



5 OCTOBER 2022  
ASX RELEASE

# DHEM IDENTIFIES HIGH PRIORITY BASE METALS TARGET FOR DRILLING

## HIGHLIGHTS

- Down-hole electromagnetic (DHEM) survey identified a strong conductor at the Minjina prospect, off-hole from base metals mineralisation intersected in historical hole 17MVRC004 located ~900m north of Mt Venn
- 17MVRC004 intersected<sup>1</sup>:
  - 12m @ 0.8% Zn, 3.3g/t Ag & 0.16% Pb from 48m, including
    - 2m @ 2.13% Zn, 3.56g/t Ag and 0.39% Pb from 58m
- The Minjina DHEM target is modelled at ~60m below surface at its shallowest and is associated with a widespread copper auger-soil anomaly with a peak value of 638ppm Cu
- Ground EM (MLEM) survey to commence this week at Minjina, with the program to include high priority Cu-Ni targets at Eastern Mafic and Winchester
- 2,000m RC drilling program to commence in the December quarter to test the Minjina target as well as high priority targets at Eastern Mafic and Winchester
- Drill results from recent Mt Venn program due in the coming weeks.

Cosmo Metals' Managing Director James Merrillees said: "The Cosmo team is very excited by results from the DHEM survey at Minjina, a completely 'blind' target associated with known base metals mineralisation.

Minjina represents a compelling target given the association of a strong DHEM conductor with known base metals in previous drilling and widespread Cu in surface sampling. Minjina's proximity to Mt Venn has the potential to be a game changer in our Yamarna strategy.

With an RC rig lined up in November to test this target, a crew is out in the field again this week collecting moving loop EM to define further targets at Eastern Mafic and Mt Venn for testing post the Minjina drilling campaign. With results imminent from the August RC program at Mt Venn I am looking forward to a busy period for Cosmo."

<sup>1</sup> Refer GBR ASX Announcement 16/12/2019 and Independent Geologist's Report in CMO's Prospectus 22/11/2021

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Shares on Issue: 50.5M  
Market Cap: \$6.1M (at \$0.12)  
Cash: \$3.1M (at 30 June 2022)

## DOWNHOLE ELECTROMAGNETIC (DHEM) SURVEY

Cosmo Metals Ltd (“Cosmo” or “the Company”) is pleased to advise the results from a downhole electromagnetic (DHEM) survey recently completed at the Company’s Yamarna (Mt Venn and Eastern Mafic) and Winchester Projects (refer Figure 1).

Airborne and ground-based electromagnetic (EM) geophysics has been an effective tool to detect buried massive sulphide mineralisation in the Yamarna area, where all EM targets tested by drilling to date are explained by sulphide accumulations, rather than other conductive sources such as graphitic sediments and salt water.

Cosmo’s DHEM survey was planned to test for ‘off-hole’ conductors at Mt Venn noting that copper (Cu), nickel (Ni) and cobalt (Co) mineralisation at Yamarna is hosted by conductive sulphide minerals (e.g., pyrrhotite-chalcopyrite).

In addition to surveying the five holes (YARC017-YARC021) drilled at Mt Venn in August, the Company took advantage of having the geophysical crew on site to also:

- Survey two holes drilled at the Minjina base metals target, ~900m north of Mt Venn (refer Figures 1, 2 and 3)
- Survey four holes (20WMRC001-004) drilled at the Winchester JV, ~50km NW of Mt Venn, by Great Boulder (ASX:GBR) in 2020.

A summary of the DHEM results is presented in Table 1 below.



**Figure 1:** Cosmo Metals’ Yamarna region projects including the location of Minjina directly north of Mt Venn.



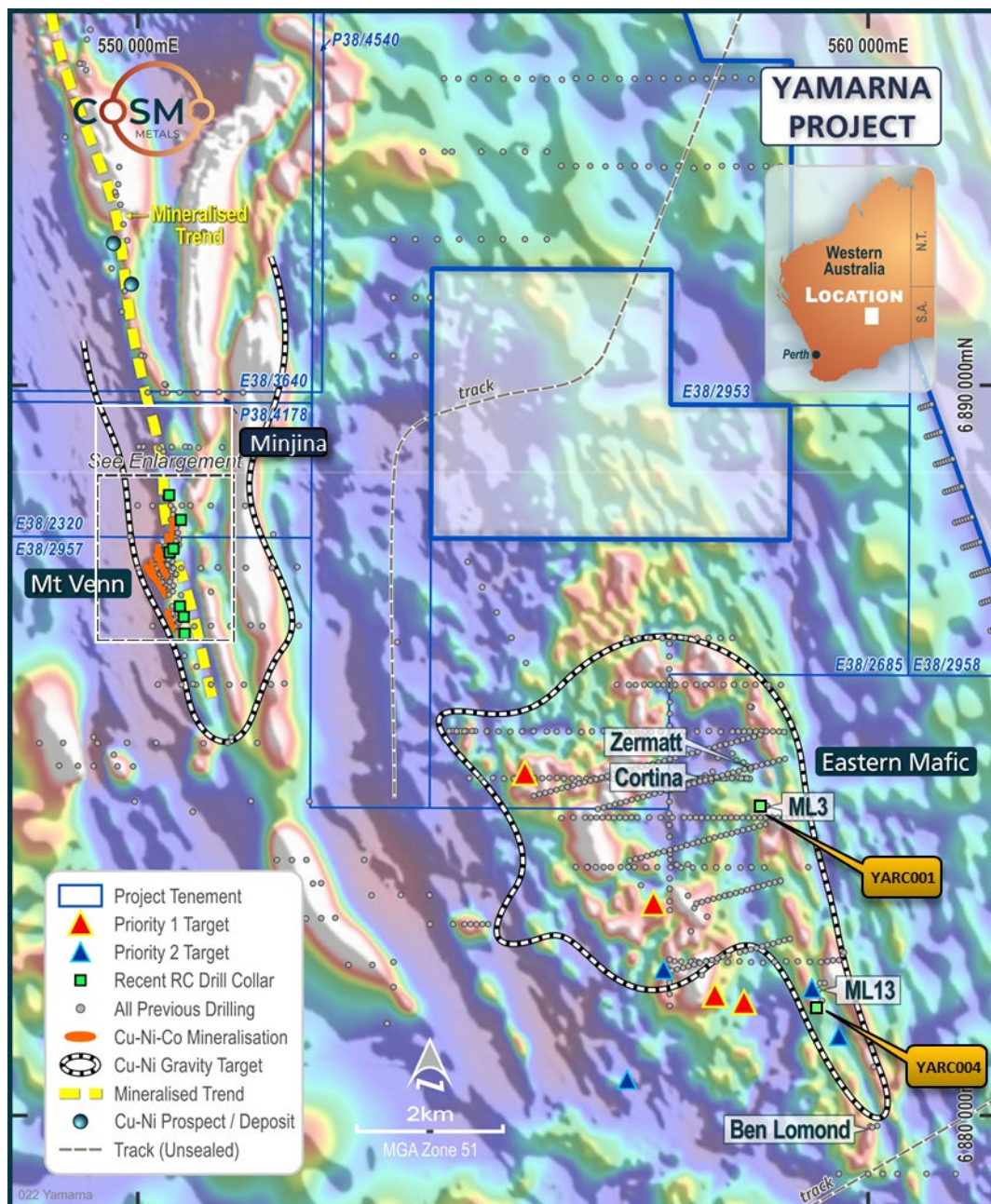
## Yamarna

### Mt Venn (Cu-Ni-Co)

DHEM surveys of six of the seven holes (YARC017-YARC0212) drilled by the Company in August, defined several strong 'in-hole' conductors coincident with zones of massive sulphide intersected in the August program at Mt Venn

The Company considers these to have been explained by the drilling, which intersected wide sulphide intervals with assay results from this program due in the coming weeks (refer CMO ASX Announcement 5 September 2022).

Strong off-hole conductors (e.g. YARC021) defined by this survey are under review with further work dependent on the outcomes of ongoing resource evaluation work at Mt Venn.



**Figure 2:** Cosmo Metals' Yamarna Project, Mt Venn, Minjina and Eastern Mafic targets on background magnetic imagery (RTP TMI). DHEM surveying completed at Mt Venn, Minjina and YARC001 at Eastern Mafic.

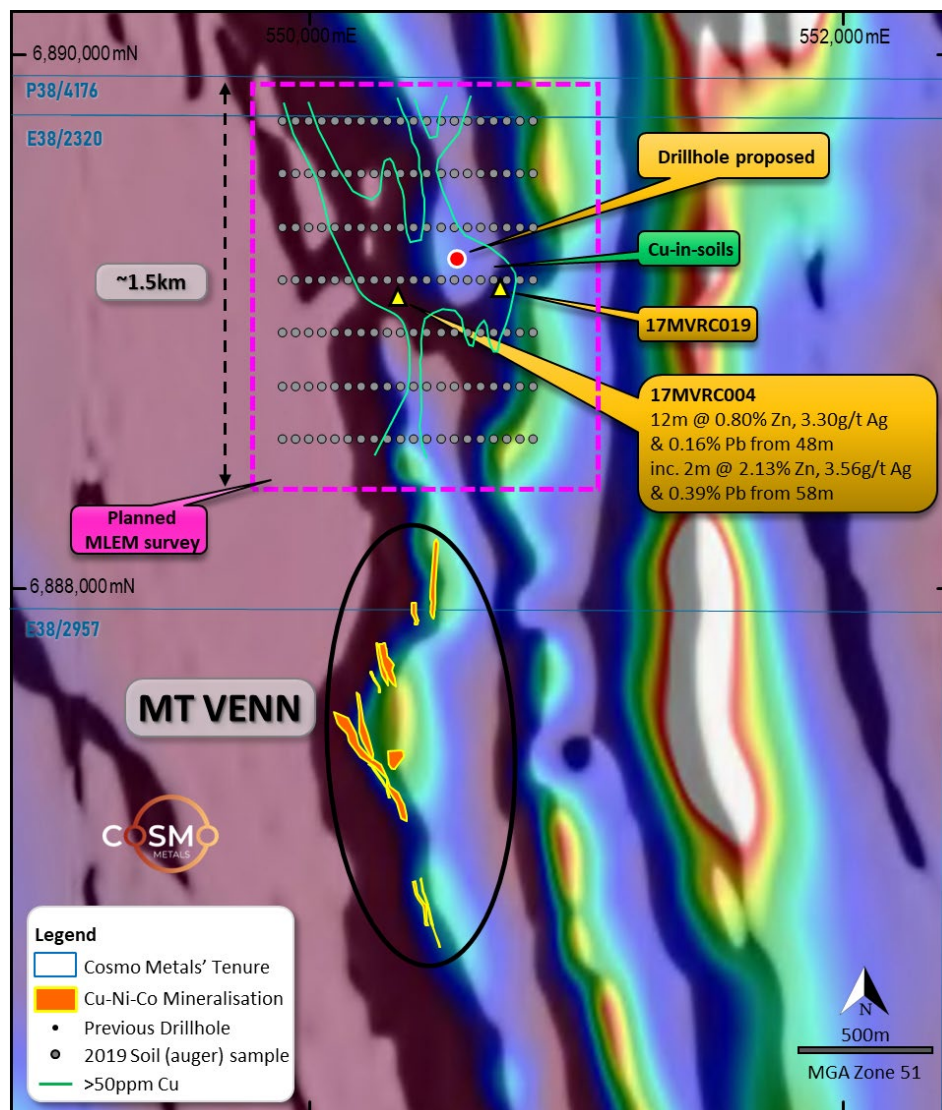
## Minjina (Base Metals)

### BACKGROUND

DHEM surveying of two historical holes (17MVRC004 & 17MVRC0019) drilled at the Minjina target, ~900m north of Mt Venn, identified a strong off-hole conductor untested by drilling (*refer Figures 3 & 4*).

Minjina was first recognised as a base metals target from a review of historical drillhole 17MVRC004, drilled in 2017, which intersected <sup>2</sup>:

- 12m @ 0.8% Zn, 3.3g/t Ag & 0.16% Pb from 48m, including
  - 2m @ 2.13% Zn, 3.56g/t Ag and 0.39% Pb from 58m



**Figure 3:** Cosmo Metals' Minjina base metals target relative to Mt Venn, with historical drillholes 17MVRC004 and 019 surveyed with DHEM, surface Cu anomalism and upcoming MLEM.

The mineralisation in 17MVRC004 is significantly different to previous sulphide intersections in the area, with red-orange sphalerite (zinc sulphide) intergrown with subordinate galena (lead sulphide) and chalcopyrite

<sup>2</sup> Refer CMO ASX Announcement 16/02/22

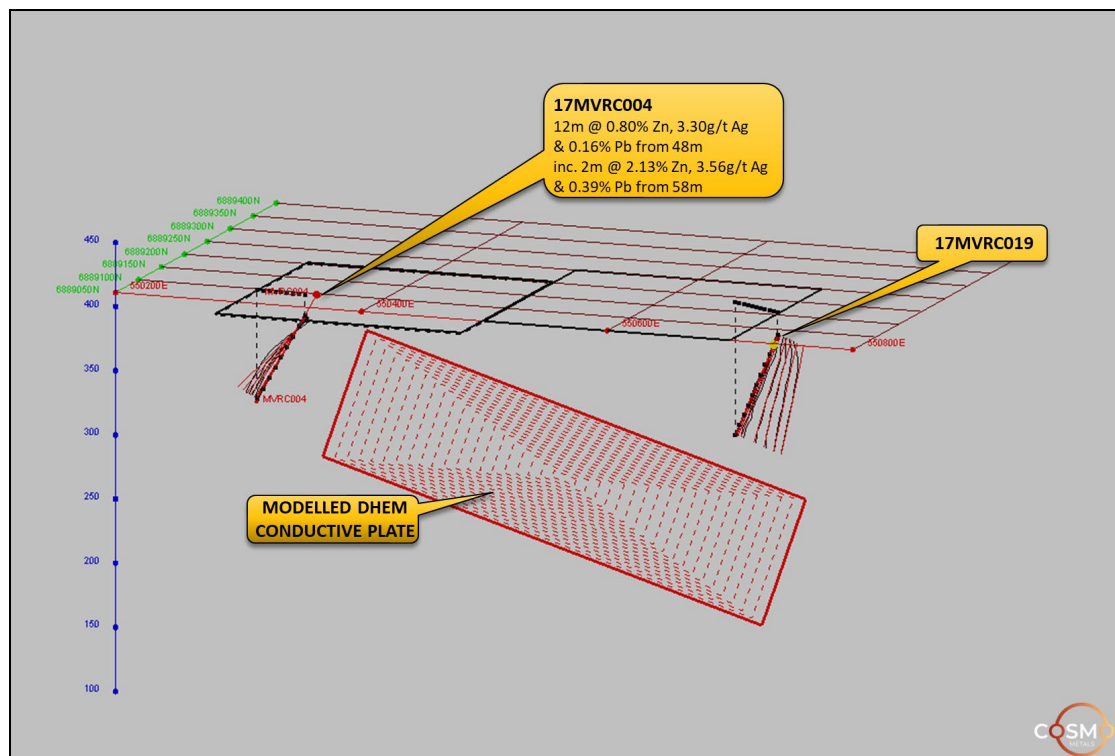


(Cu-sulphide). This contrasts with the pyrrhotite-chalcopyrite hosted mineralisation at Mt Venn, and supports the presence of a new mineralisation style in the Yamarna project.

An auger soils program completed by Great Boulder (ASX:GBR) over the Minjina target area defined a significant copper-in-soils anomaly with a peak value of 638ppm Cu (refer Figure 3)<sup>3</sup>.

#### MINJINA DHEM TECHNICAL DISCUSSION

DHEM was acquired in the Minjina drillholes in 2017, however the data quality was poor. Using data and probable conductor locations derived from the initial 2017 DHEM surveys, a revised Tx loop providing better coupling with the expected conductors was devised (refer Figure 4).



**Figure 4:** Geophysical modelling of off-hole conductor at Minjina with historical holes 17MVR004 and 019.

DHEM data from 17MVR004 and 17MVR019 modelled with a single, steeply-dipping plate located ~100-200m north of these drillholes and striking ENE-WSW (283°), dipping ~66° to the SE and plunging at approx. 25° to the ENE. It has a relatively high conductance (CT = 1150+ S).

Both 17MVR004 and 17MVR019 missed this plate although they did see mineralisation at the base of the drillholes which is not apparent in the DHEM as a significant conductor. *This is an off-end conductor, neither drillhole intersected this feature.*

At its shallowest the modelled plate is ~60m below surface and a drillhole proposed to test this feature is interpreted to intersect the target at ~190m downhole depth.

Minjina represents an exciting new target for the Company given the association of an untested, high conductance (>1,000S) off-hole conductor with historical base metals intersections and widespread Cu anomalism in surface sampling.

Ground-based EM (MLEM) is now planned to refine the DHEM target at Minjina with the survey planned to cover the >1.5km prospective geology interpreted north of Mt Venn, a zone which has only had regional (1km-spaced) airborne EM with widespread Cu soils anomalism and limited drill testing, supporting the potential for further discoveries under shallow cover.

<sup>3</sup> Refer GBR ASX Announcement 16/12/2019

### Eastern Mafic

Due to challenging ground conditions only one of four holes (YARC001) drilled in the Company's May drilling campaign at Eastern Mafic could be cased for DHEM surveying.

The DHEM survey was unable to resolve the ML3 target tested by YARC001, which remains unexplained by drilling or geophysics, and ground-based EM (MLEM) is now planned to cover this target.

The MLEM survey will include regional targets defined by the Company at Eastern Mafic (refer Figure 2 and CMO ASX Announcement 5 September 2022).

### Winchester JV (Ni-Cu-PGE)

DHEM survey tested four holes at the Winchester JV, ~50km northwest of Mt Venn, which had been drilled in 2020 however these were not surveyed at the time due to regional COVID-related travel restrictions.

Modelling of the DHEM demonstrated that in-hole conductors at holes 20WMRC001-004 are explained in the drilling. Strong off-hole conductors at 20WNRC002 and 20WNRC003 are likely to be stratigraphic (e.g. graphitic sediments) and therefore downgraded as potential targets.

Ongoing review of the Winchester area has highlighted regional targets that will be surveyed with MLEM in the coming weeks to define targets for drill testing.

### NEXT STEPS

A geophysical crew is now mobilising to Yamarna to commence ground electromagnetic surveys (MLEM) at Minjina, Eastern Mafic and Winchester to refine targets for drill testing.

The ground survey is estimated to take ~three weeks to complete with modelling of the data ongoing during the survey.

In anticipation of targets generated from the MLEM the Company has identified a drill contractor to mobilise to site in November. This program, originally slated for late October, has been delayed to include targets generated by the MLEM survey.

**TABLE 1: Cosmo Metals' Yamarna Region DHEM survey September 2022**

Project	Prospect	Hole ID	Plate Name	Conductance (S)
Yamarna	Minjina	17MVRC004	17MVRC019_combined_model	1,153
Yamarna	Minjina	17MVRC019	17MVRC019 offhole	1 859
Yamarna	Mt Venn	YARC017	22YARC017	20,000
Yamarna	Mt Venn	YARC018	lower 1, lower 2, upper	20,000
Yamarna	Mt Venn	YARC019	lower 1, lower 2, upper	20,000
Yamarna	Mt Venn	YARC020	YARC020 late time	53,098
Yamarna	Mt Venn	YARC020	YARC020 early time	966
Yamarna	Mt Venn	YARC020	YARC020	1,000
Yamarna	Mt Venn	YARC021	YARC021 offhole	16,853
Yamarna	Mt Venn	YARC021	YARC021 onhole 155m	8,869
Yamarna	Mt Venn	YARC021	YARC021 midtime onhole 130m	1,000
Yamarna	Mt Venn	YARC021	YARC021 midtime onhole 105	1,000
Yamarna	Mt Venn	YARC022	lower 1, lower 2, upper	20,000
Yamarna	Eastern Mafic	YARC001	YARC001 DHEM only	1,243

Project	Prospect	Hole ID	Plate Name	Conductance (S)
Yamarna	Eastern Mafic	YARC001	YARC001 DHEM MLEM combined	2,368
Winchester	Winchester	20WNRC001	20WNRC002 off-end	396
Winchester	Winchester	20WNRC002	20WNRC002 off-end	396
Winchester	Winchester	20WNRC002	YMRC001 20WNRC002 late	2,150
Winchester	Winchester	20WNRC002	20WNRC002 off-end	396
Winchester	Winchester	20WNRC003	20WNRC003_onhole	7,953
Winchester	Winchester	20WNRC003	20WNRC003_offhole	2,807
Winchester	Winchester	20WNRC004	20WNRC004	396
Winchester	Winchester	20WNRC004	20WNRC004	396



*DHEM survey in progress at Yamarna*

**This announcement is authorised for release to the ASX by the Board of Cosmo Metals Ltd.**

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*Note 1: Information on historical results, including JORC Code Table 1 information, is contained in the Independent Geologist's Report within Cosmo Metals' Prospectus dated 22 November 2021. The Company confirms it is not aware of*



any new information or data that materially affects the exploration results set out in the Prospectus and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

### **About Cosmo Metals Ltd**

Cosmo Metals Ltd (Cosmo; ASX: CMO) is an ASX-listed, base metals exploration company focused on the advancement of its flagship Mt Venn, Winchester and Eastern Mafic projects in the underexplored Yamarna Belt, in the Eastern Goldfields region of Western Australia.

The Yamarna Belt is considered highly prospective for copper-nickel-cobalt (Cu-Ni-Co) and platinum group elements (PGE) and Cosmo's well regarded technical team is advancing exploration on multiple fronts to unlock the potential of the region.

With previous drilling having identified sulphide Cu-Ni-Co mineralisation at Cosmo's key projects, the company has a unique opportunity to add value from this 460km<sup>2</sup> landholding



### **Competent Persons Statement**

*The information in this report that relates to Exploration Results is based upon and fairly represents information compiled by Mr James Merrillees, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Merrillees is a full-time employee of the Company.*

*Mr Merrillees has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Merrillees consents to the inclusion in the report of the matter based on his information in the form and context in which it appears.*

### **Forward-Looking Statements**

*This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Cosmo's planned exploration program and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may", "potential," "should," and similar expressions are forward-looking statements. Although Cosmo believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.*



## APPENDIX A JORC CODE, 2012 EDITION – TABLE 1

### SECTION 1 - SAMPLING TECHNIQUES AND DATA

(Criteria in this section apply to all succeeding sections)

CRITERIA	COMMENTARY
<i>Sampling techniques</i>	<p>DHEM surveying was carried out by Vortex Geophysics using 200m x 200m transmitter loops powered by the VTX-100 transmitter and with data recorded on a SMARTem24/digiAtlantis receiver system paired with the digiAtlantis B-field probe.</p> <p>Surveying was carried at 0.5Hz and 95 Amps for all holes. Each station had 3 readings of 64 stacks. Data were windowed using SMARTem standard times.</p> <p>The digiAtlantis probe records three orthogonal components of magnetic field: Ba, Bu and Bv.</p> <p>Ba is along the drill hole, +ve up the drill hole.</p> <p>Bu is in the vertical plane containing the drill hole and at 12 o'clock when looking down the hole.</p> <p>Bv is horizontal and at 9 when o'clock looking down the hole.</p>
<i>Drilling techniques</i>	N/A no drilling reported
<i>Drill sample recovery</i>	N/A no drilling reported
<i>Logging</i>	N/A no drilling reported
<i>Sub-sampling techniques and sample preparation</i>	N/A no drilling reported
<i>Quality of assay data and laboratory tests</i>	<p>Data acquired using SMARTem24/digiAtlantis receiver system.</p> <p>Data were delivered by Vortex Geophysics who performed QA/QC daily.</p> <p>Data were again subject to QA/QC by consultants Newexco Exploration Pty Ltd daily. QA/QC was achieved using Maxwell software by ElectroMagnetic Imaging Technology Pty Ltd.</p>
<i>Verification of sampling and assaying</i>	Data were check and validated daily using Maxwell software by ElectroMagnetic Imaging Technology Pty Ltd.
<i>Location of data points</i>	MGA94 UTM zone 51 coordinate system was used.
<i>Data spacing and distribution</i>	<p>The spacing and location of most of the drilling in the CMO projects is variable which is common with early exploration.</p> <p>The spacing and location of data is considered acceptable for exploration purposes.</p> <p>DHEM stations were recorded at 5-10m intervals. Each station has 3 readings of 64 stacks.</p>
<i>Orientation of data in relation to geological structure</i>	N/A for DHEM
<i>Sample security</i>	<p>Data were acquired by Vortex Geophysics and reported to the company director.</p> <p>Data were forwarded from Vortex Geophysics to consultants Newexco Exploration Pty Ltd.</p>
<i>Audits or reviews</i>	None completed.



## SECTION 2 REPORTING OF EXPLORATION RESULTS

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

CRITERIA	COMMENTARY
<i>Mineral tenement and land tenure status</i>	<p>The Yamarna Project comprises the following tenements held 100% by Cosmo Metals Ltd.</p> <p>Tenements comprise Exploration licences E38/2320, E38/2685, E38/2952, E38/2953, E38/5957, E38/2958, E38/3640 and prospecting licence P38/4178.</p>
<i>Exploration done by other parties</i>	<p>Previous explorers included:</p> <ul style="list-style-type: none"> <li>• 1990's. Kilkenny Gold NL completed wide-spaced, shallow, RAB drilling over a limited area. Gold assay only.</li> <li>• 2008. Elektra Mines Ltd (now Gold Road Resources Ltd) completed two shallow RC holes targeting extension to Mt Venn igneous complex. XRF analysis only, no geochemical analysis completed.</li> <li>• In 2011 Crusader Resources Ltd completed broad-spaced aircore drilling targeting extensions to the Thatcher's Soak uranium mineralisation. Only XRF analysis was completed.</li> <li>• In late 2015 Gold Road drilled and assayed an RC drill hole on the edge of an EM anomaly identified from an airborne XTEM survey, identifying copper-nickel-cobalt mineralisation.</li> <li>• In 2017 Great Boulder subsequently re-assayed the Gold Road hole and confirmed primary bedrock sulphide mineralisation, with peak assay results of 1.7% Cu, 0.2% Ni, 528ppm Co (over 1m intervals) over two distinct lenses.</li> <li>• Great Boulder completed a ground based moving loop EM survey in September 2017 and reported extensive strong EM conductors and co-incident copper-nickel mineralisation from aircore geochemistry.</li> </ul> <p>Full drillhole details of all historical drilling and exploration results can be found in the Independent Geologist's Report in Cosmo Metals' Prospectus dated 22 November 2021 available from the Company's website.</p>
<i>Geology</i>	<p>Cosmo Metals' Yamarna Project hosts the southern extension of the Mt Venn igneous complex. This complex is immediately west of the Yamarna greenstone belt.</p> <p>The mineralisation encountered in the Mt Venn drilling suggests that sulphide mineralisation is defined by a prominent long EM conductor trend and shows a highly sulphur-saturated system within a metamorphosed dolerite and gabbro sequence.</p> <p>Visual logging of sulphide mineralogy shows pyrrhotite dominant with chalcopyrite.</p>
<i>Drill hole Information</i>	N/A no drilling reported
<i>Data aggregation methods</i>	N/A no drilling reported
<i>Relationship between mineralisation widths and intercept lengths</i>	The orientation of structures and mineralisation is not known with certainty; however drill holes were oriented perpendicular to interpreted mineralisation.
<i>Diagrams</i>	Appropriate maps, sections and tabulations are presented in the body of this announcement.
<i>Balanced reporting</i>	All relevant exploration data is reported
<i>Other substantive exploration data</i>	Not applicable, no other material exploration data.
<i>Further work</i>	Further work is discussed in the body of this announcement.