Independent Technical Report on the Carmacks Copper Project, Yukon, Canada

Prepared for:
Copper North Mining Corp.

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Report Date: March 10, 2016

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1 SUMMARY

Arseneau Consulting Services Inc. (ACS) was retained by Copper North Mining Corp. (Copper North) to update the mineral resources and prepare a technical report in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) for the Carmacks Copper Property (the "Project") located near the town of Carmacks in the Yukon Territory of Canada.

1.1 Property Description and Ownership

The Carmacks Project is located in the Dawson Range at latitude 62°21' N and longitude 136°41' W, 192 kilometres (km) north of Whitehorse, Yukon. The Project site is located on Williams Creek, 8 km west of the Yukon River and 38 km northwest of the town of Carmacks. The project site is located in the Whitehorse mining division of the Yukon and consists of 259 Quartz Mining claims and 20 Quartz Mining leases held directly by Carmacks Mining Corp., a wholly-owned subsidiary of Copper North Mining Corp.

The climate in the Carmacks area is marked by warm summers and cold winters. Average daily mean temperatures range from -30 °C for the month of January to 12 °C for the month of July. Precipitation is light with moderate snowfall, the heaviest precipitation being in the summer months.

Topography at the property area is subdued. Topographic relief for the entire property is 515 m. Elevations range from 485 m at the Yukon River to 1,000 m on the western edge of the claim block. Discontinuous permafrost is present at varying depths in most north facing slope locations and at depth in other areas.

The Quartz Mining Act and Quartz Mining Land Use Regulations in the Yukon provide for the holder of mineral claims to obtain surface rights of crown land covered by mineral claims for the purpose of developing a mining property.

The project is within the traditional territories of the Little Salmon/Carmacks First Nation and the Selkirk First Nation but does not lie on any First Nation settlement lands or land selections.

1.2 Geology and Mineralization

The Carmacks copper-gold-silver deposit is enclosed within the Late-Triassic-Early Jurassic Granite Mountain Batholith. The deposit is hosted by amphibolite and mafic gneisses (generally quartz deficient) that form roof pendants or rafts within hornblende-biotite granodiorite of the Granite Mountain Batholith. Mineralization is known to occur in fourteen discrete northwest trending mineralized zones. The deposits are generally all open at depth. These zones are oxidized to an approximate depth of 200 m below surface. Secondary copper and iron minerals malachite-azurite-cuprite-tenorite-chrysocolla-chalcocite line and in-fill cavities, form both irregular and coliform masses and fill fractures and rim sulphides. 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. Primary sulphide minerals and magnetite are disseminated or follow foliation. Primary, hypogene, mineralization consists of copper sulphides chalcopyrite, bornite and minor molybdenite, with associated gold and silver.

1.3 Exploration Status

The project area was first staked in 1970 and since that time has been the subject of various exploration campaigns comprising trenching, diamond drilling, reverse circulation drilling, geophysical, and geochemical surveying. Prior to 2006, a total of 80 diamond drill holes and 11 reverse circulation holes, totaling 12,900 m of drilling, had been completed in the exploration of the property. In addition, over 8,000 m of surface trenching was completed. The majority of this work focused on Zone 1 and was completed before the mid-1990s.

In 2006 a new exploration program was initiated on the Carmacks Project. This consisted of diamond drilling and some rapid air blast drilling. A total of 24,100 m in 157 drill holes were completed between 2006 and 2007.

In 2014, Copper North commissioned Merit to prepare a PEA on the Carmacks Project. The PEA focused on zones 1, 4 and 7 and specifically examined, at a conceptual level, the potential economic viability of adding gold and silver recovery by cyanidation to the Carmacks Project.

Following the completion of the PEA, Copper North initiated a drilling program to explore zones 2000S, 12 and 13. A total of 50 core holes totalling 4,358 metres were completed between the 2014 and 2015 drill programs.

1.4 Mineral Resource Estimates

The Mineral Resources reported for the Carmacks Project were prepared by ACS of Vancouver, British Columbia.

The resource estimation work was completed by Dr. Gilles Arseneau, P. Geo. (APEGBC) an appropriate independent “qualified person” within the meaning of NI 43-101. The effective date of the Mineral Resource statement is January 25, 2016.

Grades are estimated by ordinary kriging and inverse distance to the second power (ID^2) constrained within individually identified geological units using sample data composited to 5 metre for zones 1, 4 and 7 and to 2.5 metre for zones 12,13 and 2000S. All mineral resources were estimated in model blocks measuring 5 by 5 by 5 metres vertically.

Grade interpolation strategies were based on zone orientations, drill hole distances and parameters derived from variographic analysis. Grade interpolations were carried out in two passes with successive passes only interpolating block grades for blocks that had not been interpolated by the previous passes.

ACS is satisfied that the geological modelling reflects the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support resource evaluation. ACS considers that blocks that were estimated during the first pass and had an average distance of samples used less than 50 m could be assigned to the measured category. Blocks interpolated during the first pass and had an average distance of points used greater than 50 m were assigned to the indicated category. All other interpolated blocks were assigned to the inferred category.

ACS considers that the blocks with grades above the cut-off grade satisfy the criteria for “reasonable prospects for economic extraction” and can be reported as a mineral resource. Mineral resources for the Carmacks Project are summarized in Table 1.1. There are no known legal, political, environmental, or other risks that could materially affect the potential development of the mineral resources.

Table 1.1 Carmacks Project Mineral Resource Statement January 25, 2016

	Class	Tonnes (000)	Total Cu (%)	Soluble Cu (%)	Au (g/t)	Ag (g/t)	Sulphide Cu (%)
Oxide and Transition mineralization	Measured	6,484	0.86	0.69	0.41	4.24	0.17
	Indicated	9,206	0.97	0.77	0.36	3.80	0.20
	Measured + Indicated	15,690	0.94	0.74	0.38	3.97	0.20
	Inferred	913	0.45	0.30	0.12	1.90	0.15
Sulphide mineralization	Measured	1,381	0.64	0.05	0.19	2.17	0.59
	Indicated	6,687	0.69	0.04	0.17	2.34	0.65
	Measured + Indicated	8,068	0.68	0.05	0.18	2.33	0.65
	Inferred	8,407	0.63	0.03	0.15	1.99	0.61

In the opinion of ACS, the resource evaluation reported herein is a reasonable representation of the copper, gold and silver mineral resources found in the Carmacks Project at the current level of sampling. Mineral resources that are not mineral reserves do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

1.5 Conclusions and Recommendations

The Carmacks Project contains several copper oxide mineralized zones. Past drilling programs combined with the recent work carried out by Copper North has lead the definition of mineral resources for six discrete deposits. Mineral resources for zones 1, 4 and 7 were defined in 2007 and are re-stated unchanged in this technical report. Mineral resources for zones 12, 13 and 2000S were estimated with a combination of historical and recent drill holes done by Copper North.

ACS recommends that Copper North carry out an update to the Preliminary Economic Assessment (PEA) prepared in 2014 for the Carmacks Project. ACS estimates that the updated PEA combined with additional metallurgical testing will cost approximately $250,000.

2 INTRODUCTION

Arseneau Consulting Services Inc. (ACS) was contracted by Copper North Mining Corp. (Copper North) to prepare an updated mineral resource statement and supporting technical report in accordance with National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101) for the Carmacks copper project (the “Project”) located near the town of Carmacks, Yukon Territory.

The Carmacks Project has been the subject of several prior studies. Kilborn Engineering Pacific Ltd. In 1995 examined the development of the copper oxide mineral occurrence as an open pit mine with valley fill heap leaching followed by solvent extraction and electrowinning. The 2012 FS prepared by M3 Engineering provided a development plan, capital and operating cost estimate, and financial analysis for the copper Project. In 2014, a PEA was prepared by Merit Consultant with main purpose to amend and complement the previous assessment of copper extraction through the addition of assessment of the potential viability of gold and silver extraction by means of cyanide leaching of spent leached copper ore. The previous studies include the following:

Kilborn Engineering Pacific Ltd.

- 1995, “Carmacks Copper Project Feasibility Study”
- 1997, “Carmacks Copper Project, Yukon, Canada, Basic Design Report and Definitive Cost Estimate”

M3 Engineering & Technology Corp.

- 2007, “Carmacks Copper Project, Copper Mine and Process Plant, NI 43-101 Technical report,
- Feasibility Study Volume I, Executive Summary” 2012, “Carmacks Copper Project, Copper Mine and Process Plant, NI 43-101 Technical Report, Feasibility Study” (2012 FS)

Golder Associates Ltd

- 2011, “Conceptual Design and Quantity Estimate for an On-Off Heap Leach Facility – Carmacks Copper Project”, Technical Memorandum

Merit Consultants International Inc.

- 2014 Preliminary Economic Assessment of copper, gold and silver recovery

2.1 Terms of Reference

The Report was prepared to support the disclosure by Copper North of scientific and technical information for the Carmacks Project, including disclosure of mineral resource estimates on the Project contained in Copper North's January 25, 2016 news release (the Written Disclosure). The Written Disclosure can be found on Copper North's website (www.coppernorthmining.com) and www.sedar.com. The mineral resource estimates presented in this report represents the first time disclosure of mineral resources for zones 2000S, 12 and 13 and a re-statement of the mineral resources for zones 1, 4 and 7 at the Carmacks Project.

2.2 Qualified Persons

Dr. Gilles Arseneau, PhD, P.Geo, of ARSENEAU Consulting Services Inc. is an independent qualified person as the term is defined in NI 43-101.

Dr. Arseneau visited the Project on October 14, 2015. The site visit included examination of drill core and drill sites, the surface geology, sampled intervals and mineralization. The site access, regional topography and infrastructures were also examined during the site visit.

2.3 Effective Date

The effective date for information contained within the report is January 25, 2016.

2.4 Information Sources and References

Reports and documents listed in the Reliance on Other Experts (Section 3.0) and References (Section 19.0) sections of this Report were used to support the preparation of the Report.

Sections 4 to 9 of this report draw strongly upon on a technical report prepared by Merit Consultants International Inc. (Merit) in July 2014 (Kent et al, 2014) on behalf of Copper North and on a report prepared by Casselman and Arseneau in 2011. Sections 4, 5, 6 and 9 of this report were essentially derived from these reports with only minor editing changes and updates to reflect changes in mineral tenures. Sections 7 and 8 were updated to account for the greater geological understanding gained during 2014-2015 exploration programs.

2.5 Terms and Definitions

All units in this report are Imperial unless otherwise noted. Table 2.1 summarizes the commonly used abbreviations used throughout this report.

Table 2.1 List of common abbreviations

Unit	Abbreviation
Silver	Ag
Gold	Au
Copper	Cu
Total Copper	CuT
Copper Oxide	CuOx
Copper Sulphide	CuS
Cyanide leachable copper	CNCu
Recoverable copper	CuRec
Residual copper	CuRis
acre	ac
hectare	ha
square kilometre	km^2
square mile	mi^2
grams per metric ton	g/t
troy ounces per short ton	oz/ton
foot	ft
metre	m
kilometre	km
centimetre	cm
millimetre	mm
mile	mi
yard	yd
gram	g
kilogram	kg
troy ounce	oz
metric tonne	tonne, t
Dry metric tonnes	DMT
million years	Ma

cubic yard	cu yd
degrees Celsius	°C
degrees Fahrenheit	°F
Canadian Dollar	C$
Preliminary Economic Assessment	PEA
Feasibility Study	FS

2.5.1 Monetary

All monetary values are given in Canadian dollars (C$) unless otherwise stated.

3 RELIANCE ON OTHER EXPERTS

3.1 Mineral Tenure

ACS has not reviewed the mineral tenure, nor independently verified the legal status, ownership of the Property area or underlying property agreements. ACS has reviewed that the claims were registered under the name of Carmacks Mining Corp. from the Energy, Mines and Resource web site of the Yukon Government

http://www.yukonminingrecorder.ca/.

This information is used in Section 4.1 of the Report.

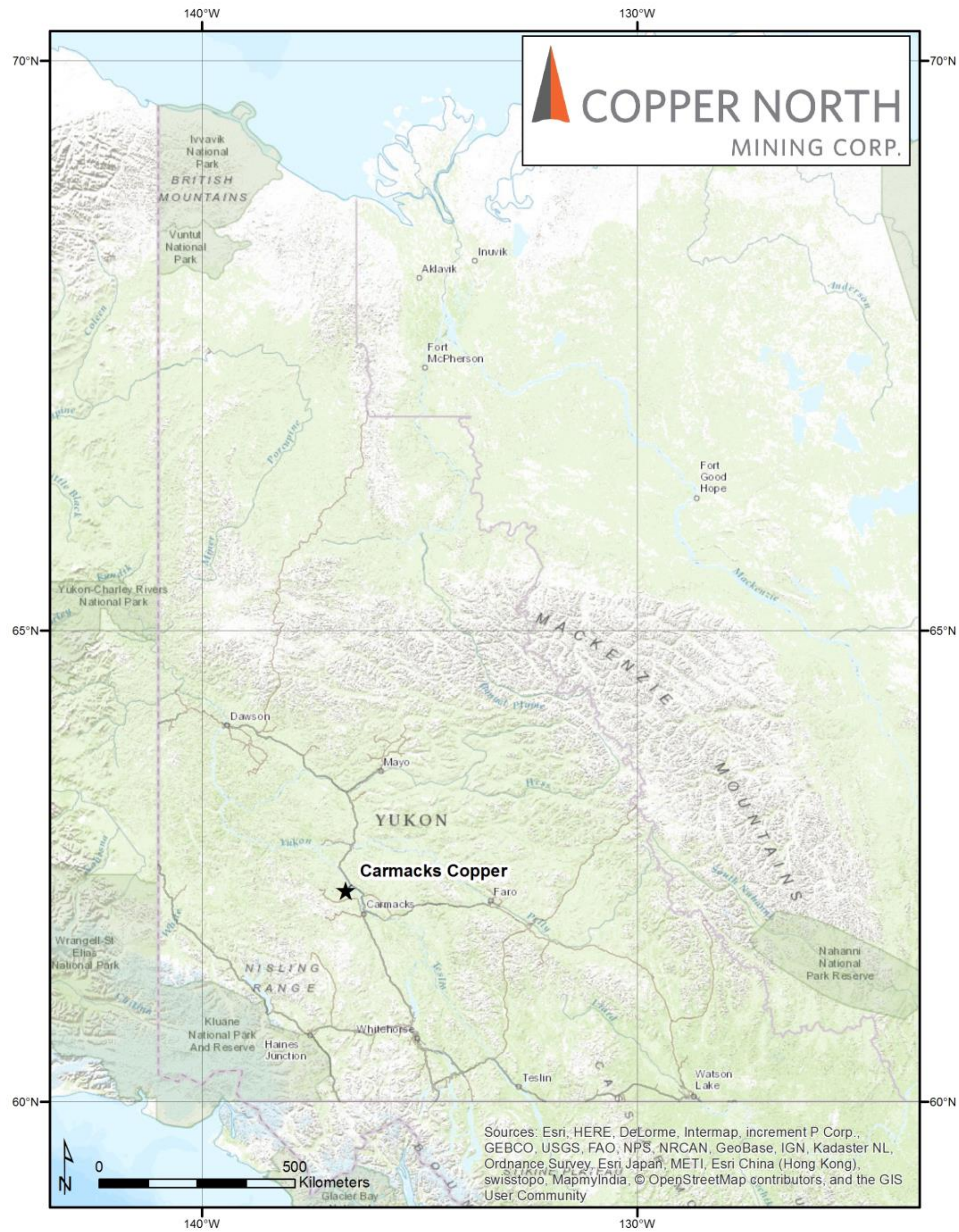
3.2 Surface Rights

ACS has fully relied upon information supplied by Copper North for information relating to the status of the current surface rights.

This information is used in Section 4.2 of the report.

4 PROPERTY DESCRIPTION AND LOCATION

The Carmacks Project is located in the Dawson Range at latitude 62°21'N and longitude 136°41'W, some 210 kilometres (km) north of Whitehorse, Yukon Territory. The Project site is located on Williams Creek, 8 km west of the Yukon River and some 38 km northwest of the town of Carmacks (Figure 4.1).



Copper North – 2016

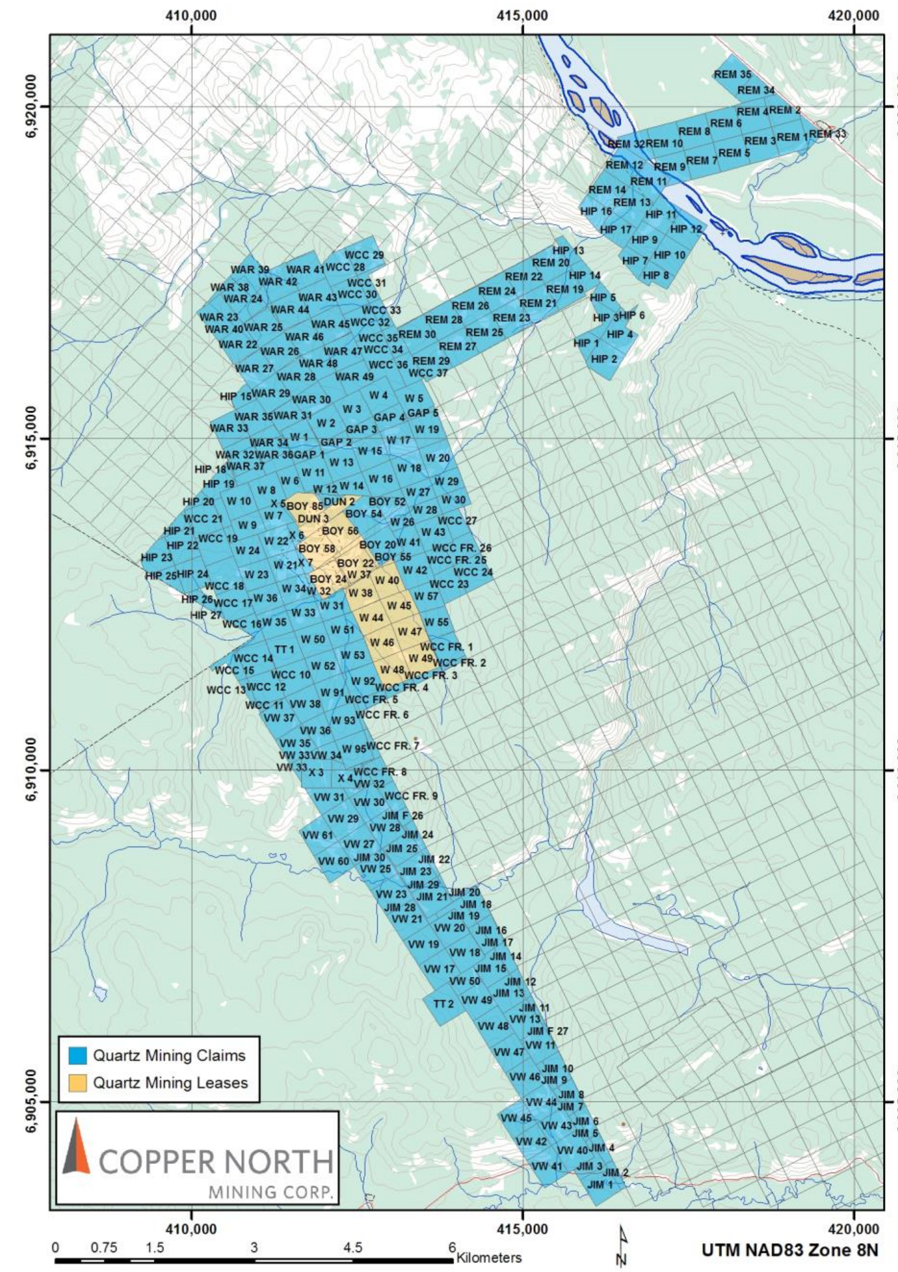
Figure 4.1 Carmacks Project location map

4.1 Mineral Tenure

The claims and leases comprising the Carmacks Project are held directly by Carmacks Mining Corp., a wholly-owned subsidiary of Copper North Mining Corp.

The Carmacks Project site located in the Whitehorse mining division consists of 259 quartz mineral claims and 20 quartz mineral leases, covering approximately 4,933 hectares (ha) (Figure 4.2). The term ‘quartz’ for a claim in the Yukon is the nomenclature used to distinguish between a claim for bedrock or lode mineral rights, in contrast to a ‘placer’ claim for placer mineral rights. Archer Cathro & Associates (1981) Limited retains, at the election of Copper North, either a 15% net profits interest or a 3% net smelter royalty. If Copper North elects to pay the net smelter royalty, it has the right to purchase the royalty for $2.5 million, less any advance royalty payments made to that date. Copper North is required to make an advance royalty payment of C$100,000 in any year in which the average daily copper price reported by the London Metal Exchange is US$1.10 or more per pound. To date $1,300,000 in advance royalty has been paid. As a result, the maximum amount of royalty that remains payable as of the date of this report is $1.2 million.

Claims in the Yukon are valid for one year and may be renewed yearly provided annual assessment work of $100 per claim is carried out or a payment of $100 per claim in lieu of work is made. A fee of $5 for a certificate of work on each claim to record the assessment work is also applicable. Assessment work on a full-size fraction (greater than 25 acres) is the same as a claim but on a small-size fraction (less than 25 acres) only $50 per year assessment work is required. Quartz leases have a term of 20 years and may be renewed. Work done on the leases may not be transferred to the claims by ‘grouping’ and therefore does not qualify for assessment work on claims. In 2007, the majority of the claims in the center part of the claim block, covering zones 1, 4, 7, 7A, 12, 13, 14 and 2000S were legally surveyed.



Copper North – 2016

Figure 4.2 Carmacks claim location map

4.2 Surface Rights

The property is located on Crown Land and the surface rights are unencumbered. Immediately west of the property is First Nations Class A Land Reserve LSC R-9A belonging to the Little Salmon Carmacks First Nation. Both surface and mineral rights are reserved for First Nation on Class A land.

The property is within the traditional territories of the Little Salmon/Carmacks First Nation and the Selkirk First Nation but does not lie on any First Nation settlement lands or land selections.

4.3 Permits

For exploration (and development) in the Yukon, the Quartz Mining Act and Quartz Mining Land Use Regulations require that:

- all areas disturbed must be left in a condition conducive to successful regeneration by native plant species.
- all areas disturbed must be re-sloped, contoured, or otherwise stabilized to prevent long-term soil erosion.
- structures must be removed and the site restored to a level of utility comparable to the previous level of utility.

4.4 Environmental Liabilities

Copper North has filed a Preliminary Detailed Closure and Reclamation Plan for the project site with Yukon Energy Mines and Resources (EMR) and has posted a closure and reclamation bond to cover reclamation requirements for site disturbance related to previous and the present exploration program.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

The following sections are taken from a report by Merit prepared for Copper North in 2014, (Kent et al, 2014).

5.1 Accessibility

The project site is currently accessible by way of the Freegold Road that leads northwest of Carmacks for 34 km then by the Carmacks Project access trail for 13 km to the property. The property access road is narrow and rough with steep sections and requires 4x4 capabilities in inclement weather conditions. The Freegold Road is maintained by the Yukon Government and is currently open seasonally, generally from April through September. Carmacks, on the Yukon River, is 175 km by paved road north of Whitehorse, which is 180 km north of the year-round port at Skagway, Alaska.

5.2 Climate

The climate in the project area is marked by warm summers and cold winters. Average daily temperatures at the Williams Creek Station range from -30 °C for the month of January to 12 °C for the month of July. The location close to the Arctic Circle provides 22 hours of daylight in late June with similarly long nights in late December.

Precipitation is light with moderate snowfall, the heaviest precipitation being in the summer months. The average annual precipitation is approximately 346.5 mm (water equivalent) with about 30% falling as snow. July is the wettest month. Annual lake evaporation is estimated to be 440 mm to yield a net loss of 93.5 mm. The weather does not impede year round commercial operations in the Yukon, including outdoor activities in the winter, except in the harshest cold snaps when temperatures may plummet to –50° C. Winter conditions may be considered to extend over the period where daytime maximum temperatures average below zero, which ranges from November to March. The extreme cold temperatures in the region make outside construction in the winter difficult. In general, the outdoor construction season will be from May to October.

5.3 Local Resources and Infrastructure

Local commercial resources are limited. The village of Carmacks, with a population of about 500, has some lodging capacity and a few stores and restaurants. A large part of the workforce for any mining operation would have to be drawn from other areas, probably from Whitehorse. The Tantalus School serves the village of Carmacks and provides education for grades K-12. Yukon College operates a satellite school in

Carmacks, providing academic upgrading courses, GED, computer training, and various occupation-related courses.

A recent community recreation center with video games, table games, and other activities is a focal point for local youth. The center also has a gymnasium with fitness equipment and an outdoor covered skating rink. Outdoor recreational opportunities abound. Fishing, hunting, and trapping are popular. In addition, summer canoeing down the Yukon River is a significant activity within the area with most canoeists coming from outside the area.

Power for the project could be provided by Yukon Energy Corp. (YEC) by means of a 138/34.5 kV tap-off from the existing power grid at McGregor Creek and an 11 km overhead 34.5 kV power line to the main substation at the site. There is sufficient water on the Project area.

The claims are of sufficient size to support a mining project and waste facilities if required.

5.4 Physiography

The Project topography is characterized by gentle rolling hills, relief for the entire property is 515 m (Figure 5.1). In the immediate area of Zone 1, topographic relief is 230 m. Elevations range from 485 m at the Yukon River to 1,000 m on the western edge of the claim block.

Outcrop is uncommon because of the subdued topography and lack of glaciation. Overburden is generally thin; a few centimetres (cm) of moss and organic material overlie 5 to 20 cm of white felsic volcanic ash (White River ash, approximately 1,250 years old). In unglaciated areas, the white ash is underlain by 10 cm of organics or peat and 15 to 50 cm of soil. In the glaciated areas, the white ash is underlain by tills, generally 1 m thick, except along Williams Creek valley where till and colluvium to 55 m deep has been measured in the centre of the valley. Northeast of the deposit, in the North Williams Creek valley, overburden has been measured up to 100 m deep. Permafrost is present at varying depths on most north facing slopes and at depth in other areas. Bedrock is extensively weathered, particularly the gneissic units.

ACS – 2015

Figure 5.1: Typical physiography of the Carmacks Project area

Vegetation consists primarily of willows and alders in wet areas, especially along the Williams Creek valley. Drier areas are covered by spruce, pine and aspen trees. The property as a whole is below the tree line.

6 HISTORY

The following sections are taken from a report by Merit prepared for Copper North in 2014, (Kent et al, 2014).

6.1 Exploration and Operating History

The first reported copper discovery in this region was made by Dr. G.M. Dawson in 1887 at Hoochekoo Bluff, on the Yukon River, 12 km north of the property. In 1898, the first claims were staked to cover copper showings that were associated with copper bearing quartz veins located in Williams Creek and Merrice Creek Canyons, east of the present Carmacks Copper deposit.

In the late 1960's, exploration for porphyry copper deposits in the Dawson Range led to the discovery of the Casino porphyry copper deposit, 104 km to the northwest of the Carmacks Copper deposit. This discovery precipitated a staking rush that led to the staking of the Williams Creek property in 1970 by G. Wing and A. Arsenault of Whitehorse. The Dawson Range Joint Venture (Straus Exploration Inc., Great Plains Development of Canada Ltd., Trojan Consolidated Minerals Ltd., and Molybdenum Corporation of America) optioned the property and contracted Archer, Cathro and Associates to conduct reconnaissance prospecting and geochemical sampling. During this program, zones 1 and 2 were discovered.

Extensive drilling campaigns were undertaken on the property in 1971 (5,583 m of diamond drilling in 25 holes) and 1972 (1,531 m of diamond drilling in 8 holes) along with other exploration activities such as trenching, access road construction, ground magnetic surveys, ground VLF-EM surveys, airborne geophysical surveying, geological mapping, soil and rock sampling. From 1972 to 1990 there was no significant work performed on the property.

The property was purchased by Western Copper Holdings and Thermal Exploration Ltd in 1991. Later that year, they performed 3,464 m of diamond drilling in 36 holes and initiated a baseline environmental study. In 1992, they drilled 1,164 m in 11 diamond drill holes and 856 m in 11 reverse circulation holes. The companies also conducted additional metallurgical test work, baseline environmental testing, a biophysical assessment of the area and contracted Knight Piesold Ltd to conduct geotechnical studies on the deposit consisting of test pit excavation, overburden sampling, oriented diamond drill core logging and geologic mapping.

In 1994, Kilborn Engineering Pacific Ltd. was contracted to perform a Feasibility Study. The study indicated that, based on the copper price at the time the project was viable using open pit mining methods and solvent extraction-electrowinning.

In 1995, Western Copper Holdings and Thermal Exploration Ltd. merged to become Western Copper Holdings Ltd. The company contracted Knight and Piesold Ltd. to initiate a preliminary mine design and also initiated clearing and grubbing of a site access road and leach pad area. The company submitted a mine permit application later that year.

While the company was awaiting a mine permit, they contracted Kilborn Engineering to produce a basic engineering report, in 1997. The permit was not forthcoming and, due to changing market conditions the company withdrew the permit application. The property sat dormant until the re-initiation of permitting in 2004.

In February 2003, Western Copper Holdings Ltd. changed their name to Western Silver Corporation as a result of a corporate redirection toward silver mining.

In late 2004, based in part on renewed optimism in the price of copper, Western Silver agreed with the Yukon Territorial Government to re-enter the permitting process and re-engaged in the environmental review process under the YEA process and more recently the newly enacted Yukon Environmental and Socio-economic Assessment Act (YESAA) process.

In early 2006, Glamis Gold Ltd. purchased Western Silver Corporation and spun off a separate firm named Western Copper Corporation. Western Copper retained the rights to the Carmacks Copper Project. In September 2006, Western Copper retained M3 Engineering & Technology Corporation (M3) to revise the earlier studies and to develop a Bankable Level Feasibility Study fully compliant with NI 43-101 for the heap-leaching recovery of copper. This study was completed in 2007 (M3 2007).

In October 2011, Western Copper split into three separate companies, Copper North Mining Corp., which retained the Carmacks Project, NorthIsle Copper & Gold Inc., and Western Copper and Gold Corporation. Copper North Mining Corp. has continued to manage the Carmacks Project. In 2012, M3 updated the feasibility study for the heap leaching recovery of copper to reflect project design changes made to address environmental concerns (M3 2012).

In 2014, Copper North commissioned Merit Consultant International Inc. (Merit) to prepare a PEA on the Carmacks Project. The PEA focused on zones 1, 4 and 7 and specifically examined, at a conceptual level, the potential economic viability of adding gold and silver recovery by cyanidation to the Carmacks Project. The gold and silver was to be recovered from the cyanide leachate using SART and ADR processes. The PEA concluded that the addition of gold and silver recovery to the project improved the overall project economics with respect to gross and net revenues and the cash cost of copper recovery after deduction of the gold and silver credits.

The PEA is considered to be out of date such that it can no longer be relied upon and the Carmacks Project is no longer considered as an advanced property as it is no longer supported by a preliminary economic assessment, pre-feasibility or feasibility study.

6.2 Historical Mineral Resource Estimate

The Carmacks deposit has been subject to some historical tonnage and grade estimations over the years as summarized in Table 6.1. The historic mineral resources are presented here to show the progression of development of the mineral resources over the years on the property.

Table 6.1 Historical mineral resource estimates for the Carmacks Project

Year	Source	Tons	CuOx %	Cu %	Au oz/t	Comments
1991	MPH Consulting Ltd. (Zone 1)	14,564,600	0.90	1.05	-	Conventional by section 76% proven, 13% probable
1991	MPH Consulting Ltd. (Zone 1)	14,564,600	0.88	1.00	-	IDS block model 78% proven, 10% probable
1993	Western Copper Audited by Kilborn	12,984,240	0.911	1.195	0.016	Measured and indicated at cutoff of 0.8% total copper
1993	Western Copper Audited by Kilborn	15,867,140	0.829	1.096	0.014	Measured and indicated at cutoff of 0.5% total copper
1993	Western Copper Audited by Kilborn	19,062,390	0.725	0.972	0.013	Measured and indicated at cutoff of 0.01% total copper
1997	Western est. Audit by Kilborn/SNC	13,300,000	-	0.97	-	Cutoff grade 0.29%T Cu Mine use 4.6:1 strip ratio
2007	Wardrop (Zones 1, 4 and 7)	10,000,000	0.96	1.13	0.017	Oxide Resource, Measured and indicated at cutoff of 0.25% total copper

The mineral resource estimations presented in Table 6.1 have not all been classified in accordance with the CIM approved standards as required in NI 43-101. These estimates have been obtained from sources believed reliable and conform to disclosure standards in use at the time of their publication, but have not all been independently verified. These resource estimates are no longer relevant and should not be relied upon, as they are replaced by the estimate which is presented in Section 14.0 of this report.

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The regional geology was described by Bostock in 1936, by Tempelman- Kluit in 1981 and 1985 and in 2013 by Allan et al. The regional geological map based on Yukon Geological Survey data is shown in Figure 7.1. The Carmacks region lies within the Intermontane Belt, which in the Carmacks map-area is divisible into the Yukon Tanana Terrane, Yukon Crystalline Terrane and Whitehorse Trough.

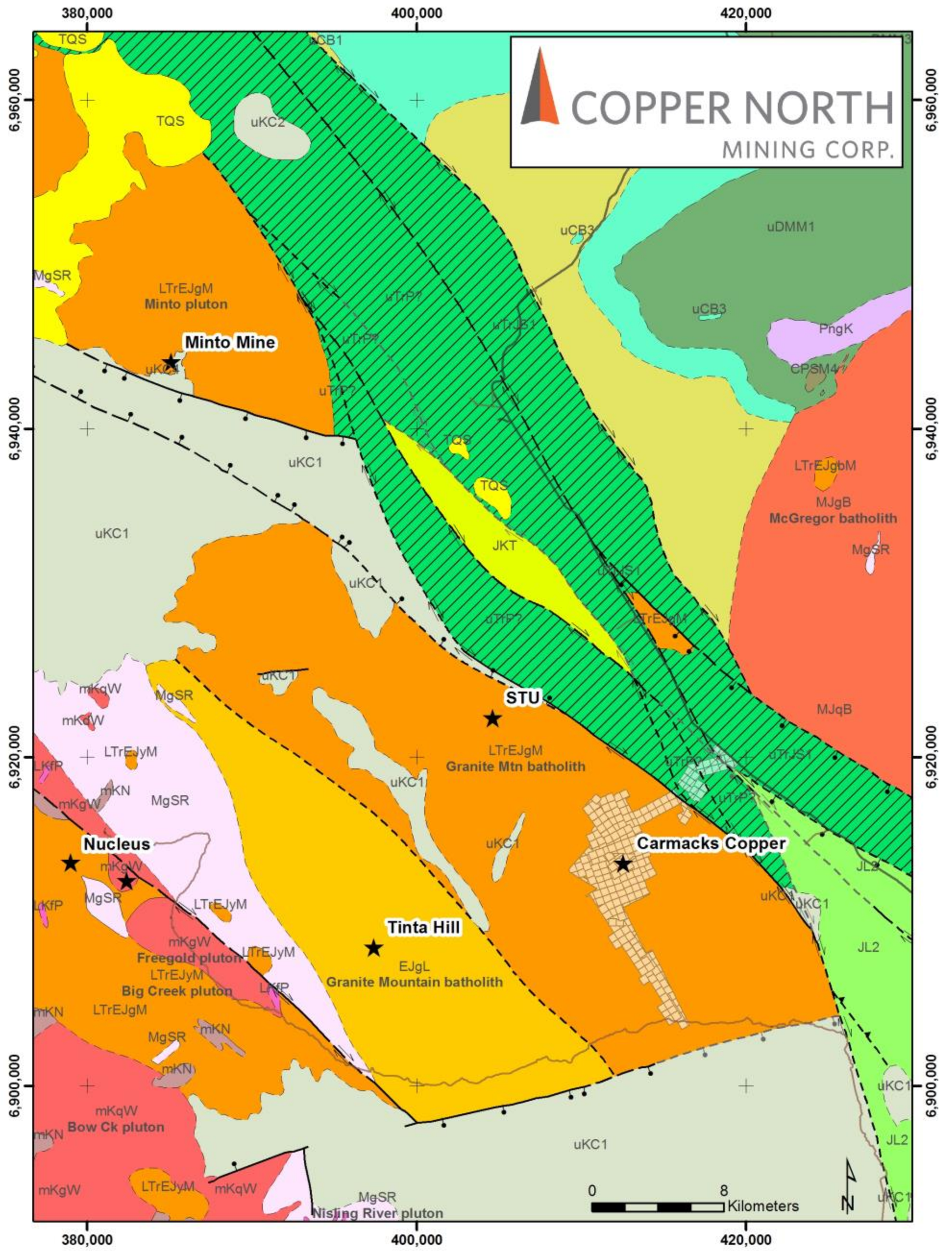
The Whitehorse Trough lies to the east of the Hoochekoo Fault, east of the Carmacks Copper Project. The Whitehorse Trough comprises Upper Triassic intermediate to basic volcanic capped by carbonate reefs (Povoas Formation) and Lower Jurassic greywacke, shale and conglomerate, derived from the underlying Upper Triassic granitic rocks (Laberge Group).

The Yukon Tanana Terrane includes hornblende-biotite-chlorite gneiss with interfoliated biotite granite gneiss, Permian Selwyn Gneiss and is intruded by Early Jurassic Aishihik Suite Granite Mountain Batholith. Weakly foliated, mesocratic, biotite-hornblende, Granite Mountain granodiorite contains screens or pendants of strongly foliated feldspar-biotite-hornblende-quartz amphibolite-gneisses that host the Carmacks Copper deposit.

Younger plutonic rocks intrude all three divisions of the Intermontane Belt and the contacts between them. Carmacks Group and Mount Nansen volcanic rocks 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. Tempelman-Kluit (1985) has included the Carmacks Group in the Yukon Crystalline Terrane.

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

The predominant northwest structural trend is represented by the major Hoochekoo, Tatchun and Teslin faults to the east of the Carmacks Copper Project 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 Project.



Copper North – 2016

Figure 7.1: Regional geology of Carmacks Copper Project (legend on following page)

Bedrock Geology

TERTIARY(?) AND QUATERNARY

TQS: SELKIRK: resistant, brown weathering, columnar jointed, vesicular to massive basalt flows; minor pillow basalt; basaltic tuff and breccia (Selkirk Volcanics)

LATE CRETACEOUS TO TERTIARY

LKfP: PROSPECTOR MOUNTAIN SUITE: quartz-feldspar porphyry

MID-CRETACEOUS

mKdW: WHITEHORSE SUITE: hornblende diorite, biotite-hornblende quartz diorite and mesocratic, often strongly magnetic, hypersthene-hornblende diorite, quartz diorite and gabbro (Whitehorse Suite, Coast Intrusions)

mKgW: WHITEHORSE SUITE: biotite-hornblende granodiorite, hornblende quartz diorite and hornblende diorite; leucocratic, biotite hornblende granodiorite locally with sparse grey and pink potassium feldspar phenocrysts (Whitehorse Suite, Casino granodiorite, McClintock granodiodrite, Nisling Range granodiorite)

mKqW: WHITEHORSE SUITE: biotite quartz-monzonite, biotite granite and leucogranite, pink granophyric quartz monzonite, porphyritic biotite leucogranite, locally porphyritic (K-feldspar) hornblende monzonite to syenite, and locally porphyritic leucocratic quartz monzonite (Mt. McIntyre Suite, Whitehorse Suite, Casino Intrusions, Mt. Ward Granite, Coffee Creek Granite)

mKN: MOUNT NANSEN: massive aphyric or feldspar-phyric andesite to dacite flows, breccia and tuff; massive, heterolithic, quartz- and feldspar-phyric, felsic lapilli tuff; flow-banded quartz-phyric rhyolite and quartz-feldspar porphyry plugs, dykes, sills and breccia (Mount Nansen Gp., Byng Creek Volcanics, Hutshi Gp.)

UPPER CRETACEOUS

uKC1: CARMACKS: augite olivine basalt and breccia; hornblende feldspar porphyry andesite and dacite flows; vesicular, augite phyric andesite and trachyte; minor sandy tuff, granite boulder conglomerate, agglomerate and associated epiclastic rocks (Carmacks Gp., Little Ridge Volcanics, Casino Volcanics)

uKC2: CARMACKS: andesite

uKC4: CARMACKS: medium-bedded, poorly sorted, coarse- to fine-grained sandstone, pebble conglomerate, shale, tuff, and coal; massive to thick bedded locally derived granite or quartzite pebble to boulder conglomerate (Carmacks Gp.)

UPPER JURASSIC AND LOWER CRETACEOUS

JKT: TANTALUS: massive to thickly bedded chert pebble conglomerate and gritty quartz-chert-feldspar sandstone; interbedded dark grey shale, argillite, siltstone, arkose and coal; at one locality includes red-weathering dacite to andesite flows at base (Tantalus)

MID-JURASSIC

MJqB: BRYDE SUITE: medium to fine grained, equigranular, leucocratic monzonite, syenite and granite and related dykes of dacite to andesite porphyry with euhedral andesine, hornblende and locally quartz in aphanitic greenish, or grey groundmass (Teslin Crossing Stock)

MJgB: BRYDE SUITE: medium grained, hornblende monzodiorite, hornblende-biotite quartz monzodiorite and minor hornblendite; pink, potassium feldspar megacrystic, hornblende granite to granodiorite and associated easterly trending mafic dyke swarms (Mt. Bryde Pluton; Bennett Granite)

EARLY JURASSIC

LTrEJyM: MINTO SUITE: syenite

LTrEJgM: MINTO SUITE: medium- to coarse- grained, variably foliated to massive biotite-hornblende granodiorite; biotite-rich screens and gneissic schlieren; foliated hornblende diorite to monzodiorite with local K-feldspar megacrysts (Minto Suite)

LTrEJgbM: MINTO SUITE: gabbro

EJgL: LONG LAKE SUITE: massive to weakly foliated, fine to coarse grained biotite, biotite-muscovite and biotite-hornblende quartz monzonite to granite, including abundant pegmatite and aplite phases; commonly K-feldspar megacrystic (Long Lake Suite)

LOWER AND MIDDLE JURASSIC, HETTANGIAN TO BAJOCIAN

JL2: TANGLEFOOT:

UPPER TRIASSIC, CARNIAN AND OLDER (?)

uTrP?: POVOAS: augite or feldspar phyric, locally pillowed andesitic basalt flows, breccia, tuff, sandstone and argillite; local dacitic breccia and tuff with minor limestone; greenschist, chlorite schist, chlorite-augite-feldspar gneiss, amphibolite (Povoas)

UPPER TRIASSIC TO LOWER JURASSIC

uTrJS1: SEMENOF:

LATE DEVONIAN TO MISSISSIPPIAN

MgSR: Simpson Range - tonalite, diorite

UPPER CARBONIFEROUS, LOWER AND MIDDLE PENNSYLVANIAN

PngK: KELLY STOCK: tonalite orthogneiss

uCB1: BOSWELL: recessive, dark weathering, slate, phyllite, greywacke chert, chert conglomerate and breccia, volcanic breccia, greenstone and limestone (Boswell)

uCB3: BOSWELL: massive, dark weathering, coarse to medium grained, hornblendite-gabbro (Boswell)

uDMM3: Moose - interm. volc.

uDMM1: MOOSE: basalt, greenstone

CARBONIFEROUS TO PERMIAN

CPSM4: SLIDE MOUNTAIN: ultramafic

7.2 Project Geology

Most of the geological information for the Project comes from geophysics, drill core and trenches, as there is only limited outcrop on the property found along spines on the ridges and hill tops. Float, derived locally because the area was not glaciated by continental glaciation, can be seen in the old trenches on the property and along the cuts of the drill roads.

The Carmacks copper-gold-silver deposit is enclosed within the Early Jurassic Granite Mountain Batholith. The copper mineralization is hosted by amphibolite, gneisses, and intrusive rocks that range from granodiorite to diorite. Copper mineralization occurs along a linear trend, following a brittle-ductile deformation zone.

The deposit is sub-divided into several zones (Figure 7.2), each comprising a tabular raft of amphibolite-gneisses that dip steeply to the east and are up to 100 metres wide, strike up to 700 metres and persist down-dip to at least 450 metres, being open at depth. Exploration has identified at least 14 mineralized zones comprising steep easterly dipping zones that occur along a strike length of at least 5 kilometres. The discoveries also include local zones of mineralization that appear sub-parallel to the main mineralized structure. The rafts of copper bearing amphibolite-gneisses are enclosed within a younger granodiorite batholith as roof pendants or partially digested rafts. The copper mineralization at depth comprises copper sulphides bornite and chalcopyrite. Gold and silver accompany the copper mineralization; higher gold grades are associated with the more bornite-rich areas.

The typical host rock for the hypogene mineralization is a dark grey to black hornblende-biotite amphibolite with a pervasive foliation. The amphibolite varies from massive to bearing relict hornblende phenocrysts (or hornblende after pyroxene) and may represent variation in the, possibly volcanic, protolith. Locally, the amphibolite becomes more gneissic where mineralogical and colour segregation occurs. The content of mafic minerals is variable from ~50% to ~100%. Locally, the amphibolite lacks a penetrative fabric and appears to have recrystallized to microdiorite from the heat of the adjacent granodiorite intrusions. Sulphide mineralization in the amphibolite is typically foliaform with some discordant sulphide veinlets. Diorite is also host to sulphide mineralization, where chalcopyrite and bornite occur interstitially between hornblende crystals as a net-texture. Alteration phases include proximal potassic (K-spar-Bt) alteration and hematization.

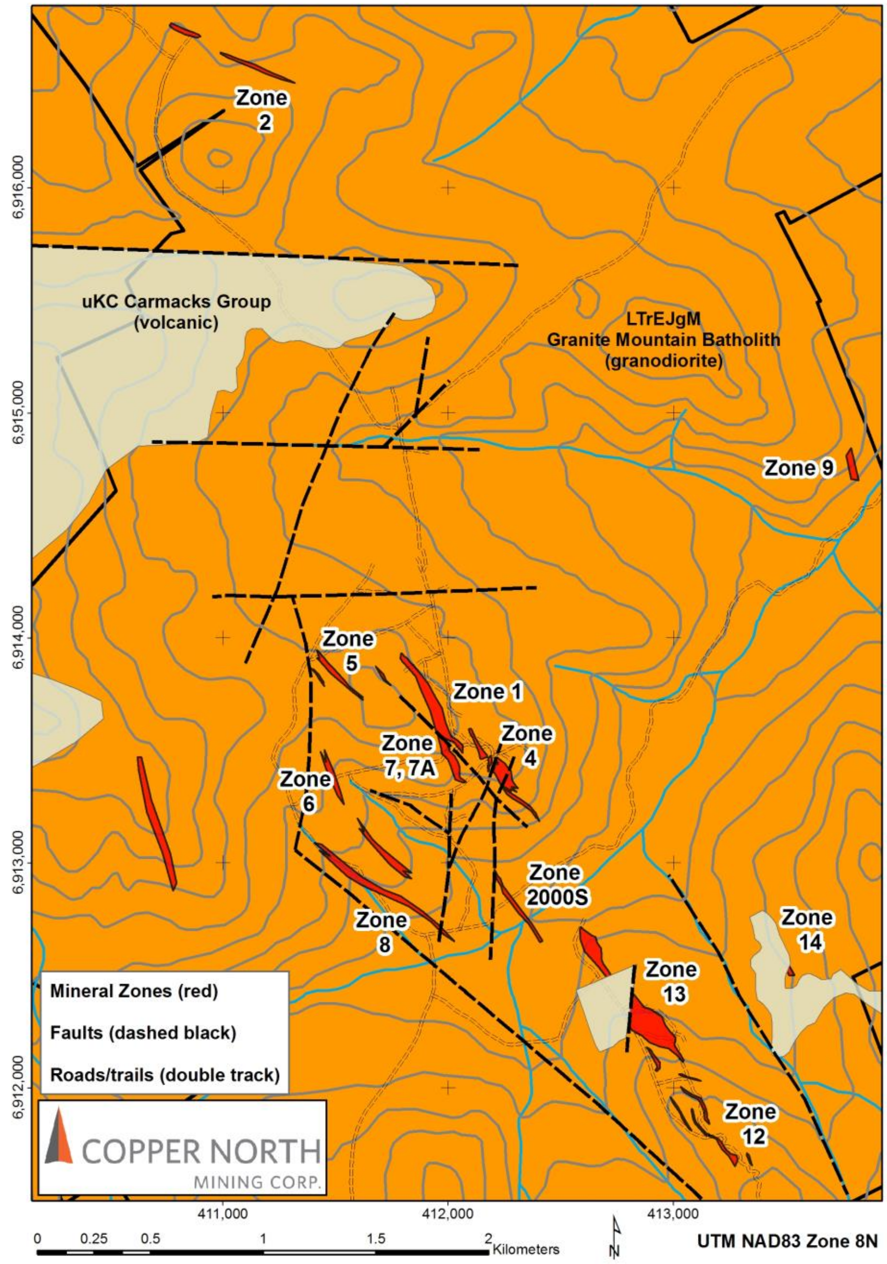
Deformation is seen to increase towards the mineralized zones, suggesting that an underlying structure may be a control on the mineralization. There is a complex magmatic-deformation history involving multiple phases of granitoid intrusions, boudinage and faulting. There are at least two stages of pegmatite-aplite intrusions, each associated with epidote alteration.

The mineralization is cross-cut by barren late phases of the Granite Mountain Batholith including K-feldspar porphyritic granodiorite, aplite and pegmatite. The porphyritic phases contain phenocrysts of K-(potassium) feldspar, plagioclase and/or quartz. In some instances, the K-feldspar phenocrysts range up to 3 cm long. Post mineralization granitic pegmatite and aplite dykes are widespread in the area and range from a few centimetres to approximately three metres in thickness. Hornblende is present in dioritic intrusive rocks and locally in the granodioritic phases. Quartz, K-feldspar and plagioclase are present in all intrusive phases. Plagioclase is subhedral and very locally displays growth zoning. Petrographic examination indicates Granite Mountain granodiorites have a varied mineralogical content with areas of silica under-saturation and plagioclase oversaturation. These variations may be the result of the assimilation of precursor rock to the amphibolite-gneiss units.

The combined strike length from the northern end of Zone 1 to the southern tip of zone 12 is just over 2 km. The character of the deposit changes along strike leading to a division into northern and southern halves. The northern half is more regular in thickness, dip angle, width and down dip characteristics. The southern half splays into irregular intercalations, in zones 7 and 7A, terminating against sub-parallel faults down dip.

Zones 12 and 13 are located 1.2 km south of Zone 1 and occur over a strike length of 1.2 km and up to 100 m in width. The mineralization in Zones 12 and 13 is hosted by less mafic amphibolite and gneisses than those found in Zone 1. The gneisses are highly silicified and K-feldspar altered; the gneissic texture may be the result of alteration along closely spaced parallel planes, rather than the product of high strain. The gap between Zones 12 and 13 has not been drill tested and it is unclear as to whether mineralization is continuous between the two zones. In Zone 12, the mineral zones bifurcate and split into several parallel zones and are affected by post mineralization faulting.

The Carmacks Group is a late Cretaceous, post-mineralization sequence of andesitic-basaltic volcanic rocks and basal conglomerates and sandstones. The Carmacks Group is present in across the property in several areas, but most prominently affects mineralization in Zones 13 and 14 where it forms a fault-bounded segment of cover rocks. Thin mafic dykes that were feeders for Carmacks Group volcanic are uncommon.



Copper North – 2016

Figure 7.2 Property geology map

7.3 Mineralization

Deep oxidation of the deposit has led to the formation of an oxide cap that can be over 200 metres thick. The majority of the copper found in oxide are in the form of the secondary minerals malachite, cuprite, azurite and tenorite (copper limonite) with very minor other secondary copper minerals (covellite, digenite, chalcocite). Native copper occurs as dendritic secondary precipitates on fractures, disseminated grains or thin veinlets. Other secondary minerals include limonite, goethite, specular hematite and gypsum. Primary copper mineralization, occurring below the oxidized level, is present as bornite and or chalcopyrite. Other primary minerals include magnetite, gold, molybdenite, native bismuth, bismuthinite, arsenopyrite, pyrite, pyrrhotite, and carbonate. Molybdenite, visible gold, native bismuth, bismuthinite, and arsenopyrite occur rarely.

The upper 200 m the copper in zones 1, 4, 7 and 7A is oxidized; whereas in zones 13 and 12 the oxide cap can be as thin as ~40 metres. 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, and fill fractures and rim sulphides. Primary sulphide minerals and magnetite are disseminated and form narrow massive bands or heavy disseminations in bands. 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 five microns in size.

Primary (hypogene) copper mineralization appears to be associated primarily with the amphibolite-gneiss units and the early-formed diorites, whereas secondary copper mineralization does not appear to be preferential to a particular rock type. This is owing to the remobilization of copper during supergene processes. In the north half of Zone 1, copper mineralization forms high and low grade zones that are reasonably consistent, both along strike and down dip, and these zones are broadly constrained to the deformed rocks and diorites, but transcend local lithological 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 mainly of chalcopyrite, bornite, molybdenite, magnetite, pyrite and pyrrhotite. Primary copper mineralization appears to be zoned from bornite on the north to chalcopyrite, and finally to minor pyrite-pyrrhotite in the south. Narrow veinlets of anhydride were found in the deepest drill hole.

Alteration minerals associated with the mineralizing include K-feldspar and biotite. Epidotization and some K-feldspar are 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, carbonate, and possibly anhydrite all appear related to metasomatism and assimilation of precursor rocks to the gneissic units.

In Zone 1, oxide copper grades increase with depth in both the footwall and hanging wall. There is no association of copper values with mafic mineral content, or grain size. Gold values are higher in the north half of the deposit. They average 0.75 g/t compared with 0.27 g/t in the south half. There is no apparent increase in values with depth and the highest grade gold values are not associated with the highest copper values; however, gold values in the northern half are higher in the footwall section. This lack of increase in gold values with depth suggests that the gold distribution reflects a primary distribution rather than a secondary distribution such as oxide copper values. As with oxide copper, gold content does not correlate with rock type, mafic constituents or grain size.

8 DEPOSIT TYPES

The Carmacks copper-gold deposit is similar to the Minto deposit, located 50 km to the northwest (Sinclair, 1976; Pearson, 1977), except that the Minto deposit is flat lying and primarily a sulphide deposit. A number of theories for the genesis of the Carmacks deposit have been postulated over the years and by different operators. The Cu-Au-Ag metal tenor and association with Late Triassic-Early Jurassic granodiorites would appear to suggest a link between mineralization at Carmacks and the porphyry copper deposits of the same age that occur across British Columbia. However, the linear deposit shape, lack of ore-stage veining and lack of porphyry alteration show clearly that the Carmacks Copper deposit is not a classic porphyry system. Evidence from the drilling campaigns suggests the deposit was formed by assimilation of older, copper-bearing volcano-sedimentary rocks into the Jurassic Granite Batholith. These “rafts” of mineralized rock would have been variably metamorphosed, and in places completely assimilated into the granodiorite. The volcano-sedimentary rafts would tend to pull apart along bedding planes forming large tabular sheets as observed in zones 1, 4, 7, 7A, 8, 12, 13 and 2000S. Evidence suggests the sulphide mineralization has been remobilized out of the rafts into the surrounding diorite. At a later time, when the upper parts of the batholith where eroded and the rocks were exposed to the atmosphere and meteoric waters, the sulphide mineralization began to oxidize and precipitate as the oxide minerals.

The Minto deposit is owned by Capstone Mining Corporation and began production in June 2007. The Minto deposit has been interpreted as either a metamorphosed stratiform sedimentary copper deposit or a metamorphosed porphyry copper deposit.

9 EXPLORATION

A considerable amount of historical exploration and drilling has been carried out on the property leading up to and during the discovery and definition of the Carmacks deposit. In addition to drilling, the main mode of exploration has been trenching. Zones 1, 4, 7 and 7A zones have been trenched at 200-foot spacing (Figure 9.1). All trenches across Zone 1 were channel sampled with 5 or 10 foot (1.52 m or 3.05 m) sample lengths. Trenches parallel to the zone were not sampled.

Ground geophysics was carried out in 1991 by Interpretex Ltd, over the Zone 1 area and continued north and south over a total 20,000-foot strike length. The survey was done at 200-foot line spacing for a total of 52.4 line miles. The VLF-EM and magnetometer survey identified numerous structures assumed to be faults as well as the main zone style mineralization.

In 1993, Sander Geophysics Ltd. conducted an airborne magnetic, radiometric, and VLF-EM survey over an even larger grid. Two hundred and fifteen-line km were flown at 100-metre line spacing.

The Carmacks area in general was also covered by a regional fixed wing airborne geophysical survey conducted by Fugro Airborne Surveys for the Yukon government in 2001 (Shives et al, 2002).

In 2006, Western Copper Corp. conducted 7,100 m of diamond drilling in 34 holes, 1,235 m of rotary air blast drilling in 61 holes, and re-initiated environmental baseline studies. In 2007, Western Copper Corp. continued the exploration and environmental sampling program and conducted geotechnical studies of the proposed heap leach pad, waste rock storage area, processing plant and camp location. The 2007 program consisted of 17,845 m of diamond drilling in 123 holes, 866 m of geotechnical drilling in 36 holes, 32-line km of induced polarization surveys and the surveying of all drill hole locations including all the historic drill holes, geotechnical holes, and rapid air blast drill holes.

The surveying was conducted by Lamerton and Associates of Whitehorse, Yukon and was performed by Differential GPS. The hole markers at a few of the historic drill holes were destroyed during later road building, trenching or drill pad construction and these sites were located approximately. The accuracy of the post processed survey points is estimated at approximately 20 mm.

In 2008, Western Copper drilled 12 geotechnical holes (1,923 m) in the pit area, two water wells in the camp area (253.5 m), two water monitoring well below the heap leach pad (206 m) and conducted a small soil geochemical sampling program.

10 DRILLING

Extensive drilling has been carried out on the Carmacks Project prior to the involvement by Copper North. The majority of the drilling on the property was carried out in the 1970s and in 2006-07. Copper North carried out drilling campaigns in 2014 and 2015.

10.1 Historical Drill Programs

Prior to 2006, a total of 77 diamond drill holes and 11 reverse circulation holes, amounting to approximately 12,400 m of drilling, were drilled in the exploration of the property. The diamond drill holes prior to 2006 are numbered by zone, so hole 101 would be the first hole drilled on Zone 1 and hole 1302 would be the second hole in Zone 13.

Core drilling of Zone 1 utilized BQ size in 1971, NQ size in 1990, and HQ size in 1991 and 1992. Three NQ size holes drilled in 1990 had variable recoveries. Hole 118 recovered virtually 100% of the core, hole 119 averaged in the high 80% range, and the third hole, hole 120, averaged in the low 90% range. Core recovery for the HQ size holes averaged in the mid to high 90% range.

In 1992, an NQ size hole, number 158, was drilled using the triple (split) tube system. Except for rare instances where the core tube failed to latch, core recovery was 100%. Friable or broken sections were more completely recovered using larger diameter core (HQ) and the triple tube system.

Three reverse circulation down-hole hammer holes were drilled on Zone 1 in 1992. They were drilled to twin diamond drill holes 119 (NQ), 125 (HQ) and 126 (HQ). The purpose of these holes was to determine if significant quantities of copper mineralization were lost through water circulation during diamond drilling and to determine if the expected higher recovery of friable or broken mineralized gneiss in large diameter holes would improve the grade.

The three reverse circulation holes, RC-4, RC-5, and RC-6, were drilled dry through the mineralized section so that no losses to washing could take place. Hole RC-4 twinned HQ-core hole 125 and was similar in grade and width, 39.62 m averaging 1.40% Cu versus 48.16 m averaging 1.36% Cu, respectively. Hole RC-5 twinned HQ-core hole 126 and improved the grade, 48.77 m averaging 1.07% Cu versus 44.50 m averaging 0.83% Cu, respectively. Hole RC-6 twinned NQ-core hole 119 and also improved the grade, 44.20 m averaging 1.11% Cu versus 49.68 m averaging 0.96% Cu, respectively. Hole 125 recoveries averaged in the mid-90% range while holes 126 and 119 both averaged in the high 80% range. The improved grades in RC-5 and RC-6 suggest that when core recoveries were below the mid-90% range, grades are possibly understated by diamond drill results; however, a t-test comparison of reverse circulation holes versus diamond drill holes indicates there is no statistical difference in the results.

For the 2006 and 2007 drill programs, each hole started with HQ core (63.5 mm) and most holes reduced to NTW (56.0 mm) with the occasional hole having to reduce down to BTW (42.0 mm) at greater depths. In general, core recovery for the 2006 and 2007 programs was greater than 97%.

The object of the 2006 program was to examine the down-dip extension of Zone 1, with a goal to delineate the oxidation-reduction front at depth on the deposit; confirm historic drill results by twinning two of the previously drilled holes and explore along strike to search for lateral extensions of Zone 1, and to expand the knowledge of some of the other mineralized zones.

In addition, a RAB drilling program commenced in August 2006, which was designed to condemn areas of the property for future plant development.

The object of the 2007 program was to define the northern and southern limits of zones 1, 7 and 7A, to delineate Zone 4, to further test and define zones 12 and 13, expand the exploration of the newly discovered Zone 14, and carryout condemnation drilling in the proposed waste rock storage, heap leach pad and the processing plant areas.

The 2008 program was designed to complete the geotechnical studies initiated in 2007. Table 10.1 summarises the historical drilling on the Carmacks Project.

Table 10.1 Summary of historical drilling Carmacks Project

Year	Hole Type	no holes	metres	Company
1971	DD	25	5,290	Historic
1972	DD	8	631	Historic
1991	DD	36	4,461	Western Copper
1992	DD	8	1,191	Western Copper
1992	RC	11	856	Western Copper
1995	GEOT	10	185	Western Copper
1996	GEOT	12	489	Western Copper
2006	DD	34	7,101	Western Copper
2006	RAB	61	1,235	Western Copper
2007	DD	123	17,845	Western Copper
2007	GEOT	36	866	Western Copper

2008	GEOT	12	1,923	Western Copper
2008	Water	4	460	Western Copper
	Total	**380**	**42,533**	

10.2 Copper North Drilling

In 2014, Copper North initiated a diamond drilling program aimed at defining additional mineralization in zones 2, 2000S, 12 and 13. Zone 2000S is located immediately south of Zone 1 and was defined by previous drill holes and a distinct anomaly of low magnetic susceptibility caused by alteration associated with oxide mineralization (Figure 7.2 above).

Drilling was carried out by Kluane Drilling of Whitehorse, Yukon using a custom designed drill rig. Core size was NQ for the 2014 drilling program and a combination of HQ and NQ for the 2015 program. Table 10.2 summarises the Copper North 2014-2015 drilling programs.

Table 10.2 Summary of Copper North 2014-2015 drilling programs

Zone targeted	Number of holes	Total metres
12	6	394.52
13	20	1932.26
1-4-7	1	88.39
2	10	619.57
2000S	12	1195.07
Exploration	1	128.02
Grand Total	**50**	**4357.83**

10.3 Sample Length/True Thickness

Generally, all drilling at Carmacks has been oriented to intersect the mineralized intervals at right angles which means that most holes were drilled towards azimuth 245 to 248 degrees. Most drill holes were drilled at a -50° dip giving nearly true thickness intersections for most holes. Core was generally sampled in 1.0 m lengths for the 2014 drilling campaign but sample intervals were changed to 1.5 m for the 2015 drilling program. Core recovery was generally excellent both in wall rock as well as within the mineralization. Poor core recovery was encountered only where the drill hole intersected fault structures. Sample length do vary slightly depending on the lithology and mineralization style. The samples lengths were determined during logging by the geologist. Figure 10.1 shows a typical drill section of the Copper North drilling in Zone 13.

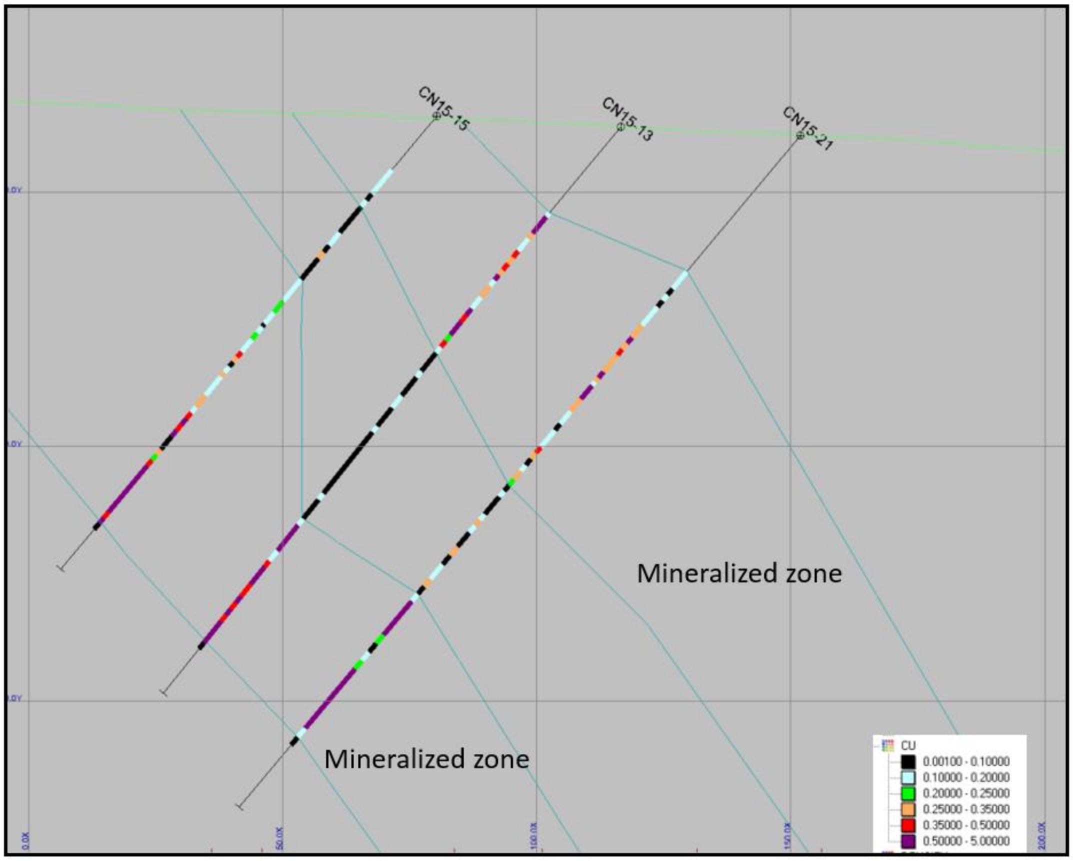


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Figure 10.1 Cross section of Copper North Drilling in Zone 13 looking northwest. Grid lines are 50 m apart

11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Sampling Methods and Preparation

11.1.1 Historical

Drill core in 1971 was sampled in 10-foot (3.05 m) intervals.

Reverse circulation holes were sampled over five foot (1.52 m) intervals within the Zone 1 and at 10-foot intervals for 25 to 50 feet (7.62 m to 15.24 m) on either side of the mineralization.

11.1.2 Western Copper

In 1991 and 1992, drill core was sampled by rock type for geological information but sampling was largely within 10-foot intervals to facilitate later statistical analysis of assay data.

Reverse circulation holes were sampled over five foot (1.52 m) intervals within Zone 1 and at 10-foot intervals for 25 to 50 feet (7.62 m to 15.24 m) on either side of the mineralization.

For the 2006 and 2007 programs, all drill core sample intervals were marked at 1.0 m intervals by a qualified geologist. All samples were cut using a diamond core saw to obtain the best possible representative sample. Samples were packaged and shipped using industry standard secure packaging and were sent to Chemex for processing.

All older core samples were split with a manual core splitter.

The 2006 and 2007 sampling and shipping procedure was handled in a secure manner. The sampling procedure was set-up by Scott Casselman, P. Geo. and all shipments were supervised by a representative of Aurora Geosciences Ltd. to the point that they were delivered to the trucking company in Whitehorse for trucking to Chemex or Acme in Vancouver (Casselman, 2007). There has been no indication from either of the labs that samples or shipments had been tampered with.

11.1.3 Copper North

For the 2014 drilling program sampling was generally done at a one-metre intervals with samples being interrupted at geological contact. The shortest sample collected was 0.25 m and the longest interval was 1.65 m. Sample lengths were increased to 1.5 m for the 2015 drilling. As for the 2014 drilling, sample lengths were interrupted at geological contact. A total of 1,079 samples were collected with the shortest sample being 0.25 m and the longest being 3.5 m in length. All core sampled by Copper North was cut with a diamond saw and half was shipped for assays and half was retained in core boxes stored at the Carmacks site. All samples were bagged and delivered by Copper North personnel to ALS Minerals Laboratory in Whitehorse for preparation.

11.2 Analytical Procedures

11.2.1 Historical

In 1971, rock assays were performed by Whitehorse Assay Office in Whitehorse. Two batches of sample rejects were sent to ALS Chemex Labs Ltd. (Chemex) in North Vancouver, B.C. for check assays. The first batch results from Chemex were 5.9% higher than the originals but the second batch returned values 5.7% lower on average. In the 1990s programs, trench and drilling samples were sent to Chemex for analysis. All samples were dried and crushed to better than 60% minus 10 mesh. An appropriate size split then underwent Chrome-steel ring pulverization until >90% was minus 150 mesh size.

Total copper was assayed by $HClO_4$ – HNO_3 digestion followed by Atomic Absorption Spectrometry (AAS) with a 0.01% detection limit. Non-sulphide copper was assayed by dilute H_2SO_4 digestion followed by AAS with a 0.01% detection limit. Gold was assayed by 1/2 assay ton fire assay followed by AAS with a 0.002 oz/ton (0.0686 g/t) detection limit and an upper limit of 20 oz/ton (685.71 g/t). Silver was assayed by aqua regia digestion followed by AAS with a 0.01 oz/ton (0.34 g/t) detection limit and an upper limit of 20 oz/ton (685.71 g/t).

11.2.2 Western Copper

All 1990 to 1992 drill samples were assayed for total copper, non-sulphide copper, gold, and silver. Most trench samples were assayed for the same elements but a few peripheral trench samples were not assayed for non-sulphide copper, gold, or silver. In 1971, any drill sample without obvious copper oxides or carbonates was not assayed for non-sulphide copper and deeper intercepts were generally not assayed for gold or silver.

Samples were processed by crushing to >70% <2 mm and pulverizing a 250-g split to >85% -75 mm according to Chemex's Prep 31 procedure. The samples were then analyzed for 27 elements by "Near Total" digestion and Inductively Couple Plasma Emission Spectroscopy (ICP-ES) by Chemex's ME-ICP61 or ME-ICP61a procedures.

As well, each sample was analyzed for gold by fire assay and AAS on a 30-g sample by procedure Au-AA23, total copper content by four-acid (HF-NNO_3-$HClO_4$-HCl) digestion and Atomic Absorption according to procedure Cu-AA62 non-sulphide copper by sulphuric acid leach and AAS according to procedure Cu-AA05.

11.2.3 Copper North

Core samples collected by Copper North were shipped to ALS Minerals Laboratory in Whitehorse for preparation. In Whitehorse, the samples were dried and then crushed to 70% passing a 2 mm screen. The samples were then split with a riffle splitter and a 250 g portion was pulverized using a ring and puck pulveriser so that 85% or more was less than 75 microns.

The samples were then shipped to ALS Minerals in North Vancouver for analysis.

In Vancouver, the samples were analysed by inductively coupled plasma atomic emission spectrometry (ICP-AES) for a suite of 33 trace elements. For ICP-AES method, the sample is digested in a mixture of nitric, perchloric and hydrofluoric acids. Perchloric acid is added to assist oxidation of the sample and to reduce the possibility of mechanical loss of sample as the solution is evaporated to moist salts. Elements are determined by ICP.

For samples that returned values in excess of the limits of the ICP-AES, these were treated with a four acid digestion followed by ICP-AES analysis. For this method, the sample is digested with nitric, perchloric, hydrofluoric, and hydrochloric acids, and then evaporated to incipient dryness. Hydrochloric acid and de-ionized water is added for further digestion, and the sample is heated for an additional allotted time. The sample is cooled to room temperature and transferred to a volumetric flask (100 mL). The resulting solution is diluted to volume with de-ionized water, homogenized and the solution is analyzed by inductively coupled plasma - atomic emission spectroscopy or by atomic absorption spectrometry.

Copper oxide values were determined using method Cu-AA05. The procedure uses sulfuric acid to leach the acid soluble copper oxide minerals. The cyanide leach dissolves the oxides (with the exception of chrysocolla, which is only partially digested), secondary sulfides like chalcocite and covellite, and bornite. The chalcopyrite content remains largely undissolved by either sulfuric acid or cyanide leach. Dissolved copper is then analysed by atomic absorption spectrometry (AAS) methods.

Gold was determined by AAS method with fire assay finish. Procedures include fusing a 30-gram sub-sample with a mixture of lead oxide, sodium carbonate, borax, silica and other reagents as required, inquarted with 6 mg of gold-free silver and then cupelled to yield a precious metal bead. The bead is digested in 0.5 mL dilute nitric acid in the microwave oven, 0.5 mL concentrated hydrochloric acid is then added and the bead is further digested in the microwave at a lower power setting. The digested solution is cooled, diluted to a total volume of 4 mL with de-mineralized water, and analyzed by atomic absorption spectroscopy against matrix-matched standards.

ALS has developed and implemented at each of its locations a Quality Management System (QMS) designed to ensure the production of consistently reliable data. The system covers all laboratory activities and takes into consideration the requirements of ISO standards.

The QMS operates under global and regional Quality Control (QC) teams responsible for the execution and monitoring of the Quality Assurance (QA) and Quality Control programs in each department, on a regular basis. Audited both internally and by outside parties, these programs include, but are not limited to, proficiency testing of a variety of parameters, ensuring that all key methods have standard operating procedures (SOPs) that are in place and being followed properly, and ensuring that quality control standards are producing consistent results.

ALS laboratories are registered or are pending registration to ISO 9001:2008. ALS Whitehorse and Vancouver analytical facilities have received ISO 17025 accreditations.

11.3 Quality Control Protocols

11.3.1 Historical

For the 1970 and 1990 drilling duplicate 12.5% splits were collected with one sample for assay and one sample kept at the core storage area. No other information is available on the quality control procedures followed during the 1970 and 1990 drilling.

11.3.2 Western Copper

Duplicate samples were collected regularly, nominally every 20th sample, and were given unique sample numbers. For the first portion of the program, the duplicates were sent along with the original samples to Chemex for processing and were processed as described below. For the latter portion of the 2006 program the duplicates were sent to Acme Analytical Laboratories (ACME) in Vancouver for analysis.

The samples sent to Acme were processed by crushing to >70% <-10 mesh and pulverizing a 250 g split to >95% -150 mesh according to the Acme R1 50 procedure. The samples were then analyzed for 43 elements by “Four Acid” digestion and Inductively Couple Plasma Mass Spectroscopy (ICP-MS) by Acme’s 1T-MS procedure. As well, all samples were analyzed for gold by fire assay and Inductively

Coupled Plasma Emission Spectroscopy (ICP-ES) on a 30 gm sample by procedure 3B ICP-ES. Total copper content was determined by four-acid (HF-NNO_3-$HClO_4$-HCl) digestion and ICP-ES according to procedure 7TD and, for non-sulphide copper, by sulphuric acid leach and AAS.

For the 2007 program a set of 3 standards reference material (SRM) were included with each sample shipment to Chemex and ACME. These standards were collected from the property and represented "high-grade" oxide mineralized material (AGL-1), "low-grade" oxide mineralized material (AGL-2) and a blank which was comprised of un-mineralized granodiorite (AGL-3) (Table 11.1). The standard samples were collected in the 2006 exploration season and prepared by CDN Resource Laboratories in Vancouver with assay certification by Smee and Associates of Vancouver, BC. The processed standards were received in February of 2007, hence were not available in time to be included in the 2006 sample shipments.

Table 11.1 Expected value and standard deviation for SRM used in 2006-2007 drilling programs

SRM	Au (g/t)	CuOx (%)	CuT (%)
AGL-1	0.6	1.616	1.713
AGL-2	0.45	0.885	0.913
AGL-3	0.05	0.04	0.05
Standard deviation	Au (g/t)	CuOx (%)	CuT (%)
AGL-1	0.041	0.061	0.06
AGL-2	0.02	0.039	0.03
AGL-3	0.003	0.003	0.00

No special sample handling practices were used for the pre-2006 work. No special security precautions were noted in the sampling, shipping, and analysis of the mineralization from the deposit. No irregularities were found in the historical data, and some check assays were performed.

ALS Chemex and Acme Labs are independent of Western Copper. Both labs were ISO 9001 accredited at the time the assays were carried out.

In August 2006, two historical diamond drill holes were twinned to verify the validity of the historical assay results using current diamond drilling, sample handling, and assaying practices.

The twin holes, WC-003 and WC-004, were drilled to test historical holes 140 and 141 respectively, drilled in 1991. The locations and orientations of the holes are listed in Table 11.2 below:

Table 11.2 Coordinates of twin drill holes

Hole	NAD83UTM E	NAD83UTM N	Az True	Dip
140	411878	6913907	248.5	-50
WC-003	411875	6913902	245	-50
141	411902	6913855	248.5	-50
WC-004	411905	6913857	245	-50

A comparison between the historical and current assay results can be found in Table 11.3 below. The hanging wall and footwall contacts were well defined in all four drill holes. The lengths of the intercepts listed in the table are from the hanging wall contact to the footwall. There were well-mineralized intersections below the footwall contact in all four holes, but these were not used in the comparison below.

Table 11.3 Comparison of check drilling and historical drilling

	140		WC-003		Difference (%) (new-old)	141		WC-004		Difference (%) (old-new)
	Total Cu	CuOx	Total Cu	CuOx		Total Cu	CuOx	Total Cu	CuOx	
Length	39.6m	39.6m	39m	39m	-1.54%	48.8	48.8m	48m	48m	-1.67%
Average	1.24	0.84	1.67	0.97	+15.77% (CuOx)	1.23	0.98	1.13	0.99	+1% (CuOx)
SD (%)	0.7	0.5	0.87	0.44		1.45	1.05	0.94	0.87	
Var (%)	0.59	0.41	0.7	0.34		0.91	0.66	0.65	0.59	

The historical grade and geological interpretations are repeatable using modern drilling, core handling and sampling methods, and assay procedures. The differences in section widths are a function of the fact that the historical drill results were sampled on a 10-foot interval while the 2006 drilling was sampled on a three-metre interval. The small discrepancy between total copper values in hole 141 and WC-004 are caused by a short intersection of anomalously high grade copper (6.5%) over a length of 9 feet (2.74 m) in 141 that was not present in hole WC-004.

A number of check samples were also collected from selected portions of 1991 drill core stored on the property. The samples were collected by quartering remaining split core with a rock saw. The samples were collected at one-metre intervals falling within 1991 sample intervals for comparison purposes. Results are presented in Table 11.4. The sample handling, shipping, and preparation control procedures followed were the same as those employed for the 2006 diamond drill program.

Table 11.4 Comparison of 2006 twin drilling with historical drilling

Hole No.	1991 Sample Intervals						2006 One Metre Re-Assays					
	From (m)	To (m)	Length (m)	CuOx (%)	Total Cu (%)	Au ppm	From (m)	To (m)	Length (m)	CuOx (%)	Total Cu (%)	Au ppm
122	38.40	42.06	3.66	0.77	1.60	1.10	39.92	40.84	0.92	0.51	1.32	0.748
127	34.75	37.80	3.05	2.95	3.11	0.34	36.88	37.79	0.91	2.43	2.80	0.289
128	23.77	26.82	3.05	1.61	1.72	0.41	24.68	25.60	0.92	3.00	3.34	1.925
132	50.90	53.95	3.05	1.81	2.02	0.07	51.81	52.70	0.89	2.93	3.25	0.250
135	77.42	80.47	3.05	1.82	1.96	0.27	77.41	78.33	0.92	3.14	3.54	0.296
138	117.81	119.18	1.37	1.12	1.20	0.55	118.56	119.48	0.92	0.93	1.04	0.399
150	64.53	67.00	2.47	0.90	1.00	0.07	64.31	65.22	0.91	0.90	1.14	0.454
156	54.86	57.91	3.05	1.86	1.90	0.45	54.86	55.77	0.91	1.28	1.39	0.944
157	79.25	81.69	2.44	1.20	1.33	3.63	78.94	79.85	0.91	0.81	1.03	0.181
158	88.39	91.44	3.05	0.18	0.19	0.00	88.39	89.30	0.91	0.37	0.42	0.013
Average				**1.42**	**1.60**	**0.689**				**1.63**	**1.93**	**0.550**

It was not possible to sample exactly the same intervals of drill core as were sampled in 1991; nonetheless, the results are consistent with the previous sampling. On average, the new assay values are close to, and in most cases are higher than, the historic values. In fact, the average values of the re-assays are substantially higher than the historic assay results.

11.3.3 Copper North

Copper North collected a total of 1,349 samples as part of the 2014-2015 drilling programs. Copper North inserted standard reference material, blanks and assayed field duplicates as part of their quality control program. The protocol was to insert either a standard, blank or duplicate sample with every twenty samples submitted. The procedure resulted in standards (AGL-1 or AGL-2) being inserted at a rate of approximately one in thirty, blanks and duplicates were inserted at about one for every sixty sample submitted.

Duplicate samples were collected from quartered core and shipped to ACME in Vancouver for assay. ACME laboratory is now part of Bureau Veritas Mineral Laboratories (Bureau Veritas). Bureau Veritas is a world recognized laboratory and is ISO9000:2008 certified.

ACS reviewed the SRM, blanks and duplicate sampling and found them to be acceptable. Figure 11.1 to Figure 11.3 show the results of AGL-1 and ALG-2 for gold, soluble copper and total copper assays. Only one gold value falls slightly outside of the 3 standard deviation line, all other assays are well within the acceptable limits. ACS did note that the values for soluble copper all seem to report lower than the expected value for both standard possibly indicating a degradation of the SRM material.

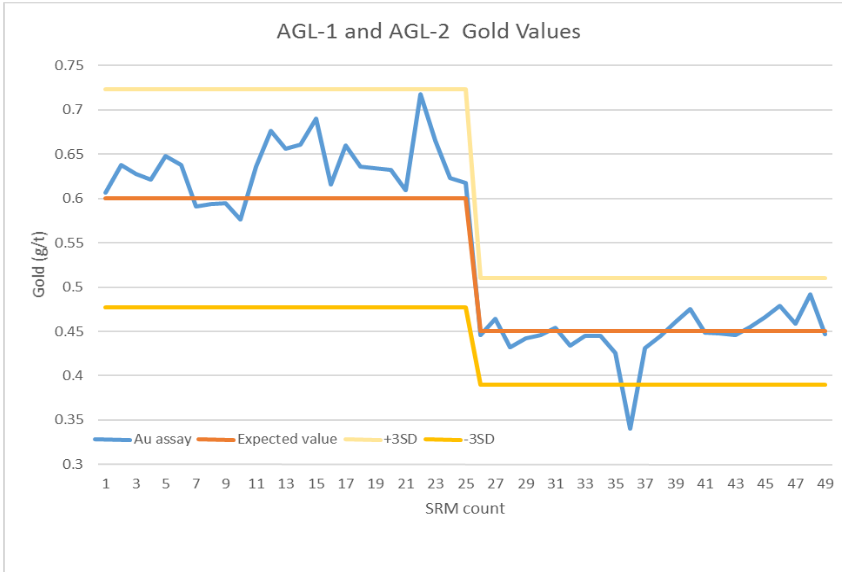


Figure 11.1 Gold assay results for SRM AGL-1 and AGL-2

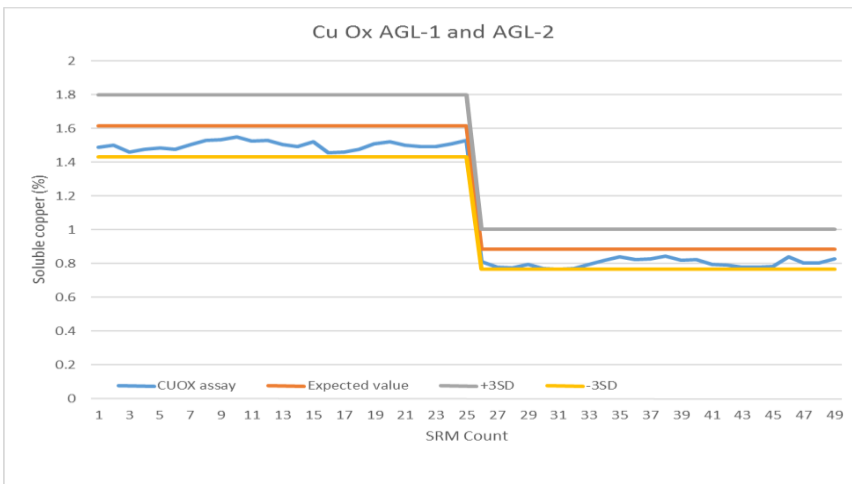


Figure 11.2 Soluble copper assay results for SRM AGL-1 and AGL-2

Figure 11.3 Total copper assay results for SRM AGL-1 and AGL-2

The review of the duplicate sampling indicated that there is no significant bias associated with the assay data provided by ALS. ACS did note that the very low grade gold values were slightly higher at ACME than at ALS but this difference is not indicative of any significant bias (Figure 11.4). Both the soluble copper and total copper values show very comparable results for both laboratories with ALS retuning slightly higher total copper than ACME for values less than 0.4% copper (Figure 11.5 and Figure 11.6).

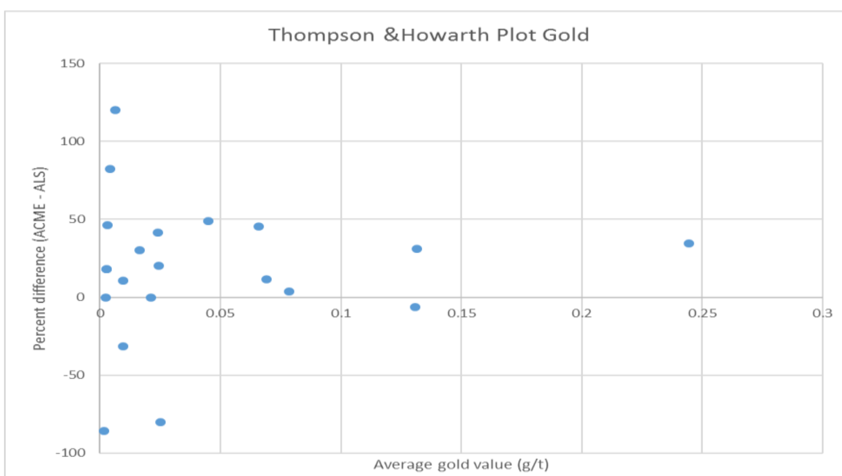


Figure 11.4 Thompson Howarth plot for gold duplicate samples

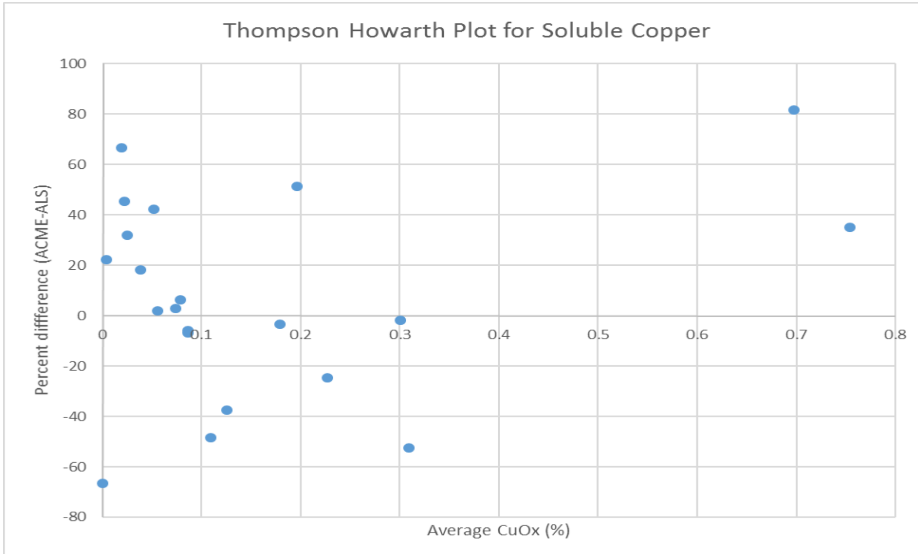


Figure 11.5 Thompson Howarth plot for soluble copper duplicate samples

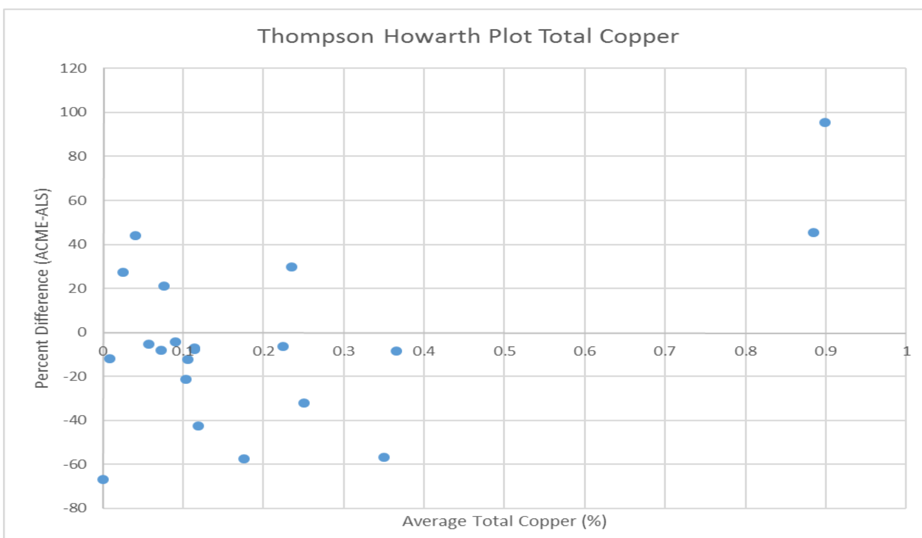


Figure 11.6 Thompson Howarth plot for total copper duplicate samples

Copper North also ran a native copper screen assay on one drill hole (CN15-09), that contained much native copper to evaluate if native copper was not passing the pulverizing process and not making it through to the digestion stage, thereby underrepresenting the sample total copper grade. A total of 62 samples were assayed for total copper by screen assay and compared with the 4-acid digestion total copper for the same samples. The results were very similar indicating that copper was being properly represented by the 4-acid digestion method (Figure 11.7).

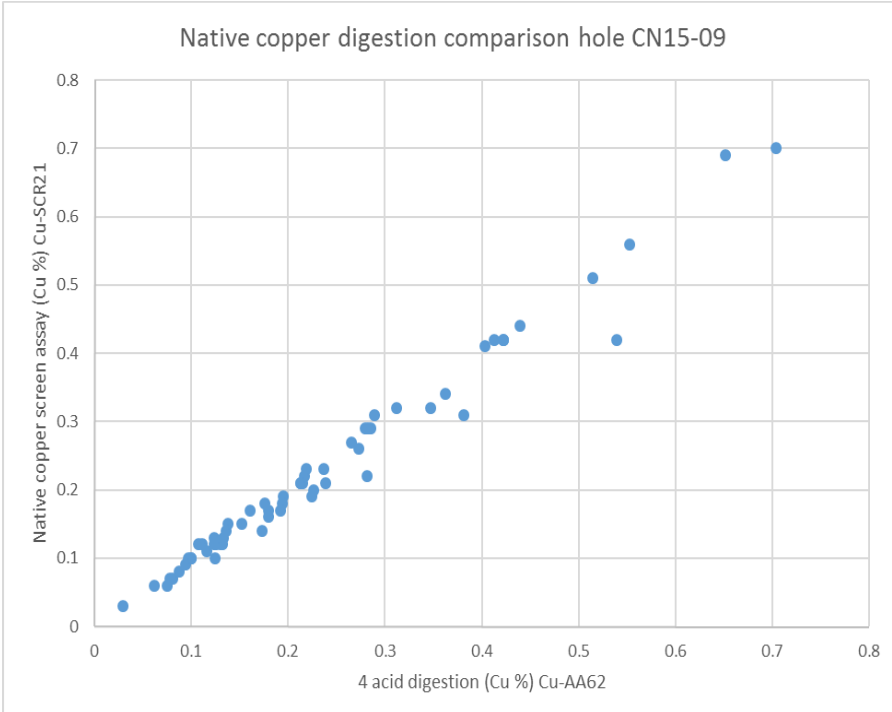


Figure 11.7 Comparison of screen copper assays with 4 acid digestion results

11.4 ACS Comments

ACS is of the opinion that the sample preparation, analytical procedures and sample security followed by Copper North, Western Copper and previous operators were adequate for inclusion in resource estimation.

12 DATA VERIFICATION

12.1 2007 Data Verification

Gilles Arseneau carried out two visits to the Carmacks Project, the first visit was on the 16th and 17th of May 2007 as part of a mineral resource estimation prepared for zones 1, 4 and 7. As part of this earlier mineral resource estimate, Dr. Arseneau carried out the following data verifications.

The integrity of the digital assay data was verified by checking 69% of the database records against the original electronic assay certificates. Assay records from 53 drill holes were verified and a total of 8 data entry errors were found as a result of the check. All of the discrepancies found were negligible based on their low-grade values. All errors were corrected in the digital database. Collar coordinates were checked against the database entries. No discrepancies were observed. It was concluded that the assay and survey database was sufficiently free of error to be adequate for resource estimation of the Carmacks deposit.

In 2007, Dr. Arseneau also collected three representative samples from surface trenches. The samples contain visible copper oxide mineralization and appeared representative of the oxide mineralization of Zone 1 oxide at Carmacks. Results of the samples collected are shown in Table 12.1.

Table 12.1 Assay results of representative samples of Zone 1

Sample No	Description	Total Cu %
C048024	Trench 1 grab sample	2.09
C048025	Trench 1 grab sample	1.08
C048026	Trench 1 grab sample	2.16

These samples were assayed by ICP at ALS Chemex in North Vancouver. The purpose of the sample was to demonstrate that copper mineralization was present on the property in the range of values that had been previously reported by past exploration programs.

As part of the mineral resource estimate prepared in 2007, Dr. Arseneau compiled the standards submitted with each batch of samples for the 2007 program. The review showed that the greatest variability occurred with the gold and copper values in the high grade standard, which can be expected due to the potential for the nugget effect from such a high grade sample. These results are considered acceptable. Table 12.2 lists the statistical results from the standards analyses from both Chemex and Acme.

Table 12.2 Analytical results of 2007 standard reference material

	AGL-1 (high grade Cu)			AGL-2 (moderate grade Cu)			AGL-3 (blank)		
	Au (ppm)	CuOx (%)	Total Cu (%)	Au (ppm)	CuOx (%)	Total Cu (%)	Au (ppm)	CuOx (%)	Total Cu (%)
Certification value	0.60	1.616	1.713	0.45	0.885	0.913	0.05	0.04	0.05
Maximum	0.713	1.711	1.96	0.495	0.935	0.98	0.021	0.025	0.02
Minimum	0.531	1.430	1.64	0.391	0.754	0.82	0.004	0.006	0.01
Standard Deviation	0.041	0.061	0.06	0.020	0.039	0.03	0.003	0.003	0.00

The duplicate samples submitted in 2007 returned generally acceptable values. Figure 12.1 to Figure 12.6 show the results of the comparisons between original samples and duplicate samples, submitted to ALS Chemex and between original samples submitted to ALS Chemex and duplicate samples submitted to ACME for gold, oxide copper and total copper analyses.

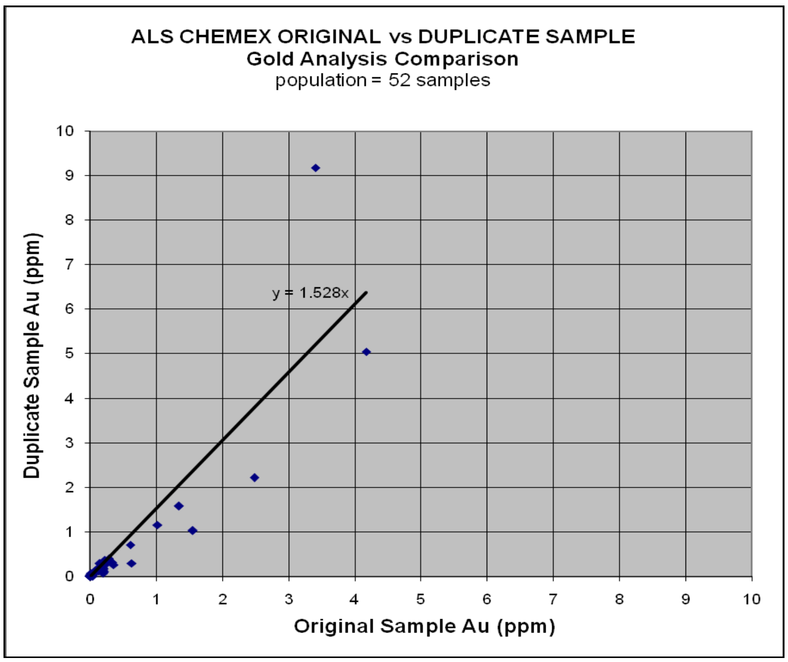


Figure 12.1 Original ALS Chemex versus ALS Chemex duplicate gold analysis

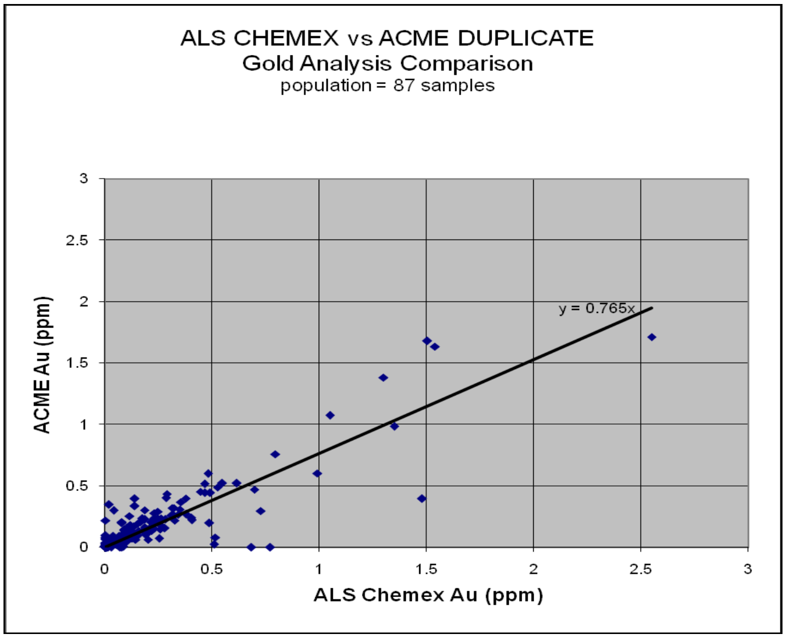


Figure 12.2 Original ALS Chemex versus Acme duplicate gold analysis

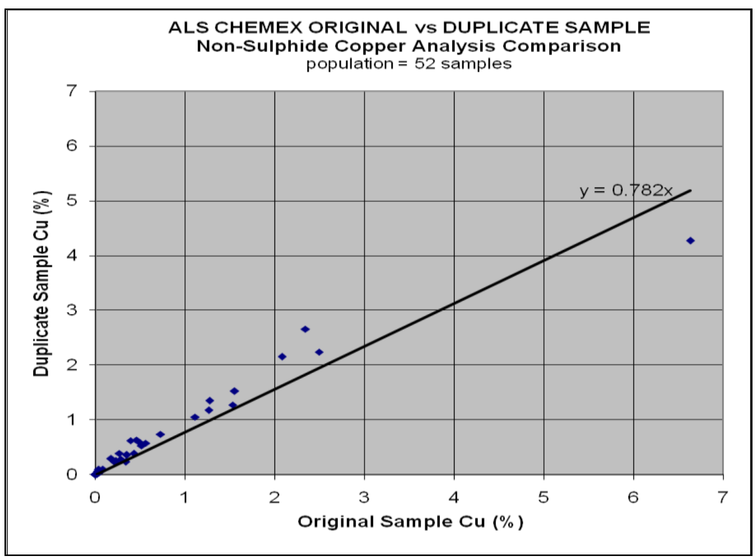


Figure 12.3 Original ALS Chemex versus ALS Chemex duplicate oxide copper analysis

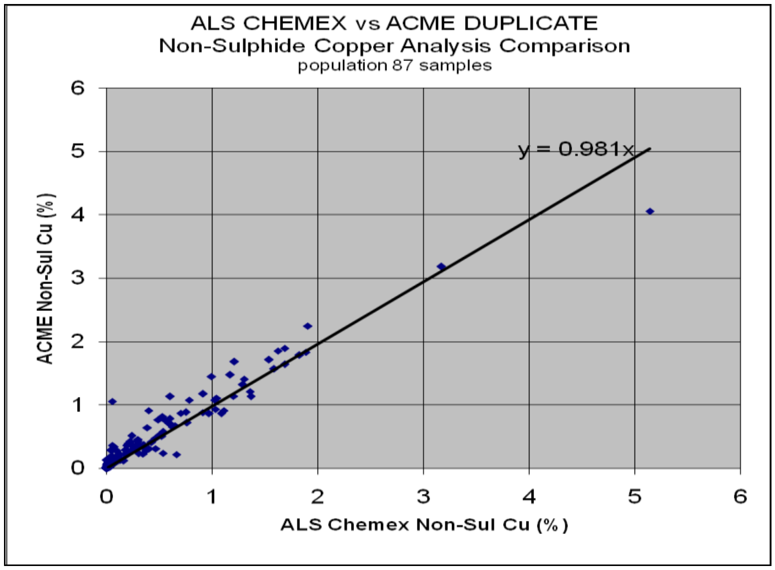


Figure 12.4 Original ALS Chemex versus ACME duplicate oxide copper analysis

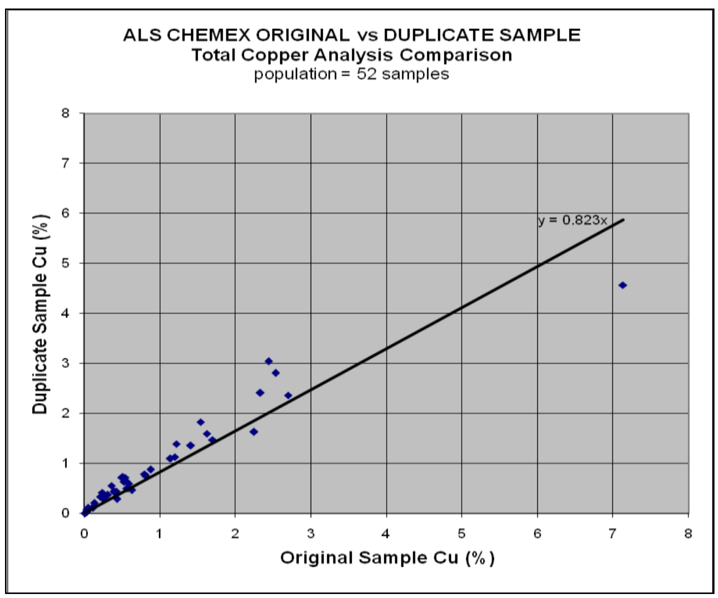


Figure 12.5 Original ALS Chemex versus ALS Chemex duplicate total copper analysis

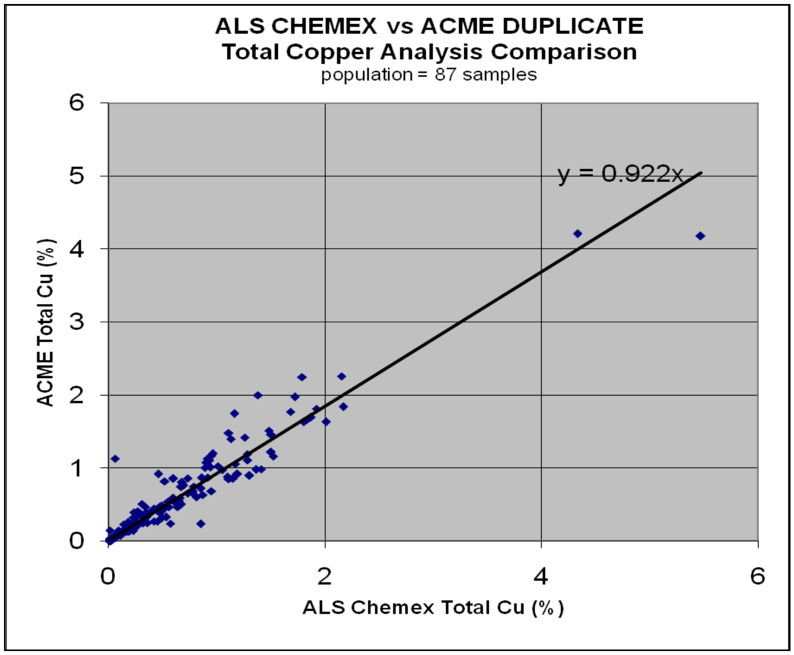


Figure 12.6 Original ALS Chemex versus Acme duplicate total copper analysis

The greatest variability is seen in the gold analyses, which can be expected due to the coarse free-gold that has been observed from petrographic work on the core and due to the nugget effect of gold. The copper analyses show acceptable correlation.

12.2 2015 Data Verification

Dr. Arseneau carried out a second site visit on October 14, 2015 to verify the data used in the resource estimate for zones 2000S, 12 and 13. During this site visit, twenty-two drill sites were observed. All drill collars appear to be well marked and easy to locate (Figure 12.7). Drill holes were located with hand held GPS and all locations agreed well with the data entered in the digital database received from Copper North. The surface geology was observed in surface trenches on zones 12 and 2000S. Drill core was examined at the Carmacks camp. The core is in excellent condition and both oxide and sulphide copper minerals were evident in drill core. Copper mineralization was observed in all drill holes examined.

ACS: 2015

Figure 12.7 Collar marking for drill hole CN14-11

There were no limitations placed on ACS during the site visit and ACS acknowledges the full support of Copper North personnel, specifically Dr. Jack Milton and Mr. Doug Ramsey who facilitated the property visit and supplied details of the last exploration programs carried out by Copper North.

ACS collected four mineralized rock samples during the site visit. All samples contained visible copper mineralization. The samples were dropped off to ALS Minerals in North Vancouver for sample preparation and assay. Table 12.3 summarises the results of the surfaces sample collected during the site visit. The samples were collected to confirm that soluble copper occurred on the property in the relative concentrations previously reported. As can be seen from Table 12.3 soluble copper is present in amounts similar to what has been reported for the property.

Table 12.3 Assay results for surface samples collected by ACS

Sample	Total Cu (%)	Original Total Cu (%)	CUOx (%)	Original CuOx (%)	DDH	Zone
I951062	1.068	0.75	0.978	0.698	CN14-11	2000S
I951063	0.192	0.269	0.144	0.20	CN15-11	13
I951064	0.143	0.357	0.098	0.104	CN15-20	13
I951065	0.949	0.848	0.045	0.028	CN15-07	2000S

In addition to the data validation carried out in 2007, all of the Copper North assay data, 1,349 assay records were checked against original assay certificates and no errors were noted.

12.3 ACS Comments

ACS is of the opinion that the drill hole data are adequate for inclusion in resource estimation.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

Metallurgical testing and mineral process development work has been conducted on samples from the Carmacks Project since 1971. Prior to 2014 (Table 13.1), this work focused on acid heap leaching of the oxide copper mineralization followed by solvent extraction for solution concentration and purification and electrowinning (SX/EW) for recovery of cathode copper metal. Three feasibility-level Project designs were developed based on this work (Kilborn 1995; M3 Engineering 2007 and 2012).

Table 13.1 Historical metallurgical test programs

Test Date	Company	Test by	Sample Classification	Test type
9/1971	Treadwell Corp.	Goodwin, J	Unknown	B. Roll
10/1989	Coastech Research	Lawrence, R	Unknown	Reactor and column
6/1990	BD&A	Unknown	Ore Composite	B. Roll
5/1992	BD&A	Beattie, M	Drill Core Composite	B. Roll
6/1992	Lakefield	Webster, S.	Drill Core Composite	B. Roll
4/1994	Brown & Root, Inc.	Schlitt, W.J.	Ore Composite	Crib
5/1994	Beattie Consulting, PRA	Beattie, M	Unknown	Column
2/1/1996	Beattie Consulting, PRA	Beattie, M	Drill Core Composite	Column
2/1/2001	Beattie Consulting, PRA	Beattie, M	Ore Composite	Column
4/20/2005	Westcoast Biotech	Bruynesteyn, A.	Ore Composite	Column
3/1/2006	Westcoast Biotech	Bruynesteyn, A.	Ore Composite	Column
4/15/2009	PRA Metallurgical Division	Tan, G.	Ore Composite	Column
2/28/2011	Inspectorate Exploration and Mining Services	Tan, G.	Ore Composite	Column

A Preliminary Economic Assessment (PEA) prepared by Merit Consultants for Copper North in 2014 (Kent et al 2014) was the first study to formally include the recovery of both copper and precious metals (gold and silver) mineralization in a Project development plan. The 2014 PEA was based on a two-stage heap-leaching plan in which copper was recovered by heap leaching using an On-Off pad, followed by SX/EW to produce cathode copper metal. The leached copper mineralization would then be rinsed, neutralized with lime, and placed on a second heap for leaching of gold and silver using a cyanide solution. Gold and silver were to be recovered from the heap leach solutions using a conventional ADR circuit together with a Sulfidization, Acidification, Recycling, Thickening (SART) process for the concurrent regeneration of cyanide associated with residual soluble copper. The PEA provided a preliminary indication of the potentially improved economic viability of the Project with the addition of concurrent precious metals recovery.

Subsequent metallurgical testing and process development work has focused on refinement of the two-stage recovery of copper, followed by precious metals. Test-work conducted in 2014 and 2015 (Table 13.2) directed project planning away from heap leaching in favour of a two-stage agitated tank leaching process for recovery of copper followed by precious metals. The twice-leached residual material would be rinsed, passed through a cyanide destruct process, then dewatered to produce dry-stack tailings. The leached copper would be recovered using SX/EW and the leached gold and silver would be recovered using the Merrill-Crowe process. The Company is preparing a new PEA based on the test-work conducted in 2014 and 2015 that will report the amended leach plan for development of the Carmacks Project.

Table 13.2 Recent metallurgical test programs

Test Date	Company	Test by	Sample Classification	Test type
5/28/2015	Beattie Consulting Ltd.	Beattie, M.	Ore Composite	Report of locked cycle test of two stage agitated tank process
21/7/2015	Bureau Veritas Commodities Canada	Grcic, B.	Ore Composite	Locked cycle testing of agitated tank process – Phase 2 report

14 MINERAL RESOURCE ESTIMATES

14.1 Introduction

The Mineral Resources reported in this section combine work done by Dr. Arseneau in 2007 when mineral resources were estimated for zones 1, 4, 7 and 7A with work done recently on zones 12, 13 and 2000S.

The mineral resource model prepared by ACS utilised a total of 246 drill holes, 39 of which were drilled by Copper North in the 2014-2015 program. The resource estimation work was completed by Dr. Gilles Arseneau, P. Geo. (APEGBC) an appropriate independent "qualified person" within the meaning of NI 43-101. The effective date of the Mineral Resource statement is January 25, 2016.

This section describes the resource estimation methodology and summarizes the key assumptions considered by ACS. In the opinion of ACS, the resource evaluation reported herein is a reasonable representation of the copper, gold and silver mineral resources found at the Carmacks Project at the current level of sampling. The mineral resources have been estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines (2003) and are reported in accordance with the Canadian Securities Administrators' NI 43-101. Mineral resources that are not mineral reserves do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

The database used to estimate the Carmacks mineral resources was audited by ACS. ACS is of the opinion that the current drilling information is sufficiently reliable to interpret with confidence the boundaries of the copper mineralization and that the assay data are sufficiently reliable to support mineral resource estimation.

14.2 Resource Estimation Procedures

The resource evaluation methodology involved the following procedures:

- Database compilation and verification;
- Construction of wireframe models for the boundaries of the copper mineralization;
- Definition of resource domains;
- Data conditioning (compositing and capping) for geostatistical analysis and variography;
- Block modelling and grade interpolation;
- Resource classification and validation;

- Assessment of “reasonable prospects for economic extraction” and selection of appropriate cut-off grades; and
- Preparation of mineral resource statement.

14.3 Drill Hole Database

The drilling database consists of historical drilling most of which has been carried out by Western Copper. The database also includes 50 drill holes drilled by Copper North in 2014-15. Table 14.1 summarizes the drill holes used for each mineralized zone estimated.

Table 14.1 Drill holes used in the block model estimation

Company	Year	No of Holes	metres	Hole Type	Zone
Historic	1970-71	33	5,806	DD	1-4-7
Western Copper	1990-92	25	2,501	DD	12
Western Copper	1990-92	24	3,561	DD	13
Western Copper	2006-07	116	18,811	DD	1-4-7
Western Copper	1990-92	9	1,463	DD	2000S
Western Copper	2006-07	27	4,377	DD	Exploration
Western Copper	1992	3	244	RC	1-4-7
Western Copper	1992	4	271	RC	2000S
Western Copper	1992	4	341	RC	Exploration
Copper North	2014-15	6	395	DD	12
Copper North	2014-15	20	1,932	DD	13
Copper North	2014-15	1	88	DD	1-4-7
Copper North	2014-15	12	1,195	DD	2000S
Copper North	2014-15	11	748	DD	Exploration
Total		**295**	**41,733**		

There are a total of 10,577 records in the assay database, of these 5,661 represent samples taken from the mineralized horizons. Table 14.2 summarises the basic statistical data for all the assays in the database and Table 14.3 summarises the assays contained within the mineralized zones only.

Table 14.2 Basic statistical properties of all assay data

Property	CuT (%)	CuOx (%)	Au (g/t)	Ag (g/t)
Valid cases	10,577	10,577	10,577	10,577
Mean	0.47	0.29	0.18	2.45
Standard Deviation	0.72	0.57	0.51	17.82

Variation Coefficient	1.5	1.94	2.75	7.27
Minimum	10.95	7.82	17.14	1775
Maximum	0	0	0	0
5th percentile	0	0	0	0
10th percentile	0.01	0	0	0.25
25th percentile	0.02	0	0	0.25
Median	0.2	0.04	0.04	0.70
75th percentile	0.67	0.34	0.17	2.50
90th percentile	1.29	0.92	0.41	5.49
95th percentile	1.81	1.37	0.75	9.00
99th percentile	3.23	2.56	2.47	23.02

Table 14.3 Basic statistical properties of assays within the mineralized units

Property	CuT (%)	CuOx (%)	Au (g/t)	Ag (g/t)
Valid cases	5,661	5,661	5,661	5,661
Mean	0.80	0.49	0.32	3.91
Std. Deviation	0.82	0.68	0.65	24.15
Variation Coefficient	1.03	1.39	2.05	6.17
Minimum	0	0	0	0
Maximum	10.95	7.82	17.14	1775
5th percentile	0.08	0.01	0.01	0.25
10th percentile	0.13	0.01	0.01	0.25
25th percentile	0.27	0.04	0.06	0.80
Median	0.57	0.23	0.14	2.00
75th percentile	1.03	0.70	0.32	4.00
90th percentile	1.69	1.28	0.69	8.00
95th percentile	2.26	1.81	1.17	12.80
99th percentile	3.91	3.06	3.06	29.12

14.4 Geological Model

Three mineralized zones were interpreted on the basis of total copper grade and geological cross-sections spaced at 25 m spacing. Polylines representing a 0.2% total copper cut-off were generated on northeast sections perpendicular to the mineralized zones. The polylines honoured the drill hole intersections in 3D. Wireframes were created from the lines and then clipped against the overburden-bedrock surface.

A surface representing the boundary between the upper oxide and lower sulphide mineralization was interpolated based on drill hole intersections. The transition between oxide and sulphide mineralization occurs over a few metres for most zones with the exception of Zone 13 where a large volume of transitional material seems to be present. The boundary between oxide and fresh rock was interpreted as occurring where the proportion of oxide copper to total copper dropped below 20%. A 3D surface was then generated by connecting all drill hole points to form the oxide-sulphide interface (Figure 14.1).

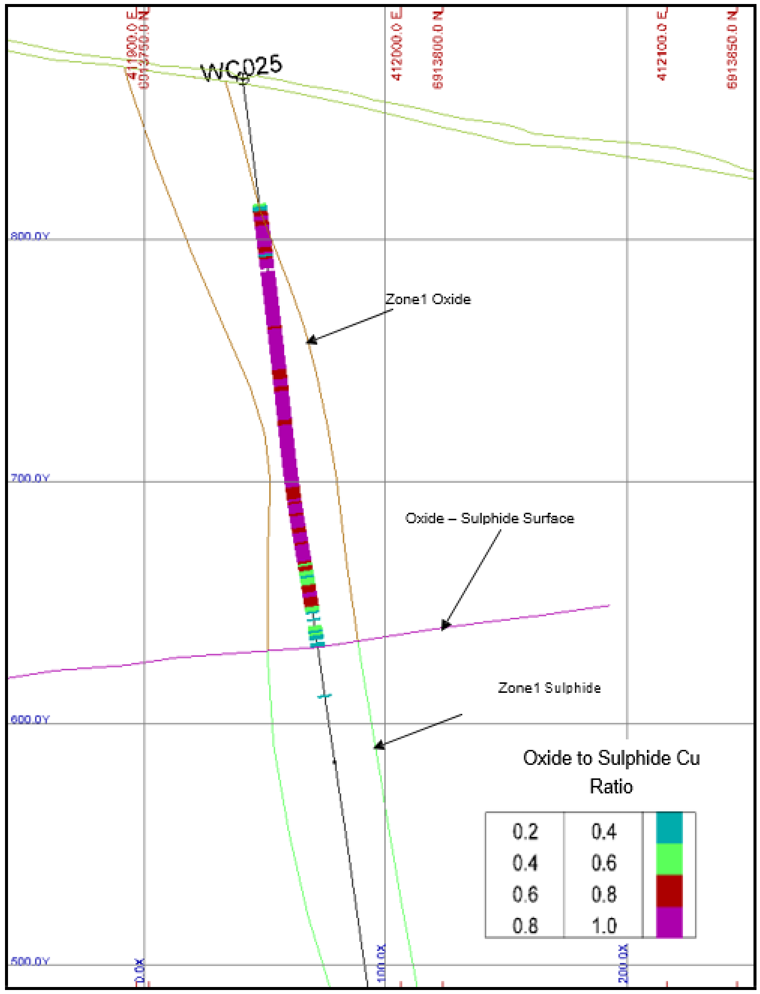
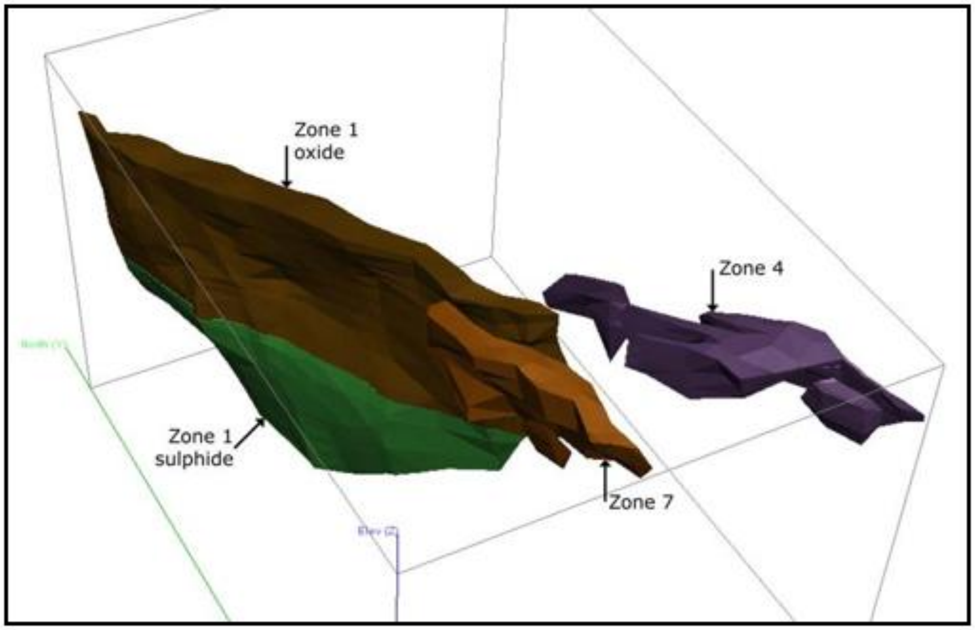


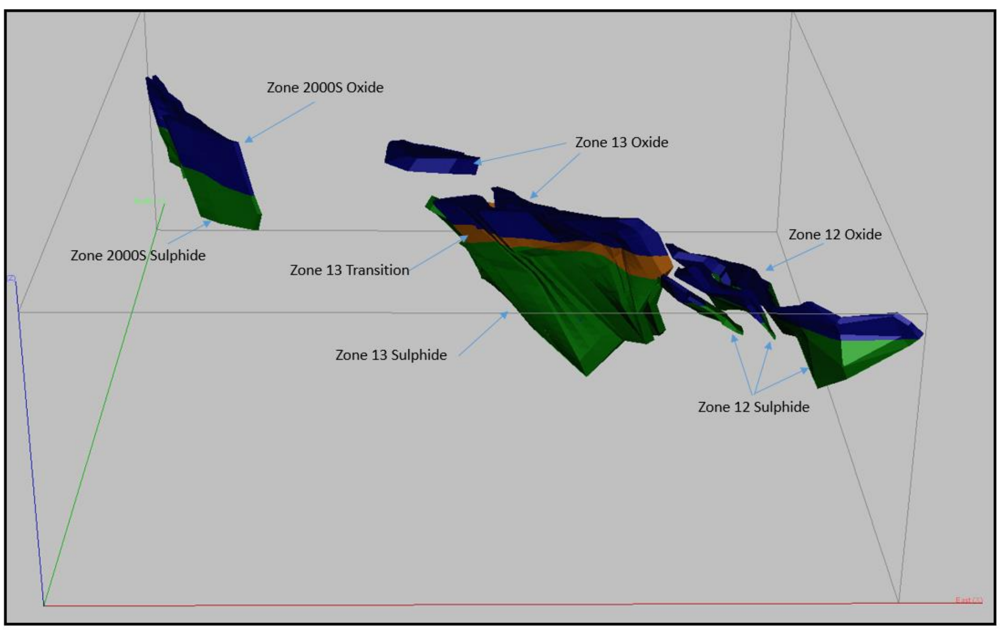
Figure 14.1 Cross Section 1100N showing total copper and oxide copper proportion and oxide/sulphide surface

The wireframes were then clipped above and below the oxide boundary to create final oxide and sulphide wireframes (Figure 14.2 and Figure 14.3).



ACS - 2016

Figure 14.2 Perspective view of zones 1, 4 and 7 looking northeast



ACS - 2016

Figure 14.3 Perspective view of zones 12, 13 and 2000S looking north

14.5 Compositing

All assay data were composited to a fixed length prior to estimation. ACS evaluated the assay lengths for the various deposits and found that most samples had an average length of three metres or less with 91% of samples lengths being less than 2.5 m. For the 2007 resource estimation of zones 1, 4 and 7, ACS decided to composite all assay data to 5 metres prior to estimation. For the 2016 resource estimation of zones 12, 13 and 2000S, ACS decided to composite the assays to 2.5 m to better define the grade variability within these zones. Table 14.4 summarizes the basic statistical data for uncapped composites used in the resource estimates.

Table 14.4 Descriptive statistics of composite within all mineralized zones

Property	CuT (%)	CuOx (%)	Au (g/t)	Ag (g/t)
Valid cases	2,002	2,002	2,002	2,002
Mean	0.72	0.42	0.26	3.40
Std. Deviation	0.61	0.55	0.43	11.98
Variation Coefficient	0.86	1.29	1.65	3.52
Minimum	0	0	0	0
Maximum	5.51	4.73	5.70	368
5th percentile	0.11	0.01	0	0.17
10th percentile	0.16	0.02	0.02	0.31
25th percentile	0.29	0.04	0.06	0.86
Median	0.54	0.20	0.14	1.97
75th percentile	0.95	0.62	0.26	3.67
90th percentile	1.48	1.15	0.58	6.28
95th percentile	1.91	1.57	1.00	9.77
99th percentile	2.84	2.38	2.22	20.19

14.6 Evaluation of Outliers

Block grade estimates may be unduly affected by high grade outliers. Therefore, assay data were evaluated for high grade outliers. Based on the analysis of the assay distribution, ACS decided that capping of high grade assays was not warranted for zones 1,4 and 7. Capping levels for Zones 12, 13 and 2000S are summarized in Table 14.5.

Table 14.5 Capping levels for zones 12, 13 and 2000S

Zone 12				
	CuT (%)	CuOx (%)	Au (g/t)	AG (g/t)
Cap Level	2.2	no cap	non cap	20

No Capped	1	0	0	1
Cov Uncap	0.79	1.26	1.13	1.14
CoV Cap	0.76	1.26	1.13	1.09
Metal Loss (%)	0.4	0	0	0.7
Zone 13				
	CuT (%)	**CuOx (%)**	**Au (g/t)**	**AG (g/t)**
Cap Level	no cap	no cap	no cap	10
No Capped	0	0	0	2
Cov Uncap	0.99	1.62	1.14	0.99
CoV Cap	0.99	1.62	1.14	0.97
Metal Loss (%)	0	0	0	0.3
Zone 2000S				
	CuT (%)	**CuOx (%)**	**Au (g/t)**	**AG (g/t)**
Cap Level	2	1.1	no cap	30
Number Capped	2	2	0	1
Cov Uncap	0.69	1.26	0.83	10.6
CoV Cap	0.65	1.24	0.83	1
Metal Loss (%)	1.1	0.9	0	226

14.7 Spatial Analysis

Spatial continuity of copper was evaluated with correlograms developed using SAGE 2001 version 1.08. The correlogram measures the correlation between data values as a function of their separation distance and direction. The distance at which the correlogram is close to zero is called the “range of correlation” or simply the range. The range of the correlogram corresponds roughly to the more qualitative notion of the “range of influence” of a sample or composite.

Directional correlograms were generated for composited data at 30 degree increments along horizontal azimuths. For each azimuth, correlograms were calculated at dips of 0, 30 and 60 degrees. A vertical correlogram was also calculated, using the information from these 37 correlograms. Sage then determines the best fit model using the least square fit method. The correlogram model is described by the nugget (Co), the variance contribution of the two nested structure (C1, C2) and the range of each of the structures.

Variographic analysis was evaluated for total copper for all mineralized zones but robust correlograms could only be constructed for Zones 1 and 13. No correlograms could be developed for any of the other zones estimated. Table 14.6 summarizes the correlogram parameters used to interpolate grades in Zones 1, 4, 7 and 13.

The correlogram models applied in the mineral resource estimates in each domain derived from drill hole composites are presented in Table 14.6. Model rotations follow the right hand rule and nugget effects were established from downhole variogram analysis.

Table 14.6 Correlogram parameters used for grade estimation

Domains	Metal	Model Type	Nugget (C_0)	C_1 & C_2	Rotation			Range		
					(Z)	(Y)	(Z)	Rot X	Rot Y	Rot Z
Zone 1, 4 and 7	Cu	Exponential	0.025	0.64	-24.8	39	-49	17.4	127	16
				0.335	-35	-23	48	268	381	27
Zone 13	Cu	Exponential	0.23	0.495	33	66	-11	12	11	21
				0.275	33	66	-11	146	180	60

14.8 Block Model

Because of the distance between zones 1 and 12, ACS decided to construct two separate block models to estimate the mineral resources at Carmacks. Both models were with Geovia GEMs version 6.7 block modelling software. The models included parameters for rock code, density, total copper, copper oxide and copper sulphide grades. Other parameters such as distance to the nearest drill hole, number of composites used, the average distance of the composite used and the number of drill holes used to interpolate block grades were also recorded in the model.

The block models are set in UTM NAD 83 coordinates and rotated 24.2 degrees counter clockwise to line up with the mineralized zones. The model parameters are defined in Table 14.7.

Table 14.7: Block model parameters

Zones	coordinate	Minimum	Block Size (m.)	No. of Blocks
1, 4 and 7	Easting	412,050	5	70
	Northing	6,913,130	5	195
	Elevation	350	5	110
12, 13 and 2000S	Easting	412,900	5	155
	Northing	6,911,150	5	416
	Elevation	350	5	110

14.8.1 Grade Estimation

Grades were estimated by ordinary kriging and by inverse distance weighted to the second power for all other zones (ID^2). Grades were constrained within individually identified geological units using sample data composited to 2.5 metre intervals into model blocks measuring 5 by 5 by 5 metres vertically.

Grade interpolation strategies were based on zone orientations, drill hole distances and parameters derived from variographic analysis. Grade interpolations were carried out in two passes with successive pass only interpolating block grades for blocks that had not been interpolated by the previous pass. Search ellipse orientation and number of samples used to interpolate a block are listed in Table 14.8 for zones 1, 4 and 7 and in Table 14.9 for zones 12, 13 and 2000S.

Table 14.8 Copper search interpolation parameters for zones 1, 4 and 7

Zones	Pass	Rotation			Search Ellipse Size			No of composites		Max no per hole
		X	Y	Z	X	Y	Z	Min	Max	
1, 4 and 7	1	0	70	0	100	100	15	3	10	1
1, 4 and 7	2	0	70	0	150	150	50	2	12	1

Table 14.9 Interpolation parameters for zones 12, 13 and 2000S for all metals

Zones	Pass	Rotation			Search Ellipse Size			No of composites		Max no per hole
		Azm.	Dip	Azm.	X	Y	Z	Min	Max	
12	1	45	-45	60	50	20	50	3	10	2
12	2	45	-45	60	100	45	100	3	12	2
13	1	45	-40	30	50	20	50	3	10	2
13	2	45	-40	30	100	45	100	3	12	2
2000S	1	-30	10	20	50	20	50	3	10	2
2000S	2	-30	10	20	100	45	100	3	12	2

For zones 1, 4 and 7 blocks were only interpolated in the first pass if at least three samples, no more than one sample per hole, were found within the search ellipse and no more than ten samples were used to interpolate grade within a block. The second pass only estimated grades in blocks that were un-assigned during pass one. Blocks were assigned a grade in pass two if at least two samples, no more than one per hole, were found within the search radius and no more than twelve samples were used to interpolate grade in a block.

For zones 12, 13 and 2000S blocks were only interpolated in the first pass if at least three samples, no more than two sample per hole, were found within the search ellipse and no more than ten samples were used to interpolate grade within a block. The second pass only estimated grades in blocks that were un-assigned during pass one. Blocks were assigned a grade in pass two if at least three samples, no more than two per hole, were found within the search radius and no more than twelve samples were used to interpolate grade in a block.

The same estimation parameters were used for gold and silver for zones 12, 13 and 2000S but for zones 1, 4 and 7 gold and silver were interpolated using the same parameters as for the pass two copper search ellipse.

Sulphide copper grades were calculated into the model after grade estimation was completed using a simple manipulation of the block model parameters according to the following formula:

Cu Sulphide% = Cu Total% – Cu Oxide%

Any blocks found with negative sulphide copper grades were reset to 0.0%.

14.9 Density

In 1991, bulk densities were estimated by Chemex on 21 drill core samples. The samples submitted comprised of five granodiorites, two pegmatites and fourteen gneiss samples.

The specific gravity of granodiorite samples surrounding the mineralization ranged between 2.69 to 2.71 for an average of 2.70. The specific gravity of gneissic material hosting the mineralization ranged from 2.59 to 2.97 although only one sample was greater than 2.73.

In 2006 and 2007, bulk density was measured by Aurora in the field on 1,358 drill core samples Aurora Geoscience, 2007). An average specific gravity of 2.64 was determined for samples collected within Zone 1 oxide and 2.75 within the Zone 1 sulphide (Table 14.10 and Figure 14.4).

Table 14.10 Summary of bulk density measurements

	Zone 1 Oxide	Zone 4 Oxide	Zone 7 Oxide	Zone 1 Sulphide	Granodiorite
Valid cases	132	50	22	59	1095
Mean	2.643	2.646	2.663	2.749	2.661
Std. Deviation	0.100	0.068	0.074	0.110	0.088
Minimum	2.24	2.48	2.55	2.37	1.80
25th percentile	2.60	2.60	2.60	2.69	2.62
Median	2.64	2.65	2.66	2.76	2.66
75th percentile	2.70	2.70	2.70	2.82	2.70
Maximum	2.93	2.83	2.82	2.95	3.08

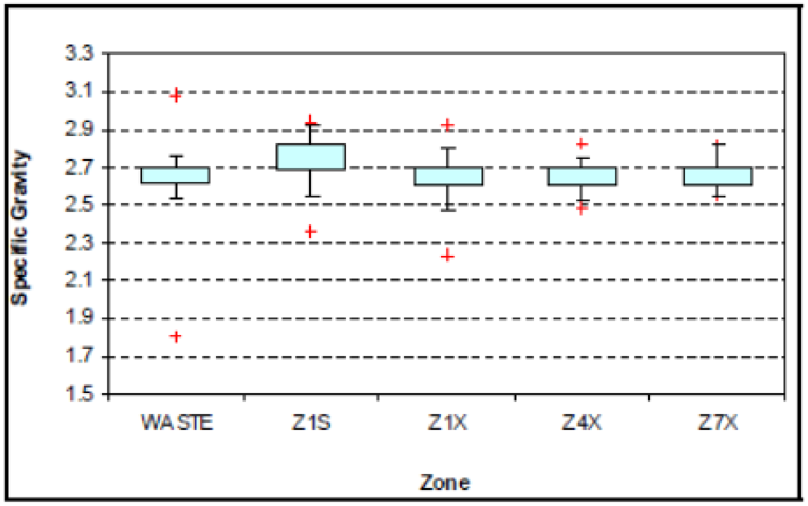


Figure 14.4 Box plot of specific gravity for zones 1, 4 and 7

During the 2015 drill program, Copper North collected an additional 215 bulk density measurements from zones 12, 13 and 2000S. The average density of 90 mineralized samples collected in 2015 was 2.74 t/m^3.

Density was interpolated into blocks in two passes using isotropic inverse distance weighted to the second power for zones 1, 4 and 7. Interpolation occurred in two passes with sample support summarized in Table 14.11.

Table 14.11 Interpolation parameters for density model

Pass	Axes Rotation	Ranges (m)	Occurrence per Hole	Minimum Samples	Maximum Samples
1	Z=0 X=70 Z=0	X=50 Y=50 Z=50	Not limited	3	8
2	Z=0 X=70 Z=0	X=20 Y=20 Z=20	Not limited	1	8

After the estimation process, any mineralized blocks that had a specific gravity value less than 2.5 were re-initialized to an average value of 2.64.

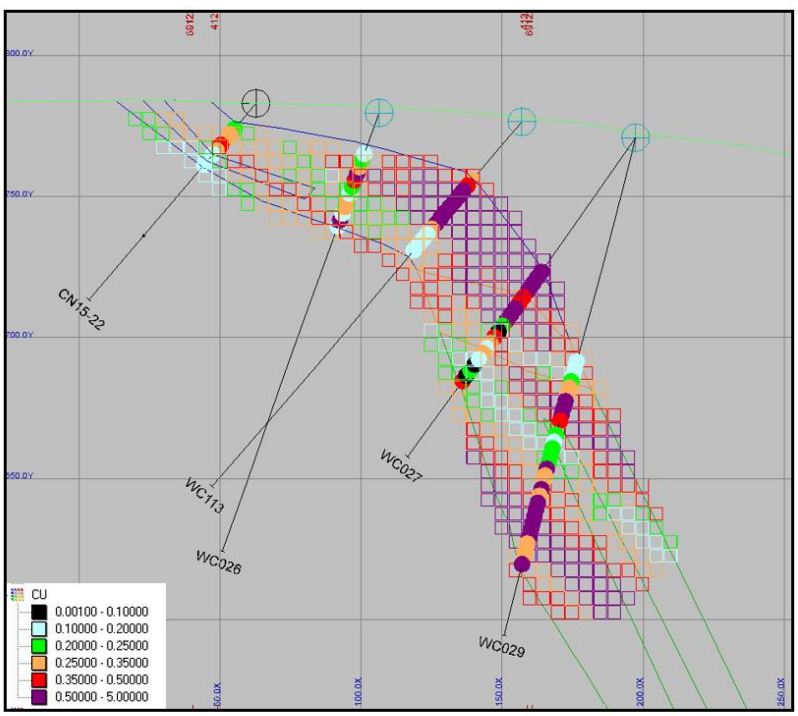
Because of the limited density data from zones 12, 13 and 2000S, ACS decided to use average density values in the 2016 block model for zones 12, 13 and 2000S as outlined in Table 14.12

Table 14.12 Bulk density values used for zones 12, 13 and 2000S

Rock type	Density (t/m3)
Overburden	2.00
waste rock	2.65
Oxide	2.70
sulphide	2.74
Transition material	2.68

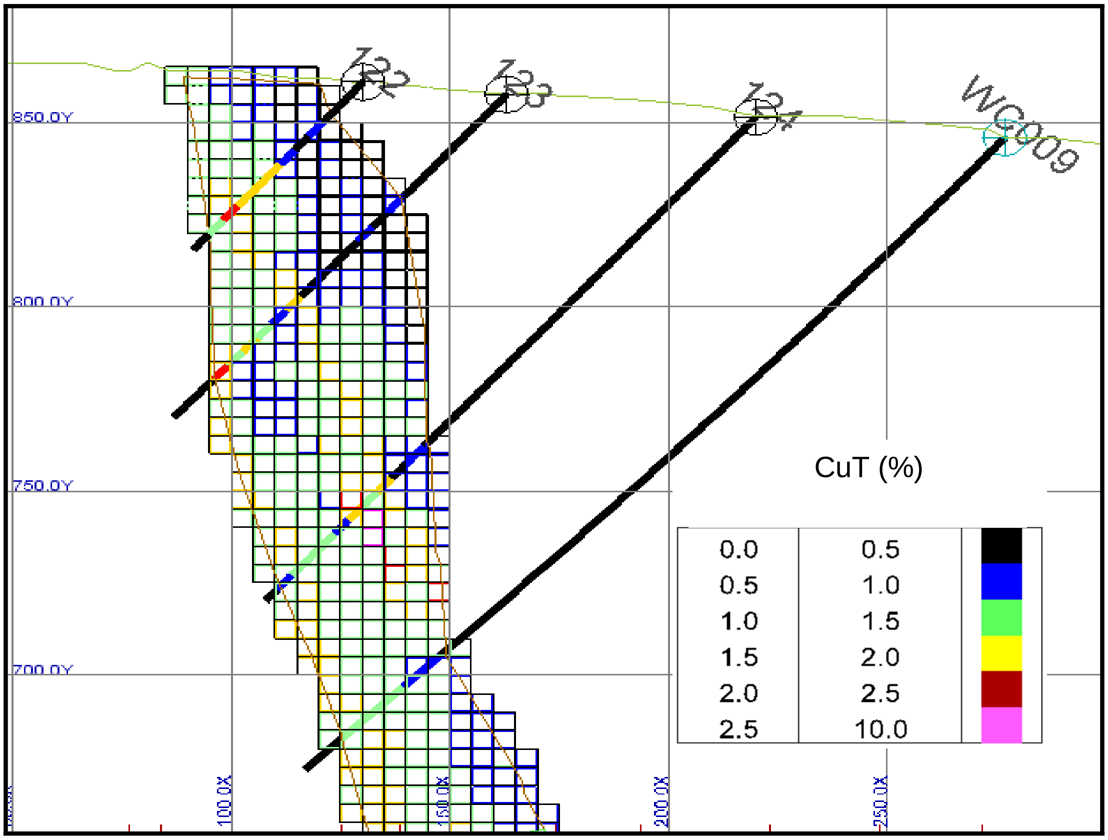
14.10 Model Validation

The block model was validated through a detailed visual validation on section and plan views. The model was checked for proper coding of drill hole intervals and block model cells. Coding was found to be properly done. Grade interpolation was examined relative to drill hole composite values by inspecting sections and plans. The checks showed good agreement between drill hole composite values and model cell values (Figure 14.5 and Figure 14.6).



ACS – 2015

Figure 14.5 Cross section 4800 S showing drill hole composites and total copper block model grades for zone 13. (Grid lines are 50 m apart)



Casselman and Arseneau – 2011

Figure 14.6 Cross section 1700 N showing drill hole composites and total copper block model grades for zone 1 (grid is 50 by 50 m)

14.11 Model Classification

Block model quantities and grade estimates for the Carmacks Project were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (the CIM Definition Standards, May 2014) by Dr. Gilles Arseneau, P. Geo. (APEGBC), an independent “qualified person” for the purpose of NI 43-101.

Mineral resource classification is typically a subjective concept, however, industry best practices suggest that resource classification should consider the confidence in the geological continuity of the mineralized structures, the quality and quantity of exploration data supporting the estimates and the geostatistical confidence in the tonnage and grade estimates. Appropriate classification criteria should aim at integrating these concepts to delineate regular areas at similar resource classification.

ACS is satisfied that the geological modelling reflects the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support resource evaluation. The sampling information was acquired primarily by core drill holes. Drilling samples were from sections spaced at 30 to 60 metres.

ACS considers that blocks estimated during pass one and had an average distance of samples used less than 50 m were assigned to the Measured category. Blocks interpolated with an average distance of points used greater than 50 m were assigned to the Indicated category. Blocks that had not been interpolated during pass one were assigned to the Inferred category. All other estimated blocks can be classified in the Inferred Mineral Resource category within the meaning of the CIM Definition Standards.

14.12 Mineral Resource Statement

CIM Definition Standards defines a Mineral Resource as:

“a concentration or occurrence of solid material of economic interest in or on the Earth’s crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling”.

The “reasonable prospects for eventual economic extraction” requirement generally implies that the quantity and grade estimates meet certain economic thresholds and that the mineral resources are reported at an appropriate cut-off grade taking into account extraction scenarios and processing recoveries. In order to meet this requirement, ACS considers that major portions of the Carmacks deposits are amenable for open pit extraction.

In order to determine the quantities of material satisfying “reasonable prospects for economic extraction”, ACS assumed a minimum mining cut off of 0.25% total copper for zones 1, 4 and 7. Because zones 12, 13 and 2000S are on average shallower than the other deposits, ACS decided to use a 0.15% soluble copper to estimate the oxide and transition mineral resources in these zones and a 0.25% total copper for the sulphide mineralization. The reader is cautioned that there are no mineral reserves at the Carmacks deposits.

ACS is unaware of any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political issues that may adversely affect the Mineral Resources presented in this Report.

ACS considers that the blocks with grades above the cut-off grade satisfy the criteria for “reasonable prospects for economic extraction” and can be reported as a Mineral Resource. Oxide and transition mineral resources for each deposits at the Carmacks Project are summarized in Table 14.13. Sulphide mineral resources are summarized in Table 14.14 and total mineral resources are summarized in Table 14.15.

Table 14.13 Mineral Resource Statement for oxide and transition mineralization at the Carmacks Project January 25, 2016

Deposit	Class	cut off	Tonnes (000)	Total Cu (%)	Soluble Cu (%)	Au (g/t)	Ag (g/t)	Sulphide Cu (%)
Zone 1 oxide	Measured	0.25% CuT	2985	1.25	1.02	0.70	6.5	0.23
Zone 4 oxide	Measured	0.25% CuT	614	0.48	0.37	0.21	2.4	0.11
Zone 7 oxide	Measured	0.25% CuT	432	0.97	0.82	0.38	4.4	0.15
Zone 12 oxide	Measured	0.15% CuOx	522	0.50	0.37	0.10	2.4	0.13
Zone 13 oxide	Measured	0.15% CuOx	1501	0.44	0.35	0.12	1.5	0.09
Zone 13 transition	Measured	0.15% CuOx	286	0.48	0.23	0.13	1.7	0.28
Zone 2000S oxide	Measured	0.15% CuOx	144	0.74	0.55	0.30	3.7	0.17
Total Measured (oxide + transition)	**Measured**		**6484**	**0.86**	**0.69**	**0.41**	**4.2**	**0.17**
Zone 1 oxide	Indicated	0.25% CuT	7058	1.07	0.86	0.41	4.1	0.21
Zone 4 oxide	Indicated	0.25% CuT	257	0.51	0.35	0.18	2.2	0.16
Zone 7 oxide	Indicated	0.25% CuT	634	0.90	0.74	0.32	4.2	0.16
Zone 12 oxide	Indicated	0.15% CuOx	317	0.54	0.4	0.09	2.7	0.14
Zone 13 oxide	Indicated	0.15% CuOx	315	0.38	0.30	0.12	1.3	0.08
Zone 13 transition	Indicated	0.15% CuOx	359	0.70	0.30	0.16	2.3	0.41
Zone 2000S oxide	Indicated	0.15% CuOx	267	0.60	0.46	0.19	2.9	0.13
Total Indicated (oxide + transition)	**Indicated**		**9206**	**0.97**	**0.77**	**0.36**	**3.8**	**0.20**
Zone 1 oxide	Inferred	0.25% CuT	64	0.84	0.62	0.12	1.8	0.22
Zone 4 oxide	Inferred	0.25% CuT	23	0.41	0.25	0.14	1.9	0.16
Zone 7 oxide	Inferred	0.25% CuT	3	0.81	0.64	0.18	1.6	0.18
Zone 12 oxide	Inferred	0.15% CuOx	36	0.55	0.40	0.11	3.7	0.16
Zone 13 oxide	Inferred	0.15% CuOx	413	0.28	0.23	0.11	1.3	0.05
Zone 13 transition	Inferred	0.15% CuOx	106	0.52	0.24	0.12	1.8	0.28
Zone 2000S oxide	Inferred	0.15% CuOx	267	0.57	0.34	0.14	2.7	0.24
Total Inferred (oxide + transition)	**Inferred**		**913**	**0.45**	**0.30**	**0.11**	**1.9**	**0.15**

Table 14.14 Mineral Resource Statement for sulphide mineralization at the Carmacks Project January 25, 2016

Deposit	Class	cut off	Tonnes (000)	Total Cu (%)	Soluble Cu (%)	Au (g/t)	Ag (g/t)	Sulphide Cu (%)
Zone 1 sulphide	Measured	0.25% CuT	695	0.80	0.02	0.26	2.5	0.77
Zone 12 sulphide	Measured	0.25% CuT	178	0.49	0.12	0.07	2.3	0.37
Zone 13 sulphide	Measured	0.25% CuT	485	0.46	0.04	0.11	1.5	0.43
Zone 2000S sulphide	Measured	0.25% CuT	24	0.75	0.40	0.31	4.1	0.35
Total sulphide Measured	**Measured**	**0.25% CuT**	**1,381**	**0.64**	**0.05**	**0.19**	**2.2**	**0.59**
Zone 1 sulphide	Indicated	0.25% CuT	3,645	0.74	0.03	0.21	2.3	0.71
Zone 12 sulphide	Indicated	0.25% CuT	639	0.69	0.08	0.11	2.9	0.63
Zone 13 sulphide	Indicated	0.25% CuT	1,804	0.57	0.04	0.13	1.9	0.55
Zone 2000S sulphide	Indicated	0.25% CuT	599	0.73	0.11	0.18	3.4	0.62
Total sulphide Indicated	**Indicated**	**0.25% CuT**	**6,687**	**0.69**	**0.04**	**0.17**	**2.3**	**0.65**
Zone 1 sulphide	Inferred	0.25% CuT	4,031	0.71	0.01	0.18	1.9	0.70
Zone 12 sulphide	Inferred	0.25% CuT	263	0.52	0.06	0.08	1.9	0.46
Zone 13 sulphide	Inferred	0.25% CuT	3,552	0.50	0.04	0.12	1.7	0.48
Zone 2000S sulphide	Inferred	0.25% CuT	561	0.88	0.07	0.20	4.6	0.85
Total sulphide Inferred	**Inferred**	**0.25% CuT**	**8,407**	**0.63**	**0.03**	**0.15**	**2.0**	**0.61**

Table 14.15 Carmacks Project Mineral Resource Statement January 25, 2016

	Class	Tonnes (000)	Total Cu (%)	Soluble Cu (%)	Au (g/t)	Ag (g/t)	Sulphide Cu (%)
Oxide and Transition mineralization	Measured	6,484	0.86	0.69	0.41	4.24	0.17
	Indicated	9,206	0.97	0.77	0.36	3.80	0.20
	Measured + Indicated	15,690	0.94	0.74	0.38	3.97	0.20
	Inferred	913	0.45	0.30	0.12	1.90	0.15
Sulphide mineralization	Measured	1,381	0.64	0.05	0.19	2.17	0.59
	Indicated	6,687	0.69	0.04	0.17	2.34	0.65
	Measured + Indicated	8,068	0.68	0.05	0.18	2.33	0.65
	Inferred	8,407	0.63	0.03	0.15	1.99	0.61

Mineral resources were estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserve Best Practices" Guidelines. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. The Mineral Resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors. There is insufficient information in this early stage of study to assess the extent to which the Mineral Resources will be affected by these factors that are more suitably assessed in a conceptual study.

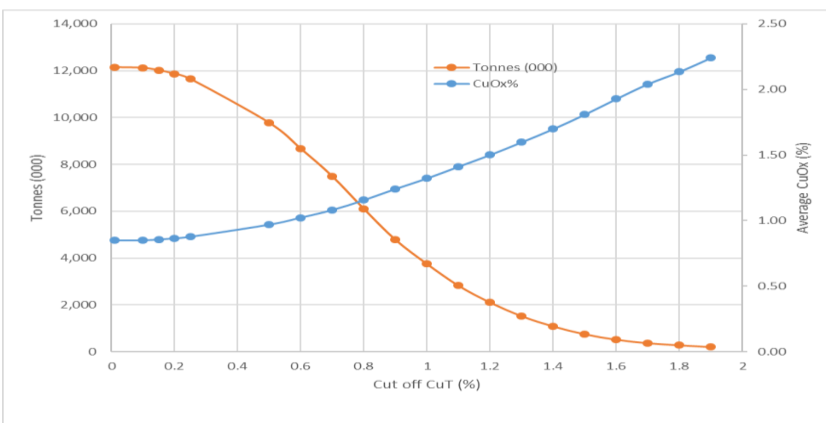
Mineral reserves can only be estimated based on the results of an economic evaluation as part of a preliminary feasibility study or feasibility study. As such, no Mineral Reserves have been estimated by ACS. There is no certainty that all or any part of the mineral resources will be converted into a mineral reserve.

Inferred mineral resources have a great amount of uncertainty as to their existence and as to whether they can be mined legally or economically. It cannot be assumed that all or any part of the Inferred mineral resources will ever be upgraded to a higher category. Mineral resources that are not mineral reserves have no demonstrated economic viability.

14.13 Grade Sensitivity Analysis

The mineral resources at the Carmacks are sensitive to the selection of the reporting cut-off grade. To illustrate this sensitivity, the global model quantities and grade estimates of the measured and indicated oxide resource for zones 1, 4 and 7 are presented in

Figure 14.7 and the measured and indicated oxide resources for zones 12, 13 and 2000S are presented in Figure 14.8. As can be seen, the mineral resources for zones 1, 4 and 7 are generally higher grade than the mineral resources for zones 12, 13 and 2000S. The reader is cautioned that the figures presented in these figures should not be misconstrued as a mineral resource statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of cut-off grade.



ACS – 2016

Figure 14.7 Grade tonnage curve for measured and indicated oxide mineral resource for zones 1, 4 and 7

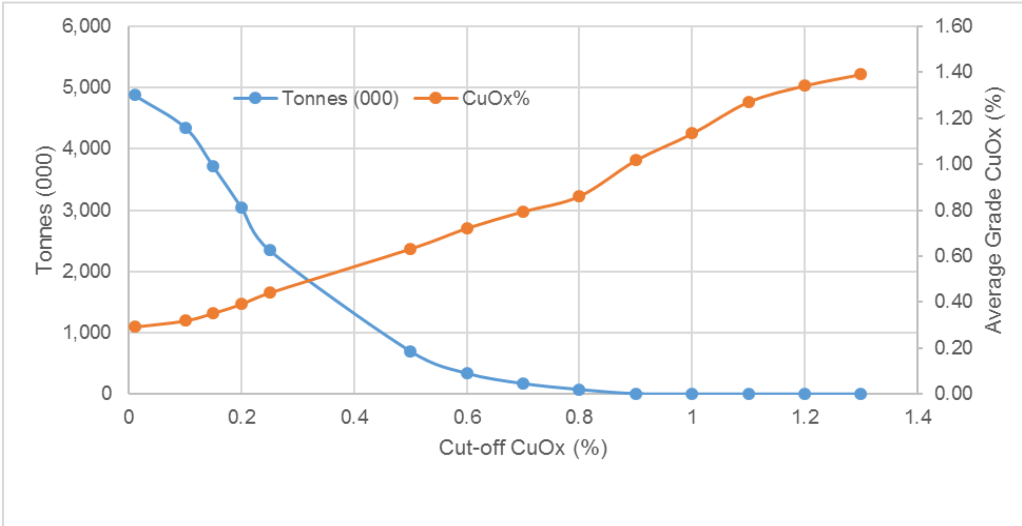


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Figure 14.8 Grade tonnage curve for measured and indicated oxide mineral resource for zones 12, 13 and 2000S

15 ADJACENT PROPERTIES

There are no immediate significant mineral properties adjacent to the Carmacks Project at this time.

16 OTHER RELEVANT DATA AND INFORMATION

There are no other relevant data that relates to the Carmacks Project at this time.

17 INTERPRETATION AND CONCLUSIONS

17.1 Conclusions

The Carmacks Project contains several copper oxide mineralized zones. Past drilling programs combined with the recent work carried out by Copper North has lead the definition of mineral resources for six discrete deposits. Mineral resources for zones 1, 4 and 7 were defined in 2007 and are re-stated unchanged in this technical report. Mineral resources for zones 12, 13 and 2000S were estimated with a combination of historical and recent drill holes done by Copper North.

Based on work carried out in 2007, ACS concluded that at a 0.25% total copper cut off (CuT), zones 1, 4 and 7 contain 12 million tonnes of oxide resource in the measured and indicated categories grading 1.07% CuT, 0.86% CuOx, 0.21% CuS, 0.46 g/t Au, and 4.58 g/t Ag.

Zone 1 also contains an additional 4.3 million tonnes of sulphide resource in the measured and indicated categories grading 0.75% CuT, 0.03% CuOx, 0.73% CuS, 0.22 g/t Au, and 2.37 g/t Ag.

In addition to the measured and indicted resource, zones 1, 4 and 7 contain 90,000 tonnes of oxide inferred resource grading 0.73% CuT, 0.53% CuOx, 0.20% CuS, 0.13 g/t Au and 1.81 g/t Ag and 4 million tonnes of sulphide inferred resources grading 0.71% CuT, 0.01% CuOx, 0.70% CuS, 0.18 g/t Au and 1.90 g/t Ag.

Based on work carried out in 2015, ACS concluded that at a 0.15% soluble copper cut off, zones 12, 13 and 2000S contain 3.07 million tonnes of oxide resource in the measured and indicated categories grading 0.48% CuT, 0.37% CuOx, 0.11% CuS, 0.13 g/t Au, and 2.00 g/t Ag.

Zone 13 also contains an additional 644,000 tonnes of transition resource in the measured and indicated categories grading 0.60% CuT, 0.27% CuOx, 0.35% CuS, 0.15 g/t Au, and 2.00 g/t Ag.

Zones 12, 13 and 2000S also contain 3.7 million tonnes of sulphide mineralization in the measured and indicated category grading 0.60% CuT, 0.06% CuOx, 0.55% CuS, 0.13 g/t Au, and 2.29 g/t Ag.

In addition to the measured and indicated mineral resource, zones 12, 13 and 2000S contain 823,000 tonnes of oxide and transition inferred resource grading 0.42% CuT, 0.28% CuOx, 0.14% CuS, 0.12 g/t Au and 1.90 g/t Ag and 4.3 million tonnes of sulphide inferred resources grading 0.55% CuT, 0.04% CuOx, 0.53% CuS, 0.12 g/t Au and 2.10 g/t Ag.

18 RECOMMENDATIONS

ACS recommends that Copper North carry out an update of the Preliminary Economic Assessment (PEA) that was prepared in 2014 for the Carmacks Project.

The estimated budget for the recommended work program is C$250,000 as outlined in Table 18.1.

Table 18.1 Estimated costs of proposed work program

Item	**Amount**
Phase 1	
Preliminary Economic Study	$200,000.00
Additional metallurgical testing	$50,000.00
Total Budget	**$250,000.00**

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