Western Copper Corporation

Project Proposal

Carmacks Copper Project
Yukon Territory

Appendix G4

Provisional Assessment of ARD Potential
Of Selected Rock Samples
Carmacks Copper Project (2006)

Western Copper Corporation

PROVISIONAL ASSESSMENT OF ARD POTENTIAL OF SELECTED ROCK SAMPLES CARMACKS COPPER PROJECT YUKON TERRITORY

November 2006

Prepared by:

ACCESS CONSULTING GROUP

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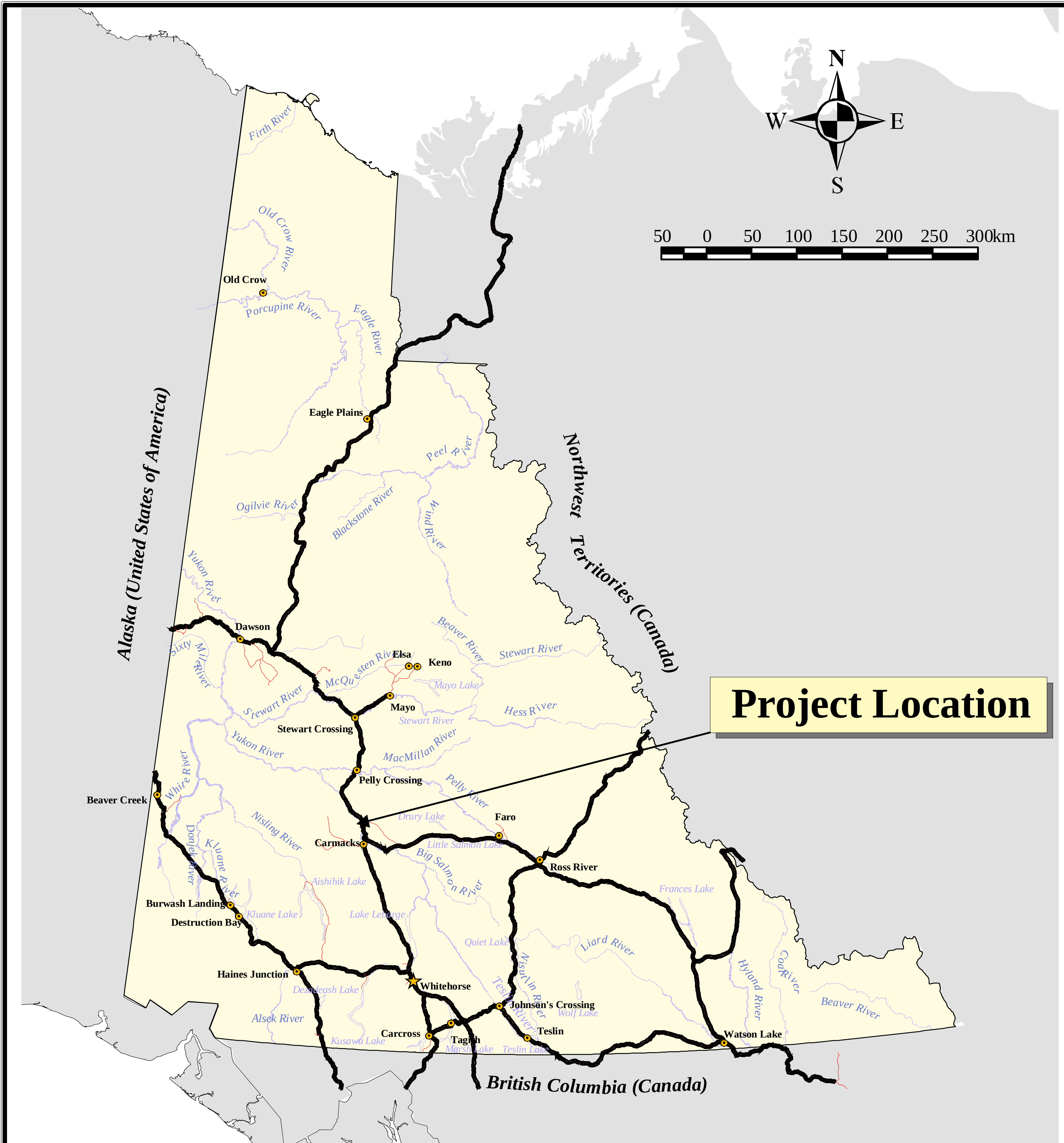
1.0 INTRODUCTION / PURPOSE

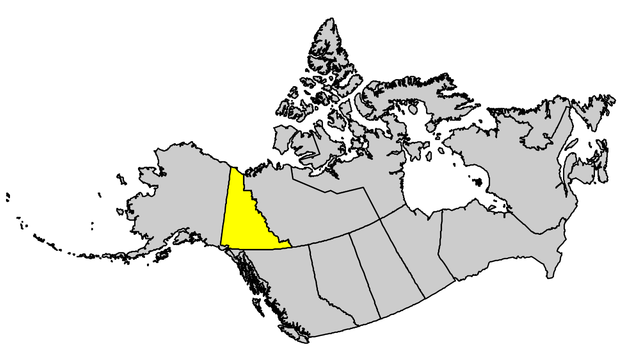
Access Consulting Group (ACG) was retained by Western Copper Corporation, to conduct geochemical analysis of rock material collected from twenty-seven samples from the Carmacks Copper property (location shown on Figure 1). Twenty-four samples were collected from the core storage facility at the Carmacks Copper property and three samples were collected from the H.S. Bostock Core Library in Whitehorse.

Photos were taken of the rock and drill core taken from the Carmacks Copper core storage facility and are included in this report. It should be noted that the twenty-four samples collected from the Carmacks Copper property were provided by Western Copper and not collected by ACG staff.

The twenty-seven samples collected represent diamond drill holes from the proposed ultimate pit on the Carmacks Copper property. Figure 2 shows the project area and main components including the heap leach pad, waste rock storage area and ultimate open pit, as well as drill hole locations. The intention of this report is to determine the metal leaching and Acid Rock Drainage (ARD) potential for waste rock from the mine, and to confirm past ARD and metal leaching test results.

Accordingly, this report provides the results of a geochemical analysis of the rock samples conducted by Canadian Environmental and Metallurgical Inc. (CEMI) of Vancouver, B.C., and an interpretation of these results that is limited to the potential for ARD and subsequent metal leaching of the twenty-seven samples provided only. That said, Western Copper has indicated that they believe these to be reasonably representative of the entire source.





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Carmacks Copper Project Yukon Territory

Drawn By: HD	**Figure 1**
Checked By: DC	Date: Sept., 2006

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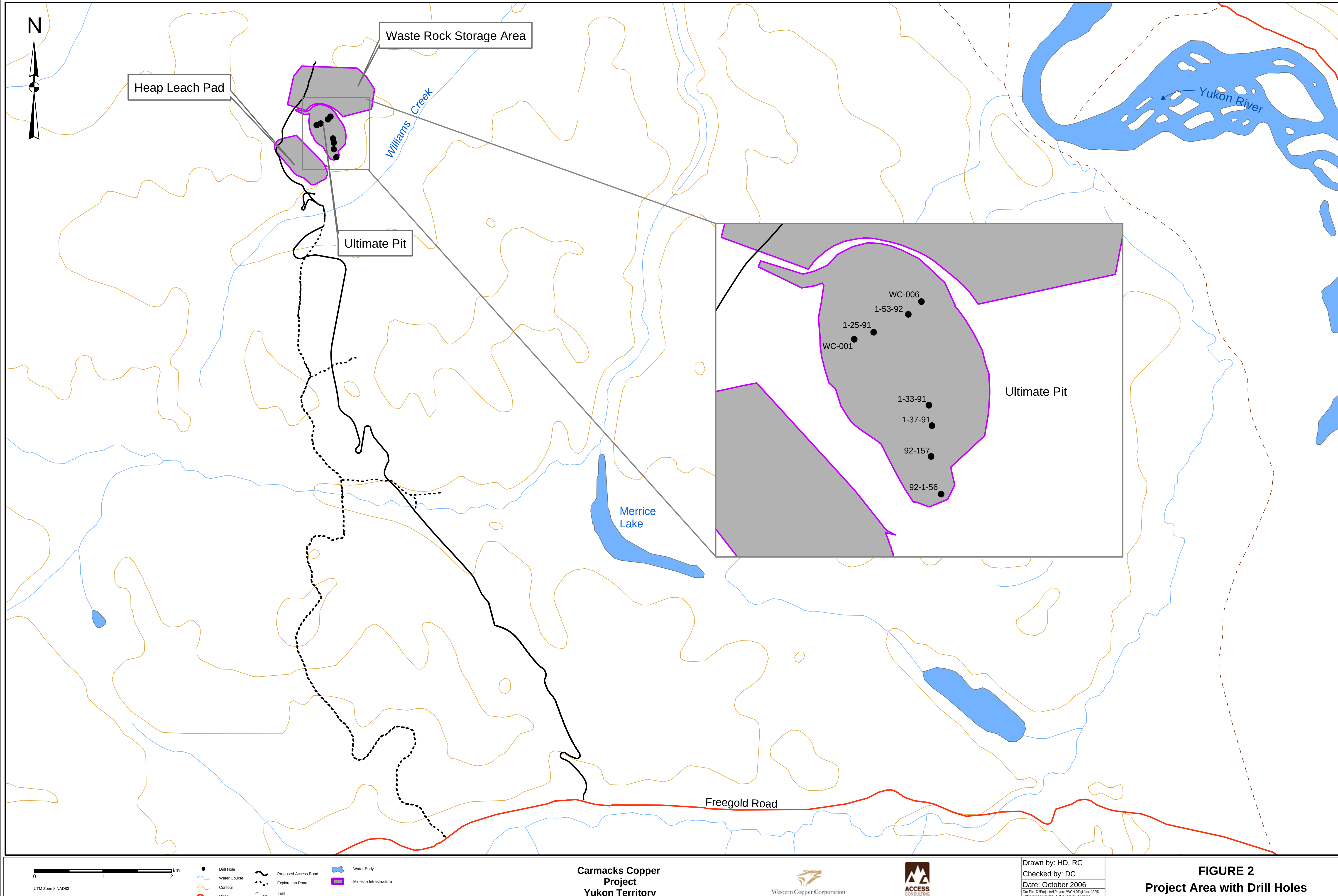

Carmacks Copper Project
Yukon Territory

Western Copper Corporation

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FIGURE 2
Project Area with Drill Holes

2.0 GEOLOGY

2.1 *REGIONAL GEOLOGY*

The Carmacks region lies within the Intermontane Belt, which in the Carmacks map-area is divisible into the Yukon Cataclastic Terrane, Yukon Crystalline Terrane and Whitehorse Trough. Units of the Whitehorse Trough lie to the east of the Hoochekoo Fault, east of the Carmacks Copper property. The Whitehorse Trough comprises Upper Triassic intermediate to basic volcanic (Povoas Formation) capped by carbonate reefs (Lewes River Group) and Lower Jurassic greywacke, shale and conglomerate, derived from the underlying Upper Triassic granitic rocks (Laberge Group). The Yukon Cataclastic Terrane includes hornblende-biotite-chlorite gneiss with interfoliated biotite granite gneiss, Permian Selwyn Gneiss, intruded by Upper Triassic Klotassin Suite-Minto Pluton and Granite Mountain Batholith. Weakly foliated, mesocratic, biotite-hornblende, Granite Mountain granodiorite contains screens or pendants of strongly foliated feldspar-biotite-hornblende-quartz gneisses that host the Carmacks Copper deposit.

The Yukon Crystalline Terrane, extensively exposed southwest of the Carmacks Copper deposit, includes quartz-mica schist with quartzite, marble and amphibolite, Early Palaeozoic age and possibly equivalent to Pelly Gneiss, intruded by Cretaceous and Jurassic granites and syenites. Templeman-Kluit (1985) has included Upper Cretaceous Carmacks Group intermediate to basic volcanic and Cretaceous Mount Nansen intermediate to acid volcanic and sub-volcanic equivalents in the Yukon Crystalline Terrane.

Mesozoic strata of the Whitehorse Trough are only exposed in fault contact with the Yukon Crystalline Terrane and Yukon Cataclastic Terrane, but may rest depositionally on them or certain of their strata. The relationship between the Yukon Crystalline Terrane and Yukon Cataclastic Terrane is unknown.

Younger plutonic rocks intrude all three divisions of the Intermontane Belt and the contacts between them. Carmacks Group and Mount Nansen volcanic overlie portions of all older rocks, suggesting that they should not be classified in the Yukon Crystalline Terrane, but are younger rocks that obscure relationships between the older terrane rocks.

The predominant northwest structural trend is represented by the major Hoochekoo, Tatchun and Teslin faults to the east of the Williams Creek property and the Big Creek Fault to the west. East to northeast younger faulting is represented by the major Miller Fault to the south of the Carmacks Copper property.

2.2 *LOCAL BEDROCK GEOLOGY*

The Carmacks Copper, copper-gold deposit lies within the Yukon Cataclastic Terrane. The deposit is hosted by feldspathic-mafic gneisses (generally quartz deficient) that form a roof pendant within Upper Triassic hornblende-biotite granodiorite of the Granite Mountain Batholith. The deposit constitutes the No. 1 zone, which is one of 14 defined zones containing copper mineralization known on or in the immediate vicinity of the property.

Granite Mountain granodiorite is massive in appearance, medium to coarse grained and generally equigranular. A weak foliation is present, particularly at or near the hanging wall contact of the gneiss units. The granodiorite has been separated into five divisions; four based on quartz, biotite, hornblende, and K-feldspar contents and a fifth based on assimilated gneiss.

Petrographic examination indicates Granite Mountain granodiorites have a varied mineralogical content with areas of silica under-saturation and plagioclase over-saturation. These variations are probably the result of the assimilation of precursor rocks to the gneiss units.

2.3 *DEPOSIT MINERALIZATION*

The deposit, as presently defined, is the No. 1 Zone which extends over a 700 m strike length and at least 450 m down dip. The deposit is open at depth. The deposit is a northwest trending tabular body approximately 30 m thick, 0.5 km long and dipping 70 degrees to the east.

Copper-gold mineralization at Carmacks Copper is hosted by feldspathic-biotite-hornblende-quartz gneisses. These gneisses have been subdivided into nine categories based on coarseness and biotite-hornblende content. All of the gneisses are silica undersaturated and mafic rich.

The majority of the copper, approximately 85%, in the Carmacks Copper No. 1 Zone is in the form of the secondary minerals malachite, cuprite, azurite and tenorite (copper limonite) with very minor other secondary copper minerals (covellite, digenite, djurlite). Other secondary minerals include limonite, goethite, specular hematite and gypsum. Primary copper mineralization is restricted to bornite and chalcopyrite. Other primary minerals include magnetite, gold, molybdenite, native bismuth, bismuthinite, arsenopyrite, pyrite, pyrrhotite, and carbonate. Molybdenite, native bismuth, bismuthinite and arsenopyrite occur rarely.

Alteration minerals that could be considered strictly related to the mineralizing event rather than weathering or dyke intrusion are not recognizable. Epidotization and potassium feldspathization are obviously related to pegmatite dyke intrusion which is a post-mineralization event. Clay (montmorillonite type) and sericite development are clearly weathering products. Silica introduction, usually as narrow veinlets, is not common and may be related to aplite dyking or metasomatism. Chloritization of mafics, biotitization of hornblende, rare garnets, carbonates and possibly anhydrite all appear related to metasomatism and assimilation of precursor rocks to the gneissic units.

The upper 250 m of the No. 1 Zone is oxidized. Within the oxidized area pyrite is virtually absent and pyrrhotite is absent. Weathering has resulted in 1% to 3% pore space and the rock is quite permeable. Secondary copper and iron minerals line and in-fill cavities, form both irregular and coliform masses, fill tractures and rim sulphides. Primary sulphide minerals and magnetite are disseminated and form narrow massive bands or heavy disseminations in bands. Non-copper sulphides are not common in the weathered zone and are usually intergrown or associated with each other when they do occur. They most commonly occur in hematite but also occur in copper culphides and in the gangue minerals. Gypsum occurs as microveinlets. Carbonate occurs as pervasive matter, irregular patches or microveinlets, not commonly, but on the order of 1% where present. Gold occurs as native grains, most commonly in cavities with limonite or in limonite adjacent to sulphides, but also in malachite, plagioclase, chlorite and rarely in quartz grains. Gold is rarely greater than 5 microns in size.

Secondary copper mineralization does not appear to be preferential to a particular rock type. In the north half of the No. 1 Zone, copper mineralization forms high and low grade zones that are reasonably consistent both along strike and down dip and these zones transcend lithologic boundaries. Higher grades tend to form a footwall zone while lower grades form a hanging wall zone.

Primary mineralization, below the zone of oxidation comprises chalcopyrite, bornite, molybdenite, magnetite, pyrite and pyrrhotite. Primary copper mineralization appears to be zoned from bornite on the north to chalcopyrite and finally to pyrite and pyrrhotite on the south. Narrow veinlets of anhydride were found in the deepest drill hole. Refer to Appendix 1 of the IEE Addendum prepared by HKP in 1995 for a Petrographic Report on 21 samples (rocks) collected in the Carmacks Copper deposit area. Photos of the rock samples collected are provided in Section 3.

3.0 ARD ASSESSMENT

3.1 *ROCK SAMPLING*

Samples were selected from cores drilled from the proposed pit location to represent the future waste material stored in the WRSA. Samples were collected from either the H.S. Bostock Core Library (February 7/06, ACG) or the site core storage facility (August 28/06, Aurora Geosciences Ltd. geologist).

Plates 1 through 8 show rock samples received by ACG on August 28, 2006.

Plate 1: DDH 1-25-91

Plate 2: DDH 1-33-91

Plate 3: DDH 1-37-91

Plate 4: DDH 1-53-92

Plate 5: DDH 92-1-56

Plate 6: DDH 92-157

Plate 7: WC-001

Plate 8: WC-006

Plates 9 and 10 show samples collected by ACG, stored at the H.S. Bostock Core Library.

Plate 9: Western Copper samples at H.S. Bostock Core Library

Plate 10: Western Copper samples at H.S. Bostock Core Library

Tables 1 and 2 provide geological descriptions of the rock samples collected for analysis.

Table 1 Description of Rock Samples from Carmacks Copper Property (August 31, 2006 samples)

Sample and Interval	Date collected	Geologic Description	Relative location
DDH 1-25-91 12'-14'	28-Aug-06	heavily weathered (gravel) core of coarse grained granodiorite	Hanging wall
DDH 1-25-91 181'-183'	28-Aug-06	split core, weakly K-altered, coarse-grained granodiorite	Footwall
DDH 1-33-91 50'-52'	28-Aug-06	very weathered, rubbly, coarse-grained granodiorite	Hanging wall
DDH 1-33-91 150'-152'	28-Aug-06	coarse-grained, white, granodiorite, homogenous, very rare fractures	Hanging wall
DDH 1-33-91 248'-250'	28-Aug-06	5% pegmatite in coarse-grained granodiorite, very rare fractures, local Fe-staining	Hanging wall
DDH 1-33-91 348'-350'	28-Aug-06	massive granodiorite, weakly K-altered throughout, moderate fractures, w/ very rare hematite	Footwall
DDH 1-37-91 50'-52'	28-Aug-06	weak K-alteration (esp. in fractures), moderately well fractured, coarse-grained granodiorite	Hanging wall
DDH 1-37-91 149'-151'	28-Aug-06	moderately to well fractured with K-alteration along fracture planes, granodiorite	Hanging wall
DDH 1-37-91 250'-252'	28-Aug-06	(split core) moderately fractured, local hemitite staining, coarse-grained granodiorite	Footwall
DDH 1-37-91 347'-349'	28-Aug-06	leucocratic granodiorite, homogenous, rare local fractures w/ hm and k-spar alteration/staining	Footwall
DDH 1-53-92 50'-52'	28-Aug-06	well fractured (w local gypsum), very local K-alteration, coarse-grained hornblende granodiorite	Hanging wall
DDH 1-53-92 152'-154'	28-Aug-06	unaltered coarse-grained granodiorite, local fractures may have gypsum	Hanging wall
DDH 1-53-92 252'-254'	28-Aug-06	granodiorite with varying grainsize, unfractured, fine-grained granodiorite and pegmatite to 20% of interval	Hanging wall
DDH 1-53-92 352'-354'	28-Aug-06	leucocratic granodiorite, homogenous, rare fracturing containing epidote	Hanging wall
DDH 1-53-92 452'-454'	28-Aug-06	weakly K-altered coarse-grained granodiorite, moderate fractures, local hemitite along fracture planes	Hanging wall
DDH 1-53-92 682'-684'	28-Aug-06	very weakly K-altered coarse-grained granodiorite, rare fracturing, homogenous	Footwall
DDH 92-1-56 34'-36'	28-Aug-06	massive porphyritic granodiorite, 5% feldspar phenocrysts, 10% sericitised? amphibole	Hanging wall
DDH 92-1-56 203.5'-205.5'	28-Aug-06	massive granodiorite, local calcitic/epidote veinlets, pink Fe stained halo along fractures	Hanging wall
DDH 92-157 139'-141'	28-Aug-06	massive granodiorite, 3% biotite, 10% amphibole	Hanging wall
DDH 92-157 383'-385'	28-Aug-06	foliated K-feldspar porphyritic granodiorite, patchy pink weathering especially adjacent to hematitic fractures	Footwall
WC-001 43'-45'	28-Aug-06	fine grained foliated granodiorite, foliation parallel to core axis, 10-15% biotite	Footwall
WC-001 306'-308'	28-Aug-06	massive granodiorite, 15% amphibole	Footwall
WC-006 47'-49'	28-Aug-06	massive granodiorite, 5% amphibole, very minor chloritic alteration of amphibole, weakly magnetic locally	Hanging wall
WC-006 312'-314'	28-Aug-06	granodiorite, weakly magnetic (2% fine magnetite), 7 cm wide K feldspar porphyritic vein, 3 cm mafic seam	Hanging wall

Table 2 Description of Rock Samples from Carmacks Copper Property (H.S. Bostock Core Library February 7, 2006 samples)

Sameple and Interval	Date Collected	Geologic Description	Relative Location
DDH 90 WC-01 358'-359'	7-Feb-06	coarse grained unfoliated granodiorite, malachite on factures	Footwall
DDH 90 WC-02 340'-345'	7-Feb-06	contorted bands of granodiorite unmineralized HBD	Footwall
DDH 90 WC-03 351'-351'	7-Feb-06	granodiorite with malachite in fractures	Footwall

Samples from the Bostock Library were selected from beyond the mineralization as defined by drill logs.

3.2 *Analytical Procedures*

The objectives and purpose of the sample collection were twofold. Firstly to determine ARD potential of the waste rock material to be stored in the waste rock storage area (WRSA), and second to determine the potential for metal leachate run-off due to the material's exposure to natural meteoric conditions over time. Samples were selected from core drilled from the proposed pit location to represent the future waste material stored in the WRSA.

Previous rock characteristic test work performed included Acid Base Accounting (ABA), Whole Rock Metals, and Special Waste Extraction Procedure (SWEP) tests. Please refer to the IEE Addendum prepared by HKP in 1995 for results of this test work. SWEP tests are performed by exposing a sample to a low concentration of acetic acid over an established period of time. The resulting leachate is then compared to Leachate Quality Standards and those samples exceeding the standards are deemed a special waste.

SWEP tests were completed by Western Copper Holdings Ltd. (in 1994) on three composite ore samples used in the site's pilot plant metallurgical tests in order to determine concentrations of metals liberated by weak acid leaching. Although SWEP tests resulted in the leaching of copper, as would be expected from copper ore, the ore would not be classified as Special Waste. SWEP test results, when they were compared to the metal concentrations in pregnant leach solution from the pilot plant indicated that significantly more mineralization will be extracted from the ore in the leaching process than would be by the SWEP test.

SWEP testing was also conducted on six composite waste rock samples (1994). SWEP testing of waste rock resulted in the leaching of copper (2.05 ppm), aluminum (2.93 ppm), barium (2.91ppm) and iron (6.21 ppm), but levels were not above B.C. Regulations SWEP Leachate Quality Standards. Therefore, the waste rock is not considered a special waste.

Most recent sample analysis conducted in 2006 included ICP Whole Rock Analysis, Modified Sobek Acid-Base Accounting (ABA) and a 24 Hour NanoPure Water Leach Extraction Test.

For the results outlined in this report three samples were collected from the H.S. Bostock Core Library in Whitehorse by Access Consulting Group and sent for analysis on February 10 and 16 of 2006. Twenty-four rock samples were also collected from the core storage facility at the Carmacks Copper Property by third party geoscientists and sent for analysis on August 31, 2006.

Samples taken from the H.S. Bostock Core Library were taken from historic drilling performed in 1990. Samples from the Carmacks Copper Property core storage facility were drilled in 1991 and 1992.

The 2006 selected samples were taken from previously tested drill holes at depths close to the intervals used in past environmental testwork. The intent was to revisit previously tested drill holes to confirm ARD and metal leachate characteristics using most recent methods and standards.

Rock samples were investigated in a preliminary fashion and photo documented. Each sample was placed in clean sealed rock sample bags and shipped in a plastic pail via Air North Cargo to CEMI in Vancouver, B.C.

3.3 *RESULTS*

The samples were analyzed at Canadian Environmental & Metallurgical Incorporated of Vancouver, B.C., using the following accepted methods:

- Modified Sobek Acid-Base Accounting (ABA);
- Metals by Aqua Regia Digestion with ICP Finish (Whole Rock Metals); and
- 24 Hour NanoPure Water Leach Extraction Test, at 3:1 Liquid to Solid Ratio (Metal Leachate).

Static ARD and metal leachate tests were conducted to confirm previous characterization and assess the local rock material for acid generating and metal leachate potential. The results of the analyses are presented in Tables 3 through 8 and described below.

Acid Base Accounting

Tables 3 and 4 display the results of the Modified Sobek Acid-Base Accounting Analysis. The second from final column “NP/AP” is the ratio of the neutralization potential to the acid production potential of the rock sample. The acid portion is evaluated from sulphur analysis, which is converted to acid potential (AP). The basic portion, described in tonnes $CaCO_3$ equivalent per 1000 tonnes of material, is reported as neutralization potential (NP). Generally, an NP/AP ratio of greater than 1:1 indicates that the sample is unlikely to be acid generating in the presence of oxygen, and a ratio of 4:1 is normally used to provide an acceptable level of comfort with respect to the net acid producing potential of the material. (Price, 1997)

There were no samples that displayed a NP/AP ratio of less than or equal to 4:1. It is not anticipated that with further open pit excavation that the excavated material will become increasingly acid producing.

A ratio of 3:1 or greater is generally accepted as representing low risk, (Steffen, Robertson, and Kirsten Inc, 1992), although as environmental science develops a better understanding of ARD, modern mining projects are being subjected to greater scrutiny and increasing understanding of the precautionary principle, the requirement for greater than 4:1 NP/AP ratios are more typically being applied. ABA analysis of samples DDH 1-25-91 (12'-14'), DDH 1-25-91 (181'-183'), DDH 1-33-91 (60'-62'), DDH 1-37-91 (149'-151'), DDH 1-53-92 (452'-454') and DDH 1-92-157 (383'-385') yielded exceptionally high NP/AP ratios, indicating good acid consuming potential. The lowest NP/AP ratio found was a value of 7.6:1 for sample WC-001 (306'-308'). The acid consuming potential is most likely produced from the high alkali feldspar minerals and epidote occurrences found in the course grained granodiorite and the amphibolite present in the Yukon Crystalline Terrane as described in Section 3.1.

Whole Rock Metals

A whole rock analysis was performed through *Metals by Aqua Regia Digestion with ICP Finish* method. The results of this analysis can be found in Tables 5 and 6. As anticipated for rocks surrounding a copper deposit, some of the samples tested display higher concentrations of copper. There were also elevated values found for barium, chromium, manganese, phosphorous and zinc. The total metals values for the above mentioned are higher than other quantities but are not an environmental concern. Of the 8 samples DDH1-53-92 and DDH1-37-91 are both described in Table 1 as leucocratic granodiorites. Leucocratic granodiorites are felsic rocks indicating a very low proportion of Fe/Mg-Rich, or mafic minerals and a high proportion of quartz and plagioclase.

Metal Leachate

The results of the *24 Hour NanoPure Water Leach Extraction Test* at 3:1 Liquid to Solid Ratio can be found in Tables 7 and 8. Leachate testing was preformed to determine the readily soluble component of each sample. Concentrations described in Tables 7 and 8 are dissolved metals concentrations, therefore the results can be viewed as being more conservative than those for a total metals concentration analysis. The results in Tables 7 and 8 indicate that there are limited metal concentrations of concern in the rock samples collected for this report, when compared to the *Metal Mining Effluent Regulations* (MMER). Two samples DDH 1-37-91 (0.125 mg/L Cu) and DDH 90 WC-03 (0.137 mg/L Cu) reported higher copper values, but are below MMER limits. This suggests a relatively low potential for metal release during weathering.

Testing using *24 Hour NanoPure Water Leach Extraction* uses deionized water to simulate meteoric water. In the field excavated material would likely be exposed to meteoric waters already containing dissolved ions and a pH higher or lower than that of the NanoPure water used in laboratory tests. A differing pH, for example from acid rain, could result in changes in the resulting dissolved contaminate concentrations.

The MMER are intended to provide maximum authorized concentrations for metals leachate. Schedule 4, Column 1 of the MMER's lists deleterious substances. The corresponding maximum authorized mean concentrations, the maximum authorized concentration in a composite sample and the maximum authorized concentration in a grab sample can be found in the corresponding columns. Substances listed include: arsenic, copper, cyanide, lead, nickel, zinc, total suspended solids and radium 226 (Department of Justice Canada, 2006). Regulations for pH values of 6.0 to 9.5 are also provided in the MMER (Department of Justice Canada, 2006). The maximum authorized monthly mean concentrations for deleterious substances are provided in the final column of Tables 7 and 8 of this report for comparison.

The results in Tables 7 and 8 indicate pH values ranging from 6.45 to 7.34. The suggested pH in the MMER allows for a range of 6.0 to 9.5 (CCME, 2002). There were no samples with a pH value outside the authorized range.

In summary:

- Samples highest in metal concentrations also returned most acceptable NP/AP ratio, however all samples tested returned neutralization potentials exceeding acceptable levels;
- NP/AP ratios of 27 samples present very high NP/AP ratio;
- No samples returned SO_4% greater than detection limits;
- Significantly greater neutralization potential than acid generation potential in all units;
- Overall low metals in whole rock metals scan (Ba, Cu, Cr, Mn, P and Zn only metals with elevated levels but not of environmental concern);
- All rock units within acceptable Canadian Environmental Quality Guideline pH limits, except sample DDH 1-33-91 (348'-350');
- No high dissolved metals in 24 Hour NanoPure Water Leach Extraction Test (meaning such metals that are contained in very small amounts in the source rock, are not readily available for leaching into the environment).

Table 3 Results of Modified Sobek Acid-Base Accounting (August 31, 2006 samples)

Sample ID and Interval	Paste pH	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	Neutralization Potential	Fizz Test
DDH 1-25-91 12'-14'	9.2	0.01	<0.01	0.01	0.3	16.4	16.1	52.5	Slight
DDH 1-25-91 181'-183'	9.3	0.01	<0.01	0.01	0.3	43.4	43.1	138.9	Slight
DDH 1-33-91 50'-52'	9.3	0.01	0.01	0.0	0.0	50.5	50.5	No acid generating potential	Slight
DDH 1-33-91 150'-152'	9.4	0.01	<0.01	0.01	0.3	8.3	8.0	26.6	None
DDH 1-33-91 248'-250'	10.3	0.01	<0.01	0.01	0.3	8.6	8.3	27.5	None
DDH 1-33-91 348'-350'	9.9	0.01	<0.01	0.01	0.3	5.4	5.1	17.3	None
DDH 1-37-91 50'-52'	9.6	0.01	<0.01	0.01	0.3	10.5	10.2	33.6	None
DDH 1-37-91 149'-151'	9.5	0.02	<0.01	0.02	0.6	42.9	42.3	68.6	Moderate
DDH 1-37-91 250'-252'	9.7	0.01	<0.01	0.01	0.3	7.9	7.6	25.3	None
DDH 1-37-91 347'-349'	9.5	0.02	<0.01	0.02	0.6	19.0	18.4	30.4	Slight
DDH 1-53-92 50'-52'	9.8	0.01	<0.01	0.01	0.3	9.6	9.3	30.7	None
DDH 1-53-92 152'-154'	10.1	0.01	<0.01	0.01	0.3	7.1	6.8	22.7	None
DDH 1-53-92 252'-254'	10.0	0.01	<0.01	0.01	0.3	4.9	4.6	15.7	None
DDH 1-53-92 352'-354'	10.4	0.01	<0.01	0.01	0.3	10.4	10.1	33.3	None
DDH 1-53-92 452'-454'	9.4	0.02	0.01	0.0	0.3	48.7	48.4	155.8	Slight
DDH 1-53-92 682'-684'	9.8	0.01	<0.01	0.01	0.3	11.4	11.1	36.5	None
DDH 92-1-56 34'-36'	9.6	0.01	<0.01	0.01	0.3	10.9	10.6	34.9	None
DDH 92-1-56 203.5'-205.5'	9.4	0.01	<0.01	0.01	0.3	7.5	7.2	24.0	None
DDH 92-157 139'-141'	9.7	0.01	<0.01	0.01	0.3	4.7	4.4	15.0	None
DDH 92-157 383'-385'	9.4	0.01	<0.01	0.01	0.3	18.1	17.8	57.9	None
WC-001 43'-45'	9.7	0.03	<0.01	0.03	0.9	7.1	6.2	7.6	None
WC-001 306'-308'	9.7	0.01	<0.01	0.01	0.3	6.9	6.6	22.1	None
WC-006 47'-49'	10.0	0.01	<0.01	0.01	0.3	6.1	5.8	19.5	None
WC-006 312'-314'	9.9	0.01	<0.01	0.01	0.3	8.4	8.1	26.9	None
Duplicates									
DDH 1-25-91 12'-14'	9.3	0.01	<0.01			16.2			Slight
DDH 1-37-91 347'-349'	9.5	0.01	<0.01			19.2			Slight
DDH 92-157 383'-385'		0.01	<0.01						
WC-001 43'-45'	9.7					6.6			None

Notes:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Neutralization Potential = NP / AP

Table 4 Results of Modified Sobek Acid-Base Accounting (February 10, 2006 samples)

Sample ID	Paste pH	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	Neutralization Potential	Fizz Test
DDH 90 WC-01	9.20	<0.01	<0.01	<0.01	<0.3	5.00	5.00	16.7	none
DDH 90 WC-02	8.60	<0.01	<0.01	<0.01	<0.3	31.90	31.90	106.3	slight
DDH 90 WC-03	9.60	<0.01	<0.01	<0.01	<0.3	6.30	6.30	21.0	none
Duplicates									
DDH 90 WC-01	-	<0.01	<0.01	-	-	-	-	-	-
DDH 90 WC-03	9.60	-	-	-	-	6.40	-	-	none

Notes:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Neutralization Potential = NP / AP

Table 5 Metals by Aqua Regia Digestion with ICP Finish (August 31, 2006 samples)

Sample ID and Interval	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti	Tl	U	V	W	Zn	Zr
	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
DDH 1-25-91 12'-14'	<0.2	0.84	<5	251	<0.5	<5	0.71	<1	6	84	549	2.01	<1	0.21	<10	0.49	368	<2	0.05	6	746	4	<0.01	<5	2	23	<5	0.03	<10	<10	39	<10	48	1
DDH 1-25-91 181'-183'	<0.2	0.94	<5	155	<0.5	<5	1.67	<1	5	84	28	2.06	<1	0.15	<10	0.45	350	6	0.09	3	1076	<2	0.01	<5	4	53	<5	0.07	<10	<10	47	<10	34	3
DDH 1-33-91 50'-52'	<0.2	0.95	<5	212	<0.5	<5	2.19	<1	7	73	9	2.66	<1	0.08	<10	0.44	393	<2	0.06	4	1122	<2	0.01	<5	5	53	<5	0.02	<10	<10	55	<10	51	2
DDH 1-33-91 150'-152'	<0.2	0.94	<5	244	<0.5	<5	0.88	<1	7	126	<1	2.37	<1	0.2	<10	0.56	291	<2	0.14	4	1006	<2	<0.01	<5	3	48	<5	0.14	<10	<10	60	<10	46	2
DDH 1-33-91 248'-250'	<0.2	0.89	<5	161	<0.5	<5	0.82	<1	6	141	<1	1.69	<1	0.2	<10	0.49	321	<2	0.11	4	799	<2	<0.01	<5	3	34	<5	0.1	<10	<10	40	<10	29	2
DDH 1-33-91 348'-350'	<0.2	0.83	<5	119	<0.5	<5	0.62	<1	6	138	12	1.95	<1	0.11	<10	0.43	327	2	0.1	5	736	<2	<0.01	5	3	33	<5	0.11	<10	<10	45	<10	34	2
DDH 1-37-91 50'-52'	<0.2	1.01	<5	135	<0.5	<5	1.09	<1	7	104	<1	2.28	<1	0.09	<10	0.57	302	<2	0.13	3	859	<2	<0.01	5	3	54	<5	0.1	<10	<10	55	<10	36	4
DDH 1-37-91 149'-151'	<0.2	2.59	<5	135	1	<5	3.88	<1	6	70	2	2.11	<1	0.09	<10	0.51	321	<2	0.07	3	1106	<2	<0.01	<5	5	96	<5	0.1	<10	<10	63	<10	39	3
DDH 1-37-91 250'-252'	<0.2	0.84	<5	157	<0.5	<5	0.67	<1	6	151	581	2.07	<1	0.15	<10	0.49	396	3	0.13	5	934	<2	<0.01	<5	3	42	<5	0.1	<10	<10	47	<10	41	3
DDH 1-37-91 347'-349'	<0.2	1.17	<5	223	<0.5	<5	1.16	<1	6	111	3	1.99	<1	0.17	<10	0.66	452	<2	0.1	4	503	<2	0.01	<5	3	68	<5	0.08	<10	<10	43	<10	37	2
DDH 1-53-92 50'-52'	<0.2	1.08	<5	535	0.5	<5	1.08	<1	5	88	1	1.99	<1	0.08	<10	0.43	262	<2	0.15	4	1088	<2	<0.01	<5	3	116	<5	0.09	<10	<10	48	<10	29	2
DDH 1-53-92 152'-154'	<0.2	0.66	<5	212	<0.5	<5	0.77	<1	5	110	5	1.59	<1	0.12	<10	0.4	206	<2	0.12	4	1150	<2	0.01	<5	2	44	<5	0.09	<10	<10	38	<10	33	2
DDH 1-53-92 252'-254'	<0.2	0.35	<5	60	<0.5	<5	0.32	<1	2	126	6	0.61	<1	0.03	<10	0.1	72	2	0.1	3	251	<2	<0.01	<5	1	47	<5	0.03	<10	<10	13	<10	10	1
DDH 1-53-92 352'-354'	<0.2	0.84	<5	178	<0.5	<5	1.01	<1	6	119	<1	1.83	<1	0.09	<10	0.48	264	<2	0.13	4	1134	<2	<0.01	<5	3	46	<5	0.1	<10	<10	42	<10	32	2
DDH 1-53-92 452'-454'	<0.2	1.19	<5	332	0.6	<5	2.21	<1	6	69	<1	2.44	<1	0.07	<10	0.77	501	<2	0.09	4	877	2	<0.01	<5	7	55	<5	0.07	<10	<10	57	<10	51	3
DDH 1-53-92 682'-684'	<0.2	0.91	<5	100	<0.5	<5	0.91	<1	6	125	<1	2.07	<1	0.09	<10	0.51	350	<2	0.1	4	717	<2	<0.01	<5	3	51	<5	0.09	<10	<10	50	<10	44	2
DDH 92-1-56 34'-36'	<0.2	0.7	<5	125	<0.5	<5	0.84	<1	5	170	1	1.9	<1	0.11	<10	0.42	327	2	0.08	5	691	<2	<0.01	<5	3	28	<5	0.09	<10	<10	40	<10	40	2
DDH 92-1-56 203.5'-205.5'	<0.2	1.07	<5	138	0.5	<5	0.79	<1	6	83	16	2.1	<1	0.1	<10	0.61	477	<2	0.1	3	1042	<2	<0.01	<5	4	51	<5	0.09	<10	<10	45	<10	48	3
DDH 92-157 139'-141'	<0.2	0.58	<5	163	<0.5	<5	0.36	<1	4	121	8	1.18	<1	0.16	<10	0.32	234	2	0.09	4	398	<2	<0.01	<5	2	28	<5	0.06	<10	<10	26	<10	23	1
DDH 92-157 383'-385'	<0.2	1.27	<5	105	0.5	<5	1.23	<1	6	110	<1	2.22	<1	0.09	<10	0.57	426	2	0.07	4	743	<2	<0.01	<5	4	52	<5	0.09	<10	<10	45	<10	46	2
WC-001 43'-45'	<0.2	0.81	<5	160	<0.5	<5	0.48	<1	6	124	72	2.05	<1	0.34	16	0.54	354	4	0.06	7	839	<2	0.02	<5	3	24	6	0.1	11	<10	42	<10	34	3
WC-001 306'-308'	<0.2	0.92	<5	218	<0.5	<5	0.93	<1	6	128	121	1.98	<1	0.15	<10	0.52	292	2	0.14	4	1231	<2	<0.01	<5	3	46	<5	0.12	<10	<10	50	<10	31	2
WC-006 47'-49'	<0.2	0.93	<5	267	<0.5	<5	0.91	<1	6	95	<1	2.09	<1	0.09	<10	0.52	252	<2	0.12	4	1115	<2	<0.01	<5	3	59	<5	0.11	<10	<10	47	<10	39	2
WC-006 312'-314'	<0.2	1.08	<5	223	0.5	<5	1.28	<1	8	129	<1	2.75	<1	0.14	<10	0.74	454	<2	0.16	5	1495	<2	<0.01	<5	5	51	<5	0.16	<10	<10	70	<10	44	3

Table 6 Metals by Aqua Regia Digestion with ICP Finish (February 16, 2006 samples)

Sample ID	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sc	Sn	Sr	Ti	V	W	Y	Zn	Zr
	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
DDH 90 WC-01	<0.2	0.73	<5	11 1	<0.5	<5	0.62	<1	4	233	181	2.06	0.15	0.4	365	PPm 8	% 0.1 1	6	758	6	<5	3	<10	38	0.11	43	<10	6	36	3
DDH 90 WC-02	<0.2	1.36	<5	274	<0.5	<5	1.5	<1	6	200	62	2.95	0.34	0.63	500	11	0.06	8	863	6	<5	4	<10	50	0.06	53	<10	7	54	4
DDH 90 WC-03	<0.2	1	<5	329	<0.5	<5	0.56	<I	6	263	1881	2.25	0.44	0.51	402	6	0.13	6	821	5	<5	3	<10	36	0.14	49	<10	7	40	3

Table 7 Results of 24 Hour NanoPure Water Leach Extraction Test at 3:1 Liquid to Solid Ratio (August 31, 2006 samples)

Sample: Parameter	Method	Units	DDH 1-33-91 50'-52'	DDH 1-25-91 181'-183'	DDH 1-37-91 50'-52'	DDH 92-1-56 34'-36'	DDH 92-157 383'-385'	DDH 92-157 139-141	WC-001 312-314	DDH 1-33-91 150'-152'	DDH 1-25-91 12'-14'	DDH 1-37-91 149'-151'	DDH 1-33-91 248'-250'	DDH 1-37-91 250'-252'	DDH 1-53-92 50'-52'	WC-006 47'-49'	DDH 1-53-92 252'-254'	DDH 1-53-92 152'-154'	DDH 1-33-91 348'-350'	DDH 1-53-92 452'-454'	DDH 92-1-56 203.5'-205.5'	DDH 1-53-92 682'-684'	DDH 1-37-91 347'-349'	DDH 1--53-92 352'-354'	WC-001 43'-45'	WC-001 306'-308'	Blank	MMER[1] (max. authorized monthly mean concentration) mg/L
Volume NanoPure water		mL	750	750	750	750	750	750	750	750	750																	
Sample Weight		g	250	250	250	250	250	250	250	250	250																	
pH	meter		7.25	7.28	7.28	7.34	7.30	7.01	7.09	7.27	7.23	7.14	7.06	6.51	6.52	6.55	7.05	6.90	6.45	7.14	6.71	7.17	7.24	6.99	6.55	6.59	4.75	*
Redox	meter	mV	266	292	298	294	297	292	307	309	311	188	195	217	231	237	230	238	253	249	253	254	250	256	268	276	259	*
Conductivity	meter	uS/cm	129	113	117	122	139	56	68	98	98	105	85	38	40	33	64	55	35	144	52	116	127	77	32	40	0	*
Acidity (to pH 4.5)	titration	mg CaCO3/L	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	*
Total Acidity (to pH 8.3)	titration	mg CaCO3/L	7.8	7.4	6.5	6.7	6.6	4.8	6.0	6.0	6.5	6.0	6.5	5.4	4.5	5.1	6.0	4.4	6.2	7.0	4.6	5.9	7.6	6.4	4.9	4.4	4.4	*
Alkalinity	titration	mg CaCO3/L	64.8	60.0	57.6	61.7	62.7	23.9	32.4	48.7	48.9	54.5	43.3	11.7	12.1	11.8	30.4	24.6	10.6	62.3	17.2	53.6	61.7	35.2	11.2	12.0	0.3	*
Sulphate	Turbidity	mg/L	<1	<1	<1	<1	2	1	1	1	<1	<1	<1	<1	<1	<1	<1	2	2	3	<1	<1	<1	<1	<1	2	<1	*
Ion Balance																												*
Major Anions	#N/A	#N/A	1.30	1.20	1.15	1.23	1.29	0.50	0.67	0.99	0.98	1.09	0.87	0.23	0.24	0.24	0.61	0.53	0.25	1.31	0.34	1.07	1.23	0.70	0.22	0.28	#N/A	*
Major Cations	#N/A	#N/A	1.58	1.40	1.46	1.48	1.65	0.64	0.80	1.13	1.15	1.25	0.95	0.41	0.42	0.32	0.68	0.59	0.39	1.61	0.52	1.30	1.47	0.86	0.33	0.41	#N/A	*
Difference	#N/A	#N/A	-0.29	-0.19	-0.31	-0.24	-0.35	-0.14	-0.13	-0.13	-0.17	-0.16	-0.08	-0.17	-0.17	-0.09	-0.07	-0.05	-0.14	-0.30	-0.17	-0.23	-0.23	-0.15	-0.11	-0.13	#N/A	*
Balance (%)	#N/A	#N/A	-10.0%	-7.5%	-11.9%	-9.0%	-11.9%	-12.6%	-8.7%	-6.3%	-8.0%	-6.9%	-4.6%	-26.7%	-26.6%	-15.8%	-5.6%	-4.9%	-21.3%	-10.3%	-20.0%	-9.8%	-8.7%	-9.7%	-19.0%	-18.3%	#N/A	*
Dissolved Metals																												*
Hardness CaCO3		mg/L	58	61	53	52	63	5.8	29	40	45	49	34	5.7	7.8	7.2	18	12	8.5	71	18	55	55	36	8.3	9.9	<0.5	*
Aluminum Al	ICP-MS	mg/L	0.0788	0.0975	0.249	0.152	0.175	0.279	0.166	0.242	0.0274	0.165	0.159	0.133	0.078	0.0875	0.315	0.521	0.0859	0.0919	0.0351	0.183	0.164	0.172	0.128	0.196	0.0003	*
Antimony Sb	ICP-MS	mg/L	<0.00005	0.00009	<0.00005	0.00018	0.00007	0.00025	0.00014	<0.00005	0.00017	0.00021	0.00011	0.00018	0.00012	0.00026	0.00015	0.00014	0.0002	0.00008	0.00007	0.00007	0.00007	0.00005	0.00016	0.00022	<0.00005	*
Arsenic As	ICP-MS	mg/L	0.0003	0.0002	0.0004	0.0004	0.0004	0.0004	0.0003	0.0002	0.0005	0.0003	0.0002	0.0004	0.0004	0.0003	0.001	0.0007	0.0009	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.50
Barium Ba	ICP-MS	mg/L	0.0673	0.0526	0.0992	0.0567	0.0539	0.0117	0.0269	0.0407	0.102	0.0824	0.0265	0.00808	0.011	0.012	0.0111	0.0179	0.00738	0.28	0.0289	0.0481	0.0496	0.152	0.0121	0.0612	0.00007	*
Beryllium Be	ICP-MS	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	*
Bismuth Bi	ICP-MS	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	*
Boron B	ICP-MS	mg/L	0.011	0.008	0.015	<0.008	<0.008	<0.008	0.008	<0.008	0.016	0.014	<0.008	0.012	0.01	<0.008	0.012	0.013	0.013	<0.008	<0.008	0.011	0.02	<0.008	0.008	<0.008	<0.008	*
Cadmium Cd	ICP-MS	mg/L	<0.00001	0.00003	<0.00001	<0.00001	0.00002	0.00002	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	0.00006	0.00002	<0.00001	0.00002	0.00003	0.00006	0.00002	0.00007	0.00002	0.00002	<0.00001	0.00003	0.00001	<0.00001	*
Calcium Ca	ICP-MS	mg/L	21	23.4	18.6	19.6	22.1	2.03	10.3	14.7	15.5	17.8	11.2	2.11	2.57	2.22	6.67	4.05	2.97	24.7	5.94	18.9	18.9	13.2	2.58	3.36	<0.05	*
Chromium Cr	ICP-MS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	*
Cobalt Co	ICP-MS	mg/L	0.00003	<0.00002	0.00002	<0.00002	0.00012	0.00006	<0.00002	<0.00002	<0.00002	0.00003	<0.00002	0.00015	0.00026	<0.00002	0.00007	0.00015	0.00005	0.00009	<0.00002	<0.00002	<0.00002	<0.00002	0.00003	<0.00002	<0.00002	*
Copper Cu	ICP-MS	mg/L	0.0041	0.0056	0.0053	0.0061	0.0072	0.0076	0.0017	0.0033	0.0401	0.0145	0.0055	0.125	0.0108	0.0067	0.0078	0.0086	0.0098	0.0034	0.0024	0.0034	0.004	0.0018	0.005	0.0008	0.002	0.30
Iron Fe	ICP-MS	mg/L	0.027	0.02	0.092	0.027	0.042	0.072	0.015	0.022	0.021	0.059	0.024	0.078	0.016	0.012	0.012	0.157	0.024	<0.005	<0.005	<0.005	0.027	<0.005	0.054	0.042	<0.005	*
Lead Pb	ICP-MS	mg/L	0.00002	0.00002	0.00005	0.00016	0.00012	0.00034	<0.00002	0.00003	0.0001	0.00011	0.00004	0.0001	0.00006	0.00006	0.00005	0.00017	0.00003	0.00002	<0.00002	0.00002	0.00003	<0.00002	0.00007	0.00003	0.00002	0.20
Lithium Li	ICP-MS	mg/L	0.0004	<0.0002	<0.0002	0.0002	0.0007	<0.0002	0.0003	0.0004	0.0005	<0.0002	0.0006	0.0008	<0.0002	0.0003	0.0006	0.0004	0.0004	0.0004	0.0003	0.0005	0.0007	0.0003	0.0004	0.0004	<0.0002	*
Magnesium Mg	ICP-MS	mg/L	1.28	0.78	1.68	0.82	1.96	0.17	0.74	0.92	1.57	1.04	1.48	0.11	0.33	0.41	0.31	0.36	0.27	2.35	0.8	1.78	1.94	0.82	0.45	0.36	<0.05	*
Manganese Mn	ICP-MS	mg/L	0.00463	0.00221	0.0264	0.0107	0.0177	0.00867	0.00345	0.00462	0.00429	0.056	0.00506	0.0622	0.00834	0.00475	0.00403	0.00702	0.0479	0.00484	0.0147	0.00942	0.0172	0.00399	0.0157	0.0042	0.00003	*
Mercury Hg	CVAA	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*
Molybdenum Mo	ICP-MS	mg/L	0.00126	0.0154	0.00027	0.00027	0.00647	0.00503	0.00082	0.00037	0.0038	0.00117	0.00101	0.0135	0.00124	0.00053	0.00021	0.00037	0.0126	0.00366	0.0321	0.00335	0.0133	0.00051	0.0129	0.00715	<0.00002	*
Nickel Ni	ICP-MS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.50
Phosphorus P	ICP-MS	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	*
Potassium K	ICP-MS	mg/L	1.52	1.71	1.68	1.46	2.71	1.03	1.17	2.08	7.53	1.07	1.79	1.08	0.761	0.753	0.801	1.1	0.796	1.43	0.643	1.35	2.03	0.83	2	1.23	<0.05	*
Selenium Se	ICP-MS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	*
Silicon Si	ICP-MS	mg/L	2.77	2.63	2.7	2.25	2.82	2.77	2.36	2.25	2.98	2.2	2.3	2.23	2.15	2.12	2.32	3.01	2.97	2.34	2.39	1.98	2.59	1.54	2.56	2.42	<0.05	*
Silver Ag	ICP-MS	mg/L	0.00003	<0.00001	0.00001	<0.00001	<0.00001	0.00008	<0.00001	<0.00001	0.00003	0.00003	0.00004	0.00003	0.00002	0.00002	0.00002	0.00002	0.00001	<0.00001	<0.00001	0.00003	0.00003	<0.00001	<0.00001	<0.00001	<0.00001	*
Sodium Na	ICP-MS	mg/L	9.01	2.76	8.1	9.06	7.18	11.5	4.41	6.12	1.23	5.77	5.16	6.06	5.55	3.69	6.95	7.54	4.61	3.4	3.15	4.13	7.24	2.5	2.59	4.12	<0.05	*
Strontium Sr	ICP-MS	mg/L	0.0434	0.0622	0.0575	0.0383	0.0512	0.0105	0.0369	0.0633	0.0543	0.0454	0.0677	0.00965	0.0156	0.0209	0.0661	0.0366	0.0173	0.12	0.0213	0.358	0.224	0.0594	0.0125	0.0343	0.00007	*
Sulphur (S)	ICP-MS	mg/L	0.6	0.5	0.5	0.5	0.8	0.6	0.5	0.6	0.3	0.1	0.2	0.5	0.4	0.5	0.4	0.9	0.6	1.3	0.4	0.6	0.7	0.5	0.5	1.2	<0.1	*
Thallium Tl	ICP-MS	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	*
Tin Sn	ICP-MS	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00006	0.00018	0.00012	0.00005	0.00006	<0.00005	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00012	<0.00005	<0.00005	*
Titanium Ti	ICP-MS	mg/L	0.0011	0.001	0.0041	0.0018	0.0023	0.0038	0.0011	0.0021	0.0008	0.0013	0.0013	0.0031	0.0013	0.0013	0.0007	0.0106	0.0021	<0.0005	<0.0005	<0.0005	0.0017	<0.0005	0.0046	0.0035	<0.0005	*
Uranium U	ICP-MS	mg/L	0.00006	0.00004	0.00005	0.00005	0.00004	0.00002	<0.00001	0.00003	<0.00001	0.00003	0.00004	<0.00001	<0.00001	<0.00001	0.00003	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	0.00011	<0.00001	<0.00001	<0.00001	<0.00001	*
Vanadium V	ICP-MS	mg/L	0.00249	0.00166	0.00294	0.00247	0.00255	0.00407	0.00296	0.00233	0.00111	0.00216	0.00283	0.00163	0.00192	0.00141	0.00153	0.00317	0.00234	0.00201	0.00088	0.00196	0.00339	0.00104	0.00105	0.00222	<0.00005	*
Zinc Zn	ICP-MS	mg/L	<0.0005	0.0015	<0.0005	<0.0005	0.0006	0.0008	<0.0005	0.0007	0.0007	0.0025	0.0013	0.0015	0.0024	0.0012	<0.0005	0.0014	0.0011	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	0.001	<0.0005	0.0006	0.50
Zirconium Zr	ICP-MS	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	*

[1] MMER (Metal Mining Effluent Regulations). (Department of Justice Canada, 2006)

Table 8 Results of 24 Hour NanoPure Water Leach Extraction Test at 3:1 Liquid to Solid Ratio (February 10, 2006 samples)

Sample:			DDH 90 WC-01	DDH 90 WC-02	DDH 90 WC-03	MMER (max. authorized monthly mean concentration) mg/L
Parameter	**Method**	**Units**				
Volume Nanopure water		mL	750	750	750	*
Sample Weight		g	250	250	250	*
pH	meter		7.12	7.75	7.24	*
Redox	meter	mV				
Conductivity	meter	uS/cm	23	156	34	*
Acidity (to pH 4.5)	titration	mg CaCO3/L	#NIA	#N/A	#N/A	*
Total Acidity (to pH 8.3)	titration	mg CaCO3/L	3.75	3.25	3.5	*
Alkalinity	titration	mg CaCO3/L	11.5	63.25	18.75	*
Sulphate	Turbidity	mg/L	< 1	<1	<1	*
Ion Balance						
Major Anions	#N/A	#N/A	0.23	1.27	0.38	*
Major Cations	#N/A	#N/A	0.33	1.65	0.46	*
Difference (%)	#N/A	#N/A	17.3	0.13	0.10	*
Balance (%)	#N/A	#N/A				*
Dissolved Metals						
Hardness CaCO3		mg/L	12	77	18	*
Aluminum Al	ICP-MS	mg/L	0.0436	0.0277	0.0352	*
Antimony Sb	ICP-MS	mg/L	0.00009	0.00005	0.00005	*
Arsenic As	ICP-MS	mg/L	0.0002	0.0001	0.0002	0.50
Barium Ba	ICP-MS	mg/L	0.019	0.0441	0.0303	*
Beryllium Be	ICP-MS	mg/L	0.00005	0.00005	0.00005	*
Bismuth Bi	ICP-MS	mg/L	0.00005	0.00005	0.00005	*
Boron B	ICP-MS	mg/L	<0.008	0.000008	<0.008	*
Cadmium Cd	ICP-MS	mg/L	0.0001	0.00009	0.00003	*
Calcium Ca	ICP-MS	mg/L	3.98	29.2	6.14	*
Chromium Cr	ICP-MS	mg/L	0.0004	0.0005	0.0004	*
Cobalt Co	ICP-MS	mg/L	0.00009	0.00011	0.00006	*
Copper Cu	ICP-MS	mg/L	0.0204	0.0032	0.137	0.30
Iron Fe	ICP-MS	mg/L	0.023	<0.005	0.008	*
Lead Pb	ICP-MS	mg/L	0.00009	0.00002	0.00006	0.20
Lithium Li	ICP-MS	mg/L	0.0009	0.0005	0.0006	*
Magnesium Mg	ICP-MS	mg/L	0.5	0.00108	0.00058	*
Manganese Mn	ICP-MS	mg/L	0.0163	0.0115	0.0137	*
Mercury Hg	CVAA	mg/L	0.00005	0.00005	0.00005	*
Molybdenum Mo	ICP-MS	mg/L	0.0318	0.0349	0.0042	*
Nickel Ni	ICP-MS	mg/L	0.0011	0.0006	0.0005	0.50
Phosphorus P	ICP-MS	mg/L	<0.1	<0.1	<0.1	*
Potassium K	ICP-MS	mg/L	0.522	1.49	1.34	*
Selenium Se	ICP-MS	mg/L	0.0005	0.0005	0.0005	*
Silicon Si	ICP-MS	mg/L	0.77	1.09	1.39	*
Silver Ag	ICP-MS	mg/L	0.00001	0.00001	0.00001	*
Sodium Na	ICP-MS	mg/L	1 54	1.38	1.49	*
Strontium Sr	ICP-MS	mg/L	0.0256	0.0672	0.0388	*
Sulphur (S)	ICP-MS	mg/L	0.9	0.6	0.7	*
Thallium Tl	ICP-MS	mg/L	0.00005	0.00005	0.00005	*
Tin Sn	ICP-MS	mg/L	0.00005	0.00005	0.00005	*
Titanium Ti	ICP-MS	mg/L	0.0019	0.0006	0.0008	*
Uranium U	ICP-MS	mg/L	0.00001	0.00005	0.00001	*
Vanadium V	ICP-MS	mg/L	0.00104	0.00028	0.00059	*
Zinc Zn	ICP-MS	mg/L	0.0012	0.0005	0.027	0.50
Zirconium Zr	ICP-MS	mg/L	<0.005	<0.005	<0.005	*

4.0 CONCLUSIONS & RECOMMENDATIONS

The results of the laboratory testing indicate that the rocks represented by the samples provided are acid consuming, and can therefore confidently be exposed to meteoric conditions while being stored onsite. Given the analytical results regarding geochemical material properties described above, the environmental risk of ARD potential at this location is considered non-existent. The acid consuming or neutralization potentials for all the samples tested were greater than 4 times that of the acid generating potentials.

When compared with the MMER values it can be noted that all metal leachate sample results fall well below the maximum authorized monthly mean concentration for deleterious substances. The pH values for samples tested were within the MMER authorized range with the lowest value at 0.45 above the minimum requirement of 6.0, and the highest value at 2.16 below the maximum value of 9.5. These rock geochemical results are consistent with expectations based on results obtained from surface and groundwater sampling conducted on the property and observed in the downstream receiving waters. Excessively low pH or high metals concentrations indicating ARD potential have not been observed.

The reader is referred, however, to Sections 3.2 and 3.3 to provide the context for these conclusions.

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5.0 STATEMENT OF PROFESSTIONAL LIMITATIONS

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Should you have any questions regarding this report, or require further information, please contact the undersigned at Access Consulting Group in Whitehorse, Yukon.

6.0 REFERENCES

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