# ASX MEDIA RELEASE

Havilah Resources
A New Mining Force in South Australia

18 December 2019

# 2019 AGM Technical Review

**Havilah Resources Limited** (**Havilah**) is pleased to circulate the 2019 Technical Review presentation that will be presented at the 2019 Annual General Meeting today by Dr Chris Giles, Havilah's Technical Director and Mr Richard Buckley, Havilah's Senior Mine Planning Engineer, who is responsible for the management of Havilah's advanced mineral projects.

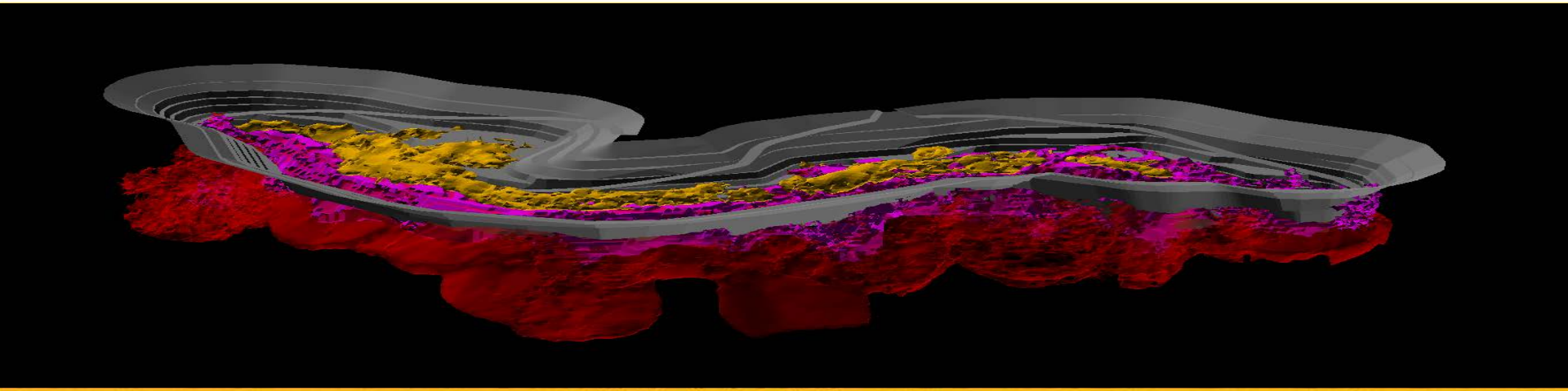
The presentation provides a summary of Havilah's corporate and technical achievements during 2019 and its strategic planning for the year ahead. Havilah is well placed going into 2020 and shareholders can look forward to an exciting year of news flow on exploration and mineral project advances.

The presentation will also be available on the Company's website at www.havilah-resources.com.au.

For further information visit www.havilah-resources.com.au
**Contact:** Dr Chris Giles email: info@havilah-resources.com.au

# Havilah Resources

**Multi-Commodity Minerals Portfolio in South Australia**



## AGM 2019 Technical Presentation

# Cautionary and Competent Person's Statement

## Cautionary Statement

The information contained in this presentation is not financial product advice. The presentation is for information purposes and is of a general and summary nature only. Neither Havilah Resources Limited (Havilah) nor any member of the Havilah Group of companies, gives no warranties in relation to the statements and information in this presentation. Investors should seek appropriate advice on their own objectives, financial situation and needs.

It is not recommended that any person makes any investment decision in relation to Havilah based on this presentation. This presentation should be read in conjunction with the latest Annual Report together with any announcements made by Havilah in accordance with its continuous disclosure obligations arising under the *Corporations Act 2001*.

This presentation contains certain statements which may constitute 'forward-looking statements'. Such statements are only predictions and are subject to inherent risks and uncertainties which could cause actual values, performance or achievements to differ materially from those expressed, implied or projected in any forward-looking statements Havilah disclaims any intent or obligation to update publicly any forward-looking statements, whether as a result of new information, future events or results or otherwise. Investors are cautioned that forward-looking statements are not guarantees of future performance and investors are cautioned not to put undue reliance on forward-looking statements due to the inherent uncertainty therein.

## Competent Person's Statement

The information in this presentation that relates to Exploration Targets, Exploration Results, Mineral Resources and Ore Reserves is based on data compiled by geologist, Dr Chris Giles, a Competent Person who is a member of The Australian Institute of Geoscientists. Dr Giles is a director of the Company, is a substantial shareholder and is employed by the Company on a consulting contract. Dr Giles has sufficient experience, which is relevant to the style of mineralisation and type of deposit and activities described herein to qualify as a Competent Person as defined in the 2012 Edition of 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr Giles consents to the inclusion in the presentation of the matters based on his information in the form and context in which it appears.

Resource information for the Mutooroo, Maldorky and Grants deposits was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported. Havilah confirms that all material assumptions and technical parameters underpinning the reserves and resources continue to apply and have not materially changed.

# Corporate snapshot at close of 2019

- **Havilah recapitalised:**
  - Successful non-underwritten rights issue supported by major shareholders ($3.6 million raised to date with shortfall expected to be placed).
  - Investec debt facility fully repaid and security held by Investec over Kalkaroo and Mutooroo has lapsed.

- **Funding will be available** to carry out the planned cost-effective technical work programs during 2020:
  - Kalkaroo – complete updated PFS incorporating improved metal recoveries, metal prices, pyrite value.
  - Mutooroo – drilling for additional open pit resources, underground mining studies for PFS.
  - Grants Basin – infill drilling to establish a > 0.5 billion tonne iron ore resource at 'West End' open pit.
  - Exploration – high conviction copper-gold targets initially at Croziers and Jupiter.

- **Shareholder unity restored** with a clear direction and strategy. Havilah remains independent and in full control of its own destiny, allowing it to work towards maximising returns for the benefit of all shareholders.

- **Re-focus on technical work** run by competent technical professionals guided by a fiscally responsible business orientated board.

# Technical snapshot at close of 2019

- **Kalkaroo PFS released** – positive independent PFS with pre-tax $NPV_{7.5\%}$ of A$564 million*. 13 year production period with average annual production of 30,000 tonnes of copper and 72,000 ounces of gold.

- **Grants Exploration Target** – 3.5-3.8 billion tonnes of 24-28% iron**, estimated from reconnaissance drilling of only 25% area of the Grants Basin. Deepest hole so far intersected an exceptional 488m of continuous iron ore at 24.57% iron.

- **Mutooroo AEM Survey** – highlighting potential new drilling targets additional to the historic drilling results and Havilah lag sampling copper and cobalt geochemical anomalies.

- **Portia and North Portia Mining Lease** – renegotiation of deal that saw accelerated payments and removal of permitting obligation from Havilah. Further $3.8 million payment and 1.5% NSR royalty going forward.

- **Croziers Copper Skarn Target** – detailed drillhole target planning highlighting the potential for not only copper but also tungsten and key rare-earth elements (REE).

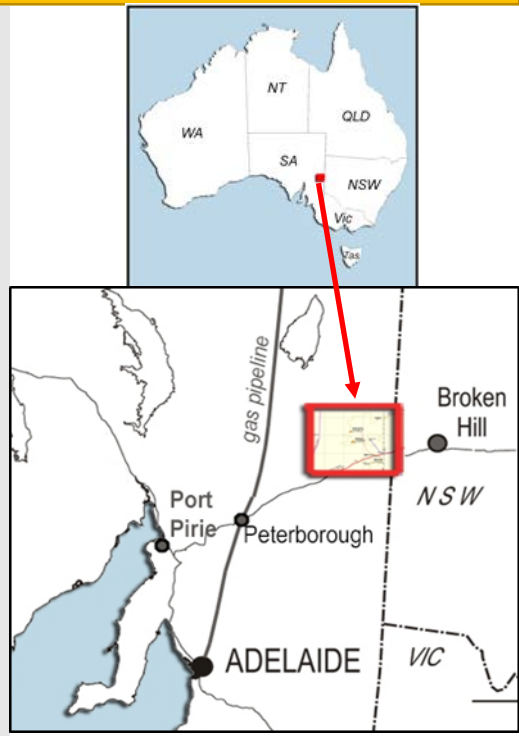
- **Jupiter MT Anomaly** – significance of the MT conductive zone supported by several new studies and by local gravity data. Havilah gravity survey currently underway in the field.

* based on US$6,380/t copper, US$1,200/oz gold and AUD:USD 0.75 in RPM Global PFS as referred to in ASX release of 18 June 2019.

** the potential quantity and grade of the Exploration Target is conceptual in nature, there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.

# Havilah ticks investment boxes for a resource stock

- ✓ **Low sovereign risk jurisdiction** – with a mining friendly government in South Australia that actively encourages mineral development.
- ✓ **Favourable logistics and infrastructure** – close to regional mining centre of Broken Hill; the main east-west railway line and highway runs through tenement block; Havilah owns 550 km$^2$ Kalkaroo Station pastoral lease.
- ✓ **Experienced technical team** – Havilah's current technical team has an exceptional track record of exploration success (including 8 JORC Mineral Resources at Havilah) and has developed and operated the Portia gold mine.
- ✓ **Clear strategic direction and leadership** – experienced board focused on making sensible strategic and financially responsible decisions.
- ✓ **High quality mineral projects** – Havilah has three advanced mineral projects with substantial JORC Mineral Resources (refer to JORC 2019 table at end).
- ✓ **Green technology metals** – including copper, cobalt and potential REE.
- ✓ **Blue sky upside** – >16,000 km$^2$ of some of the most prospective and under-explored exploration terrain in Australia for copper, gold, cobalt and iron ore. Havilah operates its own drilling crew, which has been a key to its cost-effective successful exploration history.




**100% ownership of high quality mineral assets in the Curnamona Craton**

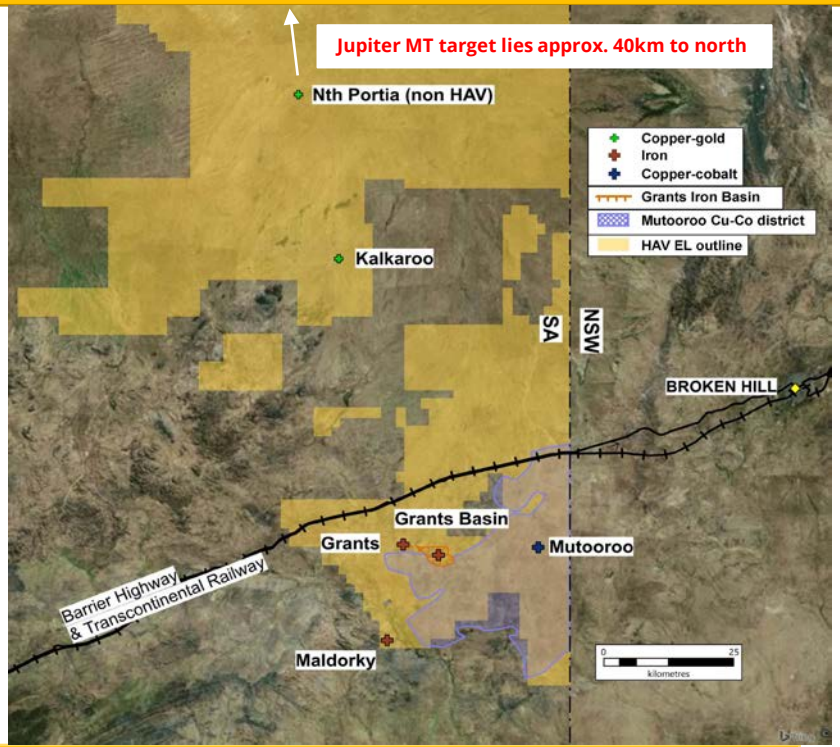
# Advanced mineral projects summary

## Copper – Gold – Cobalt

- **Kalkaroo:** Positive independent prefeasibility study (PFS) (refer to ASX release of 18 June 2019).
  - Confirms viability of a large scale open pit copper mine.
  - 100 Mt JORC Ore Reserve (474,000 tonnes copper, 1.4 million ounces gold).
- **Mutooroo:** High grade open pit copper deposit with cobalt.
- High potential for expansion of both resources.

## Iron Ore

- **Grants & Maldorky:** Combined JORC Mineral Resources of 451 Mt iron ore in proximity to rail line; amenable to efficient upgrading to 65% Fe product.
- **Grants Basin:** Exploration Target 3.5-3.8 billion tonnes 24-28% Fe in only 25% of the iron ore basin area (refer to ASX release of 5 April 2019).

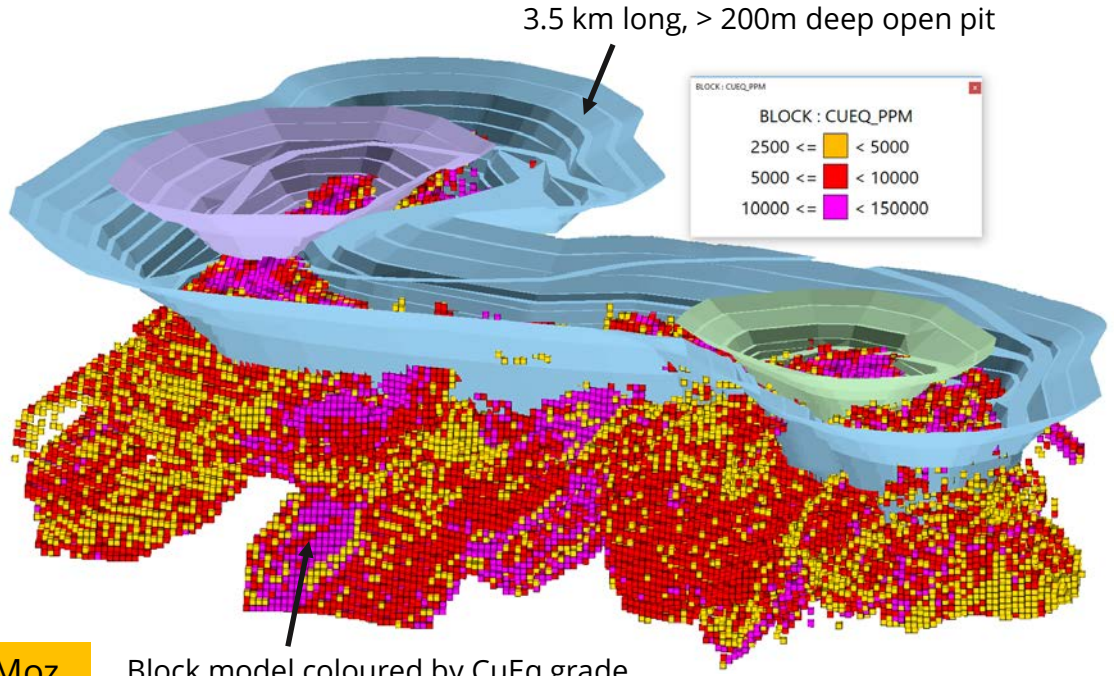



**A multi-commodity minerals portfolio accumulated over 17 years**

# Kalkaroo: Positive independent PFS (being updated)

**Key PFS outcomes:**

- Pre-tax $NPV_{7.5\%}$ of A$564 million.*
- IRR of 26%.*
- Average annual production:
  - 30,000 t copper
  - 72,000 oz gold
- 13 year production period.
- A$332 million pre-production capex.*
- De-risked project: granted Mining Lease and ownership of surrounding pastoral property.




**JORC Mineral Resources**

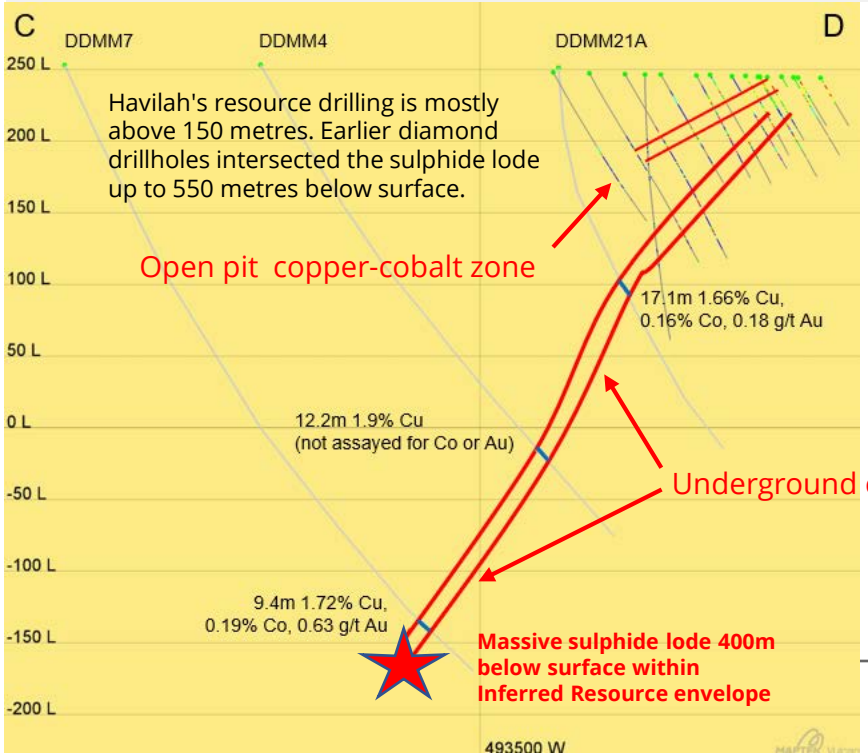
| Copper 1.1 Mt | Cobalt 23.2 Kt | Gold 3.1 Moz |
|---|---|---|

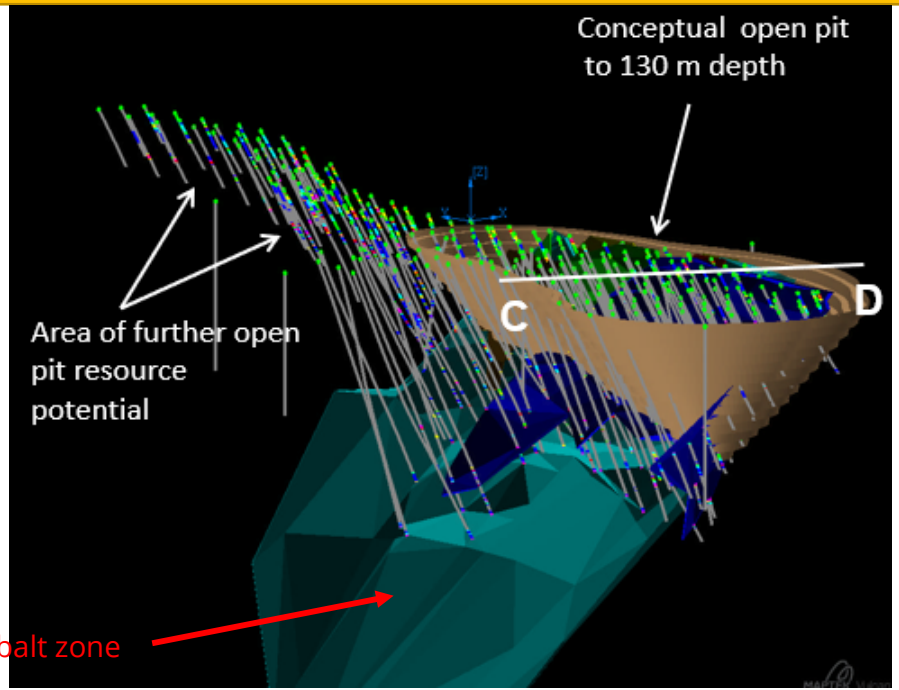
**100 Mt JORC Ore Reserve - Australia's largest undeveloped open pit copper deposit on CuEq basis**

*based on US$6,380/t copper, US$1,200/oz gold and AUD:USD 0.75 in RPM Global PFS as referred to in ASX release of 18 June 2019

# Mutooroo: Potential high grade open pit copper mine

- 16 km to rail line; daily commute to Broken Hill.
- 1.5% copper and 0.14% cobalt grade in conceptual shallow open pit and underground.

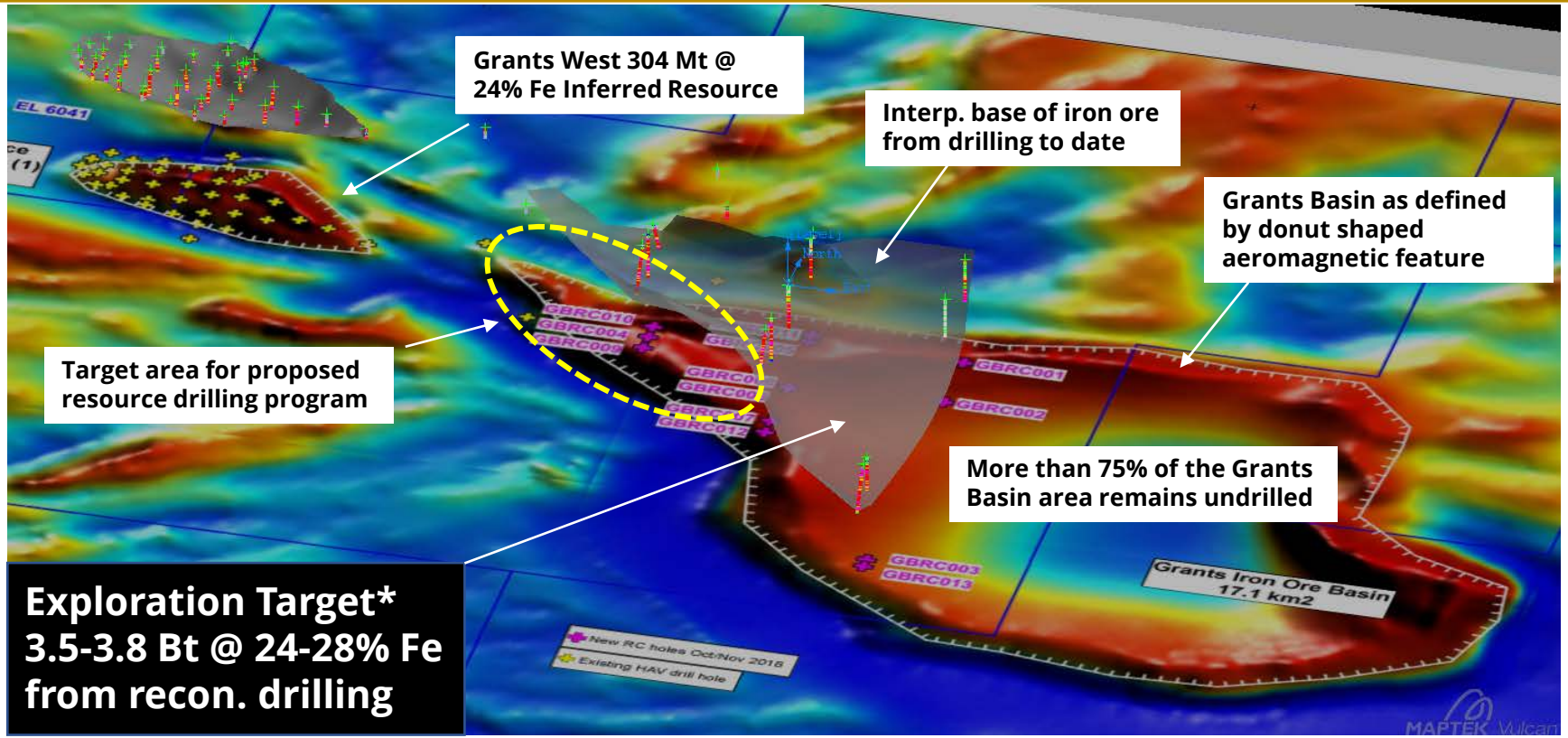



**JORC Mineral Resources**

| Copper 195.0 Kt | Cobalt 8.4 Kt | Gold 44.6 Koz |
|---|---|---|

# Grants Basin iron ore: A large Exploration Target*




*The potential quantity and grade of the Exploration Target is conceptual in nature, there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.



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# Grants Basin iron ore cross-section

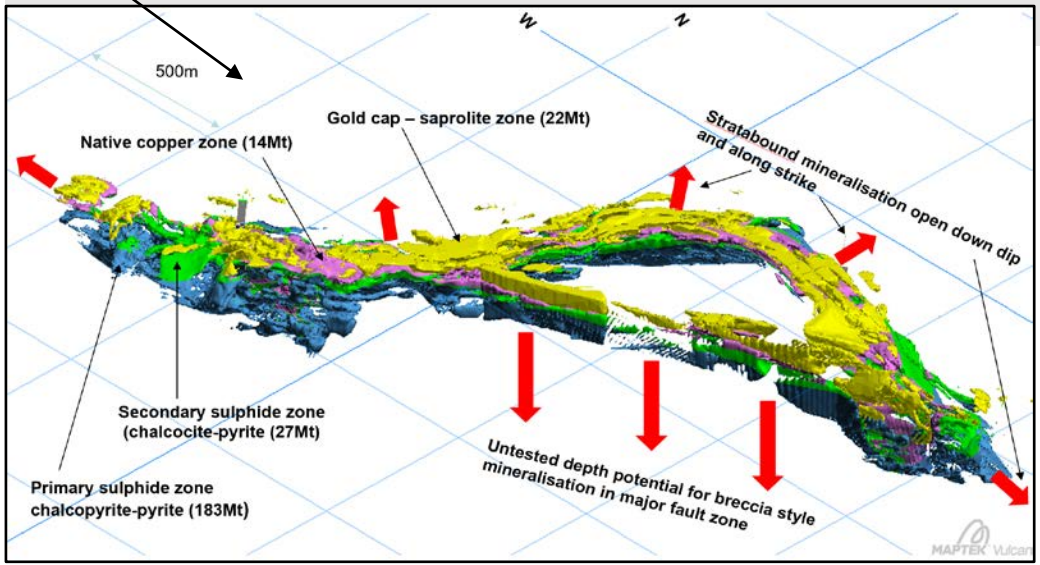
- A large basin shape, the deepest hole so far is 624m with 488m of continuous iron ore at 24.57% Fe.*
- Extensive surface outcrop indicating a potentially very low waste:ore ratio for an open pit mine.
- Coarser-grained, higher grade zones that can potentially be exploited in upper parts of deposit.
- Iron ore from the nearby similar Maldorky iron ore deposit upgrades to a high purity 65% Fe product for a 40% product yield and 85% overall Fe recovery.**

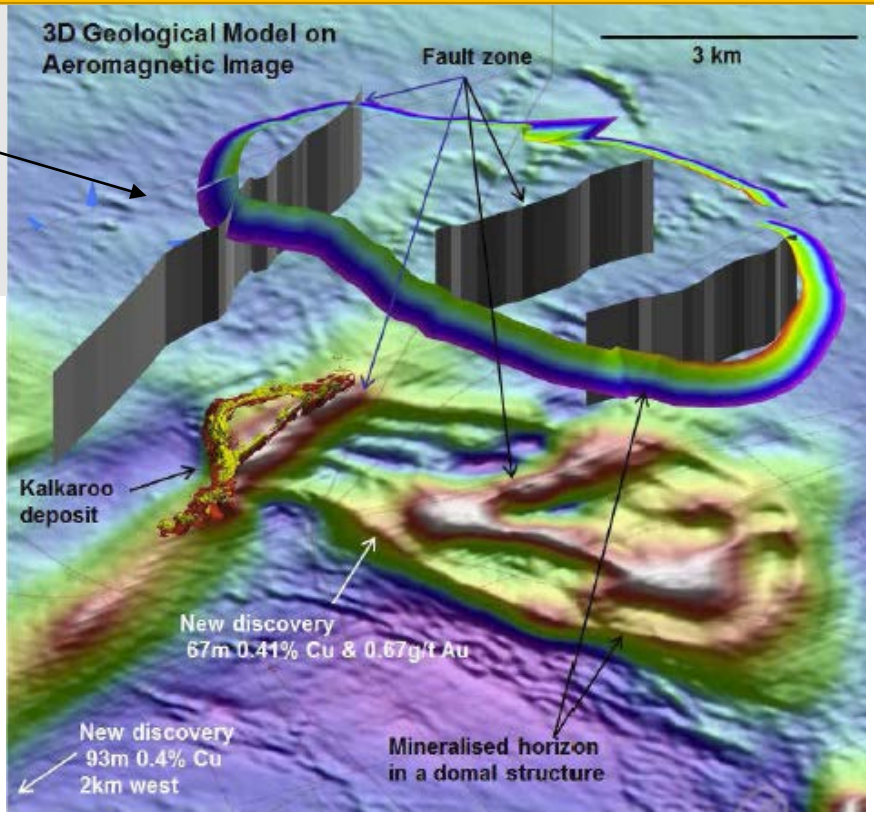

*refer to ASX release of 25 June 2019 **refer to ASX release of 24 April 2019

# Kalkaroo: Near mine resource expansion potential

**A large copper mineralised system of interest to a major**

- Conceptually based exploration drilling returned encouraging intersections at three prospects within 5 km of Kalkaroo.
- Untested resource extensions of Kalkaroo deposit where mineralisation is open down-dip, along strike and in central fault zone (refer to ASX release of 18 June 2019).

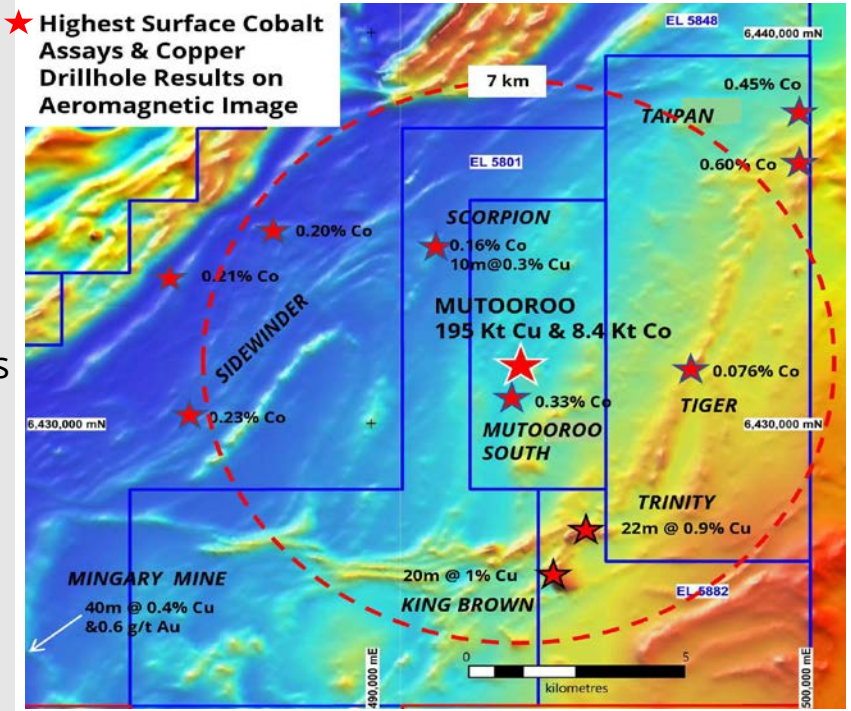


# Mutooroo Copper-Cobalt District prospectivity

## Many high quality prospects to explore

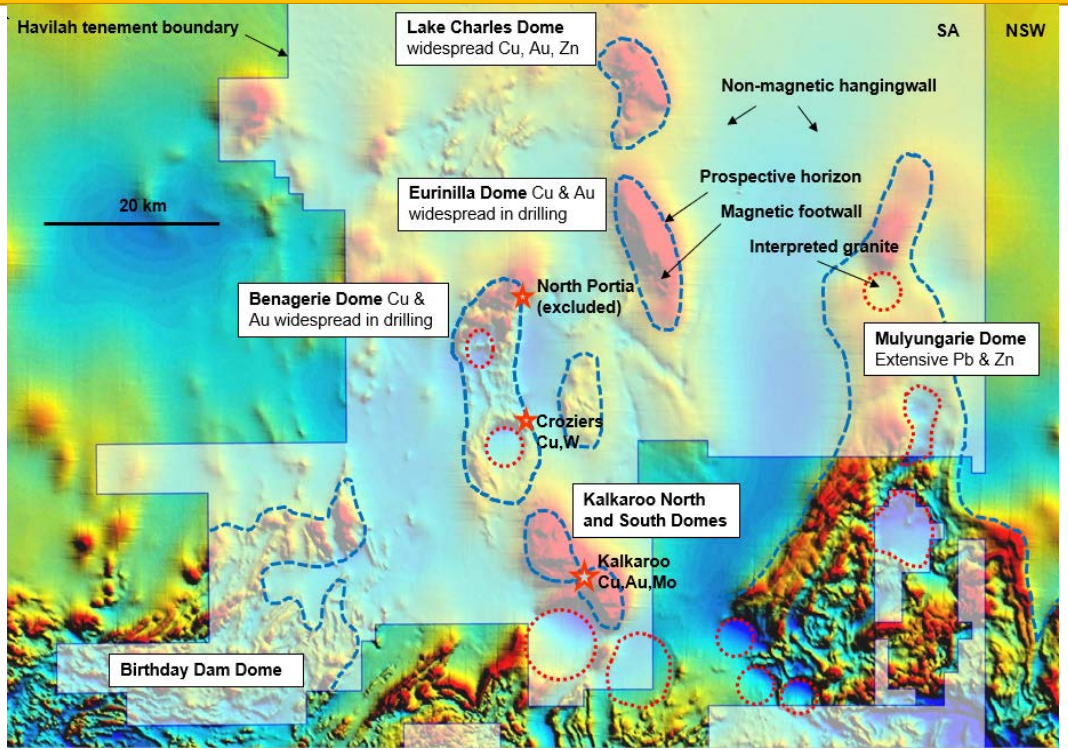
- A major new copper-cobalt province identified in northeastern South Australia.
- Numerous prospects dating from the1960's within 10 km of the Mutooroo deposit.
- Ore-grade copper drilling intersections at King Brown, Trinity and Mutooroo West (Scorpion) several decades ago have not been assayed for cobalt or gold nor followed up with further drilling.
- Widespread high copper and cobalt results in Havilah's surface lag sampling have defined a large target area called Sidewinder. Copper and cobalt values in lag samples are of a similar order of magnitude (refer to ASX release of 7 December 2018).




**Many untested copper-cobalt prospects within 10 kilometres of Mutooroo**

# Regional exploration: Curnamona copper belt

- Kalkaroo style mineralisation in a > 200 km long, prospective horizon (blue dashed line).
- Several well mineralised major structural domes (eg Kalkaroo, Benagerie, Eurinilla, Lake Charles).
- Strong geological analogies to the prolific Zambian Copper Belt.
- Aeromagnetics clearly identifies the prospective mineralised horizon at a regional redox boundary.
- Shallow drilling has identified extensive copper-gold mineralisation and some outstanding potential drilling targets.



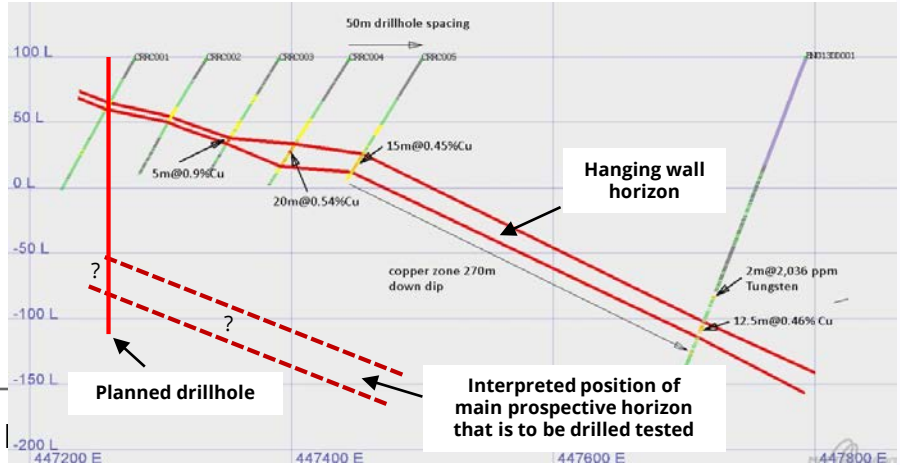

**Exploring for Zambian Copper Belt style stratabound replacement copper mineralisation**

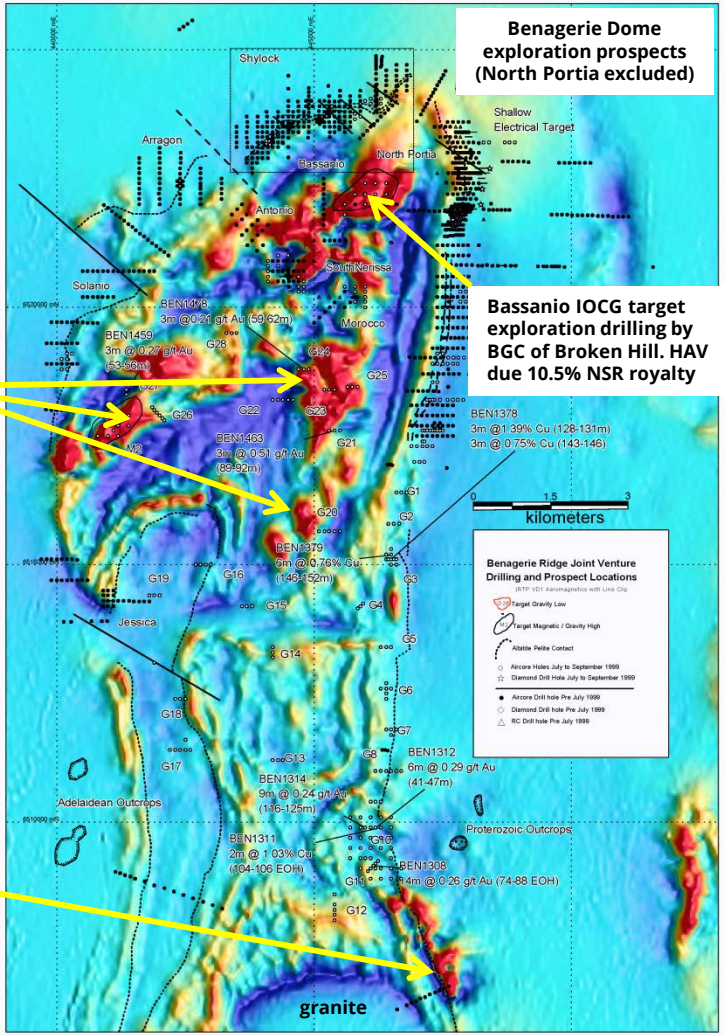
# Many promising drilling targets
## eg Benagerie Dome

**IOCG and skarn targets –** fault-controlled iron-rich magnetic bodies with anomalous copper, gold, molybdenum.

Examples of breccia and skarn host rocks with copper sulphides sought in Benagerie Dome.

**Croziers copper skarn target –** copper, tungsten, REE mineralisation in skarn adjacent to granite contact.

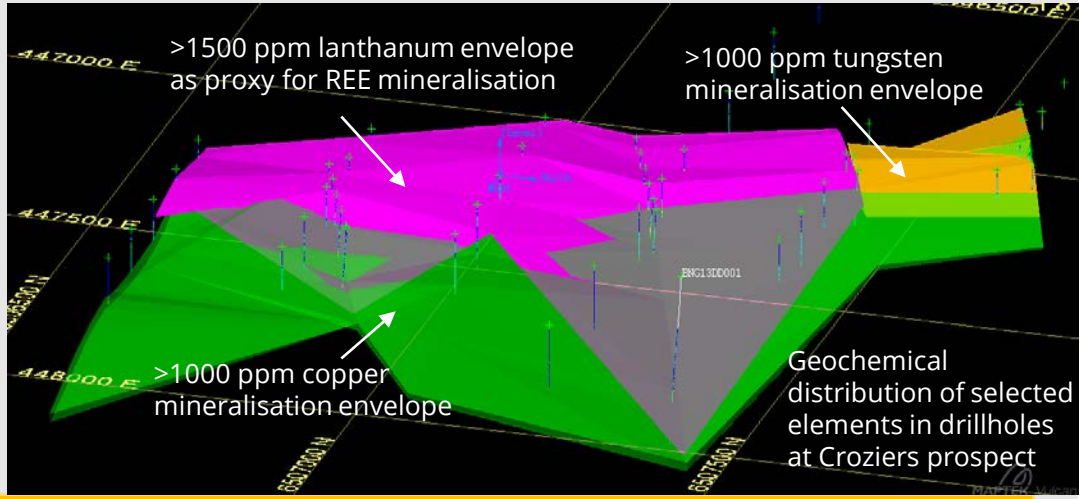


# Rare-earth mineralisation in Curnamoma copper belt

**The copper mineralised domes also have REE mineralisation potential, including for Samarium (Sm) and Neodymium (Nd) used in super-strong magnets for electric vehicle motors**

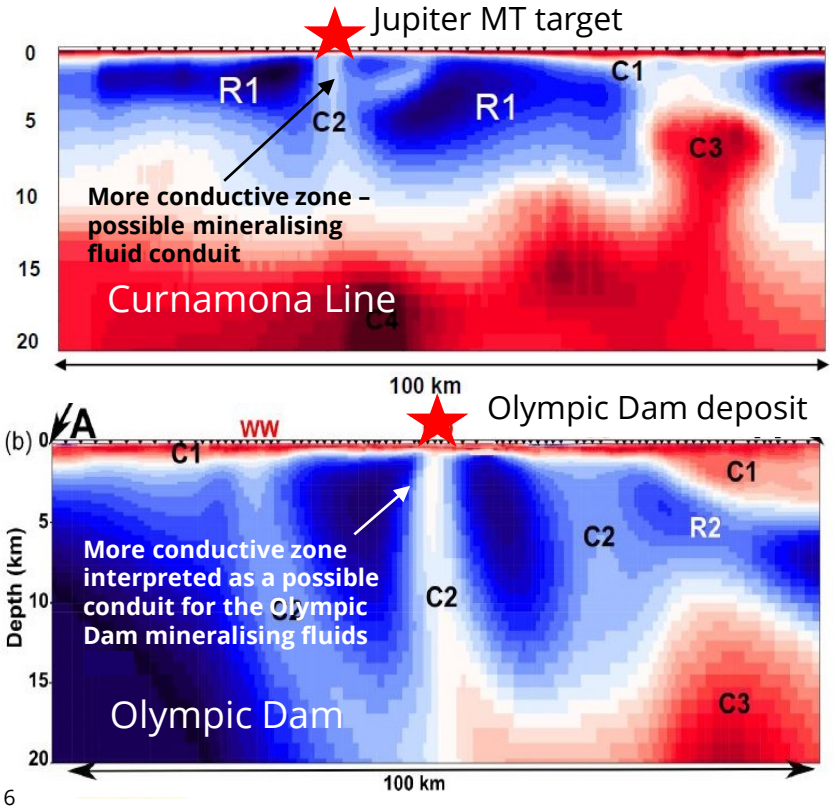
- Review of MMG JV diamond drilling results for Croziers and Eurinilla prospects shows some exceptionally anomalous values for Sm and Nd associated with copper mineralisation (eg up to 2,400 ppm Nd in MMG diamond drillhole EUR14DD008).
- It is common for IOCG and related skarn mineralised systems to have associated rare-earth elements that were deposited during the mineralisation process.
- There is very limited REE data for the Curnamona Craton and Havilah is currently re-assaying its extensive library of retained drillhole samples to determine the extent and grade of any REE mineralisation.

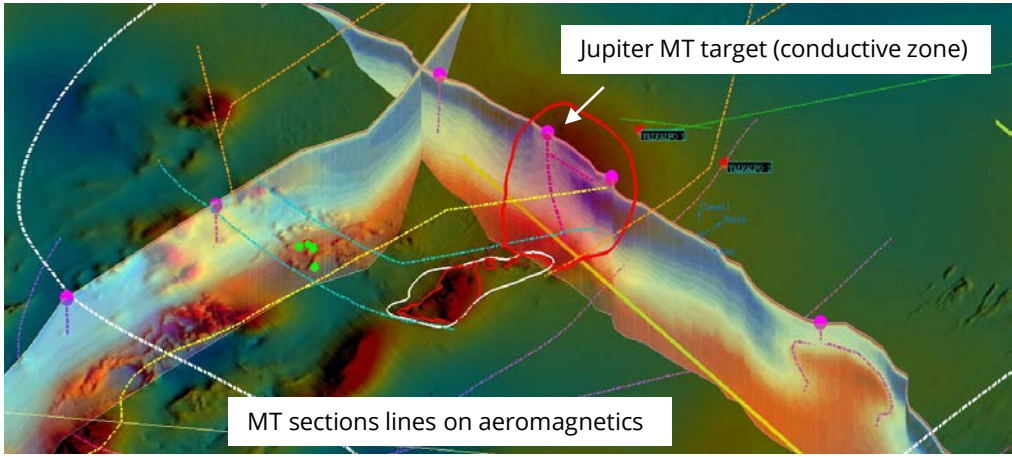



**The mineralising processes in the Curnamona Craton concentrated high value Sm and Nd**

# Jupiter MT target – greenfields exploration

## An untested conductive zone (C2)




- Magneto-tellurics (MT) is a modern geophysical tool that can identify conductive zones or potential feeder systems for major ore deposits (eg the giant Olympic Dam deposit lying above the vertical white C2 conductive zone at left). Note R=resistive zone and C = conductive zone.

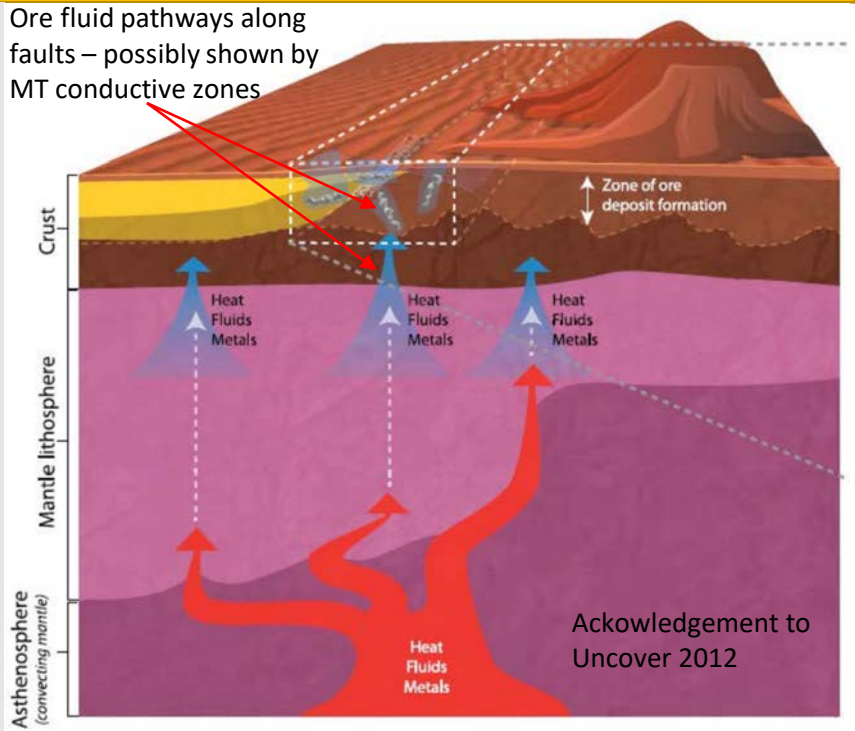
- The Jupiter MT target is a similar untested conductive zone within Havilah's exploration licences (refer to ASX release of 27 October 2017).

Acknowledgement to Professor Graham Heinson and colleagues from University of Adelaide for the MT sections

# MT conductive zones may be the explorers' holy grail

**Most basemetal and gold deposits have a fundamental structural (fault or fracture) control**

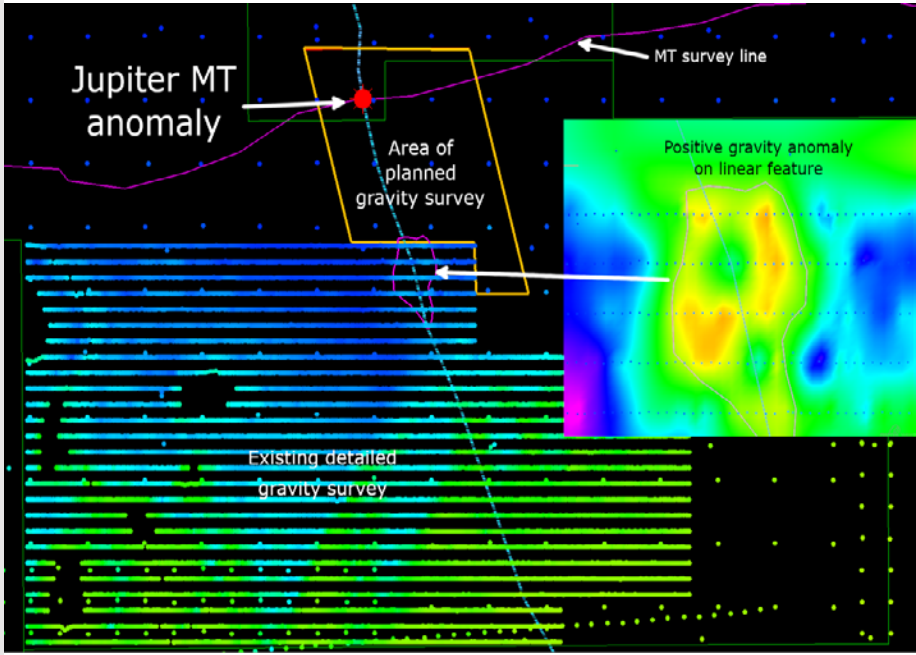
- If one can find the underlying feeder or conduit for the original mineralising solutions it may lead directly to the ore deposit. Eg Olympic Dam example.
- The Gawler Craton is well studied with several large copper-gold deposits, major companies involved and considerable university and government research.
- With more detailed studies, the evidence is becoming increasingly convincing for the association of vertical MT conductive zones (the interpreted mineralising fluid pathways) and mineralisation.
- MT is particularly applicable in the Curnamona Craton where copper-gold mineralisation is related to deep fault zones.




**Shallow MT surveying will be a potential breakthrough for Curnamona Craton exploration**

# How Havilah is applying this new knowledge

- Public access gravity data has identified a 2 km diameter circular feature and a gravity ridge extending northwards to Jupiter. Havilah is presently extending the detailed gravity coverage over Jupiter.*
- Havilah plans to extend collaboration with the University of Adelaide during 2020 to collect more detailed MT data that can be used to generate 2D and 3D models of the Jupiter MT conductive zone.
- This will be followed up with additional geophysical and sensitive geochemical sampling methods to identify an initial drilling target at Jupiter.
- MT is a powerful new geophysical technique that can potentially vector towards ore deposits and Havilah will support further co-operative studies to maximise the exploration benefit (eg at Kalkaroo).




*refer to ASX release of 6 November 2019

**Watch this space!**

# 2020 execution strategy and expected news flow

**Focus on attracting investment in advanced projects and making new exploration discoveries**

- **Kalkaroo copper-gold-cobalt:** Update PFS to incorporate positive new metallurgical results and re-optimised open pit. Completion planned during 2Q 2020.
- **Mutooroo copper-cobalt-gold:** Advance PFS based on an open pit and underground copper mine. Substantive results expected during 3Q 2020.
- **Grants Basin iron ore:** >0.5 billion tonne JORC resource drill out in support of a scoping study on an open pit with minimal overburden and waste. Drilling and other results expected during 4Q 2020.
- **Croziers prospect copper-tungsten-REE:** Exploration drilling of the main untested mineralised horizon. Drilling results expected during 1Q & 2Q 2020.
- **Jupiter MT anomaly:** Follow up geophysics to define initial drilling target. Gravity survey commenced 4Q 2019 and extending to 2Q 2020.
- **Disciplined approach:** Subject to placing the rights issue shortfall, Havilah will be in a position to sole fund these activities with the objective of de-risking the projects and making them more attractive investment propositions. Partnerships will be considered to secure additional funding to accelerate activities where suitable terms can be negotiated that are considered to be fair for shareholders.

**An ambitious proposed work program to be funded by the rights issue proceeds**

# 2019 JORC Ore Reserve and Mineral Resources

**JORC Mineral Resources as of 31 July 2019**

| Project | Classification | Resource Category | Tonnes | Copper % | Cobalt % | Gold g/t | Copper tonnes | Cobalt tonnes | Gold ounces |
|---|---|---|---|---|---|---|---|---|---|
| Mutooroo[2] | Measured | Oxide | 598,000 | 0.56 | 0.040 | 0.08 | | | |
| | **Total** | **Oxide** | **598,000** | **0.56** | **0.040** | **0.08** | **3,300** | **200** | **1,500** |
| | Measured | Sulphide Copper-Cobalt-Gold | 4,149,000 | 1.23 | 0.140 | 0.18 | | | |
| | Indicated | Sulphide Copper-Cobalt-Gold | 1,697,000 | 1.52 | 0.140 | 0.35 | | | |
| | Inferred | Sulphide Copper-Cobalt-Gold | 6,683,000 | 1.71 | ISD | ISD | | | |
| | **Total** | **Sulphide Copper-Cobalt-Gold** | **12,529,000** | **1.53** | | | **191,700** | **8,200** | **43,100** |
| | | **Total Mutooroo** | **13,127,000** | | | | **195,000** | **8,400** | **44,600** |
| Kalkaroo[3] | Measured | Oxide Gold Cap | 12,000,000 | | | 0.82 | | | |
| | Indicated | Oxide Gold Cap | 6,970,000 | | | 0.62 | | | |
| | Inferred | Oxide Gold Cap | 2,710,000 | | | 0.68 | | | |
| | **Total** | **Oxide Gold Cap** | **21,680,000** | | | **0.74** | | | **514,500** |
| | Measured | Sulphide Copper-Gold | 85,600,000 | 0.57 | | 0.42 | | | |
| | Indicated | Sulphide Copper-Gold | 27,900,000 | 0.49 | | 0.36 | | | |
| | Inferred | Sulphide Copper-Gold | 110,300,000 | 0.43 | | 0.32 | | | |
| | **Total** | **Sulphide Copper-Gold** | **223,800,000** | **0.49** | | **0.36** | **1,096,600** | | **2,590,300** |
| | | **Total Kalkaroo** | **245,480,000** | | | | **1,096,600** | | **3,104,800** |
| | Inferred | Cobalt Sulphide[4] | 193,000,000 | | 0.012 | | | 23,200 | |
| **Total All Projects** | | **All Categories (rounded)** | **258,607,000** | | | | **1,291,600** | **31,600** | **3,149,400** |

| Project | Classification | Tonnes (Mt) | Iron (%) | Fe concentrate (Mt) | Estimated yield |
|---|---|---|---|---|---|
| Maldorky[5] | Indicated | 147 | 30.1 | 59 | 40% |
| Grants[6] | Inferred | 304 | 24 | 100 | 33% |
| **Total all projects** | **All categories** | **451** | | **159** | |

**JORC Ore Reserves as of 31 July 2019**

| Project | Classification | Tonnes (Mt) | Copper % | Gold g/t | Copper tonnes (Kt) | Gold ounces (Koz) |
|---|---|---|---|---|---|---|
| Kalkaroo[1] | Proved | 90.2 | 0.48 | 0.44 | 430 | 1,282 |
| | Probable | 9.9 | 0.45 | 0.39 | 44 | 125 |
| **Total** | | **100.1** | **0.47** | **0.44** | **474** | **1,407** |

**Footnotes to 2019 JORC Ore Reserve and Mineral Resource Tables**

Numbers in tables are rounded

[1] Details released to ASX: 18 June 2018 (Kalkaroo)
[2] Details released to ASX: 18 October 2010 (Mutooroo)
[3] Details released to ASX 30 January 2018 & 7 March 2018 (Kalkaroo)
[4] Note that the Kalkaroo cobalt Inferred resource is not added to the total tonnage
[5] Details released to ASX: 10 June 2011 applying an 18% Fe cut-off (Maldorky)
[6] Details released to ASX: 25 December 2012 applying an 18% Fe cut-off (Grants)