Carmacks Copper Project – Open House

Welcome

Copper North Mining Corp., the new owner of the Carmacks Copper Project, is working to advance the project through permitting and into commercial production. This Open House is an opportunity for you to meet the new management team and our consultants, and to learn more about our plans for the project. We encourage you to ask questions, and if we can’t provide the answer for you today we will follow up after the meeting.

The Open House provides an overview of the project, background on copper heap leach technology, describes the permitting that has been completed, and the project planning work that is underway to support completion of permitting.

About Copper North Mining Corp.

Copper North was formed in October 2011 when the former Western Copper was split into three companies: Western Copper and Gold, Northisle Copper and Gold, and Copper North Mining Corp. Copper North holds the Carmacks Copper Project in Yukon and the Redstone Project in NWT. Copper North is a public company traded on the TSX-Venture Exchange.

Carmacks Copper Project Team

The following members of the project team are here today to discuss the project and answer your questions:

Sally Eyre, B.Sc., Ph.D., DIC - President, CEO & Director – Copper North

Doug Ramsey, M.Sc., R.P.Bio. - VP, Sustainability and Environmental Affairs – Copper North

John Hull, P.Eng. – Golder Associates

Amado Guzman, P.E. – HydroGeoSense

Peter Oates - Manager, Investor Relations – Copper North
Carmacks Copper Project Overview

The Carmacks Copper Project is a planned open pit copper mine that will use heap leaching and solvent extraction and electrowinning (SX/EW) to recover the copper. The project is located in the Yukon Territory (Figure 1), 9 km west of the Yukon River, about 38 km northwest of the Village of Carmacks, and 192 km north of Whitehorse (Figure 2). The site is accessible by an existing exploration road that originates on the government maintained Freegold Road from Carmacks.

Figure 1.

Figure 2
The deposit contains an open pit mineable reserve of 10.6 million tonnes at an average grade of 1.04% total copper. The project will include an open pit, acid heap leach and copper extraction facility, waste rock storage area (WRSA), soil stockpiles, events pond, drainage ditches, sediment control ponds, roads, man camp, and miscellaneous facilities to support mining operations (Figure 3).
Copper Heap Leach Technology

Heap leaching is the industry standard method of extracting copper metal from oxide copper ore. Heap leaching is used because the oxide copper is resistant to the flotation methods of copper recovery used for sulphide ores like that mined at Minto. There are many heap leaching operations currently in operation around the world, in a wide range of climates and terrain.

The copper ore is mined, crushed, and then placed on a prepared leaching pad in layers (called lifts) using a conveyor system. The leach pad has collection drains under the ore and piping for the leaching solution (sulphuric acid) is installed on top of the uppermost lift. The sulphuric acid is produced on site.

The copper loaded leachate solution, called pregnant leachate solution or PLS, is collected from the heap and pumped to the processing plant. The copper is removed from the PLS by solvent extraction followed by electrowinning (SX/EW) to produce a copper cathode (basically a copper “ingot”) that can be shipped to market without needing any further refining.

The Heap Leach Facility (HLF) is operated at zero discharge, which means that all runoff and leachate fluids are contained and recycled within the HLF/Processing plant.

Figure 4
Permitting History

The project has been progressing through the permitting process since 2006, as outlined below.

Environmental Assessment

The project has been in and out of the environmental assessment process several times since the mid-1990s but, for many reasons primarily related to commodity market conditions, the environmental assessment process was not completed until September 2008, when the Yukon Government issued a positive environmental assessment decision under the Yukon Environmental and Socio-Economic Assessment Act (YESAA).

Quartz Mining License

Yukon Government issued a Quartz Mining License (QML) for the project in April 2009, following the positive environmental assessment determination by YESAB. QML-0007 allows for the development of the mine and production. The Closure and Reclamation Plan and the General Site Plan have also been approved under the QML. The QML allows for the start of project construction, but elements of project completion and operation also require a Water Use License.

Copper North has postponed the start of construction until the outcome of the Water Use License is known.

Water Use License

The previous owners of the property applied for a Water Use License for the project but were unsuccessful. The Water Board declined to issue a license in 2010, citing the following concerns.

- Use of Unproven Technology
- Likelihood of Successful Leaching
- Likelihood of Successful Detoxification
- Adequacy of the Proposed Discharge Management Plan
- Adequacy of Water Quality Standards for Station W12 in Williams Creek
- Adequacy of Proposed Effluent Discharge Standards
- Adequacy of Heap Facility Preliminary Design and Liner System
- Adequacy of Water Quality Model
- Adequacy of Sludge Management Proposal

Copper North has acknowledged these concerns and has commissioned numerous studies and project design changes to ensure the project is designed to function within industry and regulatory expectations.

The progress of these studies is the focus of this Open House.
Protection of Water and Water Quality

Copper North is focusing on protection of water and water quality in our project planning. We have commissioned three detailed water-related studies with an emphasis on understanding and managing project effects on water quantity and quality during operations, closure, and the post-closure period. The results of these studies all feed into the development of end of pipe effluent quality standards to be met by the project, both during operations and in the closure and post-closure periods.

Model development is continuing, with the following preliminary findings.

Water Balance Model

- The primary objective of the water balance model is to understand all sources of water on the project site that will need to be managed and ensure the water management facilities are sized to properly handle the flows expected. The model results are then used as an input to the water quality model and to design water treatment systems (model structure is illustrated on the wall poster).
- Average, extreme wet year (1 in 100 year wet year), and extreme dry year (1 in 100 dry year), conditions are considered.
- The model has been developed by Golder using GoldSim in accordance with the site wide water balance guidance that Golder developed for Yukon EMR.
- The model has led to the development of a site water management plan (Figure 5) that provides positive control of all contact water sources – keeping clean water clean.
Site Groundwater Model

- Groundwater in the vicinity of the project site contributes to baseflows in upper Williams Creek but not to Merrice Creek or Nancy Lee Creek.
- Project effects on groundwater quantities are restricted to the Williams Creek sub-watershed.
- Model predictions indicate when pumping of groundwater seepage will be required from the open pit (years 4, 5, and 6) and that a permanent pit lake will form.
- The pit lake will fill over a period of approximately 200 years, reaching 50% of the final level within 10 years, and 75% of the final level with approximately 30 years.

Water Quality Model

- A water quality model has been developed as a component of the site wide water balance and groundwater model to simulate project effluent quality and effects on receiving water quality during operations, closure, and for 100 years post-closure.
- Simulations have been developed for average, 100 year wet, and 100 year dry conditions.
- Effluent quality has been simulated using measured geochemical properties of the leached ore (representing heap leach seepage quality) and waste rock (humidity cell leachate quality representing waste rock stockpile seepage quality and also used for open pit lake water quality estimates).
- The model takes into account surface runoff, HLF and waste rock storage area seepage, and seepage from the pit lake.

*Simulations demonstrate that the project discharges will be able to meet the site specific water quality objectives for Williams Creek under all precipitation conditions considered in all project phases: operations, closure, and 100 years post-closure.*
Planned Project Design Changes

1. Heap Leach Facility – Operational Design – Inter-lift Liners

The heap will be developed in 8 m high “lifts”. A geomembrane liner (20 mil thickness – thinner than the double liners placed under the heap), called an “inter-lift liner”, will be installed over every third lift, for a total of 3 inter-lift liners in the final HLF. The purpose of these inter-lift liners is to maintain the flow of leaching solution through the overlying lifts and promote leaching efficiency by preventing pregnant leachate solution ("PLS" – the leachate solution after it is loaded with copper metal) from entering previously leached ore lifts and expediting the PLS flow to the process plant. The benefits of inter-lift liners include:

- Ensuring good heap permeability throughout operation
- Reducing the copper inventory in the heap
- Reduced water treatment and water treatment sludge generation during operations and closure
- Allows lifts below the inter-lift liner to begin draining and thereby expedite closure

This operational modification has been made to address Water Board concern regarding successful leaching of the heap. The key element of this concern was related to the potential for heap permeability to decrease as the height of the heap, and therefore the loading, increases.

Long term stability of the HLF also is a priority – Copper North has commissioned an extensive analysis to ensure the long term stability of the HLF.
2. Heap Closure Plan

The closure plan for the HLF is being modified to conform to industry convention for copper heap leaches:

- **Neutralization of the heap has been eliminated from the project plan** – Heap leach closure requirements are now much better understood than was the case 7 years ago when planning started. Since then, two heaps have been closed without neutralization, and none of the 9 approved closure plans for other heap leach operations that we have reviewed includes neutralization. Neutralization is not necessary for successful closure and does not form part of the emerging industry standard closure practice for copper heaps.

  *Elimination of neutralization also addresses the Water Board concern regarding the uncertainty of successful heap neutralization.*

- **Enhanced store and release HLF cover** – designed to limit water infiltration into the closed heap. This has the benefits of:
  
  o Significantly reducing the volume of water requiring treatment and, therefore the quantity of sludge generated by the water treatment plant.

  *This project change addresses the Water Board concern regarding the plan for water treatment sludge generation and disposal requirements.*

3. End of Pipe Effluent Quality Standards

The previous project plan placed the water quality compliance point in the receiving watercourse, at the confluence of Nancy Lee Creek with Williams Creek. The company committed to meeting the site specific water quality objectives at the compliance point, but the Water Board was uncomfortable with this approach in absence of clear effluent quality standards for the operation.

*Copper North is developing end of pipe effluent quality standards for the project discharges for the operations, closure, and post-closure periods that demonstrate how the site specific receiving water quality objectives can and will be met by the project – fully addressing the Water Board concern.*
4. Passive Treatment System Design

The project will rely on a water treatment plant to manage effluent water quality during project operations and into the closure period. Closure and reclamation of the site will substantially reduce the quantity of water leaving the site but some capacity for treatment and polishing of site seepage and runoff is necessary to ensure long term protection of water quality.

The passive treatment system will address this need without requiring active operation. These systems are widely used in North America. At this time the passive treatment system is in conceptual design, and is expected to have the components shown below.
What Isn’t Changing?

Most of the project components remain unchanged, including:

- Mine access road
- Open pit mine
  - Location
  - Mining rate
  - Mine life
- Heap Leach Facility
  - Location
  - Footprint
  - Tonnage
- Processing plant
  - Location
  - Process
- Waste rock storage area
  - Location
  - Footprint
  - Tonnage
  - Composition
- Site Layout
- Staff camp on site

Moving the Project Forward

Permitting Requirements and Schedule

- **YESAA** – the Yukon government has determined the planned project changes (specifically the heap operational design and closure plan) are assessable under YESAA. An Executive Committee level assessment is required. Copper North is working to submit a revised Project Proposal in autumn 2012 to initiate the environmental review.

- **Quartz Mining License** – the proposed design changes to the project will require amendments to/or the issuance of a new QML. The amended or new QML will not be issued until the environmental assessment process is complete. A revised closure plan will also be required for the project.

- **Water Use License** – the Water Use License process does not formally begin until the environmental assessment is complete.
Environmental Benefits of Project Design Changes

The planned project design changes are directed to address the questions and concerns about the potential environmental effects of the previous project plan that were expressed by the public and First Nations. The need for long term protection of downstream water quality and habitat for fish and other aquatic life is a key priority. Copper North is explicitly addressing these concerns in the following technical studies and project changes:

- Oxide copper heap leaching is in common usage today in many parts of the world.
- Inter-lift liners have been added to the heap design to optimize leaching performance. A comprehensive stability analysis has been completed as part of the design process to ensure long term stability of the heap.
- Heap neutralization proposed in the previous project plan is no longer necessary for successful heap closure.
- A new site wide water balance and coupled water quality model are in development for the project in GoldSim. Preliminary findings of these models are that site specific receiving water quality objectives can be met on Williams Creek, downstream of the project, in all project phases, including under the critical 1 in 100 year dry flow conditions.
- Copper North is working with the Yukon Water Resources Branch to assign appropriate site-specific receiving water quality objectives for the project.
- Specific effluent quality standards are being developed to ensure the project can meet site specific receiving water quality objectives during operations, closure, and post-closure.
- The introduction of inter-lift liners and the elimination of heap neutralization significantly reduce water treatment requirements and therefore the quantity of water treatment sludge produced by the project

The project team has developed practical technical solutions, which were based on established engineering practices, for all previously stated environmental protection concerns.

We invite you to review the work that has been completed to date and to ask questions and to express any concerns that you may have.
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Carmacks – 27 August 2012

Thanks for taking the time to learn about our project. We are working to improve the project so that we are able to take it into commercial production without adversely affecting the environment in which we all live. Your comments, questions, and concerns are important to us and can help make the project better. We would appreciate if you could take a few minutes to let us know your thoughts on the project by filling out this questionnaire.

1. Where do you live? (please check one)

- Village of Carmacks
- Little Salmon Carmacks First Nation
- Other ___________________________ (please indicate)

2. Do you use the project site for any of the following? (check all that apply)

- Hunting
- Trapping
- Berry picking
- Plant harvest
- Recreation (please specify) ___________________________
- Other (please specify) ___________________________

3. Do you have any questions, comments, or concerns about the project? (please use another page if necessary)

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
4. Does your question(s) require a reply from us? If so, please provide your contact information. We appreciate having this information from everyone, but only is required for a response.

Name

Address

Telephone ________________ (best time to call ___)

E-mail

5. We are looking at new ways of providing information on the project to the local communities. Your input on the following questions will help us in choosing the approaches.

a. Do you use Facebook?
   Would you use Facebook to learn about the project?

b. Do you use Google+?
   Would you use Google+ to learn about the project?

c. Do you use Twitter?

d. Would you use a project blog?

e. Would you be interested in email updates about the project? If yes, please provide your email address above.

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