

# Cobre Limited: Metallurgical Test Work at NCP Highlights Recovery Potential

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Sydney, Australia - [Cobre Ltd.](#) (ASX:CBE) is pleased to announce the results from a second stage of metallurgical test work at the Ngami Copper Project (NCP) in the Kalahari Copper Belt (KCB), Botswana. Bottle roll test results carried out on high-grade and low-grade composite samples to assess leach potential of copper mineralisation have demonstrated:

- Adding a combination of ferric sulphate and chloride to the leach system resulted in a significant improvement in copper recoveries (77.4% and 71.9% for high and low-grade samples respectively);
- In addition to improving copper recoveries, a relatively low chloride concentration allows for recovery of the associated silver mineralisation which may provide a valuable additional metal stream;
- Results demonstrate an improvement of more than 20% in copper recoveries compared with initial reported metallurgical leach tests (see ASX announcement 8 August 2023).
- The encouraging metallurgical results provide further support for the potential to beneficiate the copper-silver mineralisation at NCP using an in-situ copper recovery process (ISCR). The next milestone to proving the process includes a series of pump tests which will commence in the current quarter. If proven successful, ISCR provides an effective mining method at the bottom of the global cost curve with low environmental footprint.

Commenting on the metallurgical results, Adam Wooldridge, Cobre's Chief Executive Officer, said:

"The metallurgical test results are highly encouraging, demonstrating that the extensive chalcocite dominant mineralisation intersected at NCP can be effectively beneficiated with a leaching solution with high copper recoveries expected. The recovery of the associated silver credit is an unexpected bonus."

Drill tested mineralisation at the NCP extends over 40kms of strike with modelling results estimating a scale of between 103 and 166Mt @ 0.38 to 0.46% Cu with significant additional untested blue-sky potential (see ASX announcement 30 August 2023). In addition to copper mineralisation, silver credits associated with the exploration target model are estimated at ~32 Moz at an average grade of 7.3 g/t Ag. Based on high-level hydrogeological studies and a first stage of metallurgical test work (see ASX announcement 8 August 2023), the mineralisation at NCP represents strong candidate for ISCR.

ISCR utilises a series of injection wells to pump a weak acid (similar pH to lemon juice) solution under low pressure to dissolve the copper within the ore body. The method relies on naturally developed fractures to focus the solution into the orebody where the copper is leached after which the copper-rich solution is pumped to surface through recovery wells for processing into copper cathode sheets using an electro-chemical process that separates the copper from the solution. As there is no need for excavation, mine development, waste piles, milling or smelting, the technique provides a cost-effective technology with an extremely small environmental footprint.

As part of the ongoing programme to test the viability of an ISCR process, a second round of metallurgical test work was undertaken to investigate the addition of ferric sulphate, chloride and potassium permanganate on the leach recovery. Overall results indicate copper recoveries above 70% can be achieved with an oxidation-reduction potential (ORP) maintained at 450 mV (via ferric sulphate addition) and a low chloride concentration. In addition, silver recoveries of up to 43.5% and 80.5% for high- and low-grade samples respectively were achievable with the addition of chloride.

These encouraging results provide a significant improvement on the first round of test work and demonstrate that copper and silver mineralisation at NCP can be effectively beneficiated with a leaching solution.

## Metallurgical Results

A total of five leach tests were conducted on a high-grade (HG) and low-grade (LG) composite sample by Independent Metallurgical Operations Pty Ltd to assess the following:

1. Impact of increased ferric sulphate addition to maintain a higher oxidising reduction potential (ORP of

greater than or equal to 450 mV);

2. Impact of low chloride addition to the system, with a chloride concentration of 20 g/L;
3. Impact of high chloride addition to the system, with a chloride concentration of 100 g/L;
4. Impact of potassium permanganate as an oxidant to maintain ORP (as opposed to ferric sulphate); and
5. Impact of an increased temperature of 70degC.

Tests were benchmarked against results from the first round of testing which achieved a total copper recovery of 45.4% and 50.0% for the same HG and LG composite samples respectively. Results are summarised as follows:

- Increasing ferric sulphate addition to maintain an ORP at 450 mV (increased from ~400 mV in the first round of testing) resulted in:

- o A 16.1% increase in HG Composite Cu recovery, from 45.4% to 61.4%;
- o An 8.7% increase in LG Composite Cu recovery, from 50.0% to 58.7%;

- Addition of 20 g/L chloride to the leach system resulted in:

- o A 13% increase in HG Composite Cu recovery from 61.4% to 74.4%;
- o A 12.5% increase in LG Composite Cu recovery from 58.7% to 71.2%;
- o Increased HG Composite Ag recovery from 0.0 to 10.0%;
- o Increased LG Composite Ag recovery from 0.0% to 45.3%.

- Increased chloride concentration to 100 g/L resulted in minor increases in Cu recovery with marked increase in silver recovery (compared to 20 g/L chloride):

- o Increased HG Composite Cu recovery from 74.4% to 77.4%;
- o Increased LG Composite Cu recovery from 71.2% to 71.9%;
- o Increased HG Composite Ag recovery from 10.0% to 43.5%;
- o Increased LG Composite Ag recovery from 45.3% to 80.5%.

- The use of potassium permanganate to maintain ORP in place of ferric sulphate resulted in:

- o Reduced HG Composite Cu recovery by 9.5% (from 61.4% to 52.0%);
- o No significant change in LG Composite Cu recovery, increasing from 58.7% to 59.2%;
- o Increased temperature from ambient to 70degC significantly increased Cu extraction with both composites reporting a final copper recovery of 97.8%.

## Geology and Mineralisation

The drill program at NCP has been designed to intersect sedimentary-hosted, structurally controlled, Cu-Ag mineralisation associated with the redox contact between oxidised Ngwako Pan Formation red beds and overlying reduced marine sedimentary rocks of the D'Kar Formation on the limbs of anticlinal structures. Drilling has focussed on the southern anticlinal structure which extends for over 40km across the NCP with evidence for anomalous copper-silver mineralisation on both northern and southern limbs. Results have highlighted the lateral continuity of this mineralisation which occurs over several 10s of kms of strike on both northern and southern limbs of the anticline with an apparent increase in grade on the eastern side of the anticline.

Drilling results to date have returned consistent, wide intersections of anomalous to moderate-grade copper-silver values over extensive strike lengths with structurally controlled higher-grade zones. This style of mineralisation is dominated by fine-grained chalcocite which occurs along cleavage planes (S1) and in fractures rather than the vein hosted bornite with chalcopyrite more typical of the Kalahari Copper Belt style. Importantly the chalcocite mineralisation is amenable to acid leaching, occurs below the water table and is associated with well-developed fracture zones bounded by more competent hanging and footwall units satisfying key considerations for ISCR.

## Follow-up Work

The next stage of work on the NCP will include a hydrogeological pilot study comprising well drilling, aquifer

pumping and injection tests. Results from this phase of work will provide a comprehensive understanding of the hydraulic properties and connectivity within fracture networks key to evaluating the hydraulic aspects of the ISCR process. The pilot study is scheduled to start within Q4 2023. Further metallurgical test work including column testing will commence following successful completion of the pilot study.

#### Target Model

The NCP area is located near the northern margin of the Kalahari Copper Belt (KCB) and includes significant strike of sub-cropping Ngwako Pan / D'Kar Formation contact on which the majority of the known deposits in the KCB occur.

Cobre is aiming to prove up a similar ISCR process to [Taseko Mines Ltd.](#)'s (TSE:TKO) (NYSE:TGB) Florence Copper Deposit (320Mt @ 0.36% Cu) in Arizona which shares a similar scale to NCP.

\*To view tables and figures, please visit:  
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#### About Cobre Limited:

[Cobre Ltd.](#) (ASX:CBE) is a copper and base-metals explorer with projects in Western Australia and Botswana. The Company recently discovered a new high-grade VMS deposit enriched in Copper, Gold, Zinc and Silver in Western Australia, and is currently exploring approximately 8,100 km<sup>2</sup> of tenements within the Kalahari Copper Belt (KCB) in Botswana.

Source:  
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