



IMPROVED METALLURGICAL RESULTS BOOST KARLAWINDA

Potential for reduced costs to be evaluated as part of ongoing Feasibility Study

ASX ANNOUNCEMENT

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Australian Securities
Exchange Code: CMM

ABN: 84 121 700 105

Board of Directors:

Mr Heath Hellewell
Executive Chairman

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Issued Capital:

Shares 572.4M
Options 46.3M
Share Price A\$0.085
Market Cap. A\$48.7M

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HIGHLIGHTS

- **Material increase in gold recoveries for the Karlawinda Gold Project from recently completed testwork**
- **Average gold recoveries increased to 92.6% from 90.4% in the 2016 Scoping Study**
- **High gravity recoverable gold of 45% achieved in fresh ore confirms the benefits of incorporating a gravity circuit in the Karlawinda flowsheet**
- **Improved comminution properties provides the opportunity to further optimise Karlawinda DFS crushing, grinding and gravity circuits**
- **Results to be included in Karlawinda DFS which remains on track for release in the September 2017 quarter**

Capricorn Metals Ltd (ASX: CMM) is pleased to advise that it has received highly encouraging results from metallurgical testwork completed recently as part of the ongoing Definitive Feasibility Study (DFS) on its 100%-owned **Karlawinda Gold Project** in Western Australia.

In all areas, improved metallurgical performance has been demonstrated, including an increase in average life of mine gold recoveries to 92.6% and confirmation that a significant proportion of the gold at Karlawinda is recoverable using gravity methods.

These improvements will lead to reduced capital and processing costs for certain cost areas within the Karlawinda flowsheet compared with Scoping Study estimates.

Based on these results, Capricorn Metals is currently evaluating opportunities to optimise the proposed comminution and gravity circuit for the Karlawinda DFS.

Metallurgical testwork undertaken by the previous owner of Karlawinda was used in their unreleased Scoping Study completed in 2012. This previous information was also then used in the 2016 Scoping Study by Capricorn Metals.

However, since that time the Mineral Resource inventory at Karlawinda has increased from 640,000oz to 1,114,000oz (refer to CMM ASX release 10th April 2017) and it was necessary to increase the amount and extent of the testwork for the DFS. Samples for the DFS testwork were sourced from diamond and RC drilling completed in 2016 by Capricorn Metals.

Improved Comminution Testwork

Comminution (the reduction of particle size by crushing and grinding) results have improved in all areas, and this will have a positive impact on the design of the comminution circuit and associated capital and operating costs in the DFS. Results from each testwork area are summarised in Table 1 below.

Table 1: Karlawinda comminution testwork results summary, June 2017

Test	Ore	Units	Scoping	DFS	Comment
SMC (A*b)	Oxide		87	89	Improved
	Fresh		28	30	Improved
BBWI	Oxide	kWh/t	16.7	13.0	Improved
	Fresh	kWh/t	15.8	14.5	Improved
UCS	Fresh	Mpa	150	54	Improved
Abrasion Index	Oxide	g	0.08	0.07	Improved
	Fresh	g	0.25	0.23	Improved

The SMC value provides a measure of the resistance to breakage of rock particles in a SAG mill, with higher values associated with more easily broken particles. This testwork was undertaken on both oxide and fresh ore and indicates small improvements on the previous results from the Scoping Study.

The Bond Ball Mill Work Index (“BBWI”) provides a measure of the energy required to grind particles to a given size at the finer end of the ball mill grinding spectrum and is an indicator of the hardness of the ore type. BBWI values have reduced for both oxide and fresh ores in testwork and significant improvements have been achieved, without gold recovery losses, at coarser grind sizes (refer Table 2 below).

UCS is Unconfined Compressive Strength and is a measure of the compressive strength of the rock and provides guidance on ore competency. A reduction from 150Mpa to 54Mpa has been observed in recent testwork, which is expected to impact positively on the size of crusher required, throughput rates and power usage with a commensurate reduction in both capital and operating costs.

The Abrasion Index measures the abrasiveness of the ore which impacts on wear rates and equipment selection in the grinding circuit. In testwork on both oxide and fresh ores, the abrasion rates are reduced, resulting in lower expected wear rates during crushing and grinding.

Table 2: Karlawinda gold recovery testwork results summary, June 2017

Test	Ore Type	Units	Grade (g/t)	Recovery (Based on DFS Resource Grade)	
				Scoping Study Recovery (%) (P80 grind size)	DFS Recovery (%) (P80 grind size)
Gravity	Laterite	%	1.4	-	< 10
	Oxide	%	1.0	-	25
	Transition	%	1.0	-	45
	Fresh	%	1.1	24	45
Overall	Laterite	%	1.4	92.1 (125 µ)	94.1 (150 µ)
	Oxide	%	1.0	89.0 (125 µ)	92.8 (150 µ)
	Transition	%	1.0	90.0 (125 µ)	91.8 (150 µ)
	Fresh	%	1.1	91.4 (106 µ)	92.5 (106 µ)
Average		%	1.09	90.4	92.6

Gravity Recovery

The original flowsheet, developed by the previous project owners in 2012, did not include a gravity gold circuit. However, the recent testwork undertaken by Capricorn clearly indicates the benefits of including a gravity gold circuit, with a commensurate increase in total recovery and a reduction in both operating and capital costs.

A significant proportion of the gold at the Bibra deposit is recoverable by gravity methods. Extensive testwork on all geological domains, using diamond drill core from 2016, has resulted in greatly improved gravity-recoverable gold results, particularly in fresh ore, which accounts for 72% of the total Resource.

An average of 25% of gold from oxide ore and 45% from fresh ore is estimated to be recovered by gravity. The significant improvement since scoping studies (which estimated a 24% recovery) has impacted positively on the project's economics by reducing both capital and operating costs through:

- Improved overall metallurgical recovery;
- A material reduction in residence time which reduces the requirement for additional tankage; and
- A reduction in consumables including cyanide and lime consumption.

CIL Recovery

Cyanide leaching will follow gravity recovery in the plant design, and the overall recovery is the combined gold recovery from the two processes. Overall recoveries are shown in Table 2 above and indicate that gold recoveries in all ore types have improved from Scoping to DFS, notwithstanding a significantly coarser grind size for laterite, oxide and transitional material (150 microns versus 125 microns in scoping studies).

Plant Design, Reserves and DFS completion

In light of these positive metallurgical results, Capricorn is currently undertaking further modelling and optimisation of the crushing and grinding requirements of the project.

Based on the opportunity to further optimise capital and operating costs, and their impact on the modifying factors for the Karlawinda Ore Reserve statement, it is now anticipated that the maiden Ore Reserve statement will be released in the first half of the September Quarter 2017. This will pave the way for completion of the DFS, which is still anticipated to be finalised in the September Quarter.

Sampling protocols

Samples for the 2016-2017 metallurgical testwork program were selected from all four mineralised domains in the Bibra deposit, using PQ or HQ half-core from diamond holes drilled in 2016. The samples were selected to provide an even spatial distribution across the ore body, targeting previously untested zones. The final intervals of core were selected using the following criteria:

1. The interval being defined as ore (supergene, fresh hanging wall or fresh foot wall zones), with 1-2 m of waste included where possible; and,
2. the interval was inside the Scoping Study pit shell design.

In total, two tonnes of drill core from 24 diamond drill holes, were used to prepare 16 composites (13 variability composites and 3 master composites) for the DFS metallurgical testwork.

Following the completion of this DFS programme of work, a total of 27 metallurgical variability samples, and 5 master composite samples have been tested from the Bibra deposit (Table 3). A total of 51 diamond drill holes were used to produce these samples.

Table 3: Metallurgical Variability Samples Tested from the Bibra Deposit

Ore Type	Scoping Study No. Samples Tested	DFS No. Sample Tested	Total No. Samples Tested
Laterite	3	2	5
Oxide	4	4	8
Transitional	3	1	4
Fresh	4	6	10
Total	14	13	27

A breakdown of the Bibra Resource statement by geological domain was published in April 2017 and is shown in Table 4 below.

Table 4: Bibra Resource Estimate by Geological Domain

BIBRA GOLD DEPOSIT JORC OPEN PIT RESOURCE ESTIMATE BY DOMAIN (as of April 2017)			
DOMAIN	Tonnes	Grade (g/t Au)	Ounces
Laterite	1,544,000	1.4	67,600
Oxide – upper saprolite	2,318,000	1.0	73,000
Lower saprolite	3,075,000	1.0	99,850
Transitional	2,071,600	1.0	65,270
Fresh	22,322,500	1.1	808,380
TOTAL	31,331,100	1.1	1,114,000

For and on behalf of the Board



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