



Havilah Resources NL



# From Explorer to Miner

## AGM 2012 Technical Presentation

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Technical Director





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## **Competent Person Statement**

This presentation is a summary of information extracted from several public reports released by Havilah Resources NL in the period 2008-2012. Information regarding exploration results and mineral resources in this presentation is considered by Dr Bob Johnson who is a member of the AIMM and Dr Chris Giles who is a member of the AIG and who are Competent Persons as defined in the JORC Code 2004, to be a fair and reasonable summary of the information in those public reports. Drs Johnson and Giles consent to the release of the information compiled in this presentation in the form and context in which it appears.



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# Score card for 2012

*Based on stated objectives 1-7 at 2011 AGM*

**1. Bring Portia into production as soon as possible** (subject to PIRSA permitting approvals, and then financing, contractors, manning)

- Finalising PEPR – delay due to last minute government agency requests for more detailed technical data.
- Agreement with landholder, ongoing negotiations with contractor and financiers, expected to be finalised by the time permitting approvals come through.

**2. Complete scoping study for Maldorky iron ore project** (metallurgy, processing flow sheet, off-take partner/investor, mining lease proposal)

- Mining lease proposal first draft submitted.
- Completed key metallurgical test work, presently running 20t of ore through a lab scale plant
- Serious ongoing discussions with several potential partners / investors.

**3. Advance Kalkaroo mining lease proposal**

- Mining lease proposal now over a larger area, to be submitted early next year.
- Substantially upgraded resource and expanded mining plan.
- Demonstrated depth continuity of Kalkaroo mineralisation, resource expansion likely





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#### **4. MMG exploration agreement** (discover a major orebody)

- Has progressed well – detailed aeromagnetic survey covering all of JV tenements.
- 14,000m aircore drilling completed and soon 1000m diamond drilling.
- A substantial drilling program planned for 2013 on some excellent targets.

#### **5. Drilling to increase iron ore resources at Maldorky North (Grants) and Lilydale**

- 300 Mt iron ore resource just announced for Grants. A very substantial new mineral asset.
- Lilydale not drilled due to native title issues.

#### **6. Find a partner with roasting capacity for Mutooroo ore** ( and possibly further drilling )

- Searched for a suitable roaster on the east coast of China that could take direct shipping Mutooroo sulphide ore – good possibilities for follow up have been identified.
- Further drilling not justified until treatment of Mutooroo sulphide ore is resolved.

#### **7. Seek to monetise an asset to provide early return to shareholders**

- A formal sale process run for Kalkaroo. Considerable interest, but no suitable offers to date.
- Bouyant copper market means there are still good possibilities to sell down an equity interest.





## 1. We are still delayed by things we cannot control

- It is not generally understood by the public that Government departments have become interested only in bureaucratic regulation and no longer help to facilitate the advancement of projects in spite of all their rhetoric, but actually actively hinder them.
- If it affects BHP Olympic Dam expansion with their vast resources, imagine the impact it has on juniors with limited resources like Havilah !
- Native Title remains a source of great frustration because of ambiguous legislation, legal challenges and lack of government support.
- This has caused us delays on Portia approval, Maldorky MLP, exploration drilling programs

## 2. We remain highly successful on the things that we can control

- The discovery of new mineral deposits – Grants iron ore, Wilkins copper-gold, Maldorky, Kalkaroo depths.
- Metallurgical testing programs, resource estimation, mine design and planning.
- Compiling required permitting documentation.



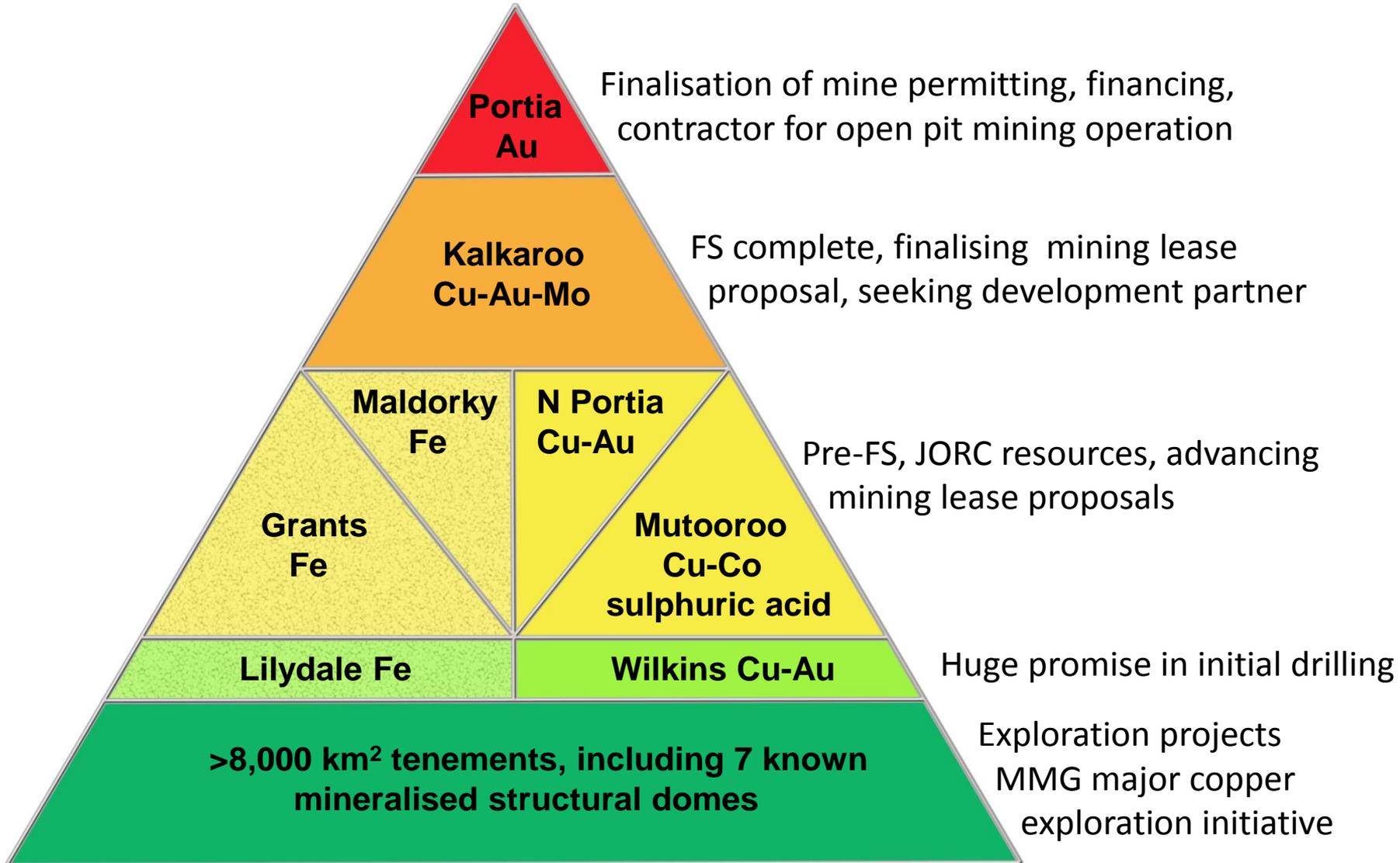


- Management must patiently work through the regulatory issues with the various government agencies and native title groups until all permits are obtained.
- This costs a lot of money and management time and causes unavoidable delays.
- Shareholders need to be patient with management in the knowledge that they are doing their absolute best to progress the projects.
- Permitting delays are just a fact of life in the modern Australian operating environment which is beset with bureaucracy and red tape.





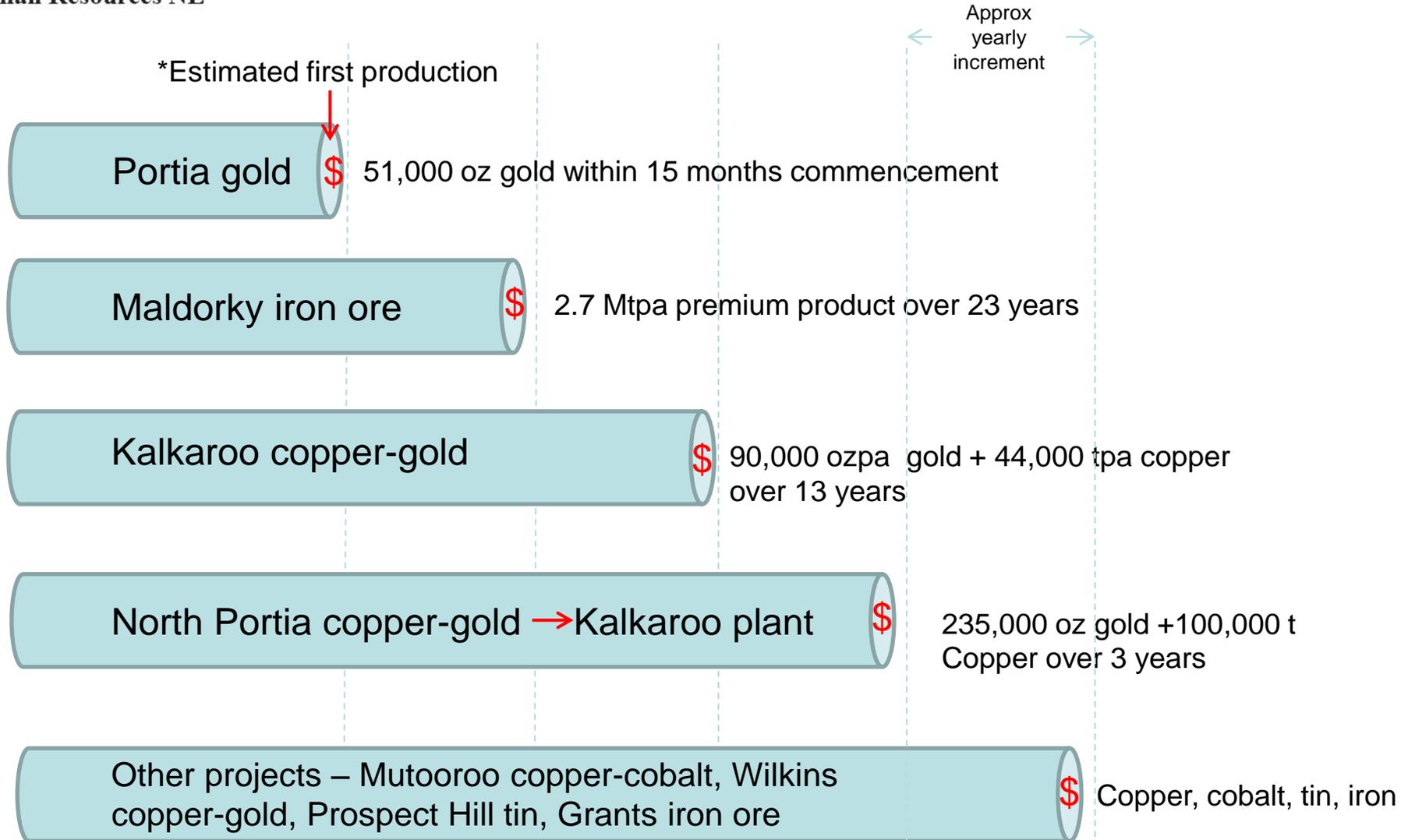
# Mineral project status





# Pipeline of development projects

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\*Estimated first production timing is subject to receipt of timely mining approvals, financing and market conditions



# 1. Copper-gold development business

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Project*	JORC Res	FS	ML	PEPR	Comments on Current Activities and Status
Kalkaroo Cu Au Mo	✓	✓	▲		<ul style="list-style-type: none"> <li>Updated FS resource and mining model and improved project economics.</li> <li>Seeking to sell down project equity to a suitable partner.</li> <li>Mining Lease proposal in preparation.</li> </ul>
Mutooroo Cu Co S	✓	▲	▲		<ul style="list-style-type: none"> <li>High value ore supports direct shipping for offshore processing</li> <li>A high grade copper concentrate could be produced on site.</li> <li>Mining Lease proposal in preparation.</li> </ul>
North Portia Cu Au Mo	✓	▲	✓		<ul style="list-style-type: none"> <li>Granted mining lease; metallurgy and mining studies in progress.</li> <li>Possible follow on after Portia to recover copper, gold and molybdenum in oxidized ore in Kalkaroo processing facility.</li> </ul>
Portia Au	✓	✓	✓	▲	<ul style="list-style-type: none"> <li>Awaiting operating approvals for open pit mine from Mines Department.</li> <li>Employed an experienced mining engineer as project manager.</li> <li>Working on contract details with landowner, contractor, financiers.</li> </ul>

▲ work in progress

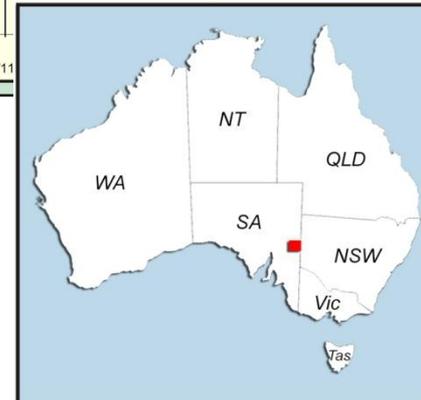
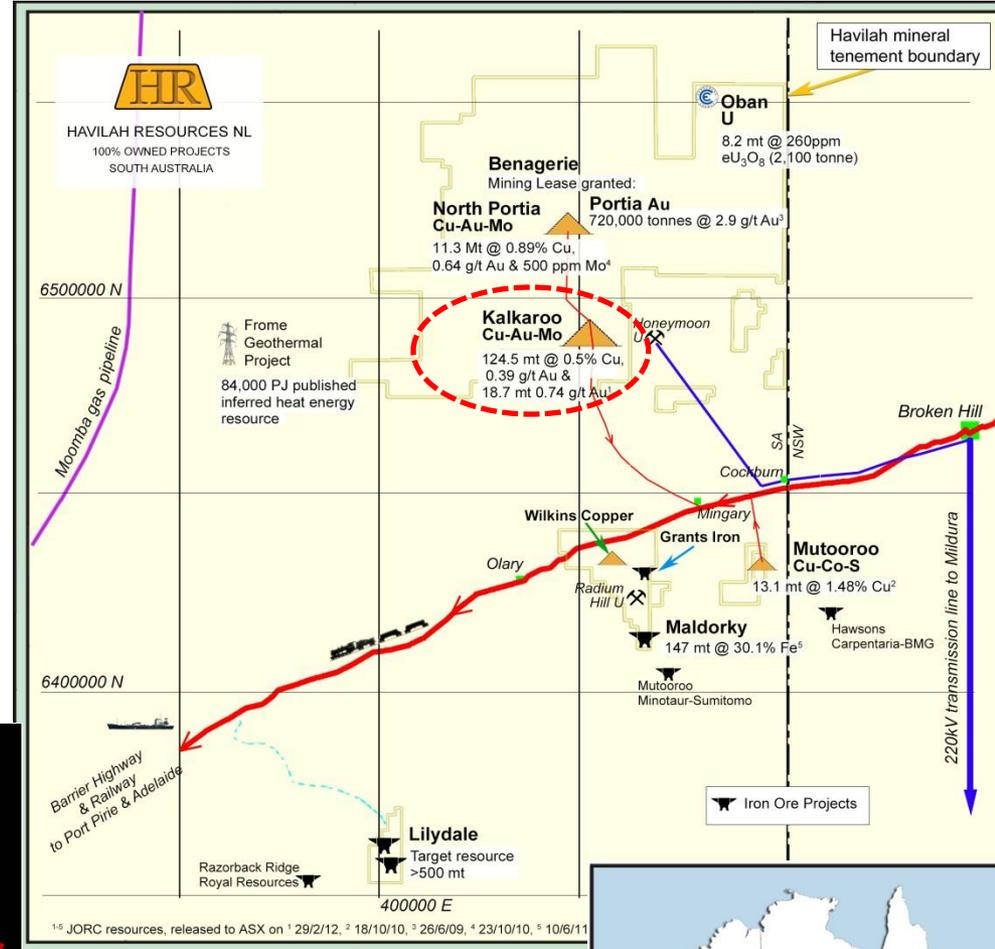
- Portia gold project is planned to be mined by Havilah in its own right subject to finalisation of financing details and timely receipt of all mining approvals.
- All other multi-metal copper projects are in process of mine permitting and Havilah is seeking suitable partners who are interested in acquiring project equity and who can assist with financing and development.



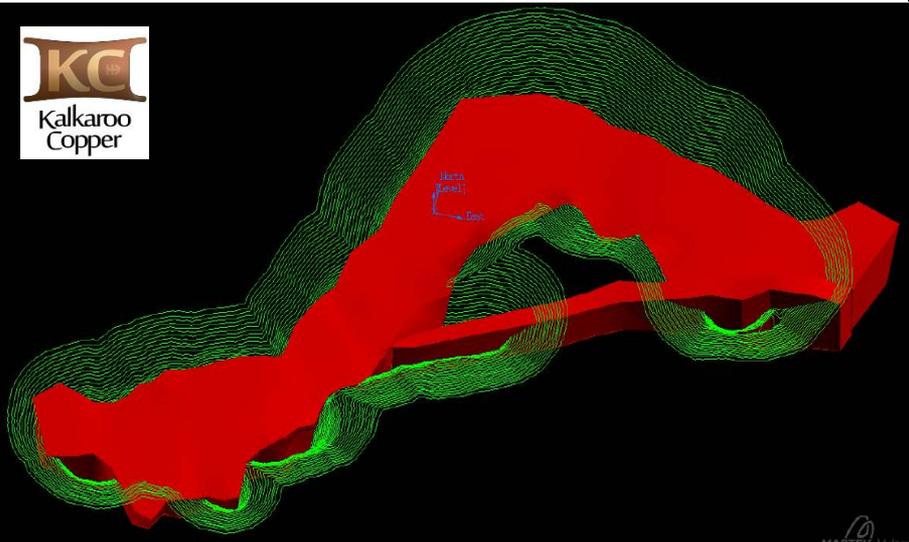
# Kalkaroo is a large copper-gold deposit

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- **623,000 t copper and 2 million oz gold**
- **124.5Mt @ 0.5% Cu, 0.39 g/t Au & 18.7Mt @0.74 g/t Au in gold cap.**
- **44,000 tpa copper in concentrate & 90,000 oz pa gold from 9Mtpa throughput over current 13 year mine life.**
- **Oxidised cap – gold and native copper.**



Optimised open pit captures 80% of current resource



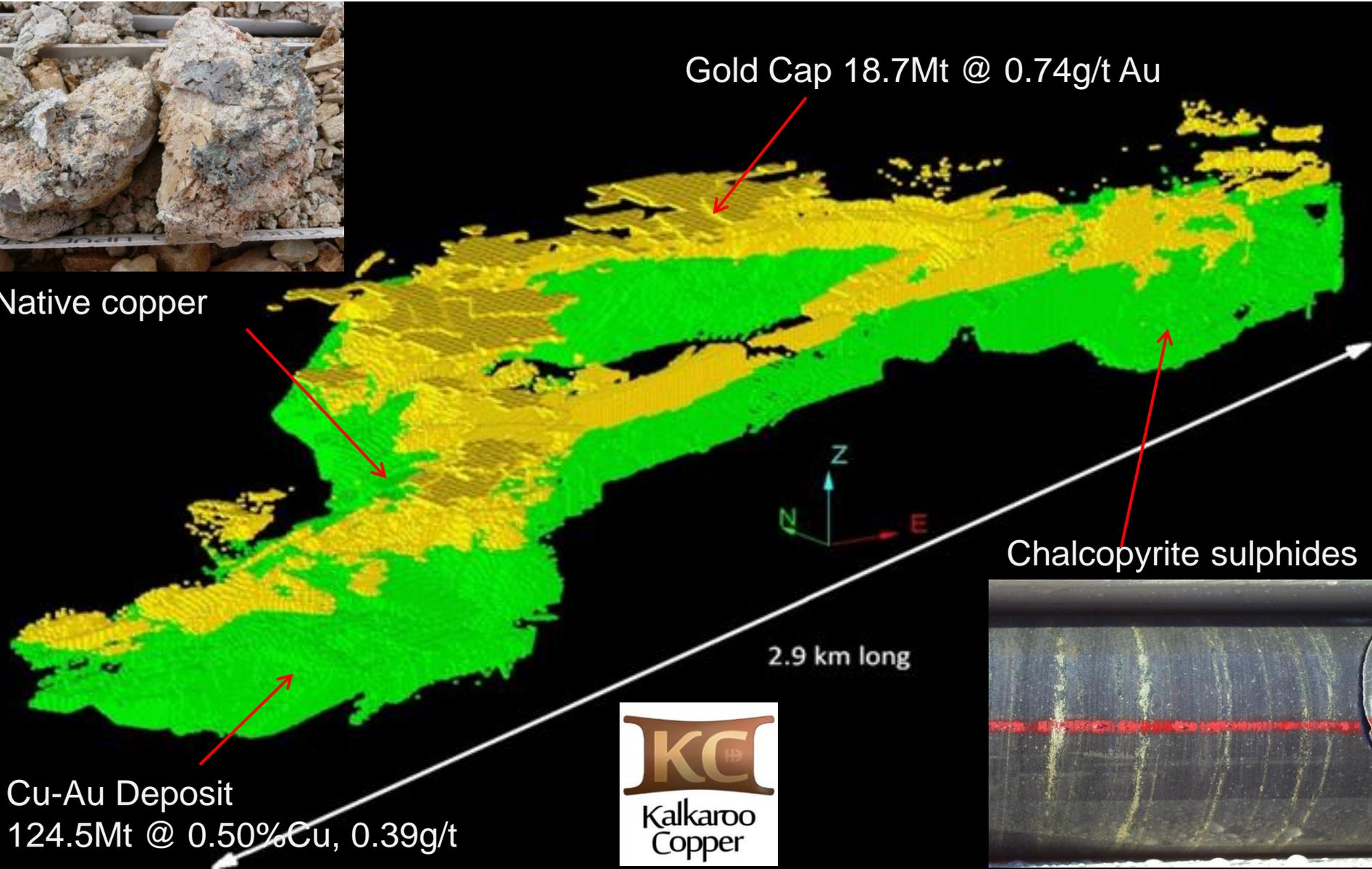


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# Kalkaroo is very well understood



Native copper



Chalcopyrite sulphides



Cu-Au Deposit  
124.5Mt @ 0.50%Cu, 0.39g/t





# Kalkaroo is potentially very profitable

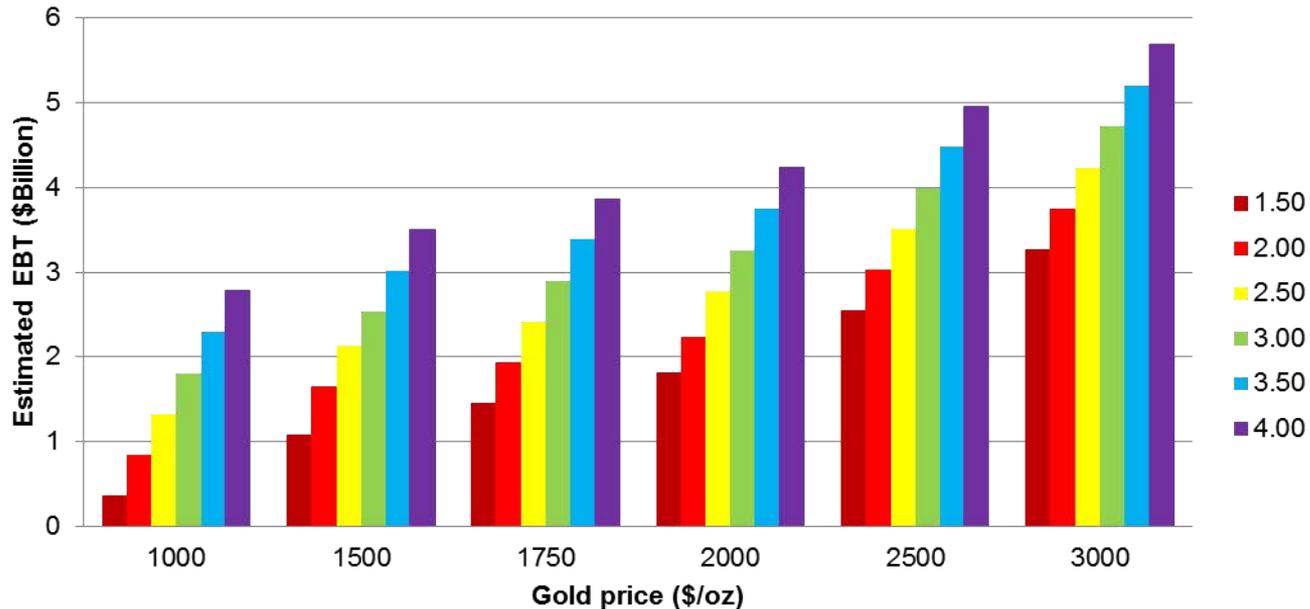
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Kalkaroo  
Copper

At current metal prices Kalkaroo is economically robust

**\*Estimated Earnings Before Tax (EBT) : Variation with Gold & Copper price**



Based on the current resource and open pit mining model, assuming :

- 9 Mtpa ore throughput over a 13 year mine life.
- Capex of \$447M including overburden removal.
- Optimised metal recoveries for gold and copper.
- Estimated mining, processing, royalty, smelting and refining costs.

*\* EBT estimates in this graph are derived from cash flow projections based on an optimised open pit mining model, and are subject to receipt of timely mining approvals, financing and prevailing market conditions and no material changes to the current mine plan, opex, capex and confirmation of the proposed processing flow sheet and metal recoveries.*

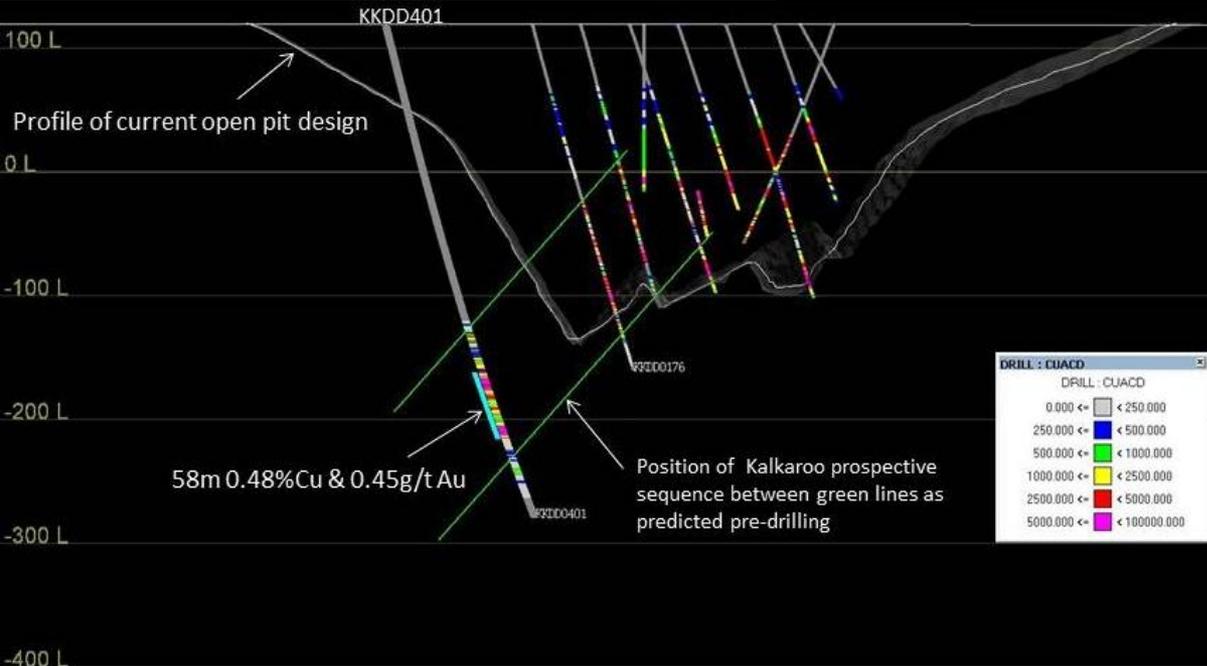
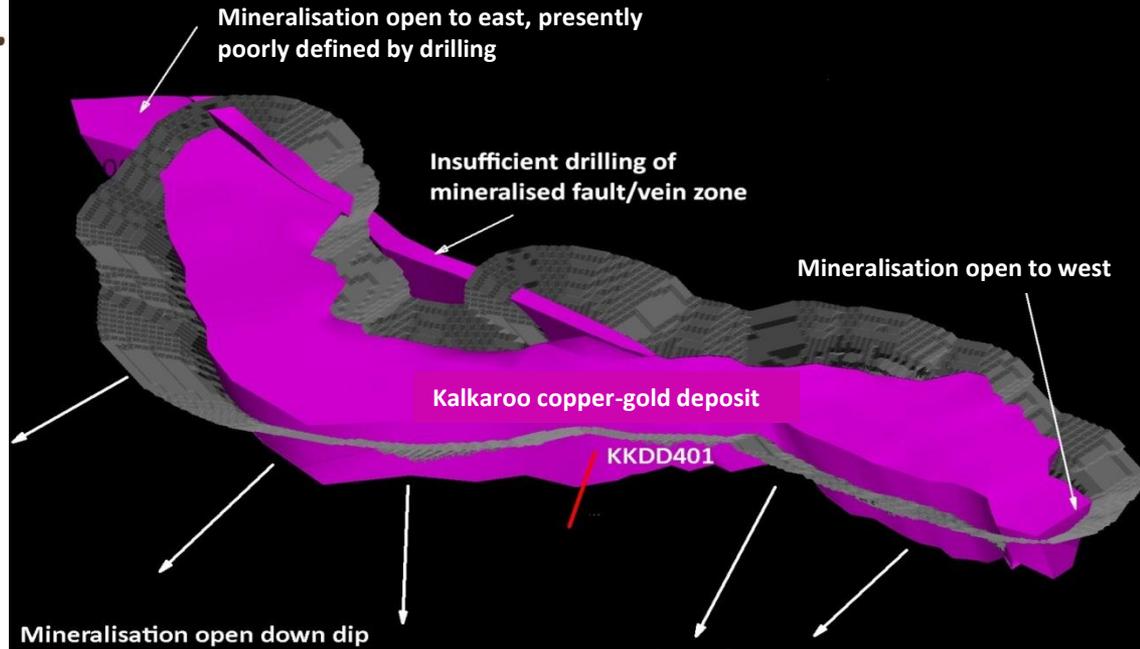


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## More resource potential

- Along strike to west and east
- Down dip
- Along Kalkaroo fault



## Proof :

Ore grade intersection in recent deep diamond drillhole KKDD401 approx. 150m down dip of the nearest drillhole and outside current open pit design



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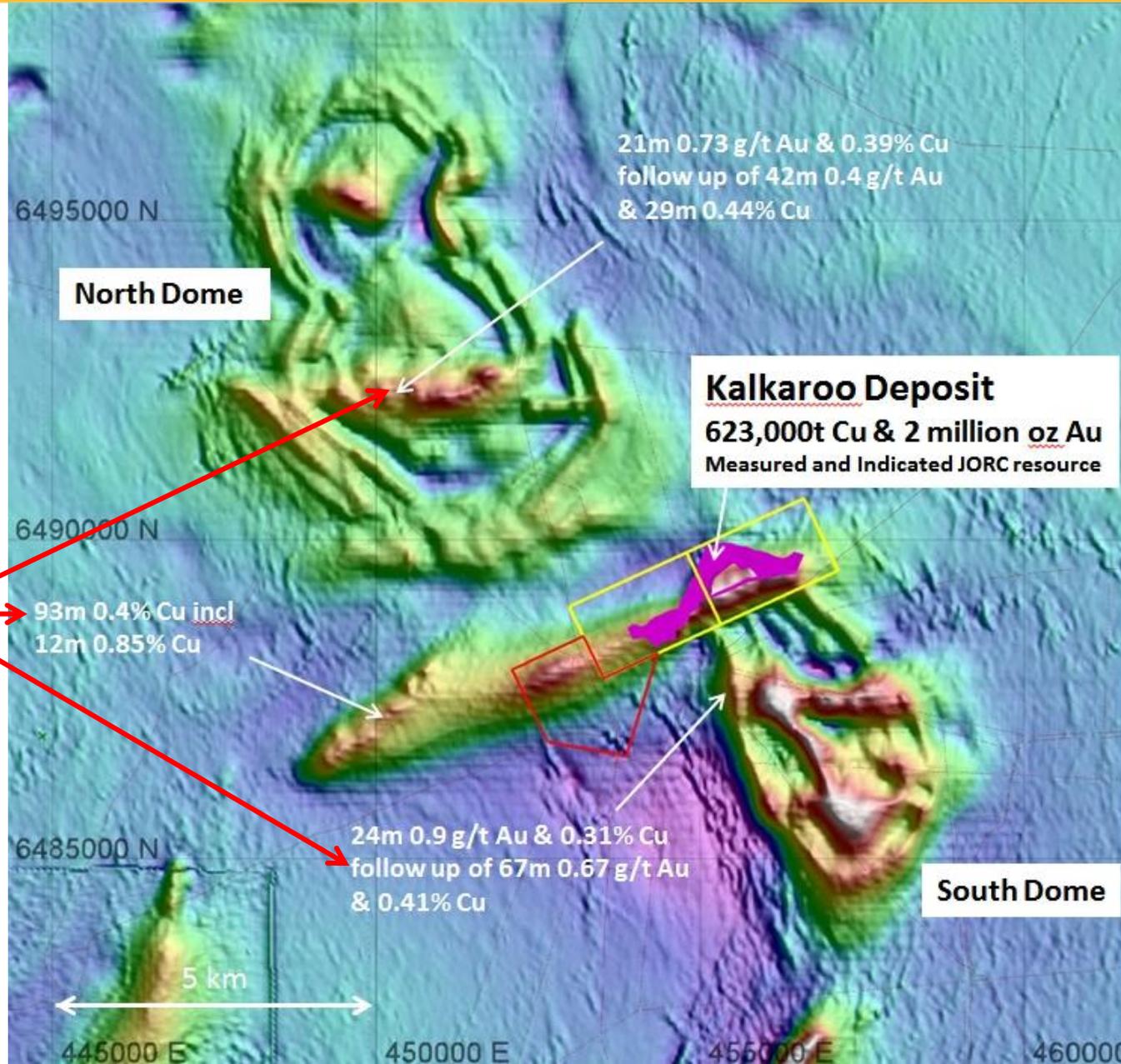


# More Kalkaroo's to be found ?

**Substantial near mine exploration upside.**

**Proof :**

Three new discoveries made by Havilah during the past eighteen months. All within trucking distance of Kalkaroo.  
Based on wildcat drilling of conceptual targets.

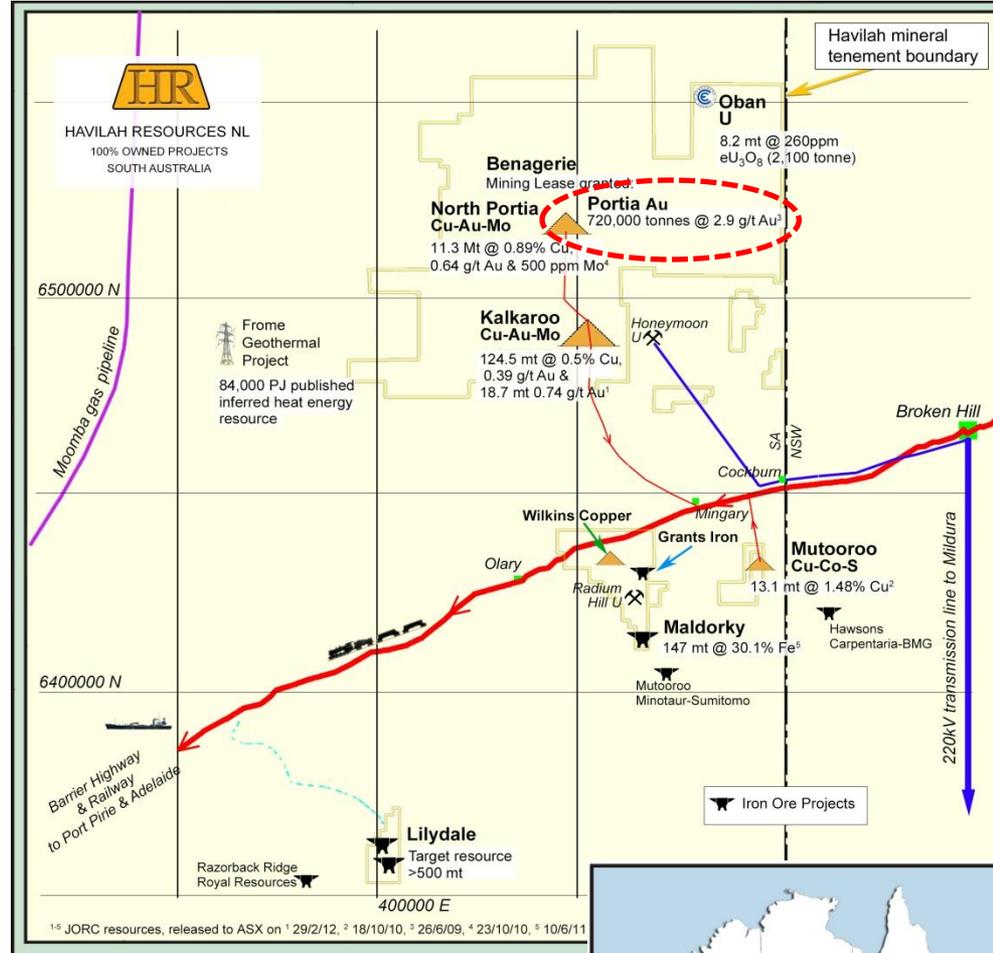
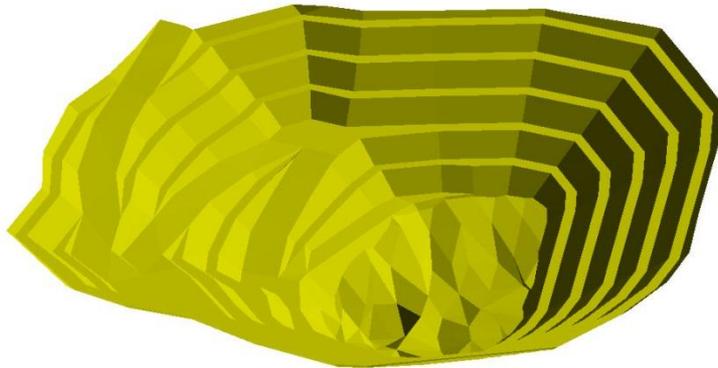




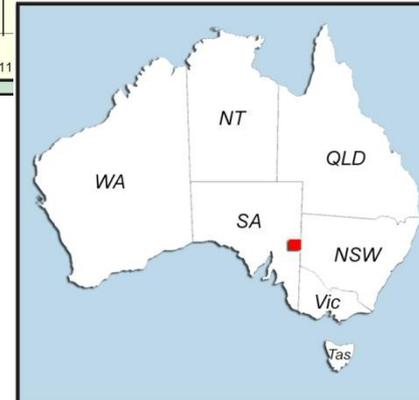
# Portia gold project- Havilah's first mine

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- **67,000 ounces** of gravity recoverable gold in base of Tertiary resource.
- Excellent potential to extend mine life high grade gold drill intercepts and low grade gold halo in bedrock below.
- Progressing operating approvals and contracts with landowner, contractor, financier.
- Appointed experienced mining engineer as project manager



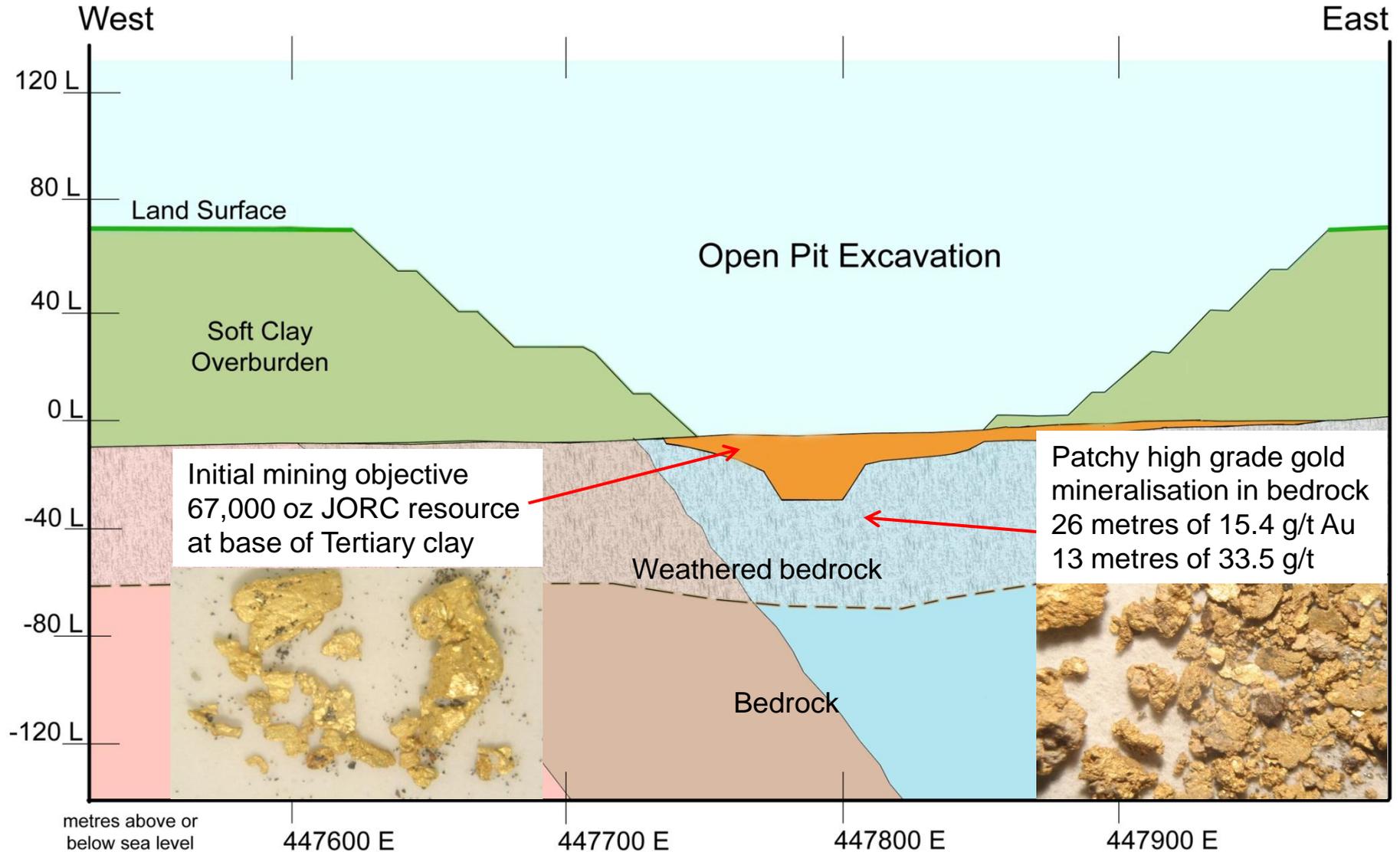
Conceptual open pit design





# Portia – there may be more gold at depth

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# Portia - small mine, good return

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<b>PORTIA GOLD PROJECT - OPERATING ECONOMICS ESTIMATE *</b>				
Portia Project JORC resource of 720,000 t @ 2.9 g/t (uncut) for 67,000 ounces				
Mineral resource within optimised open pit design is 355,000 t @ 4.7 g/t for 53,822 ounces				
Waste removed to expose gold layer	7M m <sup>3</sup>			
<b>Revenue</b>				
53,822 ounces @ 95% recovery				
x A\$1550 / ounce	79,254,000			
<b>Expenses</b>				
Waste mining cost @ \$3.30/cm	23,100,000			
Gold layer mining cost @ \$2/t	710,000			
Gold processing cost @ \$5/t	1,775,000			
Admin and overheads est.	1,500,000			
Site works including road upgrading	2,000,000			
Royalties @ 3%	2,378,000			
Capex (process plant, camp)	4,000,000			
Total Costs	35,463,000			
<b>Cash Surplus</b>	<b>43,791,000</b>	Within 15 months of commencement		

\* Financial estimates in this table are derived from cash flow projections based on an optimised open pit mining model , and are subject to receipt of timely mining approvals, financing and prevailing market conditions and no material changes to the current mine plan, gold recoveries, opex and capex.

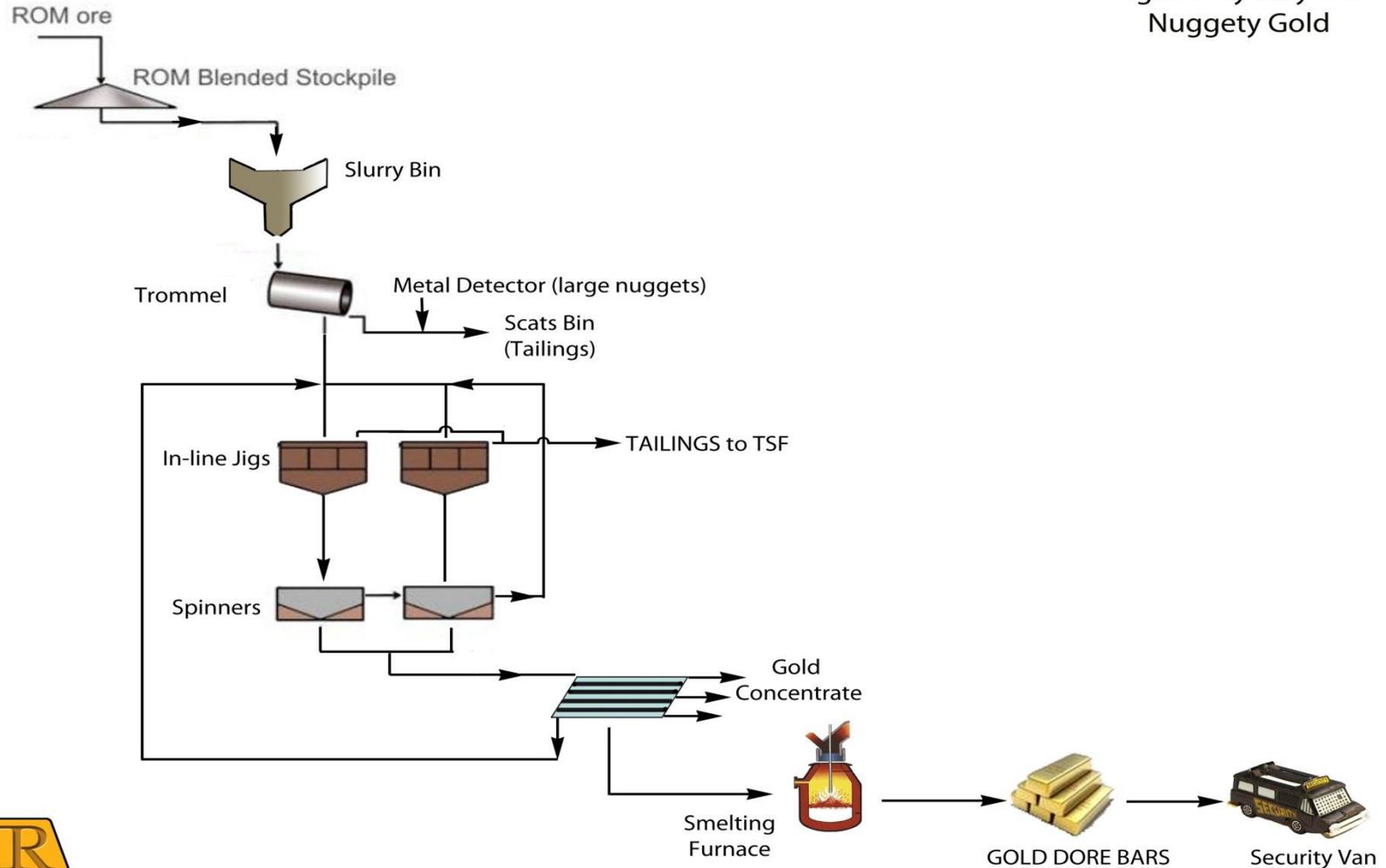


# Portia simple gravity gold processing

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## Portia Metallurgical Flow Chart

Light Grey Clay Ore  
Nuggety Gold





# Portia processing plant key components

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Twin 50 tph In-line Jigs with Spinners for heavy mineral and gold separation

120 tph Trommel for washing ore





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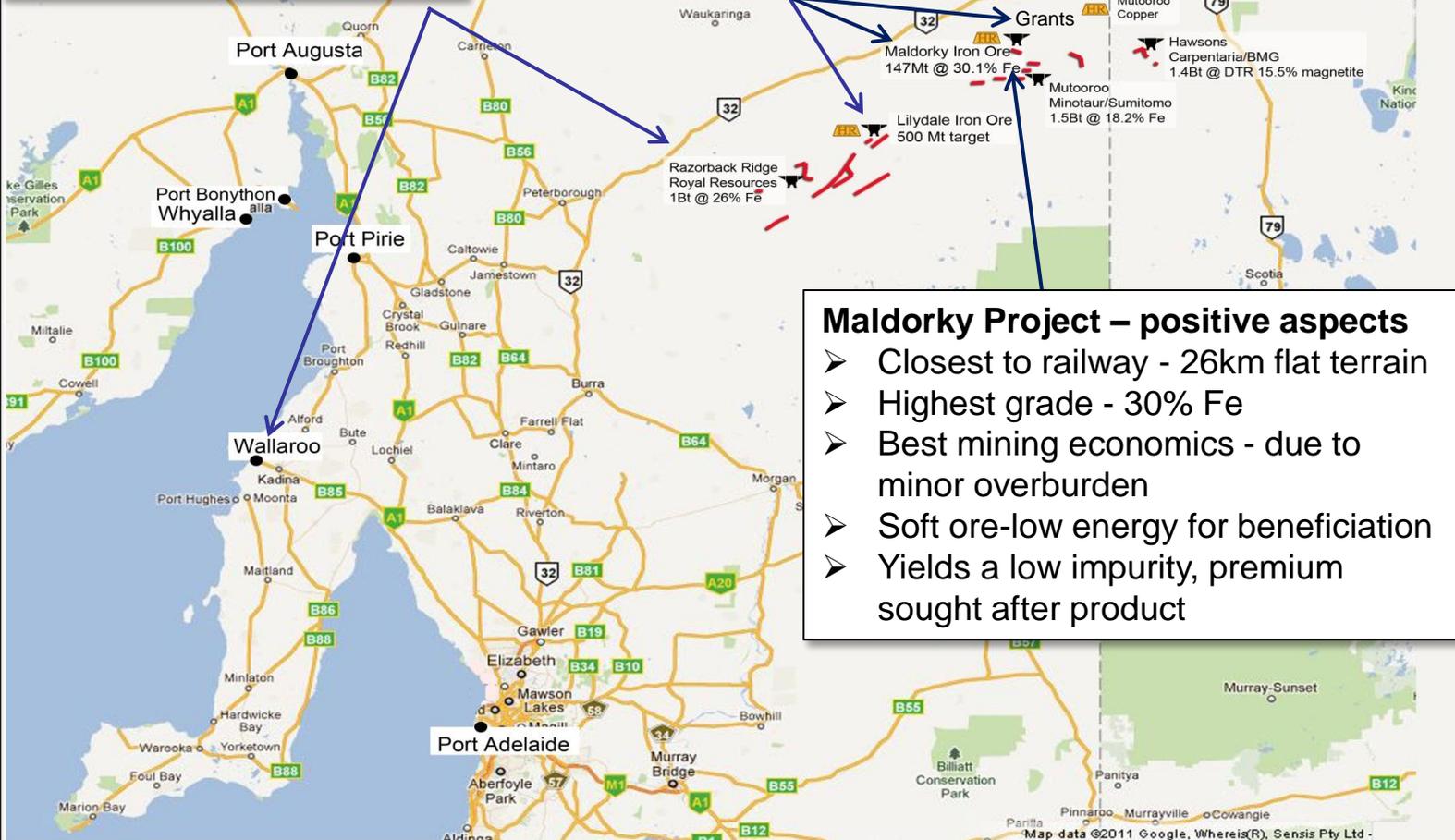
# 2. Iron ore development business

## The major emerging Braemar iron ore province



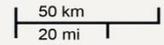
Infrastructure development opportunities on railway and port facilities

Havilah's three iron ore projects



- Maldorky Project – positive aspects**
- Closest to railway - 26km flat terrain
  - Highest grade - 30% Fe
  - Best mining economics - due to minor overburden
  - Soft ore-low energy for beneficiation
  - Yields a low impurity, premium sought after product

Braemar Iron Formation



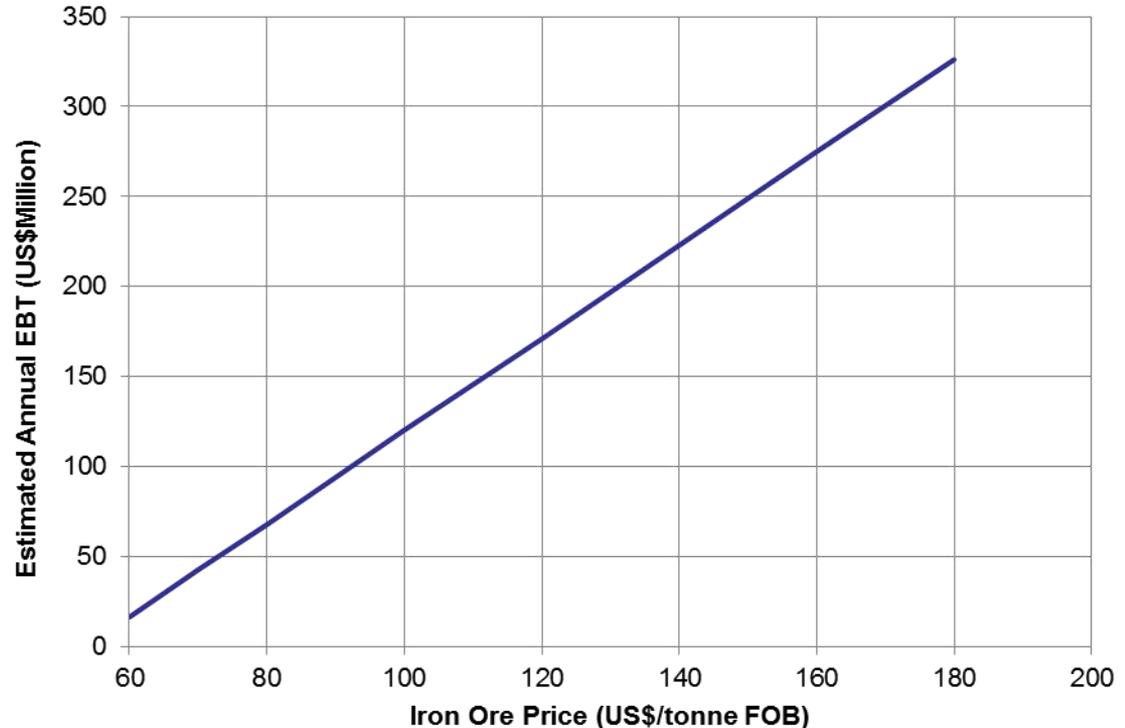
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# Maldorky is financially attractive

Maldorky has favourable economics for iron ore prices >US\$60/t FOB, provided capex is minimised by using existing infrastructure.

**\*Maldorky Iron Estimated Annual EBT**



Based on the current resource and open pit mining model, assuming :

- 2.7 Mtpa premium saleable product over a 23 year mine life.
- Capex of \$50M due to lack of overburden, simple processing, existing infrastructure.
- US \$ iron ore price and 1:1 US:AUD exchange rate.
- Best estimates for current mining, processing, royalty and transport costs.

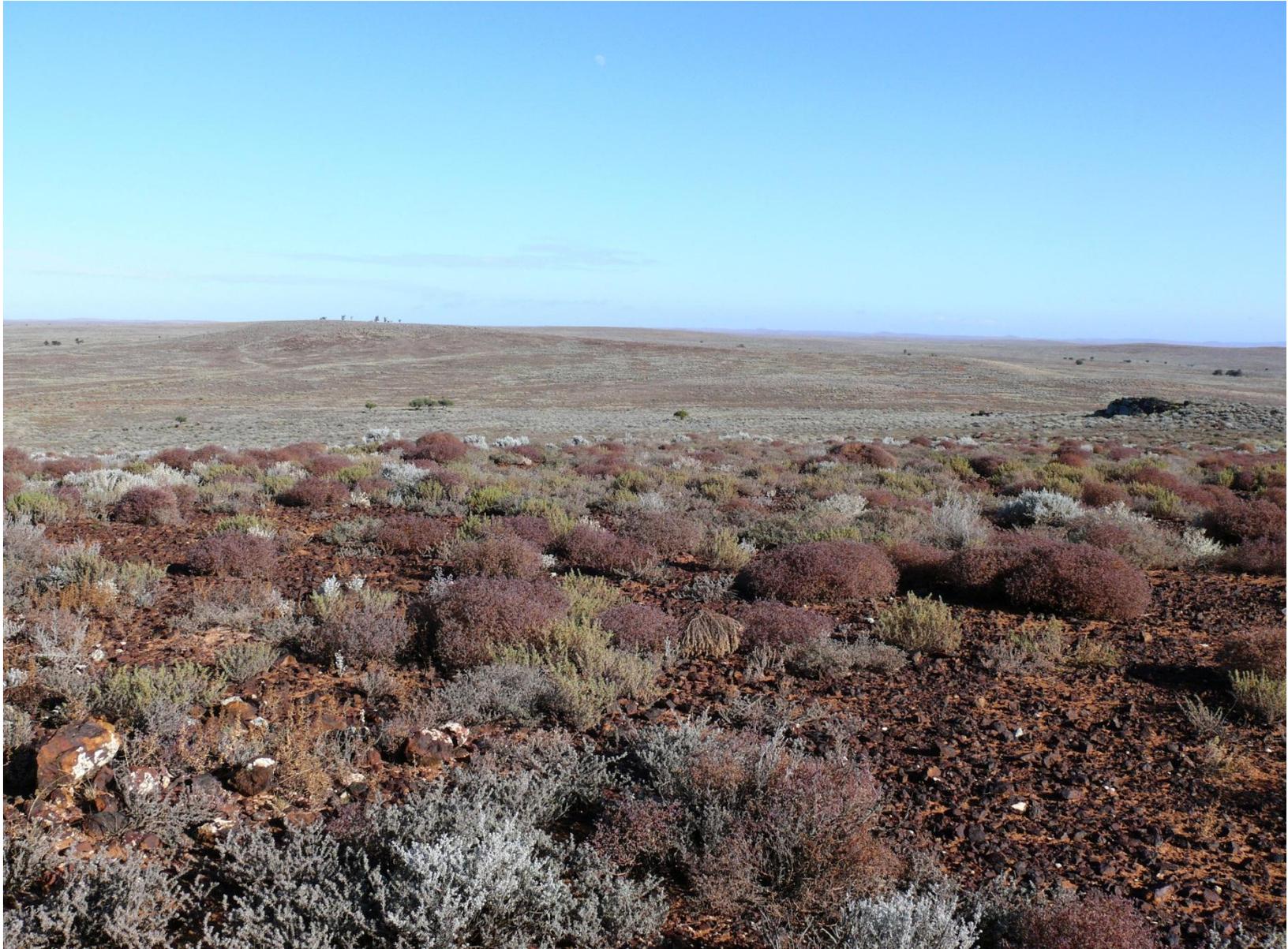
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# Grants iron ore discovery

**304 Mt of 24% Fe, only 8km from railway line**

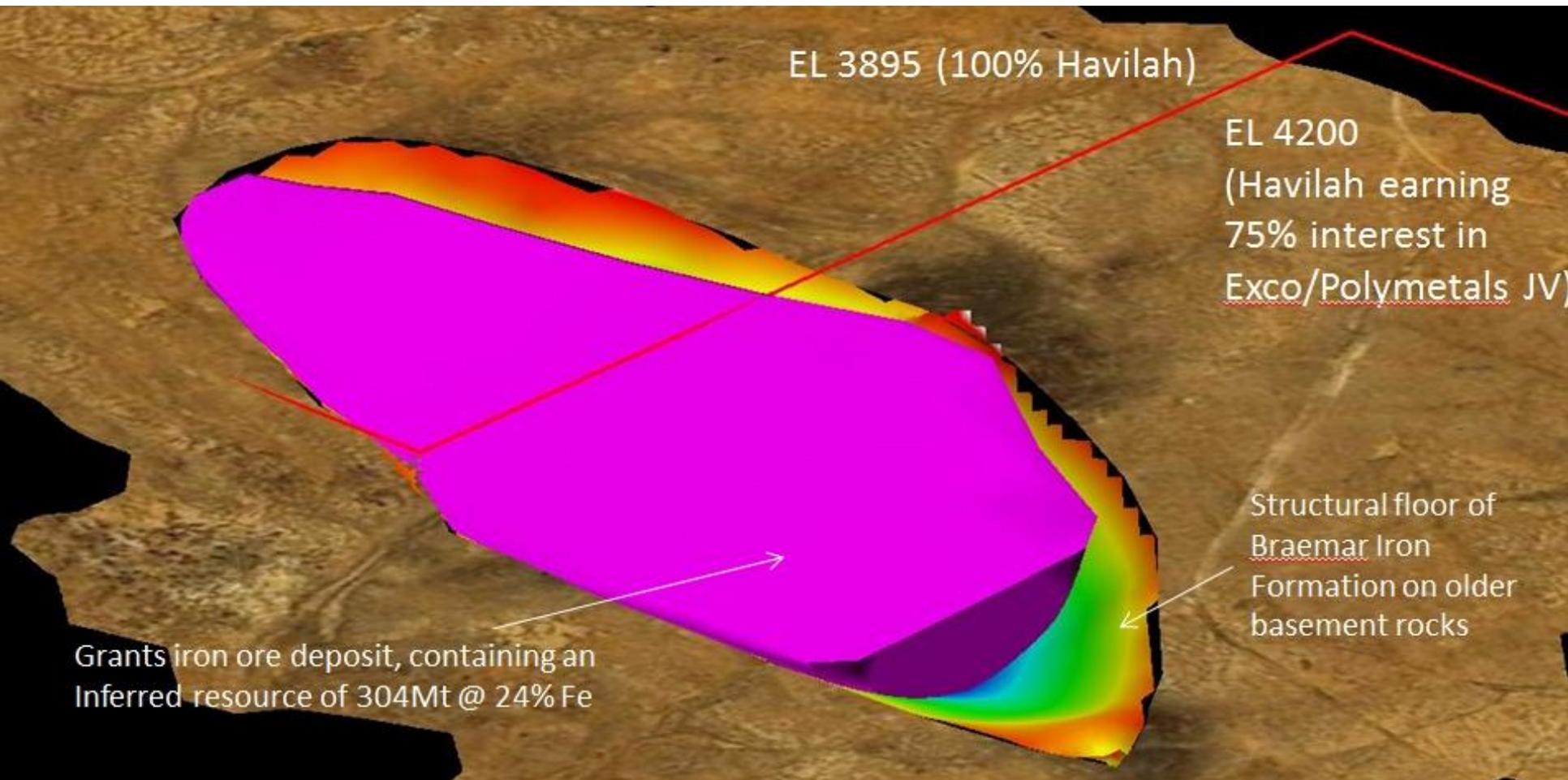




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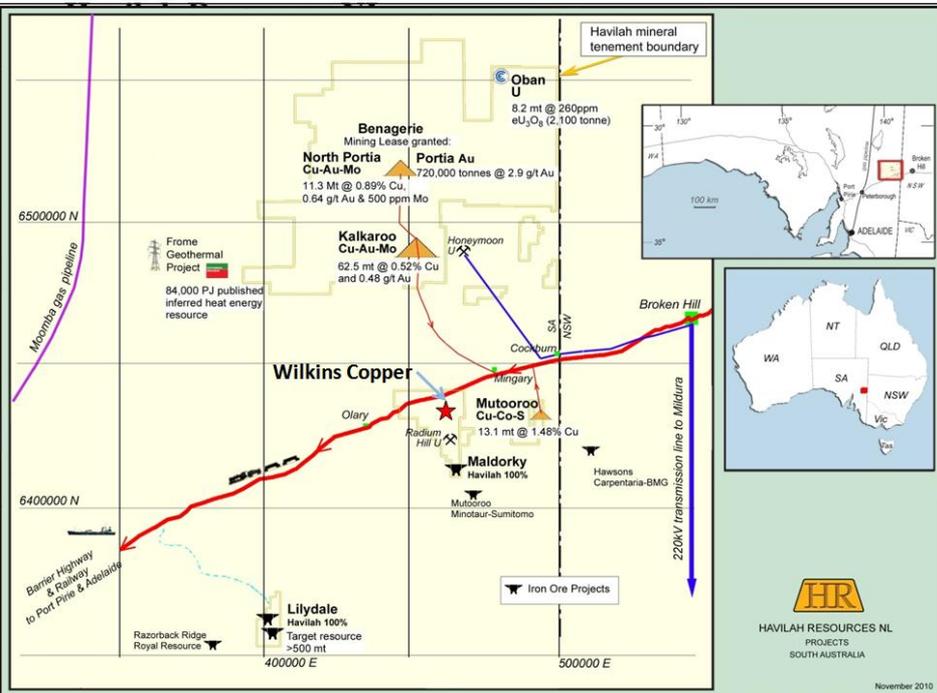
# Grants – favourable mining geometry

A large homogeneous slab of iron ore extending from surface to 180 m depth, with no overburden and minimal waste



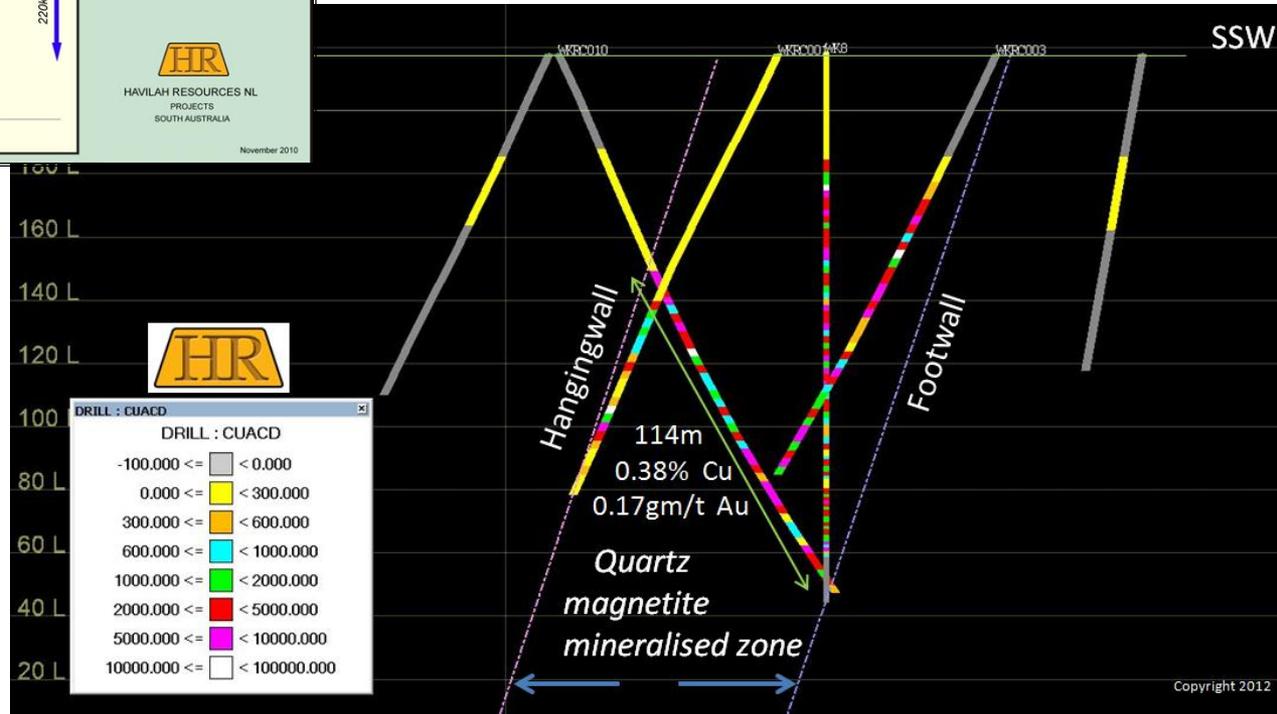


# Wilkins copper-gold discovery



- 100m wide skarn ironstone mineralised zone with long low grade copper-gold drill intersections
- 3km long mineralised structural corridor, of which only 300m length drill tested so far.

- Potential for discovery of a large ironstone hosted copper-gold deposit.
- 1 km from railway line





# Strategic objectives for 2013

- **Commence Portia open pit gold mine** – subject to DMITRE permitting approvals, financing, contractors, manning.\*
- **Complete scoping study for Maldorky iron ore project** – metallurgy, processing flow sheet, mining lease proposal, PEPR.\*
- **Advance Kalkaroo to mining stage** - mining lease proposal, PEPR, native title agreement.\*
- **Seek Mutooroo sulphide ore treatment solution\***
- **MMG exploration agreement** – discover a major orebody.\*
- **Seek investment partners** – on suitable terms to help with development of Havilah's mineral projects and marketing of product
- **Improve Havilah's market recognition and corporate profile.**

\* *Essentially the same strategic objectives as for 2012.*



# JORC resource metal inventory

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Copper: **915,500 tonnes** (Kalkaroo + Mutooroo + North Portia)

Gold: **2,400,000 ozs** (Kalkaroo + Mutooroo + Portia + North Portia)

Cobalt: **17.5 M Kg** (Mutooroo)

Molybdenum : **8.45 M Kg** (Kalkaroo + North Portia)

Project*	Resource Category	Tonnes (Mt)	Copper (%)	Gold (g/t)	Molybdenum (ppm)	Cobalt (%)	Contained Copper (tonnes)	Contained Gold (ounces)	Contained Moly (kg)	Contained Cobalt (kg)
Kalkaroo <sup>1</sup>	Gold Cap Measured	18,690,000		0.74				445,000		
	CuAu Measured	85,890,000	0.52	0.41			622,500	1,561,000		
	CuAu Indicated	38,620,000	0.45	0.33			Added to above	Added to above		
	Mo Inferred	4,500,000			615				2,768,000	
Portia <sup>4</sup>	Inferred	720,000		2.9				67,000		
North Portia <sup>3</sup>	Indicated (supergene)	2,750,000	1.0	0.65	451		101,000	234,500	5,680,000	
	Inferred (sulphide)	8,610,000	0.85	0.64	531		Added to above	Added to above	Added to above	
	Indicated (supergene Mo only)	7,732,000			340				Added to above	
Mutooroo <sup>2</sup>	Measured sulphide	4,149,000	1.23	0.18		0.14	192,000	92,700		17,540,000
	Indicated sulphide	1,697,000	1.52	0.35		0.14	Added to above	Added to above		Added to above
	Inferred sulphide	6,683,000	1.71	0.21		0.13	Added to above	Added to above		Added to above
	Measured oxide	598,000	0.56	0.08		0.04				
<b>Total all proj.</b>	<b>All categories</b>	<b>172,908,000</b>					<b>915,500</b>	<b>2,400,000</b>	<b>8,450,000</b>	<b>17,540,000</b>

\* Based on JORC resources, details released to ASX on : 1. 29/2/12 2. 18/10/10 3. 23/10/10 4. 26/6/09



# Havilah projects current status

Project*	JORC Res	FS	ML	PEPR	Comments on Current Activities and Status
Portia Au	✓	✓	✓	▲	<ul style="list-style-type: none"> <li>• Awaiting operating approvals for open pit mine from Mines Department.</li> <li>• Employed an experienced mining engineer as project manager.</li> <li>• Working on contract details with landowner, contractor, financiers.</li> </ul>
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Maldorky Fe	✓	▲	▲		<ul style="list-style-type: none"> <li>• Metallurgical testwork and processing flow sheet design in progress.</li> <li>• First draft Mining Lease proposal submitted.</li> </ul>
Grants Fe	✓				<ul style="list-style-type: none"> <li>• Metallurgical test work to confirm processing is similar to Maldorky ore.</li> <li>• Further drilling to expand and upgrade status of resource.</li> </ul>
Lilydale Iron Wilkins Copper Prospect Hill Tin	▲				<ul style="list-style-type: none"> <li>• Promising projects with mutiple ore-grade intersections.</li> <li>• Drilling to JORC resource status next step as circumstances permit.</li> </ul>

▲ work in progress