

# Copper North Announces Results of Preliminary Economic Assessment of Gold and Silver Recovery at Carmacks Copper

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VANCOUVER, BRITISH COLUMBIA--(Marketwired - May 30, 2014) - [Copper North Mining Corp.](#) ("Copper North" or the "Company") (TSX VENTURE:COL) is pleased to announce the results of a preliminary economic assessment (the "PEA") that evaluates the recovery of gold and silver alongside the recovery of copper at the proposed Carmacks Copper leach project. The Project is located near the village of Carmacks in Central Yukon. The PEA will be filed on SEDAR within the next 45 days.

By adding gold and silver extraction, the PEA supersedes the Oct 2012 Feasibility Study of copper leaching prepared by M3 Engineering and Technology Corporation ("M3"). The NI 43-101 compliant report was filed on SEDAR Nov 27, 2012. The Feasibility Study for Carmacks Copper was limited to the evaluation of heap leaching of oxide copper to produce cathode copper, and did not include gold and silver recovery.

The Company indicated in its April 25, 2014 news release that it was undertaking a strategic review of the Carmacks Copper project to explore opportunities for improving project economics. The first phase of the review was to evaluate the recovery of gold and silver alongside the copper leach facility and is the basis of the PEA. The PEA combines the previous study of copper heap leaching with the results of the Phase I conceptual study of gold and silver recovery. The first phase of work was undertaken by Alistair Kent, P.Eng. of Merit Consultants International Inc. and Dr. Morris Beattie, P.Eng.; both are Independent Qualified Persons. Their work to assess the potential viability of additional gold and silver recovery, as presented in this PEA, has been combined with the results of the previous studies on geology, mineral resources, potential mining plan, and potential copper heap leaching design.

The PEA will be followed by a second phase of re-engineering and optimization of the mine and processing plan. Upon completion of Phase II study, considering improvement opportunities, a new prefeasibility or feasibility study will be prepared for project financing purposes.

The results of the preliminary leach test work and modelling of gold and silver recovery are positive and a broader study is warranted. The previous potential open pit mine plan remains unchanged from that proposed in the M3 Feasibility Study and is the basis of the PEA. Estimated capital and operating costs for the recovery of gold and silver are added to the estimate for copper recovery (M3 Feasibility Study) to provide new capital and operating costs for the PEA. The addition of capital and operating costs for gold and silver recovery, to those from the M3 Feasibility Study, are conceptual and substantial additional work is required to provide the certainty of a feasibility study.

Dr. Harlan Meade, President and CEO of Copper North states: "The results of the Preliminary Economic Assessment" are quite favourable and confirm that the recovery of gold and silver alongside copper recovery is feasible and provides a very positive potential improvement in project economics. The increase in annual net operating revenues significantly reduces the cash operating cost for copper, after deduction of gold and silver credits, to US\$1.07/lb copper from the previous US\$1.59/lb. The inclusion of gold and silver recovery into the previous mine and processing plan, provides an opportunity to reconsider leach alternatives for operational efficiency. The proposed Phase II plan includes a review of various copper, gold and silver leach alternatives.

## Project Economics

The Base Case metal price in the M3 Feasibility Study was US\$3.20/lb copper which is near the median of current medium to long term analyst forecasts for copper. For continuity purposes the PEA Base Case pricing for copper remains US\$3.20/lb, with gold at US\$1330/oz and silver at US\$21.50/oz. An Exchange

Rate of CAD\$1.00 equals US\$0.90 has been assumed in the PEA.

*The impact of the addition of gold and silver recovery, are summarized as follows:*

- Net Revenues increased approximately 28% from US\$677 million to US\$870 million
- Net Cash from Operations increases by 42% from US\$333 million to US\$471 million
- Life of Mine Operating Cost increases from US\$344 million to US\$398 million; a 15% increase
- Life of Mine Cash Operating Cost, after gold and silver credits, decreased from US\$1.59/lb to US\$1.07/lb for copper
- Pre-tax NPV(discounted at 8%) is US\$66 million and After-tax NPV(8%) is US\$32 million
- Pre-tax Internal Rate of Return is 15% and After-tax IRR is 12%
- Copper recovery remains unchanged at 85% and gold recovery is 78% and silver recovery 75%
- Capex increased from US\$178 million including contingency for the M3 Feasibility Study to US\$225 million (including a contingency of US\$21M) for the PEA
- Potential Life of Mine Annual production is 30,000,000 pounds copper, 17,300 ounces gold and 165,000 ounces silver
- Mine Life approximately 8 years

## Development Plan

The PEA development plan includes the Measured and Indicated mineral resources, conceptual mine plan and crushing of the mineralization as stated in the M3 Feasibility Study. The previous copper-only leach plan has the crushed material being placed permanently on one large lined pad with staged inter-liners, and standard dispensing of weak sulphuric acid over the leach materials and recovery of pregnant fluid for processing in the Solvent Extraction Electrowinning (SXEW) facility to produce cathode copper. The PEA assumes that several smaller on-off pads will be constructed for leaching of the copper, after which the leach materials are washed to remove residual acid and dissolved copper. The washed materials will then be moved to the gold and silver permanent leach pad and prepared for cyanidation with the addition of lime and agglomeration to improve cyanide leaching. A weak cyanide solution is applied using drip emitters on the leach materials and the pregnant solution would be collected and piped to a sulphidation-acidification-recycle-thickening/adsorption-desorption-recovery (SART/ADR) plant for the further removal of any copper in the solution before recovering gold and silver.

The PEA entails the addition of on-off pads for copper leaching and additional handling equipment and fluid piping, and the addition of a SART/ADR plant. Conceptual design of the additions provides the basis for estimating the increase in the operating and capital requirements.

## Mineral Resource and Mining

The following table summarizes the mineral resource for zones 1, 4 and 7 for the Measured and Indicated mineral resources that total 11,980,000 tonnes grading 1.07% total copper of which 0.86% is soluble copper. The mineral resource also contains substantial gold and silver. The resources in the oxide classification form the basis for the potentially mineable mineralization by open pit methods.

### Mineral Resources at a 0.25% Total Copper Cut-Off

Zone	Class	Tonnage t (000)	TCu (%)	CuX (%)	CuS (%)	Au (g/t)	Ag (g/t)
Oxide	Measured (ME)	4,031	1.10	0.90	0.20	0.588	5.666
	Indicated (IN)	7,949	1.04	0.83	0.20	0.391	4.039
	ME+IN	11,980	1.07	0.86	0.21	0.456	4.578
	Inferred	90	0.73	0.53	0.20	0.128	1.809
Sulphide	Measured (ME)	695	0.80	0.02	0.77	0.261	2.542
	Indicated (IN)	3,645	0.74	0.03	0.71	0.205	2.296
	ME+IN	4,340	0.75	0.03	0.73	0.221	2.369
	Inferred	4,031	0.71	0.01	0.70	0.179	1.900

Measured and Indicated mineral resources within the proposed open pit total 11,551,000 tonnes grading 0.805% soluble copper, 0.456g/t gold and 4.578 g/t silver. The PEA is preliminary in nature, and includes only Measured and Indicated mineral resources. The Inferred mineral resources are considered too speculative geologically to have economic considerations applied to them to be categorized as mineral

reserves; furthermore, there is no certainty that the mineral resources will be economic and become a mining reserve, and the Company is not relying upon the mineral reserves in the prior feasibility study.

### In-Pit Mineral Resource

The conceptual mining plan entails mining 1,750,000 tonnes per annum using open pit method. The mineralization will be transported to the crushing circuit and after 3-stage crushing the mineralization will be loaded by conveyors to the leach pads for copper extraction. Life of Mine waste to potentially mineable material ratio is 5.1:1 with a maximum mining rate of 37,500 tonnes per day.

In-Pit Mineral Resource Category	K tonnes	Tot Cu (%)	Sol Cu (%)	Nonsol Cu (%)	Gold (g/t)	Silver (g/t)
Measured Mineral Resource	4,127	1.039	0.851	0.188	0.559	5.39
Indicated Mineral Resource	7,424	0.943	0.780	0.163	0.365	3.76
Measured & Indicated Resource	11,551	0.977	0.805	0.172	0.435	4.34
1.) Total material in potential Open Pit of 69,957,000 tonnes and Waste to Mineral Resource ratio of 5.1:1.						
2.) Resources are fully diluted and based on a cut-off grade of 0.18% soluble copper						

### Metallurgy and Process Plan

Extensive test work on the oxide copper mineralization, consisting largely of malachite, azurite and tenorite, has demonstrated rapid leaching of the copper with the addition of weak sulphuric acid. Processing of the copper mineralization is planned for leaching on three lined pads utilizing the same parameters as previously established for the copper leach.

The copper leach metallurgical work undertaken in 2009 by PRA Metallurgical Division, of Inspectorate, also included an evaluation of gold and silver recovery by cyaniding of the copper leach residues by means of column testing. On the basis of these column tests results, overall copper recovery is predicted at 85%, gold recovery at 78% and silver recovery at 75%.

The review by Dr. Morris Beattie also indicated the recovery of additional copper remaining after the acid leach, and removal of this dissolved copper in a SART circuit in the gold and silver recovery ADR plant.

### Qualified Persons

The scientific and technical information in this news release has been reviewed and approved by Dr. Harlan Meade, P. Geo., President and CEO of the Company, and Independent Qualified Persons under NI 43-101: Alistair Kent, P.Eng. Merit Consultants International Inc.; Dr. Giles Arsenau, P.Geo., mineral resource estimation; Dr. Morris Beattie, P.Eng., metallurgical consultant; Michael Hester, FAusIMM, mining consultant and John Hull, P.Eng., geotechnical consultant.

### Project Opportunities

The PEA has indicated that the recovery of gold and silver should be positive to project economics. The PEA evaluation has also indicated an opportunity to reduce capital and operating cost utilizing vat leach technology. The evaluation of vat leaching of copper, compared to the heap leach method, is in progress.

Benchmarking with other projects indicates that there may also be an opportunity to reduce capital by taking a different approach to engineering and procurement; this opportunity is also under review.

The commencement of Phase II work to undertake the detailed engineering required for a feasibility level report, is contingent on raising additional capital. The Phase II work is expected to take approximately 9 months to complete.

The review also indicates the potential to expand both oxide and sulphide mineral resources with additional

exploration in the various other zones. It is proposed to undertake leach tests on sulphide mineralization; should this be feasible, there is potential to extend production beyond the current 8-year mine life.

## **About Copper North**

The Company is focused on the exploration and development of copper deposits. Its core asset is the Carmacks Project in the Yukon which is progressing to feasibility study for the early production of copper, gold and silver from proposed leach operations. The Company's Redstone Project in the North West Territories is a large high grade copper deposit that is at the early exploration stage. The copper mineralization at Redstone is extensive, spanning 180 kilometers of copper-bearing strata.

On behalf of the Board of Directors,

Dr. Harlan D. Meade, President, CEO, and Director

## **Cautionary and Forward-Looking Information Comments**

*This news release includes certain forward-looking information or forward-looking statements (collectively "Forward-Looking Information") for the purposes of applicable securities laws. Forward-Looking Information includes, but is not limited to, statements with respect to the results of the PEA and potential recovery of gold and silver at the Carmacks project; potential improvement in project economics and reduction in operating costs; the proposed Phase II study and its timing; the potential pre-feasibility or feasibility study on the Carmacks project; the proposed exploration and development activities and their timing and potential mineralization; possible events, conditions or performance that are based on assumptions about future courses of action; the timing and costs of future exploration and development activities on Carmacks; permitting and infrastructure time lines and requirements; and requirements for additional capital. In certain cases, Forward-Looking Information can be identified by the use of words and phrases such as "plans", "expects" or "does not expect", "scheduled", "estimates", "anticipates", "potential", "recommends" or variations of such words and phrases or statements that certain actions, events or results "may", "could", "would" or "will be taken", "occur" or "be achieved". These statements address future events and conditions and, as such, involve known and unknown risks, uncertainties and other factors, which may cause the actual results, performance or achievements to differ materially from those anticipated in such statements. Important factors that could cause actual results to differ materially from the Company's expectations include, among others, that the development plans under the PEA will not proceed as planned, the gold and silver recovery will not impact revenue and operating costs as projected, the timing and success of future exploration and development activities, exploration and development risks, market prices, exploitation and exploration results, availability of capital and financing, general economic, market or business conditions, uninsured risks, regulatory changes, defects in title, availability of personnel, materials and equipment, timeliness of government approvals, unanticipated environmental impacts on operations and other exploration risks detailed herein and from time to time in the filings made by the Company with securities regulators.*

*In making the forward-looking statements, the Company has applied several material assumptions including, but not limited to, the assumptions that the results of the PEA and the proposed plans thereunder will proceed as planned, that the recovery of gold and silver will have a positive impact on project economics and reduce operating costs, that the proposed exploration and development of Carmacks will proceed as planned, the Company will be able to timely obtain permits and licences required for development of the property and conduct its operations, that market fundamentals will result in sustained metals and mineral prices, current exploration and other objectives concerning Carmacks can be achieved, that the Company's other corporate activities will proceed as expected, and any additional financing needed will be available on reasonable terms. Although the Company has attempted to identify important factors that could affect the Company and may cause actual actions, events or results to differ materially from those described herein, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. There can be no assurance that Forward-Looking Information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on Forward-Looking Information. The Company expressly disclaims any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise except as otherwise required by applicable securities legislation.*

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