

# Copper sulphides intersected at Maverick, South Australia

- Four scout holes completed testing shallow bedrock conductors near Prominent Hill mine
- Copper sulphide mineralisation intersected in magnetite skarn at 'Maverick'
- Lab assays expected within 4 weeks

Minotaur Exploration Ltd (ASX: MEP, 'Minotaur') has completed drill testing of four electromagnetic ('EM') targets north of the Prominent Hill copper-gold mine (refer to Figure 1), South Australia. In 2017 a ground EM survey along the Skylark Shear Zone generated drill targets at Bellatrix East, Bellatrix Northeast, Nexus and Maverick<sup>1</sup>. Each target has been tested by a single diamond drill hole (Table 1).

Maverick is sited at a major interpreted fault intersection (Figure 1). Chalcopyrite mineralisation is developed over approximately 35m (130.6-165.2m) in association with pyrrhotite and magnetite alteration in an interpreted skarn body. Mineralisation is typically manifest as disseminations and net-textured veins, but also occurs locally as coarse-grained massive sulphide aggregates (Figures 2 and 3). Based on visual estimates, the chalcopyrite content<sup>2</sup> over the skarn zone is around 1%, and whilst the tenor of copper mineralisation appears only moderate, this is the only hole to yet test the conductor and mineralisation remains open in all directions.

ASX release dated 25 September 2017, New drill targets revealed near Prominent Hill

<sup>&</sup>lt;sup>2</sup> References to chalcopyrite content are based on visual estimates from geological logging and are provided as a guide only to the potential tenor of mineralisation. Laboratory assays will provide actual grades. Chalcopyrite is a copper sulphide mineral with composition 34.6% copper.

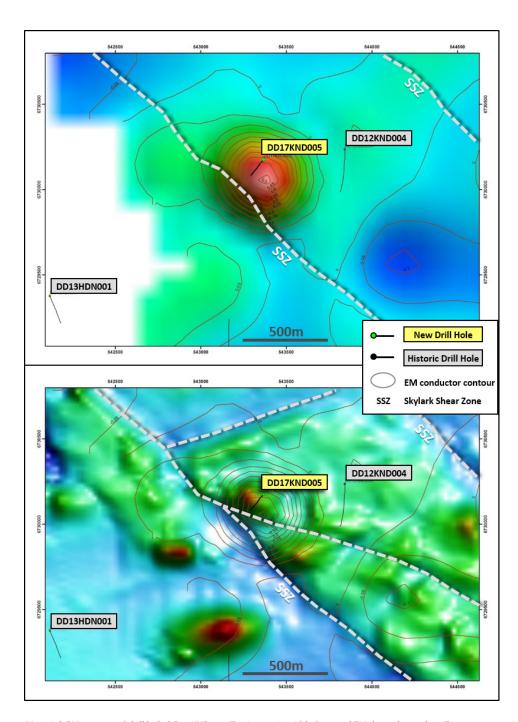


Figure 1: Maverick EM target and drill hole DD17KND005. Top image is gridded ground EM data, channel 30, Z-component with EM contours (contour intervals are 0.05 pT/A). Bottom image is 1VD magnetics with EM contours and interpreted faults





Figure 2: Drill core from DD17KND005 at 140.5m. Magnetite skarn with net-textured and coarse-grained pyrrhotite (bronze coloured) and chalcopyrite (yellow) mineralisation.

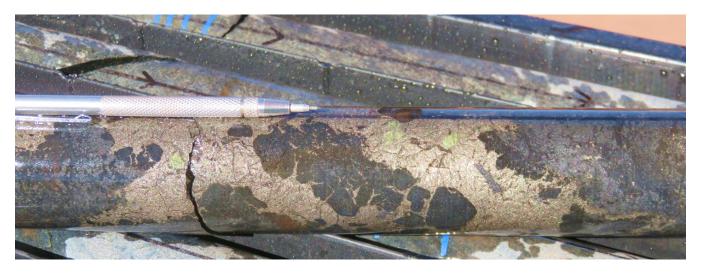


Figure 3: Drill core from DD17KND005 at 143.9m. Magnetite skarn with coarse-grained massive sulphide comprising mostly pyrrhotite (bronze coloured) and lesser chalcopyrite (yellow).

One hole at each of Bellatrix East, Bellatrix Northeast and Nexus, intersected mostly graphite-bearing rocks at or near the modelled EM target position, adequately resolving the source of each of those conductors. Minor copper sulphide (chalcopyrite) is common in each graphitic zone, but is of insufficient content to warrant further drilling.

## **Next Steps**

The first-pass drill program is complete, assays for which will be returned in 4 weeks. Minotaur and collaboration partner, OZ Minerals, will assess this information to determine follow on action.

### About the OZL - MEP Alliance

Minotaur Exploration and OZ Minerals Ltd (ASX:OZL, 'OZL Minerals') have a collaboration arrangement whereby each contributes up to A\$1.5 million to proof test agreed targets for base metal mineralisation within OZ Minerals' exploration tenements in the Prominent Hill area.

Table 1: Drill collar details. Coordinates are GDA94, Zone 53. RM = Rotary Mud, DD = Diamond Drilling

Target Name	Drillhole	East	North	Dip	Azimuth	Depth (m)	Drill Type
Bellatrix East	DD17TUR017	557911	6721774	-60	52	307.2	RM/DD
<b>Bellatrix Northeast</b>	DD17TUR018	557809	6721939	-60	52	206.6	RM/DD
Nexus	DD17EUR002	545794	6728207	-60	180	351.6	RM/DD
Maverick	DD17KND005	543366	6730175	-60	220	242.6	RM/DD

#### **COMPETENT PERSON'S STATEMENT**

Information in this report that relates to Exploration Results is based on information compiled by Mr. Glen Little, who is a full-time employee of the Company and a Member of the Australian Institute of Geoscientists (AIG). Mr. Little has sufficient experience relevant to the style of mineralization and type of deposit under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr. Little consents to inclusion in this document of the information in the form and context in which it appears.

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## JORC Code, 2012 Edition, Table 1

## **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.	<ul> <li>Drill sample material from hole DD17KND005 has not yet been assayed and information in this report relates to visual estimates only of chalcopyrite (copper-bearing sulphide) content. Assays from this hole will be reported in due course. Drill sample material for holes DD17TUR017, DD17TUR018 and DD17EUR002 is not relevant to this this table as comments in the body of this report indicate there is no significant mineralisation and there is not expected to be any material change to these comments from any geochemical assays.</li> <li>DD17KND005 was drilled Rotary Mud (RM) to 34.2m then changed to HQ to 36.8m the changed to NQ2 to end of hole at 242.6m.</li> <li>The drill bit sizes employed to sample the zones of interest are considered appropriate to indicate the degree and extent of mineralisation.</li> <li>Relevant samples of mineralisation will be sent to the analytical lab in due course for confirmation assays.</li> </ul>
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	<ul> <li>All samples relating to mineralisation commented on in this report are NQ2 core size. Core samples will be split with a core saw and half core samples, typically varying from 1-2m wide, will be sent to the lab for assay in due course.</li> </ul>
	Aspects of the determination of mineralisation that are Material to the Public Report.	Comments in this report relating to mineralisation in hole DD17KND005 are based on visual estimates of chalcopyrite content only and do not represent actual copper content of any given part of the hole. For information, chalcopyrite contains approximately 1/3 copper; thus for example if 1% chalcopyrite is visually estimated over a given interval, say 1m, that 1m interval will contain approximately 0.35% copper.
	In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1m samples from which 3kg was pulverised to produce a 30g charge for fire	<ul> <li>All samples relating to mineralisation commented on in this report are NQ2 core size. Core samples will be split with a core saw and half core samples, typically varying from 1-2m wide, will be sent to the</li> </ul>

Criteria	JORC Code explanation	Commentary
	assay'). In other cases more 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.	lab for assay in due course.
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).	<ul> <li>DD17KND005 was drilled Rotary Mud (RM) to 34.2m then changed to HQ to 36.8m the changed to NQ2 to end of hole at 242.6m.</li> <li>The drill bit sizes employed to sample the zones of interest are considered appropriate to indicate the degree and extent of mineralisation.</li> <li>A Camteq Proshot down hole survey system was used every ~30m by drilling contractors Titeline to monitor drillhole trajectory during drilling.</li> <li>The NQ2 cored portions of the drillholes have been oriented for structural logging using the Camteq Core Tell core orientation tool. The drilling program was supervised by experienced Minotaur geological personnel.</li> </ul>
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Drill core recovery was determined by measuring the length of core returned to surface against the distance drilled by the drilling contractor. Core recovery for all reported intervals was 100% recovery thereby providing no evidence for apparent correlation between ground conditions and metal grade.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	<ul> <li>Ground conditions were suitable for standard core drilling. Recoveries and ground conditions have been monitored during drilling. There was no requirement to conduct drilling with triple tube when diamond drilling.</li> </ul>
	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.	Samples are yet to be sent to the laboratory for analyses however there are not expected to be any issues with sample recovery and grade and sample bias.
Logging	Whether core and chip samples have been	Geological logging of the cover sequence and the

Criteria	JORC Code explanation	Commentary
	geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	cored basement has been conducted by Minotaur staff geologists. The level of detail of logging has been sufficient for early stage exploration drill holes which these hole are. The drill core has been oriented where possible and structural data has been recorded. No geotechnical logged has been conducted as the holes are early stage exploration drilling. Magnetic susceptibilities have been recorded every metre of the drill core and SG measured have been conducted at approximately 5m intervals for the core.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Geological logging is qualitative. Core photos have been taken for the entire cored section of each completed drillhole.
	The total length and percentage of the relevant intersections logged.	All holes have been logged for their entire length.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Core will be cut using an industry standard automatic core saw. Half core samples, expected to be 1-2m wide will be sent to the lab for analyses. All other measures/sampling techniques and sample preparation under this section will be described in future relevant announcements
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Not relevant to this report
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Not relevant to this report
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Not relevant to this report
	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.	Not relevant to this report
	Whether sample sizes are appropriate to the grain size of the material being	Not relevant to this report

Criteria	JORC Code explanation	Commentary
	sampled.	
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.	Assay data is not presented in this report. However the information relating to mineralisation that is presented is based on geological logging only and are visual estimates of the sulphide content based on that logging. Minotaur has experienced geologists logging the core and are of the opinion that the visual estimates as presented in the text of this report are indicative of the mineralisation in each hole. Minotaur state that laboratory assay data is required to accurate determine the level of mineralisation encountered in each hole.
	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.	<ul> <li>Minotaur has not relied on any instruments to assist with estimating the visual content of chalcopyrite in each hole, however some readings have been taken using a handheld XRF device for internal use only.</li> </ul>
	Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Not relevant to this report
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Not relevant to this report
	The use of twinned holes.	Not relevant to this report
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Not relevant to this report
	Discuss any adjustment to assay data.	Not relevant to this report
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.	<ul> <li>Drill collar positions are located with a handheld GPS. The level of accuracy of the GPS is approximately +/- 3m and is considered adequate for this first-pass level of exploration drilling.</li> <li>Downhole surveys have been conducted at</li> </ul>

Criteria	JORC Code explanation	Commentary
		approximately 30 metre intervals using a Camteq Proshot down hole survey system for drillhole orientation by the drilling contractor Titeline
	Specification of the grid system used.	Grid system used is GDA94, Zone 53.
	Quality and adequacy of topographic control.	<ul> <li>The Maverick area is flat lying with a ~1m of elevation change over the extended prospect area.</li> <li>Detailed elevation data is not required for this early stage of exploration in flat-lying topography.</li> </ul>
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill core has not yet been sampled for assay but sample intervals are likely to be 1m through the main zone of mineralisation and up to 2m outside of the zone of visible sulphide. Some samples may not be full metres because of geological contacts where required.
	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.	The level of data spacing Minotaur propose to use for the sampling, as above, will be sufficient to enable an initial interpretation of the data and geological model. These are the first holes drilled into these prospects and will provide a guide for future drilling. The prospects are at too early a stage of exploration for detailed analyses.
	Whether sample compositing has been applied.	Not relevant to this report
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.	The drill holes have been drilled to test modelled EM conductors and in each case have drilled as close as possible to perpendicular to the modelled EM plates. Structural logging of the core, and the location of the mineralised sections relative to the modelled plate, indicates that the holes are placed in the most favorable orientation for testing the targeted structures.
	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 orientation based sampling bias is expected.

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Sample security	The measures taken to ensure sample security.	<ul> <li>Drill core is stored at OZ Minerals core yard at their Prominent Hill mine. Samples will be transported by courier directly to the laboratory in Adelaide when they are to be analysed.</li> </ul>
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No external audits have been undertaken however data has been peer reviewed in-house.

**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.	<ul> <li>The information that relates to the drill holes in the body of this report is from EL's 5210 and 5439 that are 100% owned by Oz Minerals Prominent Hill Operations Pty Ltd, as part of an exploration agreement with Minotaur Exploration (MEP) which is yet to earn any equity in the tenement.</li> <li>Registered native title claims exists over sections of the EL's (Antakirinja Native Title Claimant).</li> </ul>
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	All tenements related to information in this table are secure and compliant with their respective Conditions of Grant. There are no impediments to obtaining a licence to operate
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Historical exploration by other companies across parts of the drilled area includes airborne magnetic surveys, ground gravity surveys and minimal RC/DD drilling. None of the EM targets have been tested by historical drilling however the historical drill data has been used to assist with interpretation of the basement lithologies.
Geology	Deposit type, geological setting and style of mineralisation.	Within the eastern portion of the Mt Woods Inlier, targeted mineralisation styles are iron oxide Cu-Au (IOCG) and iron sulphide Cu-Au (ISCG) mineralisation associated with ~1595— 1585Ma volcanism (Gawler Range Volcanics) and emplacement of mafic—granitic plutons (Hiltaba Suite).

Criteria	JORC Code explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:  • easting and northing of the drill hole collar  • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar  • dip and azimuth of the hole  • down hole length and interception depth  • hole length.	Collar easting and northing plus drillhole azimuth, dip and final depth DD17TUR017, DD17TUR018, DD17EUR002 and DD17KND005 are presented in Table 1 of the body of this document.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No data deemed material to the understanding of the exploration results from drillholes DD17TUR017, DD17TUR018, DD17EUR002 and DD17KND005 have been excluded from this document. Minotaur reiterate that the information provided in the report about visual copper sulphide (chalcopyrite) is an estimate only and should not be viewed as an accurate representation of the mineralisation. The assay data from the holes presented will be provided once the laboratory analyses are complete.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.	Not relevant to this report
	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.	Not relevant to this report
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Not relevant to this report

Criteria	JORC Code explanation	Commentary
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 (eg 'down hole length, true width not known').	The drill holes have been drilled to test modelled EM conductors and in each case have drilled as close as possible to perpendicular to the modelled EM plates. Structural logging of the core, and the location of the mineralised sections relative to the modelled plate, indicates that the holes are placed in the most favorable orientation for testing the targeted structures.
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.	<ul> <li>The location of 4 drill targets and drill holes is presented in Figure 1. The location of the Marverick EM anomaly and drill hole DD17KND005 are presented in Figure 2. Photos of crill core presentative of mineralisation in hole DD17KND005 are included in Figures 3and 4.</li> </ul>
Balanced reporting	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.	Information on the drill holes is brief and designed to provide an update of the progress of the drill program at Mt Woods. Drill assays will be provided once it becomes available.
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.	No substantive exploration data has been omitted
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).	<ul> <li>Follow-up work is yet to be determined as the assay results are yet to be received. Any further work requirements will be reported once the proposed drilling has been completed, assessed and reported.</li> </ul>

Criteria	JORC Code explanation	Commentary
	Diagrams clearly highlighting the areas of	Refer to Figure 2 in the report that shows the
	possible extensions, including the main	size and location of the EM target at Maverick.
	geological interpretations and future	No other images are supplied due to the early
	drilling areas, provided this information is	stage of exploration. More detailed diagrams will
	not commercially sensitive.	be provided when necessary.