leachable	<5.0	<5.0	-	-	-
Magnesium (Mg)-Leachable	1030	1300	-	-	-
Manganese (Mn)-Leachable	15.4	08.7	-	-	500
Mercury (Hg)-Leachable	<0.050	<0.050	0.026	-	5
Molybdenum (Mo)-Leachable	0.68	0.79	73	-	-
Nickel (Ni)-Leachable	<0.50	<0.50	25-150*	25**	300
Phosphorus (P)-Leachable	<300	<300	15	-	-
Potassium (K)-Leachable	3400	3590	-	373,000	-
Selenium (Se)-Leachable	<0.50	<0.50	1	2	-
Silicon (Si)-Leachable	6820	4190	-	-	-
Silver (Ag)-Leachable	<0.050	<0.050	0.1	**	100
Sodium (Na)-Leachable	5930	6130	-	-	-
Strontium (Sr)-Leachable	27.60	58.60	-	-	-
Thallium (Tl)-Leachable	<0.10	<0.10	0.8	0.3	-
Tin (Sn)-Leachable	<0.50	<0.50	-	-	-
Titanium (Ti)-Leachable	36	<10	-	2,000	-
Uranium (U)-Leachable	0.038	0.035	15	300	-
Vanadium (V)-Leachable	14.8	8	-	6	-
Zinc (Zn)-Leachable	<10	<10	30	33**	300

Notes:

[1]	pH is listed as the acceptable range in the guideline, values above and below are considered out of range
-	Not analyzed or no standard exists. Aluminum guideline is provided only for the dissolved fraction.
<	Concentration is less than the laboratory detection limit indicated.
CCME - AL	Canadian Council of Ministers of the Environment (CCME) (1999). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
BCAWQG-AL	BC Approved and Working Water Quality Guidelines for the protection of freshwater aquatic life (April 2013).
Italics	Italics and shaded indicates an exceedance of the CCME AL guideline value.
Underline	Bold and shaded indicates an exceedance of the BCAWQG-AL values
Bold	Underline and shaded indicates an exceedance of the Water Licence (QZ94-004) effluent limits.
*	Standard varies with water hardness
**	Indicates that the guideline is derived from an equation or matrix.

PHOTOS

Photos 1 to 4

Photo 1: Riprap material in spillway channel. Sampling site for MN1.

Photo 2: Riprap material in the open pit stockpile. Sampling site for MN2.

Photo 3: Sample MN1.

Photo 4: Sample MN2.

APPENDIX A
LABORATORY CERTIFICATES

ALS Minerals — Sample Submittal Form

Company Name:	Tetra Tech EBA
Submitted by:	Scott Kingston
Telephone:	604-685-0275
Courier/Waybill:	
# Containers:	1 box
Date Shipped:	Sept 30, 2014
PO Number:	

Internal Use Only

Date Received:	
Client Code:	
Workorder No:	
Quote:	
Template:	

Standard Project:	W14103376-02
Commodity:	Rock ☐ Ore ☑ Trace
Special Instructions:	Please forward samples to ALS Environmental for Shake Flask testing immediately (analysis as per S.Kingston)
Sample Type:	☑ Rock ☐ Pulp ☐ Percussion ☐ Soil ☐ Sediment ☐ Drill Core Other _____

Results to

Name:	Scott Kingston		☑ Invoice
Email:	scott.kingston@tetratech.com		☑ Certificate
Address:	9th Floor - 1066 West Hastings Street		☑ QC Certificate
City:	Vancouver	State: BC	☑ Data File
Country:	Canada	Zip: V6E3X2	☐ Webtrieve Only

Copy to

Name:	☐ Webtrieve Only
Email:	☐ Certificate
	☐ Data File

Copy to

Name:	☐ Webtrieve Only
Email:	☐ Certificate
	☐ Data File

Sample Return

Pulps	Rejects
☑ Return after analysis	☑ Return after analysis
☐ Return after 90 days	☐ Return after 45 days
☐ Discard	☐ Discard
☐ Paid Storage	☐ Paid Storage

Failure to indicate pulp & reject instructions will result in disposal without notice

Return Address:
9th Floor - 1066 West Hastings Street
Vancouver, BC Canada
V6E3X2

Attention: Scott Kingston

Authorized By:

Name: Scott Kingston
(Please Print)

Signature:

Samples ID's		Quantity	Sample Preparation Required (Prep Code)	Analytical (Elements or Method Code)	Check here for Rush Premium Service
Start No.	Finish No.				
MN1	MN2	2		ABA Pkg04A, ME-MS61	☑ CONTACT LAB TO CONFIRM AVAILABILITY
				Shake Flask	
	Total Samples	2			

Print Reset Form

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: 604 984 0221 Fax: 604 984 0218 www.alsglobal.com

To: TETRA TECH EBA INC.
OCEANIC PLAZA 9TH FLOOR
1066 W. HASTINGS ST.
VANCOUVER BC V6E 3X2

Finalized Date: 7-OCT-2014
Account: TGM

CERTIFICATE VA14140995

Project: W14103376-02

This report is for 2 Rock samples submitted to our lab in Vancouver, BC, Canada on 30-SEP-2014.

The following have access to data associated with this certificate:

S. KINGSTON

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
SPL-21X	Crush split for send out
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize split to 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
S-IR07	Sulphide Sulphur (Leco)	LECO
C-GAS05	Inorganic Carbon (CO2)	
ME-MS61	48 element four acid ICP-MS	
OA-VOL08	Basic Acid Base Accounting	
S-IR08	Total Sulphur (Leco)	LECO
OA-ELE07	Paste pH	
S-GRA06a	Sulfate Sulfur (HCl leachable)	WST-SEQ

To: TETRA TECH EBA INC.
ATTN: S. KINGSTON
OCEANIC PLAZA 9TH FLOOR
1066 W. HASTINGS ST.
VANCOUVER BC V6E 3X2

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:
Colin Ramshaw, Vancouver Laboratory Manager

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: 604 984 0221 Fax: 604 984 0218 www.alsglobal.com

To: TETRA TECH EBA INC.
OCEANIC PLAZA 9TH FLOOR
1066 W. HASTINGS ST.
VANCOUVER BC V6E 3X2

Finalized Date: 7-OCT-2014
Account: TGM

Project: W14103376-02

CERTIFICATE OF ANALYSIS VA14140995

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	OA-VOL08 FIZZ RAT Unity 1	OA-VOL08 MPA tCaCO3/1Kt 0.3	OA-VOL08 NNP tCaCO3/1Kt 1	OA-VOL08 NP tCaCO3/1Kt 1	OA-ELE07 pH Unity 0.1	OA-VOL08 Ratio (N Unity 0.01	S-IR08 S % 0.01	S-IR07 Sulphide % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2	S-GRA06a S % 0.01	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2
MN1		2.34	1	3.8	12	16	9.3	4.27	0.12	0.10	0.07	0.3	<0.01	0.04	7.88	6.4
MN2		1.76	2	4.1	18	22	9.2	5.42	0.13	0.13	0.11	0.4	<0.01	0.05	7.67	7.1

***** See Appendix Page for comments regarding this certificate *****

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VANCOUVER BC V6E 3X2

Finalized Date: 7-OCT-2014
Account: TGM

Project: W14103376-02

CERTIFICATE OF ANALYSIS VA14140995

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In
	Units	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	LOR	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005
MN1		1430	1.24	0.14	3.29	1.41	24.3	8.4	19	1.94	7.5	3.57	19.20	0.10	0.5	0.057
MN2		1230	1.37	0.17	3.99	1.50	32.6	8.4	17	2.42	24.3	4.04	19.35	0.13	0.5	0.068

***** See Appendix Page for comments regarding this certificate *****

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VANCOUVER BC V6E 3X2

Finalized Date: 7-OCT-2014
Account: TGM

Project: W14103376-02

CERTIFICATE OF ANALYSIS VA14140995

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb
	Units	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm
	LOR	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05
MN1		1.54	11.0	11.8	1.12	691	0.46	3.23	5.2	6.2	1120	9.8	31.9	0.003	0.13	1.62
MN2		1.37	14.4	8.6	1.25	1160	0.41	3.14	6.7	5.1	1340	9.3	25.5	0.002	0.17	2.97

***** See Appendix Page for comments regarding this certificate *****

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1066 W. HASTINGS ST.
VANCOUVER BC V6E 3X2

Finalized Date: 7-OCT-2014
Account: TGM

Project: W14103376-02

CERTIFICATE OF ANALYSIS VA14140995

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	0.1	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1	2	0.5
MN1		9.5	1	1.3	818	0.27	<0.05	1.9	0.279	0.28	0.6	89	0.3	12.4	133	8.8
MN2		12.5	1	1.2	824	0.31	<0.05	2.3	0.346	0.46	0.7	118	0.2	18.3	218	6.6

***** See Appendix Page for comments regarding this certificate *****

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To: TETRA TECH EBA INC.
OCEANIC PLAZA 9TH FLOOR
1066 W. HASTINGS ST.
VANCOUVER BC V6E 3X2

Finalized Date: 7-OCT-2014
Account: TGM

Project: W14103376-02

CERTIFICATE OF ANALYSIS VA14140995

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: REE's may not be totally soluble in this method.
ME-MS61

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

C-GAS05	CRU-31	LOG-22	ME-MS61
OA-ELE07	OA-VOL08	PUL-31	S-GRA06a
S-IR07	S-IR08	SPL-21	SPL-21X
WEI-21			

Tetra Tech EBA Inc.
ATTN: Scott Kingston
Oceanic Plaza, 9th Floor
1066 West Hastings St.
Vancouver BC V6E 3X2

Date Received: 03-OCT-14
Report Date: 10-OCT-14 18:00 (MT)
Version: FINAL

Client Phone: 604-685-0275

Certificate of Analysis

Lab Work Order #: L1527592

Project P.O. #: W14103376-02
Job Reference:
C of C Numbers:
Legal Site Desc:

Brent Mack
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1527592-1	L1527592-2			
	Description	rock	rock			
	Sampled Date					
	Sampled Time					
	Client ID	MN1	MN2			
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	<0.25	<0.25			
Leachable Anions & Nutrients	Acidity (as CaCO3) (ug/L)	1200	1300			
	Alkalinity, Total (as CaCO3) (ug/L)	31300	32700			
	Ammonia, Total Leachable (as N) (ug/L)	110	55.3			
	Bromide (Br) (ug/L)	<50	<50			
	Chloride (Cl) (ug/L)	1220	1770			
	Conductivity (uS/cm)	79.7	97.2			
	Fluoride (F) (ug/L)	477	423			
	Nitrate (as N) (ug/L)	9.0	5.8			
	Nitrite (as N) (ug/L)	5.0	6.0			
	pH (pH)	9.26	9.13			
	Sulfate (SO4) (ug/L)	7380	10700			
Leachable Metals	Aluminum (Al)-Leachable (ug/L)	1250	475			
	Antimony (Sb)-Leachable (ug/L)	2.62	4.21			
	Arsenic (As)-Leachable (ug/L)	7.0	9.7			
	Barium (Ba)-Leachable (ug/L)	16.7	98.4			
	Beryllium (Be)-Leachable (ug/L)	<0.50	<0.50			
	Bismuth (Bi)-Leachable (ug/L)	<0.50	<0.50			
	Boron (B)-Leachable (ug/L)	<10	10			
	Cadmium (Cd)-Leachable (ug/L)	0.276	0.055			
	Calcium (Ca)-Leachable (ug/L)	7360	8960			
	Chromium (Cr)-Leachable (ug/L)	<0.50	<0.50			
	Cobalt (Co)-Leachable (ug/L)	0.14	<0.10			
	Copper (Cu)-Leachable (ug/L)	<1.0	<1.0			
	Iron (Fe)-Leachable (ug/L)	636	125			
	Lead (Pb)-Leachable (ug/L)	0.58	<0.10			
	Lithium (Li)-Leachable (ug/L)	<5.0	<5.0			
	Magnesium (Mg)-Leachable (ug/L)	1030	1300			
	Manganese (Mn)-Leachable (ug/L)	15.4	8.67			
	Mercury (Hg)-Leachable (ug/L)	<0.050	<0.050			
	Molybdenum (Mo)-Leachable (ug/L)	0.68	0.79			
	Nickel (Ni)-Leachable (ug/L)	<0.50	<0.50			
	Phosphorus (P)-Leachable (ug/L)	<300	<300			
	Potassium (K)-Leachable (ug/L)	3400	3590			
	Selenium (Se)-Leachable (ug/L)	<0.50	<0.50			
	Silicon (Si)-Leachable (ug/L)	6820	4190			
	Silver (Ag)-Leachable (ug/L)	<0.050	<0.050			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1527592-1	L1527592-2			
	Description	rock	rock			
	Sampled Date					
	Sampled Time					
	Client ID	MN1	MN2			
Grouping	**Analyte**					
SOIL						
Leachable Metals	Sodium (Na)-Leachable (ug/L)	5930	6130			
	Strontium (Sr)-Leachable (ug/L)	27.6	58.6			
	Thallium (Tl)-Leachable (ug/L)	<0.10	<0.10			
	Tin (Sn)-Leachable (ug/L)	<0.50	<0.50			
	Titanium (Ti)-Leachable (ug/L)	36	<10			
	Uranium (U)-Leachable (ug/L)	0.038	0.035			
	Vanadium (V)-Leachable (ug/L)	14.8	8.0			
	Zinc (Zn)-Leachable (ug/L)	<10	<10			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Silicon (Si)-Leachable	MS-B	L1527592-1, -2
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L1527592-1, -2
Matrix Spike	Magnesium (Mg)-Leachable	MS-B	L1527592-1, -2

Qualifiers for Individual Parameters Listed:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-SHKFLSK-PCT-VA	Soil	Acidity by PCT (SHAKEFLASK)	BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysed using procedures adapted from APHA Method 2310 "Acidity".

ALK-SHKFLSK-COL-VA Soil Alkalinity by Colour (SHAKEFLASK) BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysed using procedures adapted from EPA Method 310.2 "Alkalinity".

ANIONS-SHKFLSK-IC-VA Soil Anions by IC (SHAKEFLASK) BC MIN. OF ENERGY AND MINES/APHA 4110 B.

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

EC-SHKFLSK-PCT-VA Soil EC by PCT (SHAKEFLASK) BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysed using procedures adapted from APHA Method 2510 "Conductivity".

HG-SHKFLSK-CVAFS-VA Soil Mercury by CVAFS (SHAKEFLASK) BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysed using cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

MET-SHKFLSK-ICP-VA Soil Metals by ICPOES (SHAKEFLASK) BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysed using inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-SHKFLSK-MS-VA Soil Metals by ICPMS (SHAKEFLASK) BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysed using inductively coupled plasma - mass spectrophotometry (EPA Method 6020A).

MOISTURE-VA Soil Moisture content ASTM D2974-00 Method A

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

NH3-SHKFLSK-F-VA Soil Ammonia by Fluoresence (SHAKE FLASK) BC MIN. OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysis is carried out using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-SHKFLSK-MAN-VA Soil pH by Manual Meter (SHAKEFLASK) BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is

Reference Information

extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently analysed using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ALS Minerals

Analysis Request Form

Date:	Oct 2, 2014
Reference Number	VA14140995
Analyzing Laboratory:	ALSE (Burnaby)
Client Contact:	Scott Kingston
Company Name:	Tetra Tech EBA
Project:	W14103376-02
Number of Samples & Country of Origin:	2, BC
Sample IDs:	MN1, MN2
Sample Type:	☐ Drill Core ☐ Percussion ☒ Rock ☐ Soil ☐ Pulp ☐ Other
Analysis Required:	Shake Flask
Special Instructions:	L1527592-COFC
Sample Disposition:	☐ Return ☐ Dispose after analysis
Results to:	**Attention:** Scott Kingston Address: 9th Floor - 1066 West Hastings Street Vancouver BC V6E 3X2 Phone:6046850275 Fax: Email: scott.kingston@tetratech.com
Invoice to:	**Attention:** Address: Same as above Phone: Fax: Email:

Received by Jason Oct 3 11:40 am Temp 21.5°C

APPENDIX B

EFFLUENT QUALITY STANDARDS (WATER USE LICENCE QZ94-004)

e) to reclaim water from the tailings facility for use in the mill and to release excess water, via a polishing pond, into Dome Creek, providing that any water that is released is first treated to meet the effluent quality standards of this Licence;

f) to divert water via a diversion of Dome Creek around a tailings impoundment, to construct and operate a system of intercept ditches for the collection of run-off water and to construct and operate a seepage collection pond for the storage of seepage water that will be returned to the tailings impoundment;

as proposed in water use application QZ94-004 and subject to this Licence. Where there is a discrepancy between water use application QZ94-004 and the terms and conditions of this Licence, then the terms and conditions of this Licence shall prevail.

21. Sulphide Ore
The mining and/or milling of sulphide ore is prohibited by this Licence.

PART E - EFFLUENT QUALITY STANDARDS

22. The Licensee shall ensure that all effluent which is discharged from the project, both during operation and at final decommissioning, shall meet the following effluent quality standards:

Parameter	Concentration
pH	6.0 to 8.5 pH units
Suspended solids	50 mg/l
Toxicity (LC_{50})	*100%
Weak Acid Dissociable Cyanide	0.1 mg/l
Total Cyanide	0.3 mg/l
Antimony (total)	0.15 mg/l
Arsenic (dissolved)	0.15 mg/l
Barium (total)	1.0 mg/l
Cadmium (total)	0.02 mg/l
Chromium (total)	0.04 mg/l
Copper (total)	0.2 mg/l
Iron (total)	1.0 mg/l
Lead	0.1 mg/l
Manganese	0.5 mg/l
Mercury	5.0 ug/l
Nickel (total)	0.3 mg/l
Silver	0.10 mg/l
Zinc (total)	0.30 mg/l

* Any effluent that is discharged must meet the non-toxicity requirement defined by the 96 hour LC50 bioassay, using rainbow trout (pH non-adjusted).

APPENDIX C
TETRA TECH EBA'S GENERAL CONDITIONS

GENERAL CONDITIONS

GEO-ENVIRONMENTAL REPORT

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of Tetra Tech EBA’s client. Tetra Tech EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Tetra Tech EBA’s Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Tetra Tech EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where Tetra Tech EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Tetra Tech EBA’s instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by Tetra Tech EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of Tetra Tech EBA’s instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. The Client warrants that Tetra Tech EBA’s instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compatibility of these files with the Client’s current or future software and hardware systems.

3.0 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by Tetra Tech EBA in its reasonably exercised discretion.

4.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

During the performance of the work and the preparation of the report, Tetra Tech EBA may rely on information provided by persons other than the Client. While Tetra Tech EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, Tetra Tech EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.