



## **2014 ANNUAL QUARTZ MINING LICENCE REPORT**

**Submitted to Yukon Government, Energy Mines and Resources  
Yukon Quartz Mining Licence QML-0007**

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**March 2015**

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**Submitted to Yukon Government Energy Mines and Resources  
Yukon Quartz Mining License QML-0007**

**Carmacks Copper Project, Yukon Territory**

**Submitted by:**

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## EXECUTIVE SUMMARY

Activities at the mine site during the period 1 January 2014 to 31 December 2014 have been limited. Site activities consisted of: the Annual Engineer's Inspection; a limited exploration program involving IP geophysical survey, prospecting, trenching, and diamond drilling; and, contractor activity to repair the Merrice Creek bridge and to maintain the Williams Creek culvert crossing, the North Williams Creek culvert crossing, and to eliminate gullying of access trails around the property. Copies of the Annual Engineer's Inspection Report and the filed 2014 Assessment Report are appended to this report. No development activities were undertaken in 2014.

Closure and reclamation security in the amount of \$80,300 has been posted with Yukon against the liability incurred to date as a result of exploration activities.

This report has been formatted to respond to the specific requirements in the QML even though there may be no corresponding project undertakings.

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## **1.0 INTRODUCTION**

This Annual Report has been prepared by Copper North Mining Corp. and covers the period from January 1, 2014 to December 31, 2014 as required by Clauses 16.5 and 16.6 of Quartz Mining License (QML) QML-0007. As of January 19, 2012 the assignment of QML-007 was authorized from Carmacks Copper Limited to Carmacks Mining Corp, a wholly-owned subsidiary of Copper North Mining Corp.

This report provides a summary of activities at the Carmacks Copper Property for the reporting year, including: but not limited to physical stability inspection.

Few site activities occurred that would normally form a part of this report in future years, once major project permitting is completed. Additional sections and information will be added to the annual reports as necessary to accommodate expanded reporting requirements from future mine development and related plans.

The preliminary mine layout (not yet constructed) is illustrated in Figure 1.

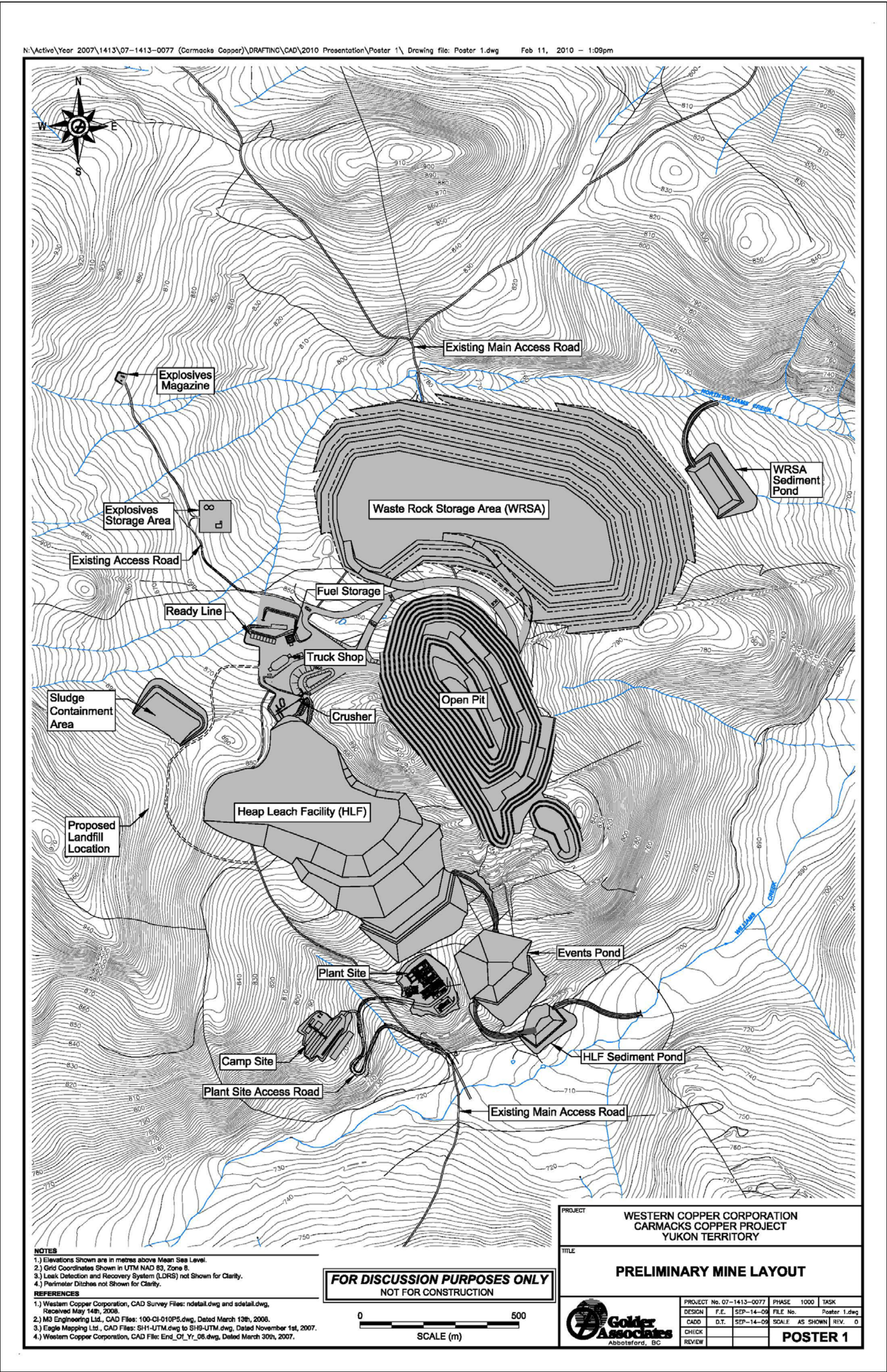


Figure 1. Preliminary Mine Layout

## **2.0 SITE ACTIVITIES**

### **2.1 EXPLORATION**

Exploration activities were conducted in August-September 2014 to explore the extent of the Zone 2 deposit, to collect a small bulk sample from the Zone 1, 4, 7, 7a deposit, and to explore the area south of Zone 7/7a. A copy of the 2014 Assessment Report, describing the exploration activities, is attached as Appendix B.

### **2.2 CONSTRUCTION AND DEVELOPMENT**

#### ***2.2.1 Overview of Activities by Quarter***

No construction or development activities occurred on the property in 2014.

#### ***2.2.2 As-built Drawings***

No “as-built” drawings were produced in 2014.

### **2.3 MINING ACTIVITIES**

#### ***2.3.1 Overview of Activities by Quarter***

No mining activities took place in 2014.

#### ***2.3.2 Production Schedule – Ore and Waste Removal***

Not applicable for this reporting period; no mining activities took place in 2014.

**2.3.3      *Average Head Grades***

Not applicable for this reporting period; no mining activities took place in 2014.

**2.3.4      *Open Pit Stability***

Not applicable for this reporting period; no mining activities took place in 2014.

**2.3.5      *Heap Leach Cells – Status of Leaching (including layout drawing)***

Not applicable for this reporting period; no mining activities took place in 2014.

**2.3.6      *Copper Production***

Not applicable for this reporting period; no mining activities took place in 2014.

**2.3.7      *Spills***

No spills occurred during the reporting period.

**2.3.8      *On-going Reclamation***

All trenches and drill pads developed in 2014 were reclaimed.

**2.3.9      *Actions Undertaken in Response to Annual Engineer's Inspection***

The 2012 Annual Engineer's Inspection recommended resetting of the Merrice Creek bridge span. This work was completed on 10 July 2013 and was inspected as part of the Annual Engineer's Inspection on July 16, 2013, as reported in the 2013 Annual QML Report. The inspection found that some bridge decking had failed and the bridge again required re-setting. The bridge was taken out of service immediately, with barricades and flagging placed on both approaches to the bridge. The Engineer recommended replacement of the failed decking and either armouring of the stream banks and resetting of the bridge, or lengthening of the bridge span and resetting to ensure the bridge was supported by competent material. The bridge span was lengthened by approximately 2 m, failed decking replaced, and the bridge was re-set in August-September 2014.

The Engineer also recommended maintenance of the Williams Creek and North Williams Creek stream crossings and the filling and grading of washouts/gullying on access roads in the planned Heap Leach Facility and Waste Rock Storage areas. This work was done in August-September 2014.

The sediment trap on the access road to the lower re-vegetated area near Williams Creek east of the exploration camp, near the proposed Heap leach Facility Sediment Pond location needs to be cleared and this work will be done in 2015.

The above-noted repairs will be inspected by the Engineer as part of the 2015 Annual Engineer's Inspection.

The re-clearing of vegetation from the planned alignment for the HLF confining embankment also recommended in the 2014 inspection report was not conducted. This work has been postponed since it was not related to stability or integrity of existing works or structures.

### 2.3.10 Access Road

The access road to the site has not been constructed.

## 2.4 RESOURCES AND RESERVES

The resource estimates for the property are shown in Table 1. These estimates are as stated in the "Preliminary Economic Assessment" prepared in 2014 (Merit 2014). The PEA supersedes the 2012 Feasibility Study (M3 2012). No reserve is currently stated for the property.

**Table 1. Updated Resource Estimate for Zones 1, 4 and 7 at 0.25% Total Copper Cut-Off**

Category		Tonnes (000)'s	Copper (%)		Gold (g/t)	Silver (g/t)	Contained Metal		
			Total	Oxide			Copper (000)'s lb.	Gold oz.	Silver oz.
Oxide	Measured	4,031	1.10	0.90	0.59	5.7	98,130	76,000	734,000
	Indicated	7,949	1.04	0.84	0.39	4.0	182,448	100,000	1,032,000
	<b>M+I</b>	<b>11,980</b>	<b>1.06</b>	<b>0.86</b>	<b>0.46</b>	<b>4.6</b>	<b>280,577</b>	<b>176,000</b>	<b>1,766,000</b>
	Inferred	90	0.73	0.53	0.13	1.8	1,452	370	5,000
Sulphide	Measured	695	0.80	0.02	0.26	2.5	12,192	6,000	57,000
	Indicated	3,645	0.74	0.03	0.20	2.3	59,195	24,000	269,000
	<b>M+I</b>	<b>4,340</b>	<b>0.75</b>	<b>0.03</b>	<b>0.21</b>	<b>2.3</b>	<b>71,387</b>	<b>30,000</b>	<b>326,000</b>
	Inferred	4,031	0.71	0.01	0.18	1.9	63,383	23,000	246,000

## 2.5 CARE AND MAINTENANCE

No activities to report.

## 2.6 PROPOSED DEVELOPMENT AND PRODUCTION FOR UPCOMING YEAR

There are presently no development or production plans for the 2015 year.

### **3.0 MONITORING PROGRAMS AND STUDIES**

The QML contains a number of requirements for studies and monitoring programs. The following sections outline work done with respect to these studies and programs. Copies of the actual reports relating to these are appended.

#### **3.1 ON-GOING METALLURGICAL STUDIES**

##### **3.1.1 *Field Tests***

No metallurgical field tests were in progress as of 2014.

##### **3.1.2 *Laboratory Tests***

Metallurgical laboratory tests were initiated in September 2014 and continue to the present to quantify the potential gold and silver recovery in addition to recovery of copper and to examine metallurgical process alternatives. To date this test work has determined that the addition of a rod-mill grinding step after tertiary crushing makes the ore amenable to leaching by agitated tank rather than the previously proposed heap leaching. Copper leaching times are reduced from approximately 200 days on the Heap Leach Facility previously proposed to approximately 16-18 hours in agitated tank with an estimated 84% recovery. Gold-Silver leaching time is approximately 48 hours in agitated tank with approximately 80% gold recovery and 77% silver recovery. Test work is continuing to optimize the metallurgical recovery process, identify water treatment requirements, and develop a tailings waste suitable for dry stack storage. The updated process flowsheet resulting from the testwork to date is shown in Figure 2. At this stage in the laboratory testing the reports are not yet public and have not been appended to this report.



## New Two Stage Process Agitated Tank Leach

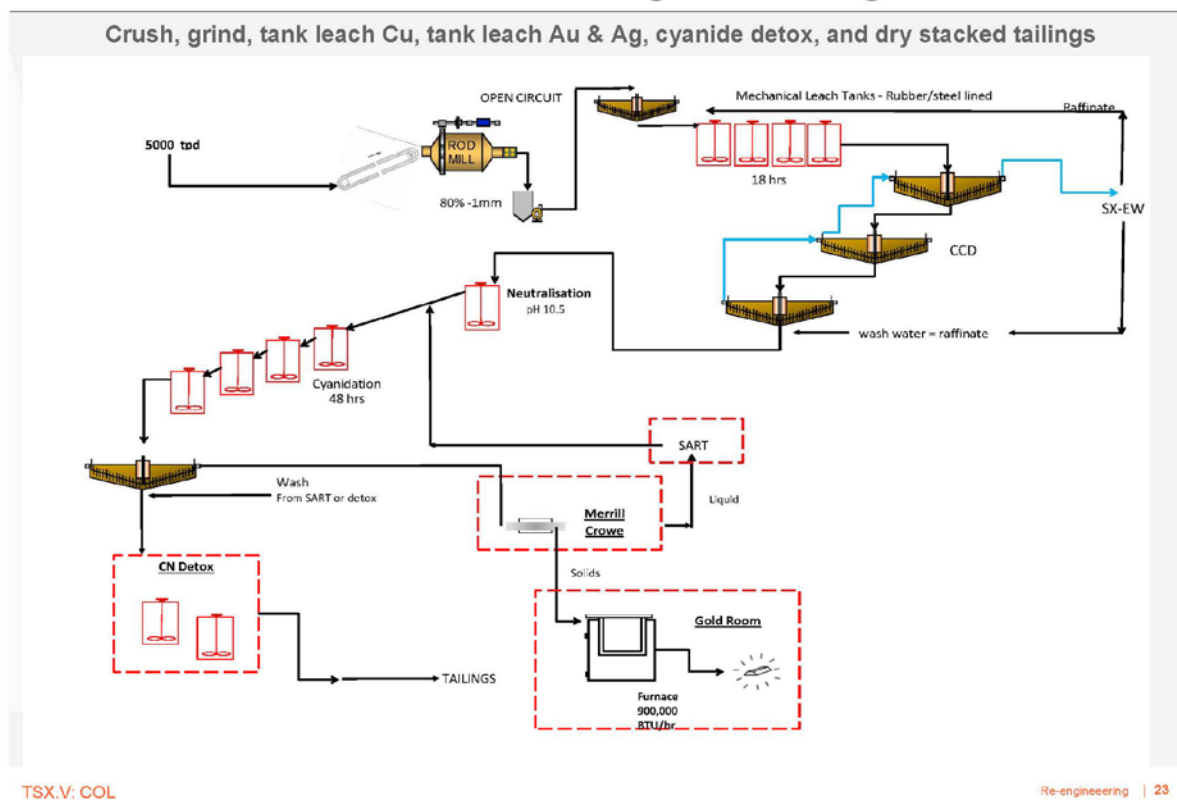


Figure 2. Carmacks Copper-Gold-Silver Project – Preliminary Two Stage Agitated Tank Leach Flowsheet.

### 3.2 HEAP LEACH PAD LINER PERFORMANCE MONITORING

No liner has been placed and no performance monitoring is in progress.

### 3.3 WATER QUALITY SURVEILLANCE PROGRAM

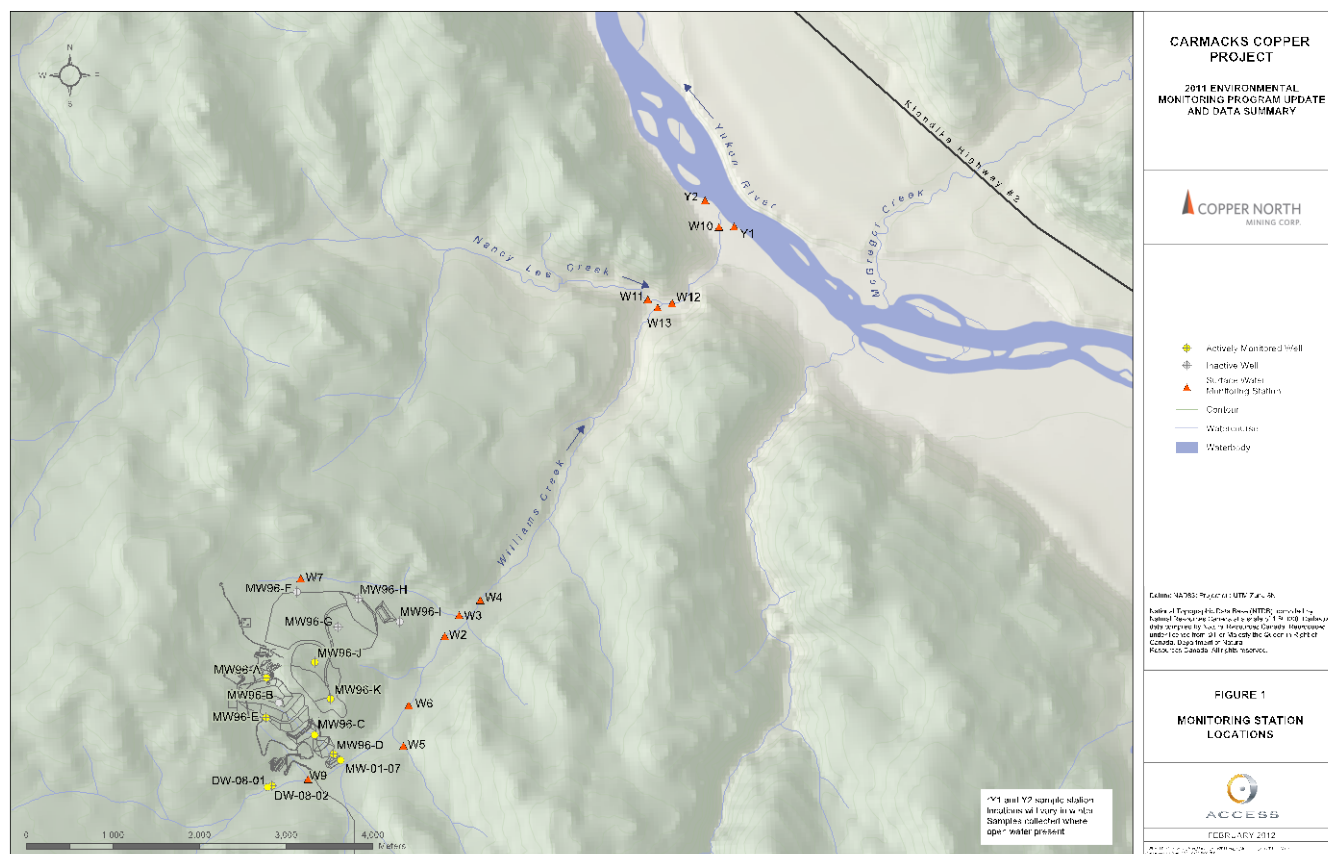
No water quality surveillance was conducted in 2014.

Table 2 lists the locations (shown on Figure 3) that have been established to date for the monitoring of surface water quality to date. Further locations will be added as the mine is brought into production.

**Table 2. Water Quality Surveillance Program Site Descriptions and Locations**

<b>Station</b>	<b>Description</b>	<b>Northing</b>	<b>Easting</b>
W2	Williams Creek Upstream of North Williams Creek Confluence	6914145	413499
W3	Lower North Williams Creek Upstream of Confluence with Williams Creek	6914379	413640
W4	Williams Creek Downstream of Confluence with North Williams Creek	6914653	413888
W5	South East Tributary to Williams Creek	6912947	412978
W6	Williams Creek Downstream of South East Tributary	6913373	413042
W7	Upper North Williams Creek Tributary Upstream of Road Crossing	6914810	411778
W9	Williams Creek Upstream of Access Road Crossing	6912511	411907
W10	Williams Creek Upstream of Yukon River	6919033	416606
W11	Nancy Lee Creek (Tributary of Williams Creek)	6918096	415803
W12	Williams Creek Downstream of Confluence with Nancy Lee Creek	6918000	416102
W13	Williams Creek Upstream of Confluence with Nancy Lee Creek	6917984	415912
Y1	Yukon River Upstream of Williams Creek	6918974	416752
Y2	Yukon River Downstream of Williams Creek	6919308	416249

Notes: Coordinates are UTM Zone 8 NAD83

**Figure 3. Monitoring Station Locations**

### **3.3.1      *Surface Water Quality***

No surface water quality sampling was required or conducted in 2014.

### **3.3.2      *Groundwater Quality***

No groundwater monitoring was required or conducted in 2014.

## **3.4    HYDROGEOLOGY STUDIES**

No hydrogeologic studies were required or conducted in 2014.

## **3.5    WATER TREATMENT AND MANAGEMENT**

No water treatment studies or water management studies were required or conducted in 2014.

## **3.6    CLIMATE DATA AND SNOW SURVEY MONITORING PROGRAM**

Copper North did not conduct any meteorological monitoring on site in 2014.

## **3.7    GEOCHEMICAL STUDIES AND ACID-BASE ACCOUNTING**

No Geochemical studies were conducted in 2014.

## **3.8    PHYSICAL MONITORING PROGRAM**

Physical monitoring of structures and facilities in 2014 was limited to the Annual Engineer's Inspection (Appendix A).

## **3.9    ENGINEER'S ANNUAL PHYSICAL INSPECTION REPORTS**

Copper North Mining Corp. engaged Golder Associates Ltd. to perform the Annual Physical Inspection of the site required under Sections 16.1 and 16.2 of the QML. The inspection was carried out on July 17, 2014 (QML Section 16.1). The complete report is contained in Appendix A and a copy of this report was previously submitted to Government of Yukon, Department of Energy, Mines and Resources, Mineral Resources Branch.

The report focused on inspection of existing site conditions and of the limited infrastructure on site, since no development has yet taken place on site. Areas observed on July 17, 2014 to require maintenance were largely addressed in summer 2014, with the remaining item, clearing of a sediment trap, to be completed in 2015 prior to the Annual Physical inspection.

### **3.10 RECLAMATION AND REVEGETATION STUDIES**

In 2007 a test patch of seeding was completed on an approximately 500 m x 12 m area located adjacent to the west side the access road and south of the Williams Creek crossing and the helicopter pad area. The seeding and resulting vegetation was intended to help stabilize sediments in this area and has been observed in the past six years to be performing well.

### **3.11 SUBMISSION AND APPROVAL OF PLANS**

No plans were submitted during 2014.

## 4.0 OUTSTANDING FINANCIAL LIABILITY

### 4.1 HEAP LEACH

There has been no update to the assessment of the liability associated with the Heap Leach Facility, which was presented in the May 2009 revision of the Preliminary Detailed Closure and Reclamation Plan.

### 4.2 WASTE ROCK STORAGE

There has also been no update to the assessment of the liability associated with the Waste Rock Storage Facility, which was presented in the May 2009 revision of the Preliminary Detailed Closure and Reclamation Plan.

### 4.3 OVERALL LIABILITY

The estimated maximum overall liability associated with the development and operation of the mine remains as set out in the May 2009 revision of the Preliminary Detailed Closure and Reclamation Plan

Facility or Area Description	Cost
OPEN PIT	\$ 23,000
HEAP LEACH FACILITY	\$ 17,295,000
HLF EVENTS AND SEDIMENT PONDS	\$ 296,000
WASTE ROCK STORAGE AREA	\$ 740,000
PLANT AND ANCILLARY FACILITIES	\$ 467,000
CAMP	\$ 103,000
TRUCK SHOP SERVICE COMPLEX	\$ 70,000
MISCELLANEOUS FACILITIES	\$ 95,000
ACCESS AND HAUL ROADS	\$ 248,000
SITE MANAGEMENT	\$ 1,103,000
TOTAL	\$ 20,440,000

An additional \$2.675 million is estimated to cover costs associated with rinsing and neutralization of the heap leach facility, should it extend to a 9 year period as opposed to the initially estimated 4.5 year period.

To date security in the amount of \$80,300 has been posted with Yukon Government. This represents the liability incurred to date due to exploration activities on the site.

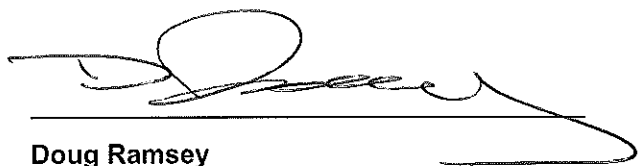
### 4.4 ENGINEERING CONTINGENCIES

In accordance with Section 11.0 of the QML, Copper North Mining Corp. prepared a Contingency Plan on the basis of a workshop held in October 2009. The plan was submitted to the Chief of Mining Land Use in January

2010. The main purpose of the Contingency Plan was to identify possible alternative approaches to decommissioning the Heap Leach Facility, however, other facilities were also examined. The plan identified a number of possible failure modes and contingency measures for each of the facilities and recommended further work that should be undertaken. The report was issued in draft format pending comments from government. No comment from government has been received to date. No further work has been undertaken at this time to develop any of the contingency plans identified.

**COPPER NORTH MINING CORP.**

**(On behalf of CARMACKS COPPER LTD.)**

A handwritten signature in black ink, appearing to read 'Doug Ramsey', is written over a horizontal line.

**Doug Ramsey**

Vice-President, Sustainability and Environmental Affairs

## Appendix A. Annual Engineer's Inspection Report

## Appendix B. 2014 Assessment Report

