

12 August 2019

Mutooroo AEM Survey Identifies Strong Conductors

HIGHLIGHTS

- Airborne EM survey to explore for Mutooroo style massive sulphide mineralisation within the Mutooroo Copper-Cobalt District completed
- A number of priority anomalies identified for ground EM follow-up
- Scorpion Prospect confirmed as Priority One type target

Havilah Resources Limited (Havilah) is pleased to report that the final data and report has recently been received for the detailed, high resolution, airborne electromagnetic (AEM) survey flown in April and May 2019.

The AEM survey forms part of Havilah's strategy to explore for additional copper-cobalt resources in the Mutooroo Copper-Cobalt District. The survey was flown over Havilah's priority targets in the vicinity of the Mutooroo deposit and has highlighted several interpreted bedrock conductors potentially representing massive sulphide bodies (Figure 1).

The survey was flown by UTS Geophysics utilising the VTEM™ Max Time Domain EM system. A total of 1,477 line kms were flown on 200 m spaced lines with infill lines spaced at 100 m. The final data has been reviewed, analysed and interpreted by consultant geophysicist Russell Mortimer (Southern Geoscience Consultants).

A total of 16 conductors have been identified as illustrated in Figure 1 and detailed in Table 1.



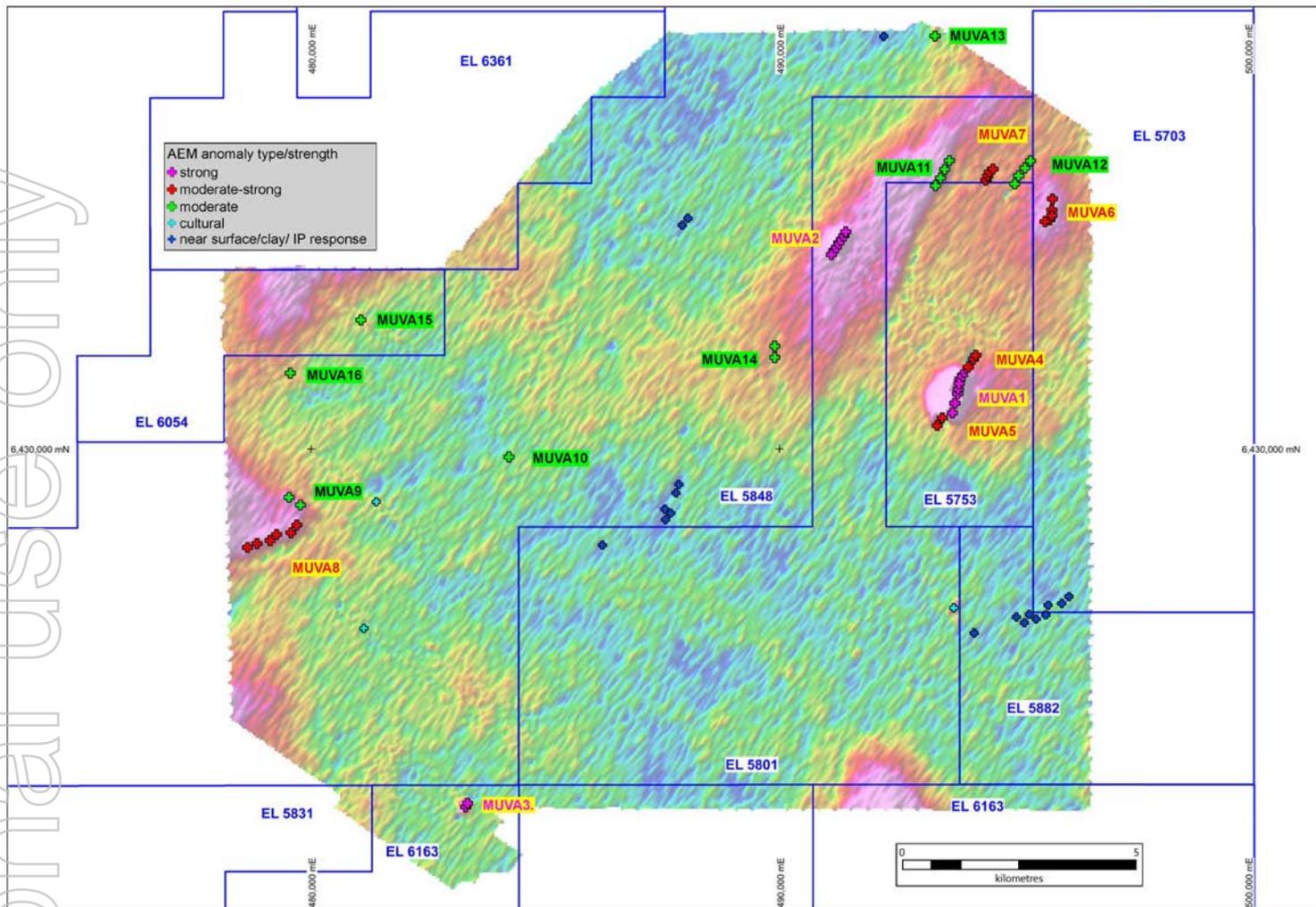


Figure 1 – Mutooroo area VTEM late/last channel imagery (CH48BZ) and identified conductors.

Table 1 – List of ranked AEM conductors

Anomaly ID	Priority	Description
MUVA1	1	Mutooroo Central sulphide mineralisation/body , >900m strike length, very strong/clear anomalism
MUVA2	1	Scorpion main sulphide mineralisation/body (>500m strike length), very strong/clear anomalism
MUVA3	1	Localised strong anomaly (>300m strike length), very strong/clear anomalism
MUVA4	2	Mutooroo North sulphide mineralisation/offset NE body (>500m strike length), clear anomalism, moderate strength/amplitudes
MUVA5	2	Mutooroo South sulphide mineralisation/offset SW body (>300m strike length), clear anomalism, moderate strength/amplitudes
MUVA6	2	Broad anomaly (>500m strike length), ~3kms along strike NE of Mutooroo, possible deep bedrock conductor
MUVA7	2	Localised moderate strength anomaly (<300m strike length), local magnetic high/change of strike
MUVA8	2	Broad, extensive anomaly (>1000m strike length), possible deep conductor/formational conductor below conductive cover
MUVA9	3	Broad, moderate strength anomaly, ~500m strike, possible deep conductor/formational conductor below conductive cover
MUVA10	3	Very localised (single line), moderate strength anomaly (<250m strike)

Anomaly ID	Priority	Description
MUVA11	3	Broad, possible bedrock anomaly below quite conductive cover unit (~600m strike)
MUVA12	3	Broad moderate strength, possible bedrock anomaly below quite conductive cover unit (~600m strike)
MUVA13	3	Very localised (single line), strong anomaly, may be related to conductive cover/drainage
MUVA14	3	Local moderate strength, possible bedrock anomaly below conductive cover unit (~300m strike), adjacent to fold closure apparent in magnetic data
MUVA15	3	Local moderate strength, possible bedrock anomaly below conductive cover unit (<300m strike), may be related to conductive cover/drainage
MUVA16	3	Local moderate strength, possible bedrock anomaly below conductive cover unit (<300m strike), may be related to conductive cover/drainage

A discussion of selected targets follows:

Scorpion Prospect

A very strong conductor (**MUVA2**) has been identified at the Scorpion prospect (**Figure 2**). The conductor diverges from the observed Scorpion lode trend which may indicate a plunging sulphide shoot geometry. Previous work by Havilah at Scorpion has included a review of historical mining records and previous exploration which included drilling by Mines Exploration (**MEPL**) in 1965 and rock chip sampling by Havilah in 2018 ([ASX announcement 26 April 2018](#)).

The five MEPL drillholes, some of which intersected intervals of massive sulphides, do not appear to have tested the main AEM conductor. Fixed loop ground EM surveying has been planned to allow for robust 3D modelling of the bedrock conductor, definition of potential offset/plunge extensions and to assist refined drill targeting/testing.

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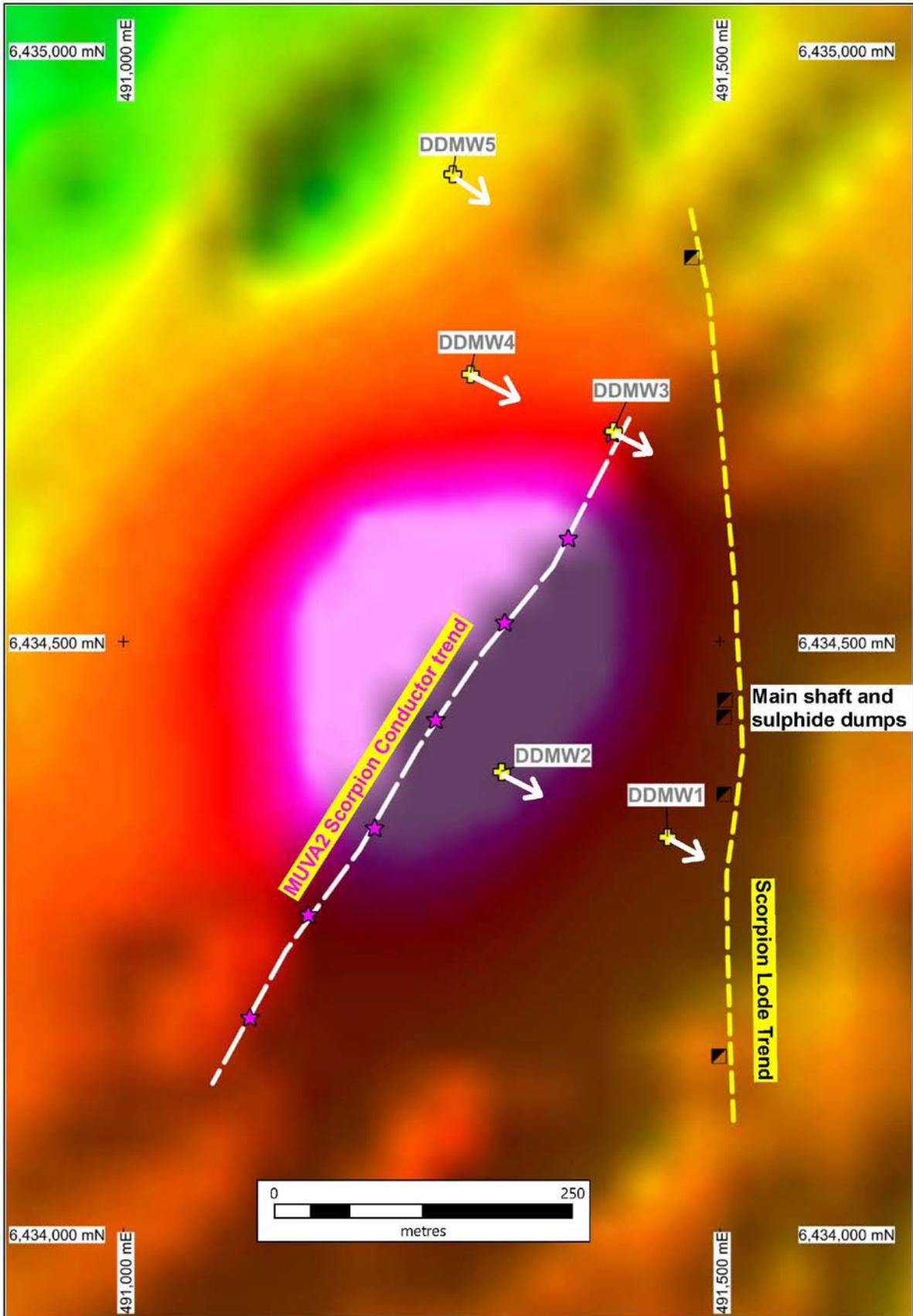


Figure 2 Scorpion VTEM late/last channel imagery (CH48BZ) highlighting the MUVA2 conductor trend, 1960's MEPL drillholes, old workings and Scorpion lode trend.

Mutooroo Lode/Resource

As expected, the Mutooroo sulphide lode system displays a very strong conductive response with the **MUVA1**, **MUVA4** and **MUVA5** anomalies representing the central, northern and southern zones respectively. The central and northern zones appear to have been adequately tested by existing Havilah drilling while the southern zone appears to have only been partially drill tested and additional drill targets may be defined with further 3D modelling and/or ground EM surveys.

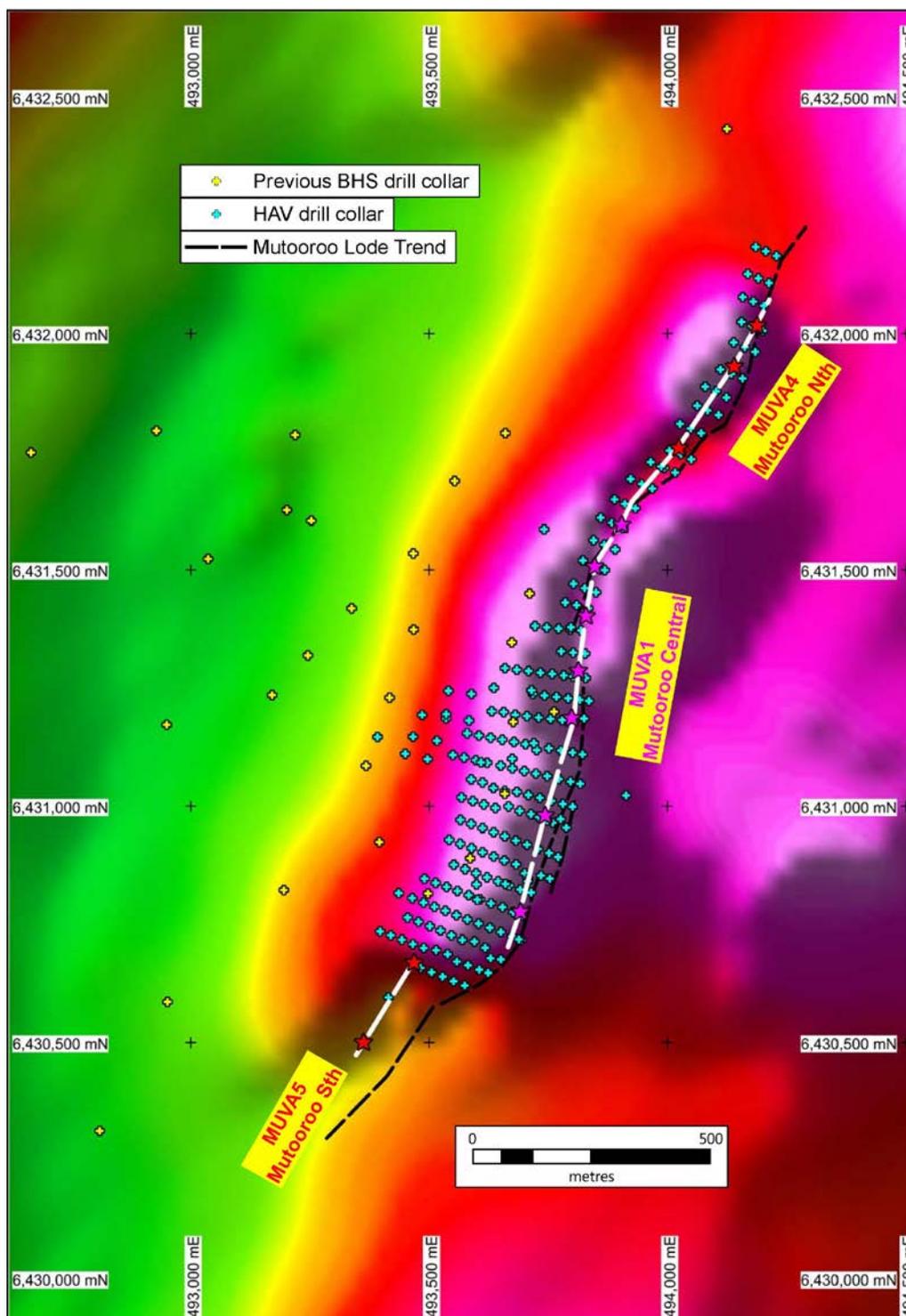


Figure 3 Mutooroo VTEM mid channel imagery (CH30BZ2) defining the MUVA1+4+5 conductor trends, HAV drill collars, 1960's BHS drillholes, and Mutooroo lode trend.

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MUVA3 Conductor

This strong conductor (>300 m strike length) is situated on the south western extents of the AEM survey. Preliminary analysis of previous exploration activities at this site has recently been completed. Esso Exploration and Production Australia (**Esso**) drilled a single percussion hole at the Fallout prospect in 1981 to test a ground EM (UTEM) conductor. Drillhole FP-PDH-2, drilled at -60 to 120 degrees (magnetic) to 180 m depth, intersected a 10 m interval of massive to disseminated iron sulphides (pyrrhotite and pyrite) with minor copper sulphide (chalcopyrite) in amphibolite host rock. Assays returned a best interval of 4 m @ 0.33% copper (Cu) and 525 ppm cobalt (Co) from 110 m to 114 m downhole. Relevant available drilling data is included in Appendix 1.

While the the width and grade of copper and cobalt in this hole is not economically significant in its own right, the massive sulphide mineralisation style, the Cu:Co ratio and amphibolite host rock are all regarded as characteristics of Mutooroo style Cu-Co mineralisation. Further work in the form of 3D modelling of the AEM data is warranted, potentially followed by ground EM surveying for detailed 3D modelling and drill target definition.

MUVA6 Conductor

This broad anomaly (>500 m strike length), is located ~3 kms directly along strike North East of the Mutooroo deposit. Analysis of AEM data indicates a possible deep bedrock conductor. A field inspection revealed sand cover with local basement felsic gneiss subcrop in the local area. Ground EM surveying is planned to allow detailed 3D modelling and potential drill target definition.

MUVA7 Conductor

The MUVA7 conductor is a localised moderate strength anomaly (<300m strike length) located over a local magnetic high/change of strike. Ground EM surveying is planned here for detailed modelling and drill targeting.

MUVA8 Conductor

This conductor, located in the southwest of the AEM survey area, is a broad, extensive anomaly (>1000 m strike length) with a possible deep conductor/formational conductor below conductive cover. It lies along the edge of the south eastern limits of the Grants Basin Neoproterozoic lithologies near the contact with the older Willyama basement lithologies. Further work in the form of 3D modelling of the AEM data is recommended followed by ground EM surveying, if warranted, for detailed modelling and drill targeting.

Summary and Conclusions

The purpose of the AEM survey was to search for additional Mutooroo style massive sulphide mineralisation in the Mutooroo area and it has successfully identified a number of priority anomalies for follow up including the Priority One target at the Scorpion prospect.

While the AEM survey did not identify massive sulphide related conductors coincident with the significant surface geochemical anomalies at Sidewinder and Copperhead, further exploration is still warranted as these anomalies may be related to disseminated sulphide bodies which are not readily detectable by the AEM method. Additional exploration may include ground based Induced Polarisation (**IP**) geophysical surveys, better suited for the detection of disseminated sulphide mineralisation and/or shallow drill testing to find the source of these large surface anomalies. This is also evidenced by the lack of AEM response (conductor) related to the known disseminated copper mineralisation at the King Brown and Trinity prospects.

Commenting on the results of the AEM survey, Havilah's CEO, Mr Walter Richards said: "The VTEM TM Max survey is filling a critical information gap in the area within 10 km of the Mutooroo Resource.

"It was the logical next step in investigating the massive sulphide potential of the Mutooroo Copper-Cobalt District. "The definition of additional copper-cobalt sulphide resources in the area is an important step in advancing the strategy of a longer mine life with higher throughput for the Mutooroo Copper-Cobalt District with the Mutooroo deposit as the foundation," he said.

For further information visit www.havilah-resources.com.au

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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.

Competent Persons Statement

The information in this announcement that relates to Geophysical Exploration Results is based on information compiled by Mr Russell Mortimer, who is employed as a Consultant to the Company through geophysical consultancy Southern Geoscience Consultants Pty Ltd. Mr Mortimer is a member of the Australian Institute of Geoscientists and a member of the Australian Society of Exploration Geophysicists and has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and activities undertaken, to qualify as a Competent Person as defined in the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’ (the ‘JORC Code (2012)’). Mr Mortimer consents to the inclusion in this announcement of the matters based on information in the form and context in which it appears.

The information in this announcement that relates to Exploration Results is based on data and information compiled by geologist, Andrew Price, a Competent Person who is a member of The Australian Institute of Geoscientists. Mr Price is a full-time employee of the Company. Mr Price 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’. Mr Price consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.

APPENDIX 1: TABLE 1 OF THE 2012 EDITION OF THE JORC CODE

The table below is a description of the assessment and reporting criteria for the Mutooroo airborne EM survey results and referenced open file drill data (Appendix 1), in accordance with Table 1 of The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves.

Section 1 Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	<ul style="list-style-type: none"> • A VTEM™ Max survey of approximately 1,477 line kms was flown over the Mutooroo area by Geotech Airborne Ltd. • The survey was carried out on flight lines oriented 125/305° on 200m spacings with local infill to 100m, with the system specifications summarised below. • VTEM™ Max Configuration • Transmitter loop – 35m • Peak dipole moment – 700,000 NIA • Transmitter Pulse Width – 7 ms • Base Frequency: 25Hz • Receiver – Z, X coils (Y optional) • Magnetic Sensor: Towed Bird • Flying Height - 83 metres • EM sensor Height - 35 meters • Magnetic sensor Height - 73 metres
Drilling techniques	<ul style="list-style-type: none"> • Esso open file drilling data – 2m composite samples were collected – method unknown • Esso open file drilling data – open hole percussion

Criteria	Commentary
Drill sample recovery	<ul style="list-style-type: none"> Esso open file drilling data – unknown
Logging	<ul style="list-style-type: none"> Esso open file drilling data – unknown
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> Esso open file drilling data – unknown
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> The VTEM™ Max system was calibrated prior to commencement of the survey. All digital data was inspected daily by the Geotech site crew and the Company's consultant geophysicist. The Company received daily reports on production and of any equipment issues. The data was reviewed by the Company's consultant geophysicist and lines were re-flown if there were any issues. The data presented here is final data and has undergone processing/levelling by Geotech. The Company's consultant geophysicist has completed QA/QC of the data and advised that it is suitable for public domain release. Esso open file drilling data – 2m samples assayed at Comlabs for Cu, Pb, Zn, Ag and Co, method unknown.
Verification of drilling sampling and assaying	<ul style="list-style-type: none"> Data is recorded using a Geotech proprietary data acquisition system. All digital data is inspected on a daily basis to ensure that poor data is not present and to identify any missing data sections. A preliminary flight path map is plotted and checked against survey specifications. Externally quality control completed by Southern Geoscience Consultants. Data is deemed to be of high quality. Esso open file drilling data – unknown
Location of data	<p>Location information:</p> <ul style="list-style-type: none"> UTS PC104 GPS Receiver - NovAtel WAAS <p>Height information:</p> <ul style="list-style-type: none"> Terra TRA 3000/TRI 40 - radar altimeter Esso open file drilling data – location digitized off old location plan
Data spacing and distribution	<ul style="list-style-type: none"> The spacing between the flight lines is approximately 200m with local infill lines at 100m. Readings every 2-3 metres along flight lines. A flight path map was plotted daily and checked against survey specifications. Esso open file drilling data – single hole.
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> The survey lines were flown perpendicular to general strike direction of geological formations. Esso open file drilling data – unknown
Sample security	<ul style="list-style-type: none"> Not applicable. Esso open file drilling data – unknown
Audits, reviews	<ul style="list-style-type: none"> The data was independently verified by Russell Mortimer of SGC. Esso open file drilling data – unknown

Section 2 Reporting of Exploration Results

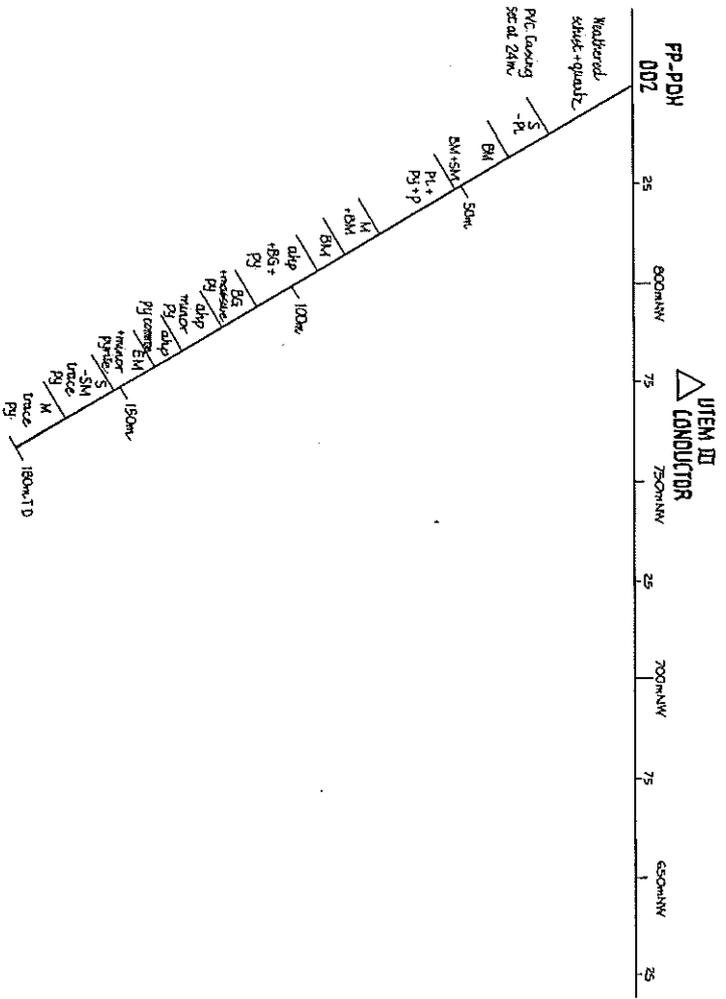
(Criteria listed in the preceding section also apply to this section.)

Criteria	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> The survey was flown over parts of Havilah's 100% owned Exploration Licences ELs 5848, 5703, 5753, 5882, 6054, 6163 and 5801. Esso open file drilling data – hole drilled within expired EL873

Criteria	Commentary
Exploration done by other parties	<ul style="list-style-type: none"> Most previous exploration has been focused around the Mutooroo deposit where drilling was conducted by BHS in the 1960s and Havilah in the period 2005 to 2009. There has also been previous shallow, AC, RC and open hole percussion drilling carried out on other regional prospects in the area by a range of companies since the 1950's. Havilah also conducted regional surface geochemical sampling in 2018.
Geology	<ul style="list-style-type: none"> Mutooroo style, shear hosted, massive sulphide Cu-Co-Au mineralisation and Thackaringa style disseminated sulphide Co mineralisation hosted within high grade metamorphic rocks of the Willyama Supergroup of the Curnamona Craton.
Drill hole Information	<ul style="list-style-type: none"> Esso open file drilling data – limited drill hole data was sourced from open file envelope ENV04514 sourced from SARIG. Referenced percussion drillhole FP-PDH-2 was drilled at -60° to 120 degrees (magnetic) to 180m depth.
Data aggregation methods	<ul style="list-style-type: none"> Esso open file drilling data – unknown
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> Esso open file drilling data – unknown
Diagrams	<ul style="list-style-type: none"> See included figures.
Balanced reporting	<ul style="list-style-type: none"> All data reported.
Other substantive exploration data	<ul style="list-style-type: none"> Havilah's website (https://www.havilah-resources.com.au) details previous ASX announcements relating to the area.
Further work	<ul style="list-style-type: none"> Ground EM surveys are planned.

Appendix 1

LINE 1600-MINE



PROSPECT FALL OUT
CO-ORDINATES 1,600m NE
 850m NW
AZIMUTH (°M) 120°
INCLINATION 60°
TOTAL DEPTH 180m

All holes were sampled at 2m intervals with an assay and reference sample split from each interval.

All samples are currently being assayed for copper, lead, zinc, silver and cobalt.



ANALYTICAL REPORT

U288

JOB: COM822649 O/M: N 077343

FP-PDH 002

SAMPLE	Results in ppm					Sample Depth in metres
	Cu	Pb	Zn	Co	As	
774621	14	8	42	12	<1	98m-100m
774622	70	8	70	18	<1	100m-102m
774623	210	6	60	24	<1	102-104m
774624	250	6	65	26	<1	104m-106m
774625	290	6	100	34	1	106m-108m
774626	700	18	95	90	1	108m-110m
774627	3500	14	140	310	1	110m-112m
774628	3000	10	90	740	1	112m-114m
774629	600	<4	30	200	1	114m-116m
774630	150	6	16	150	1	116m-118m
774631	130	8	34	150	1	118m-120m
774632	100	4	60	65	1	120m-122m
774633	200	8	120	110	1	122m-124m

MINERALS DEPT, ESSO AUSTRALIA LTD.
 CORELLA ~ PROJECT 588
 EXPLORATION LICENCE 873(S.A)
 FALL OUT PROSPECT
 PERCUSSION DRILL HOLE SECTION
 FP-PDH 002



AUTHOR: RNewport
 DRAWN: June '83
 Dwg 588-16

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