



3 February 2017

ASX: RER (NZC as from 7 February 2017)

Positive metallurgical test work results for Kalongwe

Highlights

- **Good gravity recovery.** Test work indicates ability to produce saleable 10%, 15% & 20% Copper (Cu) concentrate concentrates from a -12mm coarse crush and dense media separation process. Based on the nominal life of mine plan composited samples, Cu recovery achieved in the test program varied between 44 & 68% as a percentage of ROM feed with Cobalt (Co) grades of 0.25% to 2.50%
- **Excellent leach recoveries.** Extraction of acid soluble copper was 98% of theoretical within four hours. Co recovery was similarly rapid with 90% recovery in two hours.
- **Excellent Ore characteristics.** The ore has few slimes (<20%) -0.15mm and will not need scrubbing for feed preparation in a DMS plant, which is **non-typical** for other DRC copper/cobalt deposits.
- **Excellent potential product.** Based on the test work results, products will have extremely low leachable impurities, which will have significant economic benefit to future customers due to reduced reagent consumption in both the copper and cobalt production ie:-
 - Low gangue acid consumption, which will give a direct saving in acid and reductant costs
 - Low total iron, aluminum leachable silica reducing the cost of reagents in precipitation
 - Low manganese and zinc will reduce reagent consumption in cobalt precipitation

Nzuri Copper Limited (**ASX: RER**) ("Nzuri" or "the Company") has received the report covering the results of Metallurgical test work conducted by *Miller Mining Services ("MMS")*.

Per the Dec 2016 quarterly activity report, the Company has been assessing the production of a gravity concentrate for sale to various potential clients from the Kalongwe Copper-Cobalt deposit, via a metallurgical test program undertaken by *MMS*.

The Kalongwe Copper-Cobalt deposit ("Kalongwe" project) is the Company's 85% owned flagship project. It is located in the Lualaba Province of the Democratic Republic of Congo (DRC) and is situated towards the western end of the world-class Central African Copperbelt, less than 15km from where Ivanhoe Mines Ltd. (TSX:IVN, "Ivanhoe") has announced a second world class copper discovery at Kakula. Kalongwe hosts a near-surface JORC resource of 302,000t contained copper and 42,000t contained cobalt as predominantly oxide ore (see Appendix 1 and ASX announcement on 5 February 2015 for further details).

Nzuri Copper Limited

ADDRESS Unit 13, 100 Railway Road, Daglish WA 6008

PHONE +61 (0)8 6424 8100

WEBSITE www.nzuricopper.com.au

Overview

The primary focus of the *MMS* test work involved examining recoveries via gravity separation of run of mine (ROM) ore for the Kalongwe project. The 'as tested' process flowsheet included: crushing, Dense Media Separation (DMS) of the +0.85mm fraction, spiral separation of the 0.85mm x 0.15mm fraction and storage of the -0.15mm slimes for future heap or tank agitation leaching / SX-EW.

Composites

Tests were conducted on three (3) composited samples of crushed -12.5mm ore. The composites for the test work were selected based on a monthly mine schedule produced as part of the scoping study undertaken by the Company in 2015. Copper and cobalt grades, lithology's and rock types were tracked in time to provide a method for selecting the composites. Key points: -

- Samples were based on three metallurgical holes (PQ and some deeper HQ full core) drilled in a portion of the initial pit shell design. *Note Further variability testing will be undertaken in 2017*
- There are no clear individual rock types expected to be presented to the future process plant; but rather a mixture of lithology's and alteration; with varying proportions/ grades of both Cu & Co

The three selected composites were based on three distinct time periods anticipated over a nominal sixty (60) month mine life, where the predominant grades and lithology mixtures were identified as being different, hence: -

- Composite #1 (*Up to month 25*)
 - High grade copper for the project
 - Slightly higher than average grade cobalt for the project
 - Dolomite dominant lithology
 - Oxide
- Composite #2 (*Months 25 to 45*)
 - High grade copper for the project
 - Highest grade cobalt for the project
 - Very mixed lithology with major dolomite and siltstone
 - Oxide with minor amounts of primary
- Composite #3 (*Months 45 to 60*)
 - Lower grade copper for the project
 - Lower grade cobalt for the project
 - Very mixed lithology with decreasing dolomite and increasing siltstone and breccia
 - Oxide with minor primary ore except in the last few months.

Geology Ore Characteristics

The following geological points are noted by MMS in regard to the Kalongwe deposit ore:-

- The deposit has undergone a number of silicification events that have replaced most of the primary rocks with silica: dolomite, siltstone and breccia
- The primary mineral species, which are amenable to DMS concentration are copper- malachite, pseudo malachite, sulphides and chrysocolla (from the silicification)
- The ore is soft to medium soft, but with high abrasiveness- *further test work required to quantify*
- The ore has few slimes < 20% -0.15mm and does not need scrubbing for feed preparation to an DMS plant. MMS notes that this characteristic is unusual in the DRC where up to 40% -0.15mm are common. The Kalongwe project slimes also have significantly less clay
- The slimes can be thickened to high density at 'normal' thickener sizing. The low clay and siliceous material is positive for this aspect of the process
- The mineralogy and sequential copper assays correlate well for mineral species. The majority of the copper is acid soluble 85% to +95%; containing varying amounts of slower leaching chrysocolla of 24% to 35%
- The acid insoluble copper is mostly chalcocite found deeper in the deposit. Any DMS concentrate, with a high proportion of chalcocite, (produced in the latter years of the operation) will need to be treated by bacterial heap leaching or EAF to recover the full value of the copper.

Metal Yields

The process modelled metal yields used the 2015 scoping study mine tonnage planning work, for various crush sizes and DMS copper grades, are shown in Table 1. The process model includes estimates of future plant efficiencies in size and density separation.

Table 1 - Weighted ROM modelled Copper and Cobalt Recoveries

Case Description	20% Copper (-12mm crush)			15% Copper (-12mm crush)			10% Copper (-12mm crush)		
Composite	1	2	3	1	2	3	1	2	3
Copper (Cu) as % ROM	57.6%	54.7%	44.2%	60.4%	61.6%	56.2%	64.9%	67.8%	61.8%
Cobalt (Co) as % ROM	41.4%	48.5%	10.3%	46.7%	53.9%	14.1%	52.0%	57.0%	18.9%
DMS Grade (% Cu)	20%	20%	20%	15%	15%	15%	10%	10%	10%
DMS Grade (% Co)	2.5%	1.6%	0.3%	2.1%	1.7%	0.3%	1.4%	0.8%	0.2%
Spiral Grade (% Cu)	4.3%	7.8%	4.3%	4.3%	7.8%	4.3%	4.3%	7.8%	4.3%
Spiral Grade (% Co)	1.8%	0.9%	0.6%	1.8%	0.9%	0.6%	1.8%	0.9%	0.6%
Copper (%)	53%			60%			65%		
Cobalt (%)	36%			41%			45%		

Key Points:-

- ✓ Saleable 10%, 15% or 20% concentrates can be produced from the Kalongwe project
- ✓ Copper and cobalt yields increase substantially with lower concentrate grade
- ✓ The cobalt does not upgrade significantly with the copper as the cobalt minerals are not sufficiently discrete to provide large density differences
- ✓ Only a low grade spiral concentrate can be made of 5.5% Cu

Preliminary Leaching Tests

Preliminary leaching characterization has been obtained using a iso-pH test. This test shows the potential to acid leach the copper, but also indicates the likely level of acid consumption.

Leaching test work used bottle rolls for the -12 mm crushed ore and showed positive results from the short term (seven days only) leach test period, as shown in Table 2.

Table 2: Botte roll Leaching Summary

Bottle Roll Leaching Summary					
Test ID	Sample ID	Target pH	Cu Extraction after 7 days (%)	H ₂ SO ₄ Consumption (kg /t ore)	
				TAC	GAC
HY4295	Composite 1 <12.5 mm Crushed Ore	1.50	68.50	53.3	7.4
HY4296	Composite 2 <12.5 mm Crushed Ore		88.48	55.0	6.7
HY4297	Composite 3 <12.5 mm Crushed Ore		82.01	47.3	6.3
HY4298	Composite 1 <12.5 mm Crushed Ore	1.80	18.65	19.2	2.4
HY4299	Composite 2 <12.5 mm Crushed Ore		30.87	21.5	2.6
HY4300	Composite 3 <12.5 mm Crushed Ore		37.43	21.6	2.8

(TAC:- Total Acid Consumption; GAC:- Gangue Acid Consumption)

Key points:

- ✓ During the short tests conducted nearly full leaching of the acid soluble copper was obtained; indicating potential products are ideally suited for sales to leaching operations
- ✓ The acid consumption profiles for all three concentrates are low to moderate with expected gangue acid consumptions of less than 30 kg/t
- ✓ The whole-of-ore acid consumptions are low to very low, < 10 kg/t indicating that a leaching operation will have a low-cost profile from acid consumption perspective
- ✓ Leaching of all composites, in the bottle roll testing, was acid availability limited due to the long times between acid adjustments in the bottle roll testing. There is, however, no indication that recoveries are limited, except by the time used in the test

Agitation leach tests were also conducted on the -0.106mm slimes from the DMS feed preparation process. These were conducted under reducing conditions to enhance cobalt leaching, Table 3.

Table 3: Slimes Leaching Summary

Agitated Tank Leaching Summary							
Test ID	Sample ID	Target pH	Cu Extraction after 12 hours (%)	AS Cu Extraction after 12 hours (%)	H ₂ SO ₄ Consumption (kg /t ore)		
					TAC	GAC @ 4 hours	GAC @ 12 hours
HY4364R	Composite 1 Slimes (ex. Scrubbing Testwork)	1.50	86.36	98.31	79.5	34.0	59.5
HY4365		1.80	84.96	98.08	40.8	10.1	20.8
HY4366	Composite 2 Slimes (ex. Scrubbing Testwork)	1.50	93.44	98.39	90.0	59.1	49.3
HY4367		1.80	92.97	98.45	56.5	22.2	16.4
HY4368	Composite 3 Slimes (ex. Scrubbing Testwork)	1.50	97.13	99.23	105.0	43.2	47.1
HY4369		1.80	96.36	98.98	76.6	6.0	24.5

Key points:-

- ✓ Extraction of the acid soluble copper, was +98% of theoretical within four hours of leaching. Acid consumption can be managed by careful control of the operating pH in the leach
- ✓ Overall the leaching characteristics were good with fast kinetics to end points of high dissolution of the acid soluble copper. Acid consumption was modest compared with other operations in the DRC
- ✓ The cobalt recovery is similarly fast with 90% recovery in two hours (typical of acid leaching of cobalt minerals in the DRC)

Product quality

The potential products from the HMS plant have been assessed by assay and leaching for significant quality parameters:

- The acid leachable copper is high with 93% to 98% (depending on the level of sulphide minerals present)
- The acid consumption is low – generally less than 10 kg/t (due to the acid consuming minerals, being replaced by the silica)
- The elements leached show no adverse qualities for conventional leach-solvent extraction processing
- The low acid consumption means low concentration of ions that need to be removed in a cobalt recovery process i.e. iron, Aluminum & Manganese. There will be reduced operating costs giving a benefit for the Kalongwe product

The products from the spiral plant have not been tested specifically as their grades are low. Further work is required to assess the attractiveness of a spiral plant; and the quality parameters of the products.

Further Test Work

MMS has indicated that based on their work in the region the Kalongwe deposit has several unique characteristics compared to other deposits in the DRC primarily because of being highly silicified; consequently: -

- Coarse crushed size distribution
- Few fines (–0.15mm)
- Little clay minerals from weathering
- Replacement of high acid consuming elements Ca and Mg
- Low acid consumption.

MMS have indicated that the Kalongwe deposit can be considered close to ‘ideal’ for a biologically assisted heap leaching operation, therefore the Company intends to pursue additional metallurgical variability test work, plus formal a heap leach test work program during 2017.

For further information, please contact:

Mark Arnesen
CEO/Executive Director
Phone: +61 (0)8 6424 8100
Email: admin@regalresources.com.au

Anthony Begovich
CFO/Company Secretary
Phone: +61 (0)8 6424 8100
Email: admin@regalresources.com.au