



## FEASIBILITY STUDY CONFIRMS KALKAROO COPPER-GOLD PROJECT

### Havilah Resources

**Havilah Resources NL** aims to become a significant producer of copper, gold, cobalt and molybdenum from its 100% owned Kalkaroo, Mutooroo and Benagerie projects, which are at advanced feasibility stage. It holds more than 6,500 km<sup>2</sup> of surrounding tenements in the highly mineralized Curnamona Province of South Australia, where it maintains an active drilling program. Deposits of iron ore, tin and hard rock uranium have been drilled, with good exploration upside. Havilah owns strategic interests in uranium explorer, Curnamona Energy Limited (45.4%) and hot rock geothermal explorer, Geothermal Resources Limited (58%).

### Issued Capital

82 million ordinary shares  
8.58 million unlisted options

### Contact

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### Highlights

- Kalkaroo is a medium size copper-gold deposit containing over 320,000 tonnes of copper and almost 1 million ounces of gold.
- The deposit is amenable to a bulk mining operation at the rate of 4.5 Mtpa for a period of twelve years.
- At projected long term copper price of US\$6,600 /t and gold price of US\$1,000 / oz, the project produces a cash surplus of A\$605 million.
- There is considerable scope to improve the project economics through discovery of more ore, increased metal recoveries, reduced capital costs and reduced mining costs through judicious management.



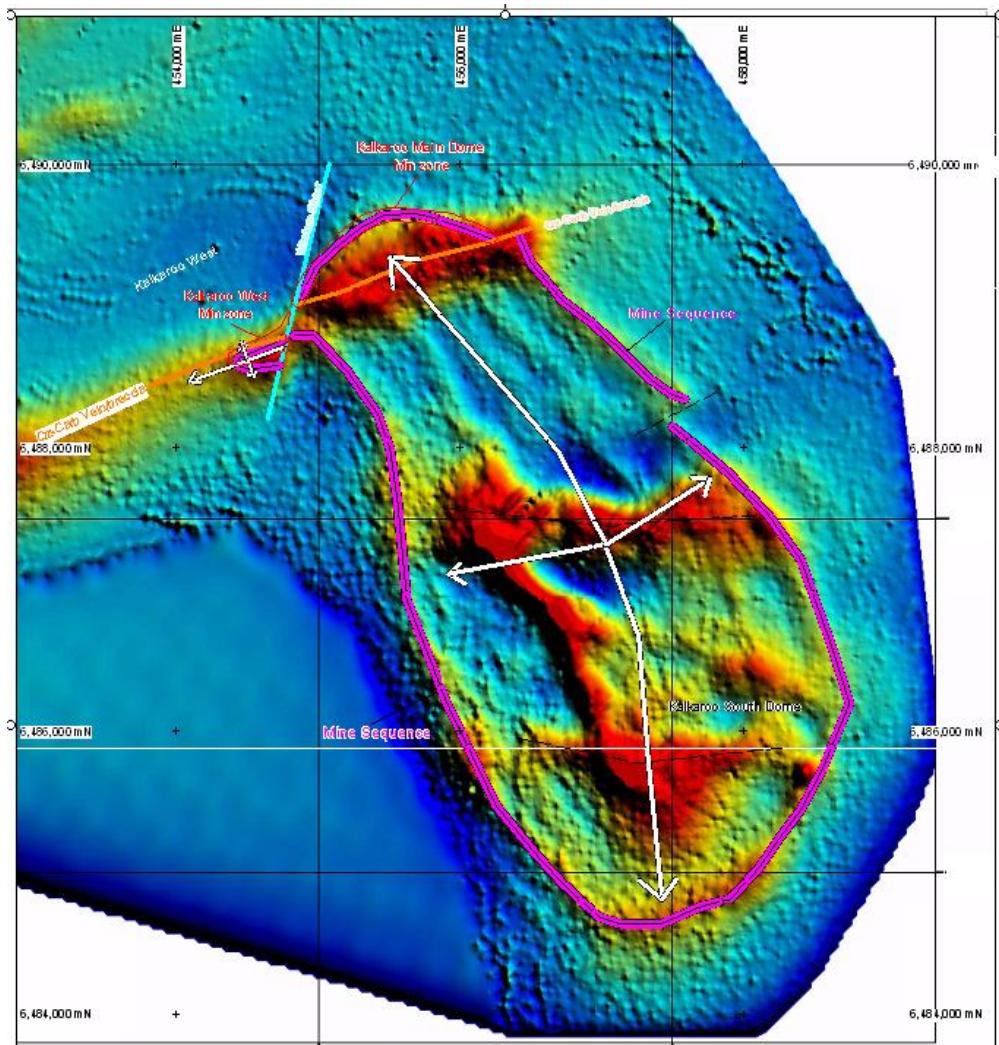
Kalkaroo native copper in drill sample

## Summary of Feasibility Study Results

Havilah Resources NL (ASX : HAV) advises that it has finalised the Kalkaroo feasibility study funded by Glencore International (Glencore) for a high tonnage throughput open pit operation. This is based on a previously published resource block model containing an in situ resource inventory of 62.5 Mt @ 0.52 % Cu and 0.48 g/t Au (ASX release 7 May 2009). The feasibility study involved a rigorous study of all aspects of the Kalkaroo deposit including geological resource estimation, metallurgical recovery and processing flow sheet design, open pit mine design, capital and operating cost estimation and financial analysis. Numerous related aspects such as environmental, open pit dewatering, site works and access road upgrade were also examined, to produce a comprehensive study of the economic viability of the deposit. Detailed financial analysis indicates that **the Kalkaroo deposit is capable of producing a substantial cash surplus at current copper prices.**

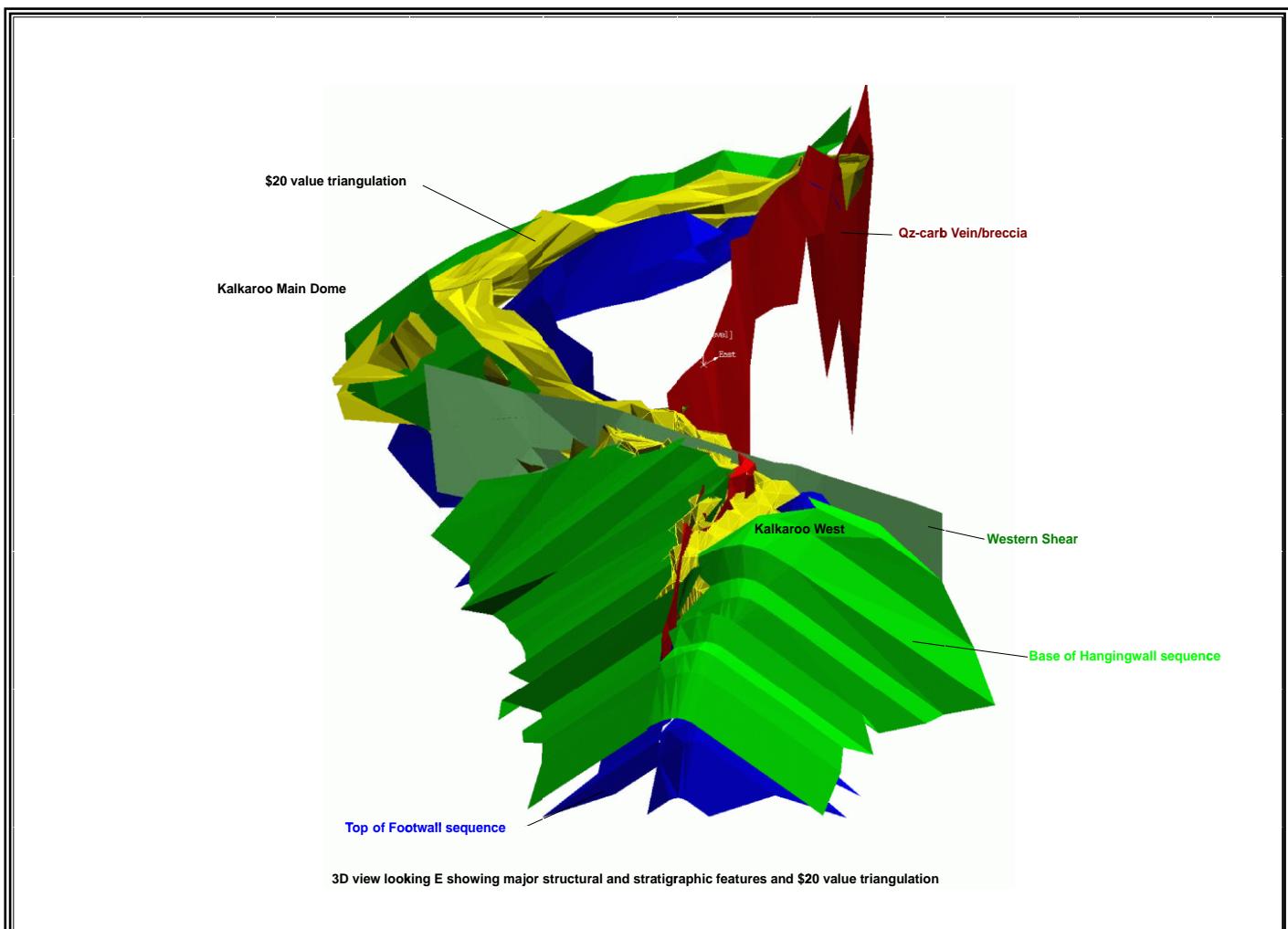
## Geology

Kalkaroo is a large replacement copper-gold-molydenum orebody located on the northern faulted portion of a major structural dome. Hydrothermal fluids have replaced particular favourable units in a 150-200 m thick mine sequence package of rocks. Structural preparation by major cross-cutting faults appears to have been important in creating open spaces and channeling mineralizing solutions. Excellent exploration potential exists in unexplored strike extension of the mine sequence.



*Aeromagnetic image showing outline of the Kalkaroo dome, as defined by the trace of the mine sequence rocks. The Kalkaroo orebody lies at the very northern end adjacent to a major fault.*

In gross shape the Kalkaroo orebody forms an arcuate, north- dipping sheet, which is disrupted by extensive faulting at its western end. The ore is sandwiched between well defined footwall and hangingwall rocks, and is remarkably predictable and consistent over the entire 2.5 km of strike known from resource definition drilling, thereby justifying its Measured Resource status.



*The Kalkaroo orebody (yellow) sits between footwall (blue) and hangingwall (green) and is cut by faults*

The orebody shows typical supergene enrichment features in its upper part, caused by oxidation of the primary sulphides in the weathering zone. This is manifest in a stratification of the ore minerals from top to bottom, forming four main ore types as follows :

1. **Supergene free gold**, with generally minor copper, largely recoverable by gravity methods.
2. **Native copper** and gold, largely recoverable by gravity methods.
3. **Chalcocite dominant** with gold, recoverable by conventional flotation.
4. **Chalcopyrite dominant** with gold, recoverable by conventional flotation.

Mineralisation type	Cu %	Au g/t	SG	Total volume	Total mass	%total ore
Saprolite gold	0.18	0.89	2.03	4,298,202	8,703,698	14
Native Copper	0.76	0.61	2.10	5,309,966	11,134,488	18
Chalcocite	0.62	0.39	2.47	8,248,897	20,354,395	32.5
Chalcopyrite	0.45	0.34	2.67	8,360,786	22,317,451	35.5
<b>Total</b>	<b>0.53</b>	<b>0.48</b>	<b>2.38</b>	<b>26,217,851</b>	<b>62,510,031</b>	<b>100</b>

*Tonnages, grades and proportions of the four ore types comprising the Kalkaroo orebody*

Coarse-grained molybdenite is ubiquitous at Kalkaroo, and a discrete Inferred Resource of 4.5 million tonnes of 615 ppm molybdenum was defined in a part of the orebody that would be mined for its copper and gold content alone. Owing to inadequate metallurgical test work on recovery of molybdenite from the ore, its economic contribution was excluded from the present study.

## Metallurgy

A comprehensive metallurgical testing program was conducted by Optimet Laboratory in Adelaide for large diameter core samples of individual ore types and for a composite sample of all ore types. The metallurgical test work yielded the following concentrate grades and recoveries for the individual ore types.

Ore type	Cu Grade (%)	Au Grade (g/t)	Cu Recovery (%)	Au Recovery (%)
Saprolite		350		55
Native Copper	65	28	80	65
Chalcocite	30	17	80	65
Chalcopyrite	26	10	90	55
Stage 1 Blend	38	19	81	63
Stage 2 Blend	31	15	84	60

*Summary of concentrate grades and recovery parameters from the metallurgical test work*

These results were used by GR Engineering Services to design and cost a processing plant capable of treating the composite ore. The processing plant is of conventional design, utilizing single stage gyratory crushing, single stage SAG mill grinding and flotation. Total capital cost estimated for the processing plant is approximately A\$210 million.

## Mine Design and Financial Analysis

Open pit optimization and mine design utilized a conservative long term copper price of US\$4,400/t (approximately 55% of the current copper price), a gold price of US\$1,000/oz and a A\$/US\$ exchange rate of 0.8. The metal prices chosen have a critical impact on the mine design, because less of the total resource can be economically mined at lower metal prices. The cost inputs applied to the financial model are generated directly from the mine design. Therefore, the financial model is based on a complex interplay between interdependent metal prices, mine design and operating costs. For the above metal prices, 44.8 Mt of ore at a grade of 0.55% Cu and 0.54 g/t Au can be economically mined over a ten year period for a cash surplus (after capital payback) of A\$185 million. The tonnage able to be mined at these metal prices represents approximately 72% of the Measured Resource.

A second mine design at a copper price of US\$5,500/t, showed 52 Mt of ore at a grade of 0.54% Cu and 0.51g/t Au could be mined for a cash surplus (after capital payback) of A\$382 million, representing 83% of the Measured Resource. In this case, mine life is extended by a further one and a half years at a 4.5 Mtpa throughput.

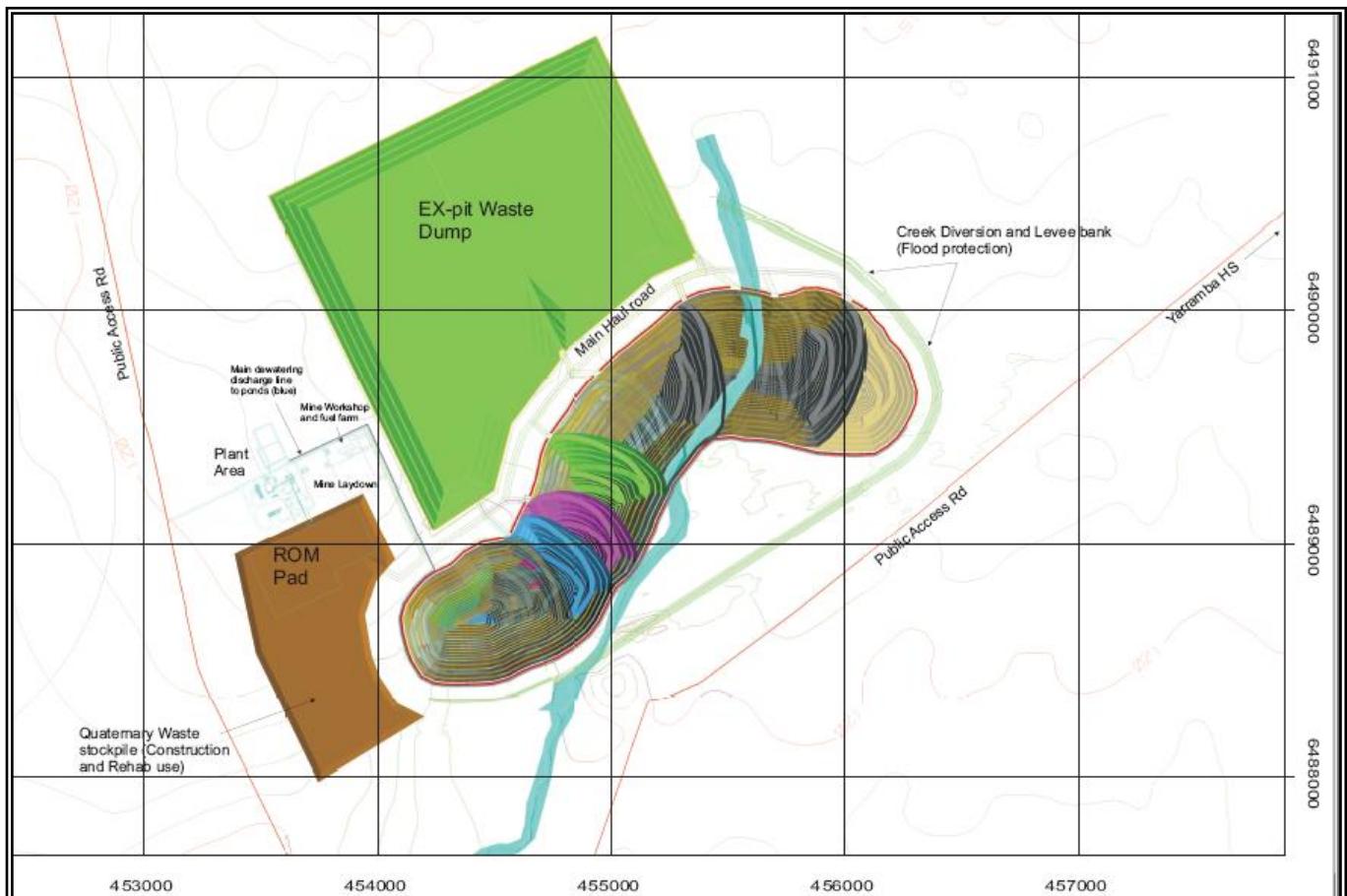
In order to align the financial model more closely to recent longer term copper price projections presented by various respected analysts, a copper price of US\$6,600/t or US\$3/lb was also run (note that the copper price on 7 April 2010 was US\$7,900/t or US\$3.59/lb). A detailed mine design was not generated for this copper price, as it was beyond the agreed scope of the feasibility study, however, the open pit optimization work suggests the mine design completed for the US\$5,500 copper price case is a conservative, approximation. Using the cost inputs from this mine design in the financial model generated a substantial estimated cash surplus of \$605 million over the life of the mine.

Cu price US \$	% current Cu price	Ore Mined million t	% Resource	Waste Mined million t	Mine life	Cash surplus million \$
4,400	56.4	44.8	72	205	10	185
5,500	70.5	52	83	243	11.5	382
*6,600	84.6	Est 54	Est 86.4	Est 300	Est 12	Est 605

*Summary of mine design and financial analysis figures for various copper prices*

*\*A detailed mine design has not been completed for this copper price and the figures quoted are estimates based on optimized open pit designs, and hence have a greater margin of error.*

It is apparent from the above table, that given metal prices at two thirds of their current levels, the Kalkaroo copper-gold deposit can produce substantial cash surpluses notwithstanding the relatively high operating costs due to the amount of waste that needs to be removed, and relatively high capital costs estimated to be in the order of \$360 million (including process plant, site works and mining equipment).



## Next Steps

Under the terms of the feasibility funding agreement, following consideration of the feasibility study report, and the results of a peer review, Glencore may elect to arrange project development funding in exchange for a 14% project interest and a metals off-take agreement. The project will repay project funding from profits without recourse to Havilah Resources.

The feasibility study identified several areas requiring further investigation, mainly related to the metallurgy and processing plant design, including more accurate capital and operating costs. More detail is also required on many aspects of the site works in preparation for a mining operation. It is expected that the joint venture will work on these matters as the next priority.

## Summary

It is evident that Kalkaroo is a substantial copper-gold deposit, which can generate an attractive cash surplus at current metal prices. The deposit is somewhat unique in a number of respects, which may permit refinement of development options, in order to improve project returns, as summarized below :

1. The vertical spatial separation of the different ore types (eg native copper vs deeper sulphide ores) may allow selective mining and a more staged development approach, with less capital required up front, and hence less financial risk.
2. Specifically, most of the gold and native copper can be recovered by gravity methods for lower processing cost, and both are directly saleable products, potentially generating earlier cashflow.
3. Total capital costs can likely be trimmed by leasing a mining fleet, carrying out more site works in house and sourcing secondhand processing equipment.
4. Waste removal is a major operating cost and closer examination of this aspect may identify ways to reduce the total mining cost. Sensitivity analysis shows that 10% reduction in total operating costs would result in a 40% increase in cash for the US\$5,500 copper price case.
5. No account has been taken of the value of molybdenum or malachite mineralization, which could potentially add appreciable revenue for incremental costs in processing.
6. No account has been taken of significant cobalt credits in the pyrite, which could be realized if a roasting plant is constructed in the district, as planned by a subsidiary company (Mutooroo Metals Pty Ltd).

Commenting on the feasibility study results, Havilah's Chairman, Dr Bob Johnson said that except for a short period in late 2008 and early 2009, Kalkaroo would have generated substantial profits at copper prices prevailing over the past 4 years. He said that with approximately 325,000 tonnes of copper and almost 1 million ounces of gold and high potential to find more ore, Kalkaroo was probably one of the largest undeveloped copper-gold deposits in Australia at present and an extremely valuable asset for Havilah.

"It is important to realize that the Kalkaroo feasibility study is based on a Measured Resource, backed up by considerable drilling, plus extensive metallurgy and mine design work. The feasibility study has identified no major obstacles, rather, it has highlighted various development options, which we will continue to assess and refine" he said.

He paid tribute to Glencore, saying that they had been an exemplary partner, having paid close attention to the progress of the feasibility study and making some very helpful technical contributions.

"We hope to continue working with Glencore going forward to develop a successful new copper project" he said.

"Completion of the feasibility study took longer than planned, partly due to the time involved in running the various mining scenarios for such a large and complex orebody. We wanted to get the mining model as accurate as possible in order to provide a reliable basis for the financial modelling and I am now confident that this had been achieved" he said.



*Nuggets of native copper derived from processing of Kalkaroo drill chip samples in the test plant*

For further information visit the Company website [www.havilah-resources.com.au](http://www.havilah-resources.com.au) or contact :

Dr Bob Johnson, Chairman, on (08) 83389292 or email : [info@havilah-resources.com.au](mailto:info@havilah-resources.com.au)

#### **Competent Persons Statement**

The information in this report has been prepared by geologists Dr Bob Johnson, who is a member of the Australasian Institute of Mining and Metallurgy, and Dr Chris Giles who is a member of The Australian Institute of Geoscientists. Drs Johnson and Giles are employed by the Company on consulting contracts. They have sufficient experience which is relevant to the style of mineralization and type of deposit under consideration to qualify as Competent Persons as defined in the JORC Code 2004. Drs Johnson and Giles consent to the release of the information compiled in this report in the form and context in which it appears.