ASX MEDIA RELEASE

Havilah Resources
Strategic Minerals in South Australia

4 April 2025

DHEM INDICATES 200 METRE MUTOOROO DEPTH EXTENSIONS

HIGHLIGHTS

- Downhole electromagnetic (**DHEM**) survey results indicate highly conductive zones at depth.
- Massive sulphide mineralisation interpreted to extend to at least 200 metres below Havilah drilling.
- Havilah and JX Advanced Metals Corporation (**JXAM**) are presently discussing the terms of an agreement for funding of a future Mutooroo pre-feasibility study (**PFS**) and an option to acquire a project interest.

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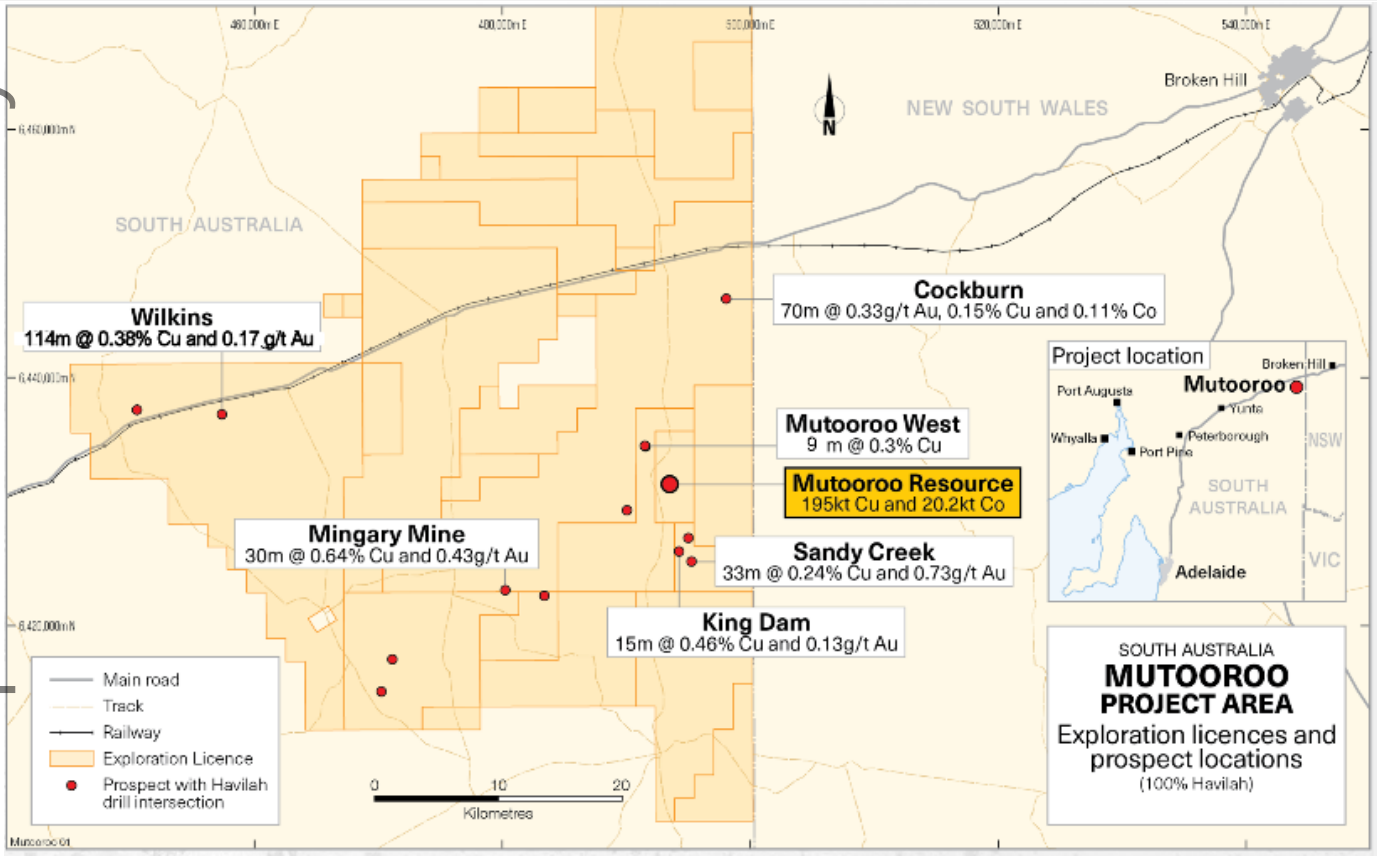

Figure 1 *Location of the Mutooroo copper-cobalt-gold project within the prospective Mutooroo Project Area. For the source of the mineralised intersections refer to ASX announcements listed on page 4.*

Commenting on the Mutooroo DHEM survey results Havilah's Technical Director, Dr Chris Giles, said:

"The DHEM surveying from our deepest recent drillholes has identified strong off-hole conductive zones that are interpreted to be caused by depth extensions of the Mutooroo massive sulphide lodes.

"Results indicate the conductive plates, and by inference the causative massive sulphide mineralisation, extends at least 200 metres below Havilah's recent drillholes at the northern end of the Mutooroo deposit.

"With all study program results recently available we are now proceeding to scope the future Mutooroo PFS work."

Havilah Resources Limited (**Havilah** or the **Company**) (**ASX**: **HAV**) is pleased to report the results of a recent DHEM survey at the Mutooroo copper-cobalt-gold project (**Mutooroo**), 60 km southwest of Broken Hill. This follows signing of a binding MOU with JXAM (ASX announcement of 19 August 2024) and recent completion of a 35 hole drilling program totalling 7,511 metres (ASX announcement of 17 February 2025).

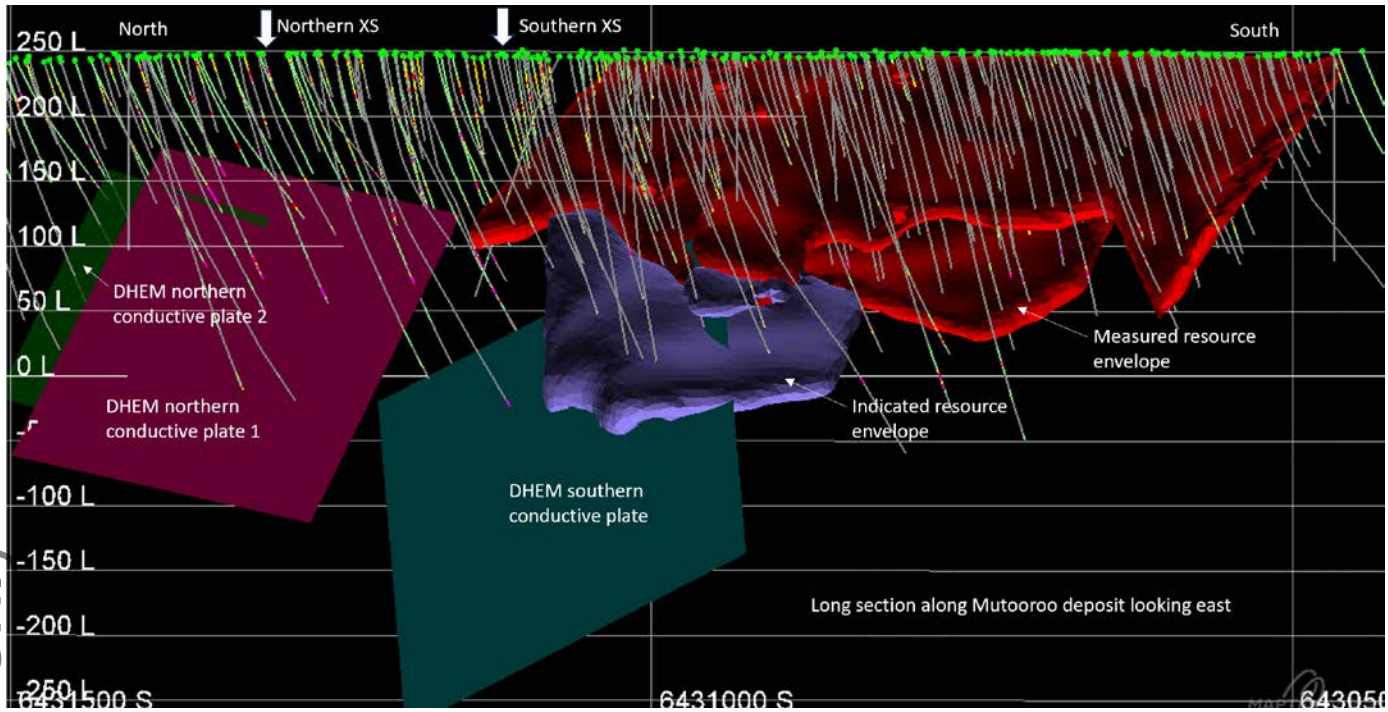

Figure 2 *Long section through the Mutooroo orebody showing Havilah drilling to date and the location of the three DHEM modelled conductive plates. The approximate locations of the cross sections in Figures 3 and 4 are indicated by the white arrows. The deepest conductive plate extends to more than 500 metres below surface and more than 200 metres below Havilah's deepest drillholes.*

The DHEM survey was conducted from five deeper Havilah drillholes that remained open at the northern end of the Mutooroo orebody where recent JXAM-sponsored drilling has shown extensions of typical Mutooroo style massive sulphide mineralisation. DHEM is able to identify off-hole conductive zones ('**plates**') by analysing the electromagnetic decay curves at differing frequencies, as measured at regular intervals by a DHEM probe that is lowered down the selected drillholes. Three conductive plates were modelled from the DHEM data collected, which the geophysical consultant (Montana GIS) interprets as representing continuously connected Mutooroo style massive sulphide mineralisation due to the high conductivities observed, namely >2,000 Siemens for the southern plate and 1,200 Siemens for the northern plate 1. This is supported by close correlation of the conductive plates with known mineralisation intersected in several nearby drillholes (Figures 3 and 4).

From an exploration perspective two of the conductive plates extend roughly 200 metres below Havilah's resource drillholes and are interpreted to indicate significant massive sulphide mineralisation extending to at least this depth beneath Havilah's current drillholes (Figures 3 and 4). The sulphide mineralisation may extend deeper than this but may not be detected due the depth capability limitations of the DHEM equipment used. For the southern conductive plate the presence of good sulphide mineralisation is confirmed in part by a few incomplete Mines Exploration Pty Ltd diamond drillholes dating from the late 1960's. Magnetic inversion studies undertaken by the geophysical consultant also indicate a close correlation between the aeromagnetic anomalies, caused by the associated magnetic sulphide mineral pyrrhotite, and the DHEM results.

Further support comes from the coincidence of conductive plates with mineralisation envelopes generated by Havilah using the latest machine learning DomainMCF (**AI**) software developed by Maptek. Visual inspection of the AI mineralisation shapes indicates remarkably close correlation with the drillhole intersections and the conductive plates at the northern end of the Mutooroo orebody (see two cross sections, Figures 3 and 4). This AI software is able to rapidly generate mineralisation envelopes using any set of desired guiding parameters including cut-off grade, minimum mining widths and other criteria. It can regenerate the mineralisation model within minutes when new drillhole data is added. While the Mutooroo orebody is well defined, its shapes can be relatively complex in detail and it is ideally suited to AI modelling, which can be cross-checked against multiple drillhole intersections.

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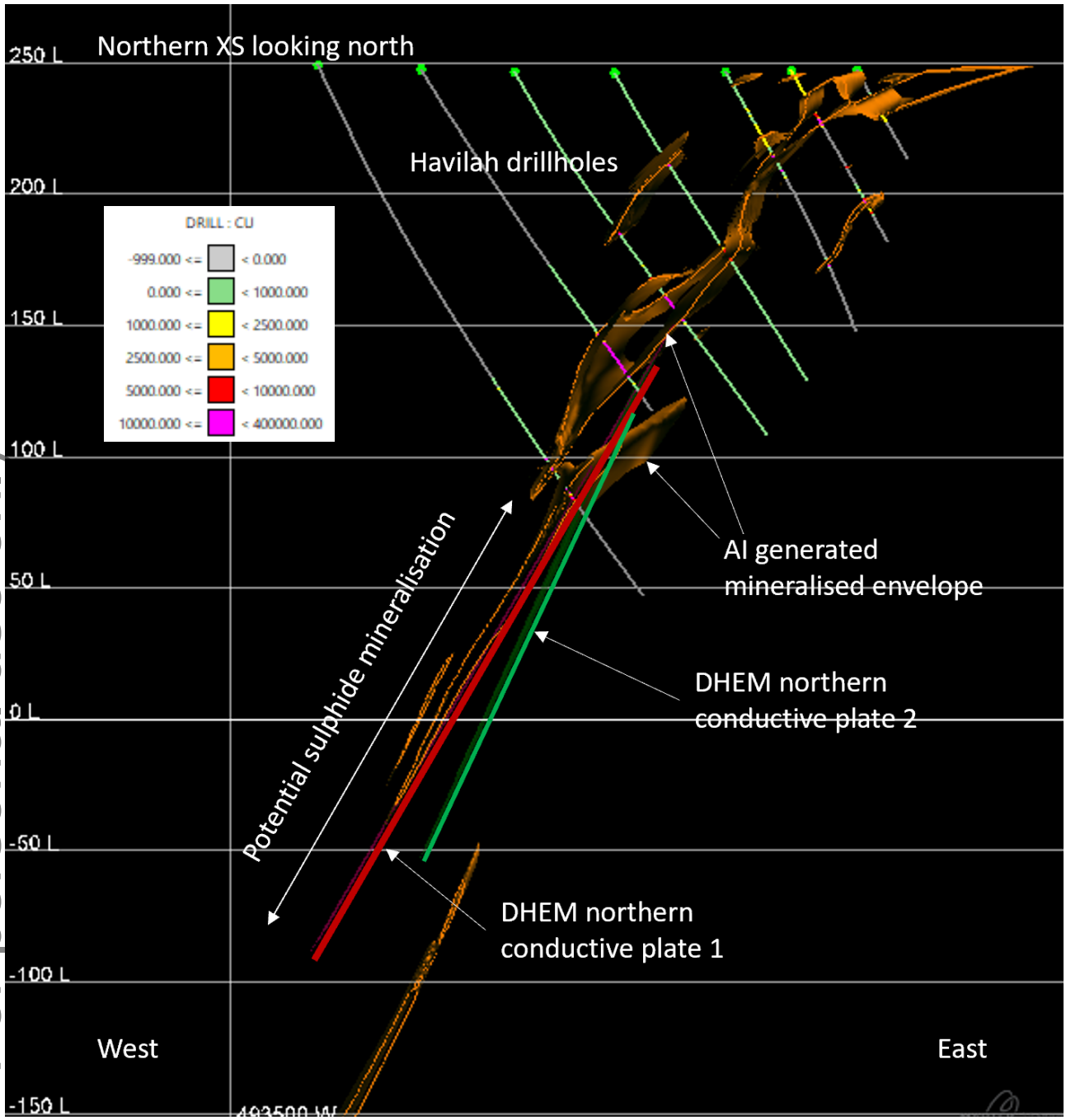

Figure 3 *Northern cross section showing the two conductive plates at the northern end of Mutooroo and coincidence with the AI generated mineralisation envelope shapes. The deepest conductive plate extends 200 metres below the deepest Havilah drillhole on this section line indicating good prospects for extensions of sulphide mineralisation to depths of at least 350 metres at this location. Deeper sulphide mineralisation is not precluded due to the bottom of the conductive plate probably reflecting the depth capability limitations of the DHEM equipment used.*

Next steps

Further DHEM surveys may be conducted from additional drillholes in the middle and southern part of the Mutooroo orebody in due course, given the positive results of the current DHEM survey.

In the meantime, Havilah is working on an updated JORC Mineral Resource estimate for Mutooroo that incorporates new results from recent JXAM sponsored drilling.

Havilah and JXAM are presently discussing the terms of an option agreement that would allow JXAM to purchase an equity interest in the Mutooroo project from Havilah subject to the results of a PFS, that would be funded by JXAM.

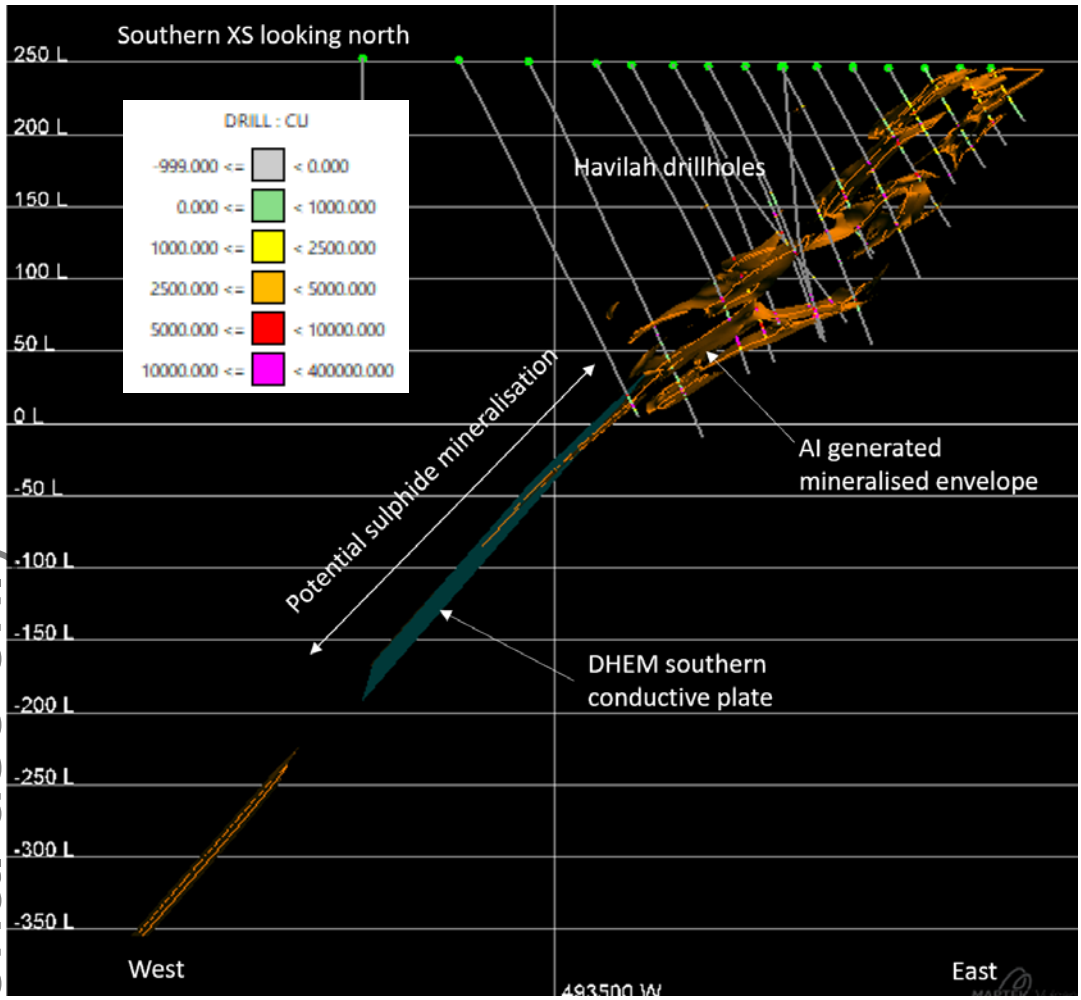

Figure 4 *Southern cross section showing the conductive plate and coincidence with the AI generated mineralisation envelope shapes. The conductive plate extends 200 metres below the deepest Havilah drillhole on this section line indicating good prospects for extensions of sulphide mineralisation to depths of at least 450 metres at this location. Deeper sulphide mineralisation is not precluded due to the bottom of the conductive plate probably reflecting the depth capability limitations of the DHEM equipment used.*

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About Mutooroo

Mutooroo is Havilah's advanced stage copper-cobalt-gold project that is located within commuting distance of Broken Hill, and 16 km south of the Transcontinental railway line and Barrier Highway. It contains **195,000 tonnes of copper, 20,200 tonnes of cobalt and 82,100 ounces of gold** mostly in copper-cobalt rich massive sulphide lodes (see JORC Mineral Resource table below for classifications and grades).

Expanding the Mutooroo resource base is a priority for Havilah as a larger resource and an increased scale strengthens the economic development case and the attractiveness of the project. Our resource expansion strategy with JXAM is focused on adding more near-surface resources that could potentially be mined by open pit methods because this could be a major driver of value in the early operational years. JXAM's metallurgical test work maybe positive for generating revenue from byproduct cobalt, gold and sulphur, which thusfar has not been factored into any economic models.

In accordance with the MOU terms, JXAM has met substantial costs associated with the Mutooroo study program, including the reverse circulation precollar and diamond drilling, metallurgical test work and mining studies for which Havilah is most grateful.

Cockburn prospect: (refer to ASX announcement 17 October 2023)

Mutooroo West prospect: (refer to ASX announcement 29 November 2021)

Mingary Mine prospect: (refer to ASX announcement 5 July 2023)

King Dam – Sandy Creek prospects: (refer to ASX announcement 5 July 2023)

Wilkins prospect: (refer to ASX announcement 10 August 2012)

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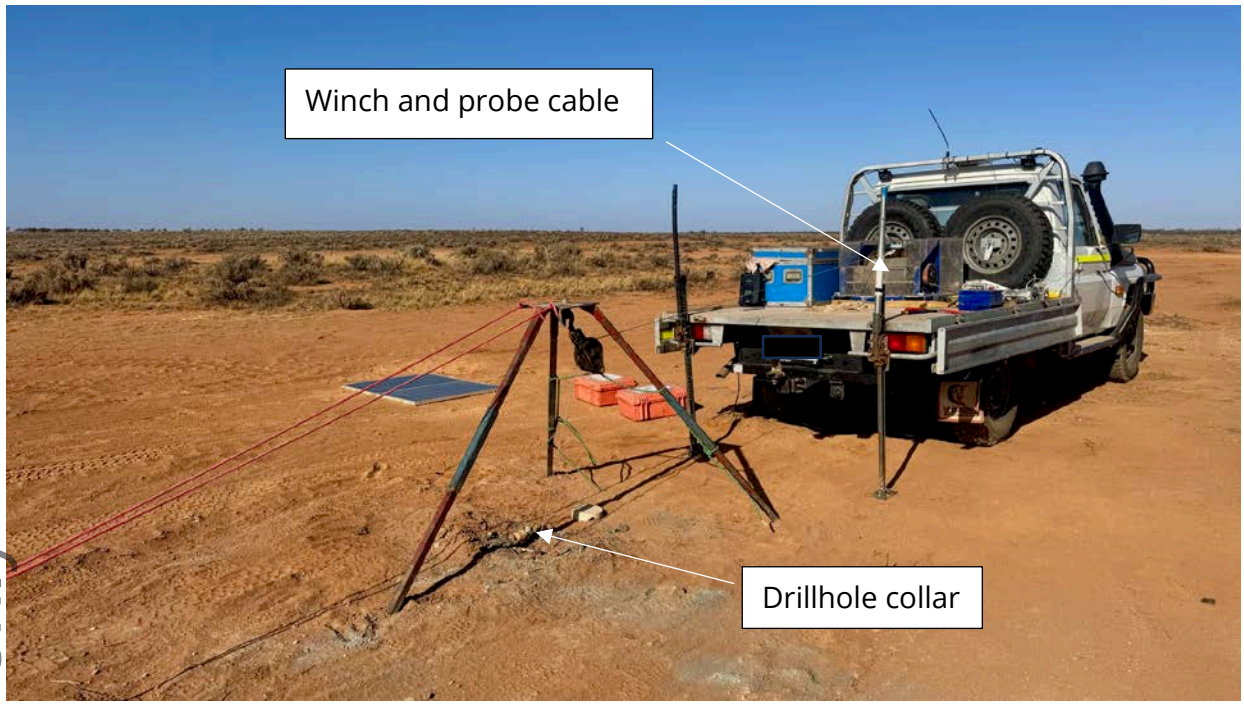

Figure 5 *Collection of DHEM data by Zonge Engineering. Readings are taken every 5 to 10 metres as the receiving probe is lowered down the open drillhole by a winch. A pulsing electric current fed through a 300 x 600 metre loop located a short distance away generates an electromagnetic field in the ground, which is received and recorded by the downhole probe for later analysis of the decay kinetics and modelling by specialised software.*

This release has been authorised on behalf of the Havilah Resources Limited Board by Mr Simon Gray.

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Mutooroo JORC Mineral Resource Table as at 31 July 2024

Project	Classification	Resource Category	Tonnes	Copper %	Cobalt %	Gold g/t	Copper tonnes	Cobalt tonnes	Gold ounces
Mutooroo [1]	Measured	Oxide	598,000	0.56	0.04	0.08			
	Total	**Oxide**	**598,000**	**0.56**	**0.04**	**0.08**	**3,300**	**200**	**1,500**
	Measured	Sulphide Copper-Cobalt-Gold	4,149,000	1.23	0.14	0.18			
	Indicated	Sulphide Copper-Cobalt-Gold	1,697,000	1.52	0.14	0.35			
	Inferred	Sulphide Copper-Cobalt-Gold	6,683,000	1.71	0.17	0.17			
	Total	**Sulphide Copper-Cobalt-Gold**	**12,529,000**	**1.53**	**0.16**	**0.20**	**191,700**	**20,000**	**80,600**
		Total Mutooroo	**13,127,000**				**195,000**	**20,200**	**82,100**

Numbers in above table are rounded. [1] Details released to the ASX: 18 October 2010 and 5 June 2020.

Cautionary Statement

This announcement 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. 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. There is no guarantee that the negotiations with JXAM will result in any transactional outcome for Mutooroo.

Competent Person's Statements

The information in this announcement that relates to Exploration Results and JORC Mineral Resources is based on data and information compiled by geologist Dr Chris Giles, a Competent Person who is a member of The Australian Institute of Geoscientists. Dr Giles is Technical Director of the Company, a full-time employee and is a substantial shareholder. Dr Giles has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activities being undertaken 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 announcement of the matters based on his information in the form and context in which it appears. Information for the Mutooroo Inferred cobalt & gold Mineral Resources complies with the JORC Code 2012. All other Mutooroo Mineral Resource information was prepared and first disclosed under the JORC Code 2004 and is presented 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 resources continue to apply and have not materially changed. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant ASX announcements.

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Appendix 1

Sections 1 and 2 below provide a description of the sampling and assaying techniques in accordance with Table 1 of The Australasian Code for Reporting of Exploration Results.

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more*	• Reporting results from downhole electromagnetic (**DHEM**) survey undertaken during March 2025 from 5 holes drilled at Mutooroo during the second half of 2024. • Geophysical data was collected from a single 300 x 600m DHEM loop covering the 5 holes. • DHEM probe calibration was undertaken by the contractor (Zonge Engineering). • No drilling is reported here.

Criteria	JORC Code explanation	Commentary
	explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• No drilling involved.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• No sampling involved.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• No drilling or sampling involved.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• No drilling or sampling involved.

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Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• The DHEM survey was acquired with the following specifications: Contractor: Zonge Engineering. Transmitter: Zonge Engineering transmitter system and associated generator. Receiver: EMIT Atlantis downhole probe. Base Frequency: 0.8Hz and 1Hz. Tx Loop Size: 300x600m. Station Spacing: 5m and 10m down hole.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* *The use of twinned holes.* *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• All geophysical data is recorded and stored on Havilah's file backup systems. • Geophysical consultant (Montana GIS) with particular expertise in electromagnetic data interpretation checked and quality controlled all data output as it was gathered and interpreted the results using specialised software.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• DHEM survey completed down 5 recent drillholes at the northern end of the Mutooroo deposit. • The deepest drillholes that remained open for most or all of their depth were selected from those potentially available. • One 300 x 600m transmission loop covered the 5 holes. • Readings were taken at 5 metre and 10 metre intervals by the probe receiver as it was lowered down hole on a wireline.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• No drilling or sampling involved.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• No drilling or sampling involved.
Sample security	• *The measures taken to ensure sample security.*	• No drilling or sampling involved.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• The DHEM survey was conducted by an experienced external contractor (Zonge Engineering) and the data interpreted and

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Criteria	JORC Code explanation	Commentary
		plates generated by an experienced geophysical consultant (Montana GIS). • It is supported by coincidence of the conductive plates with mineralisation envelopes generated by Havilah using the latest machine learning DomainMCF (AI) software developed by Maptek. • Visual inspection of the AI shapes indicates remarkably close correlation with the drillhole intersections and the conductive plates

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.*	• Security of tenure is via current exploration licence EL 6592 over the Mutooroo deposit, which is in good standing. • Havilah has a binding MOU with JX Advanced Metals Corporation that provides an exclusivity period for it to complete a study program that will inform an investment decision for Mutooroo. • A Native Title Exploration Agreement is in place for the Mutooroo Project Area. The agreement was executed between Havilah and Wilyakali Native Title Aboriginal Corporation.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Mutooroo was historically mined for oxide and supergene copper to shallow depths in the late 1800's and early 1900's. The area has been explored by a number of groups in the past including Mines Exploration Pty Ltd (Broken Hill South), Noranda, Adelaide Wallaroo and CRAE. Broad spaced drillholes were completed at the prospect area during the mid to late 1960's by Mines Exploration Pty Ltd. • All previous exploration data has been integrated into Havilah's databases.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The mineralisation style is massive sulphide lode style copper-cobalt-gold mineralisation within Broken Hill Domain rocks of the Curnamona Province. • The massive sulphide lode has formed by hydrothermal solutions migrating up a shear zone formed at or near the contact between amphibolite and gneiss.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	• Not applicable as not reporting drilling results.

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Criteria	JORC Code explanation	Commentary
	• *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• No drilling results are being reported.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Results of the DHEM survey with relevant modelled DHEM plate diagrams are included in the body of the announcement.
Balanced Reporting	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• All information material to an understanding of the DHEM results is included.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples - size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Relevant historic geological and geophysical information has been reported in previous ASX announcements and on Havilah's website.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large- scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Planning for further work, taking into account the new DHEM results, which may include surveying additional loops and drillholes in the middle and southern part of the Mutooroo orebody.

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