# ASX ANNOUNCEMENT

MIRAMAR RESOURCES LTD.

## WHALESHARK IOCG EXPLORATION UPDATE

- **Bedrock copper sulphide mineralisation confirmed by XRF and assays**
- **Anomalous assay results up to 0.2% Cu and 0.11g/t Au**
- **Geochemical vectors towards potential IOCG mineralisation**
- **Further drilling planned following completion of heritage survey**

**Miramar Resources Limited (ASX:M2R**, "Miramar" or "the Company") provides an update on exploration at the Company's 100%-owned Whaleshark Project, in the Ashburton region of WA, where Miramar is exploring for Iron Oxide Copper Gold (IOCG) mineralisation beneath the Northern Carnarvon Basin.

**Diamond drilling results**

The Company has recently received assays from the initial 3-hole diamond drilling programme which was co-funded under the Western Australian government's Exploration Incentive Scheme (EIS).

The initial drilling targeted a gravity anomaly within the Whaleshark granite crosscut by a 4 km long NW-trending structure.

The gravity anomaly sits beneath MMI soil anomalism and strongly anomalous "interface" aircore results up to 435ppm copper (Cu), 889ppm cobalt (Co), 16ppm molybdenum (Mo), 0.16g/t gold (Au) and 7.7g/t silver (Ag).

**WSDD001** targeted the southern half of the gravity anomaly, whilst **WSDD002** and **WSDD003** targeted the NW-trending structure (Figure 1).

Drilling intersected biotite-rich granodiorite which did not explain the gravity anomaly. As such, the Company will model recently collected specific gravity data before retesting the gravity anomaly.

Fine-grained sulphides, including chalcopyrite, were observed throughout two of the three holes. The presence of chalcopyrite was confirmed with handheld XRF at the time of logging and returned spot readings up to 1.2% Cu from the thin shear observed in WSDD002 (Figure 2).

Multi-element assays subsequently confirmed the presence of copper and anomalous **Au, Ag, Mo, Lanthanum (La), Cerium (Ce)** and **Tungsten (W)** throughout the Whaleshark granodiorite including:

- **WSDD001** – 1m @ 0.10g/t Au (119-120m) and 1m @ 31.4ppm Mo and 1022ppm W (433-434m)
- **WSDD002** – 0.4m @ 0.2% Cu and 1.07ppm Ag (231.5 – 231.9m)
- **WSDD003** – 1m @ 0.11g/t Au (134-135m)

Summary cross sections of each hole are attached.

Miramar's Executive Chairman, Mr Allan Kelly, said the Company continued to be encouraged by the results from Whaleshark.

*"Since commencing exploration at Whaleshark, we have narrowed the target down from a very large MMI surface geochemical anomaly, outlined aircore copper, gold and silver anomalism and intersected bedrock copper sulphide mineralisation in the first diamond drilling programme," Mr Kelly said.*

*"Given the positive indicators seen at Whaleshark so far, including copper mineralisation and anomalous IOCG pathfinders within the Whaleshark granodiorite, we believe we are in the right area," he added.*

*"Whaleshark is an exciting project with potential to discover Western Australia's first IOCG deposit. We are looking for a large deposit here, and there is plenty of room to find one. Each phase of our exploration is helping bring us closer to that potential discovery," Mr Kelly said.*

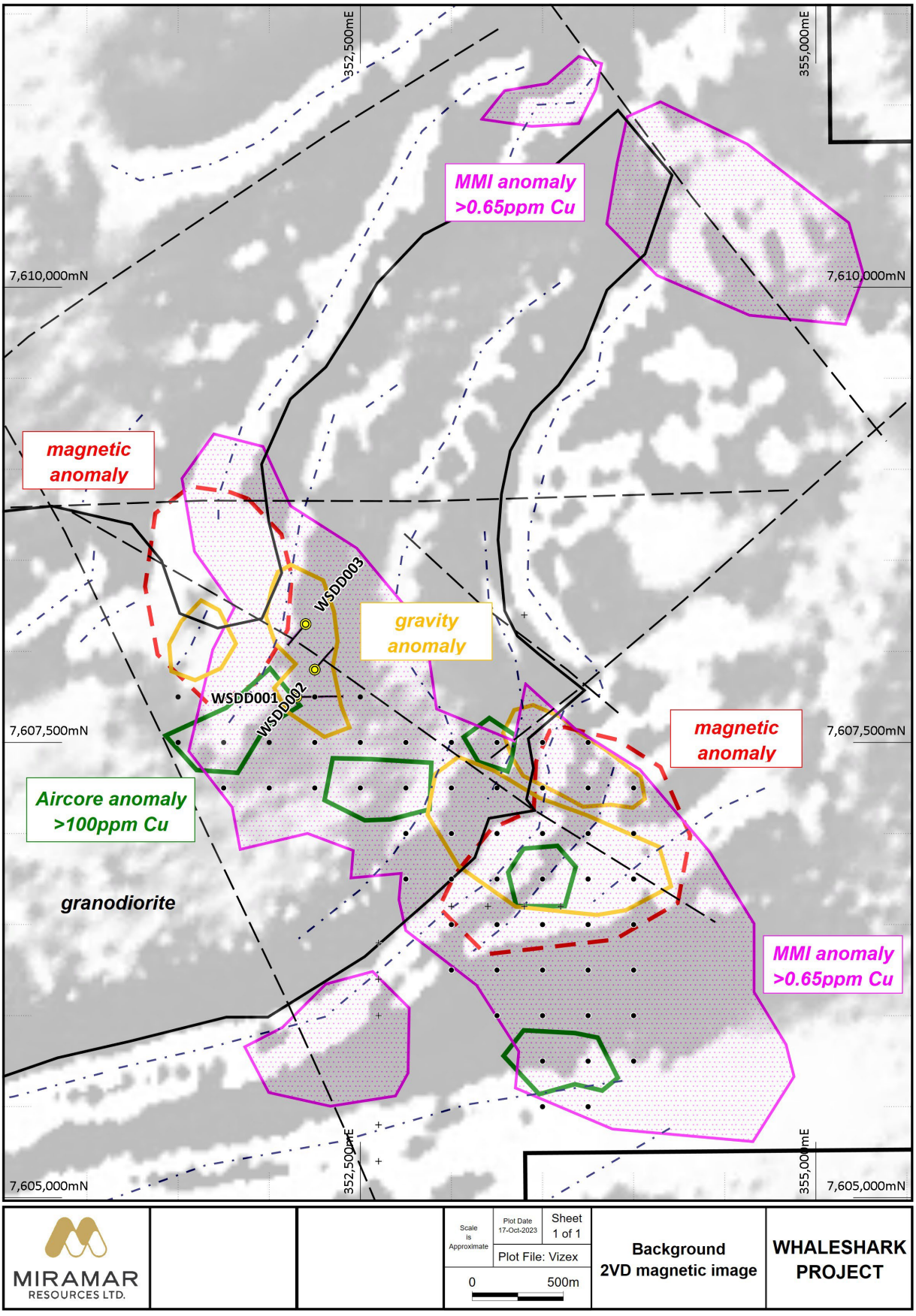


***Figure 1.*** *Whaleshark Project 2VD magnetic image showing diamond holes in relation to MMI, aircore, and gravity anomalies and potential magnetite alteration.*

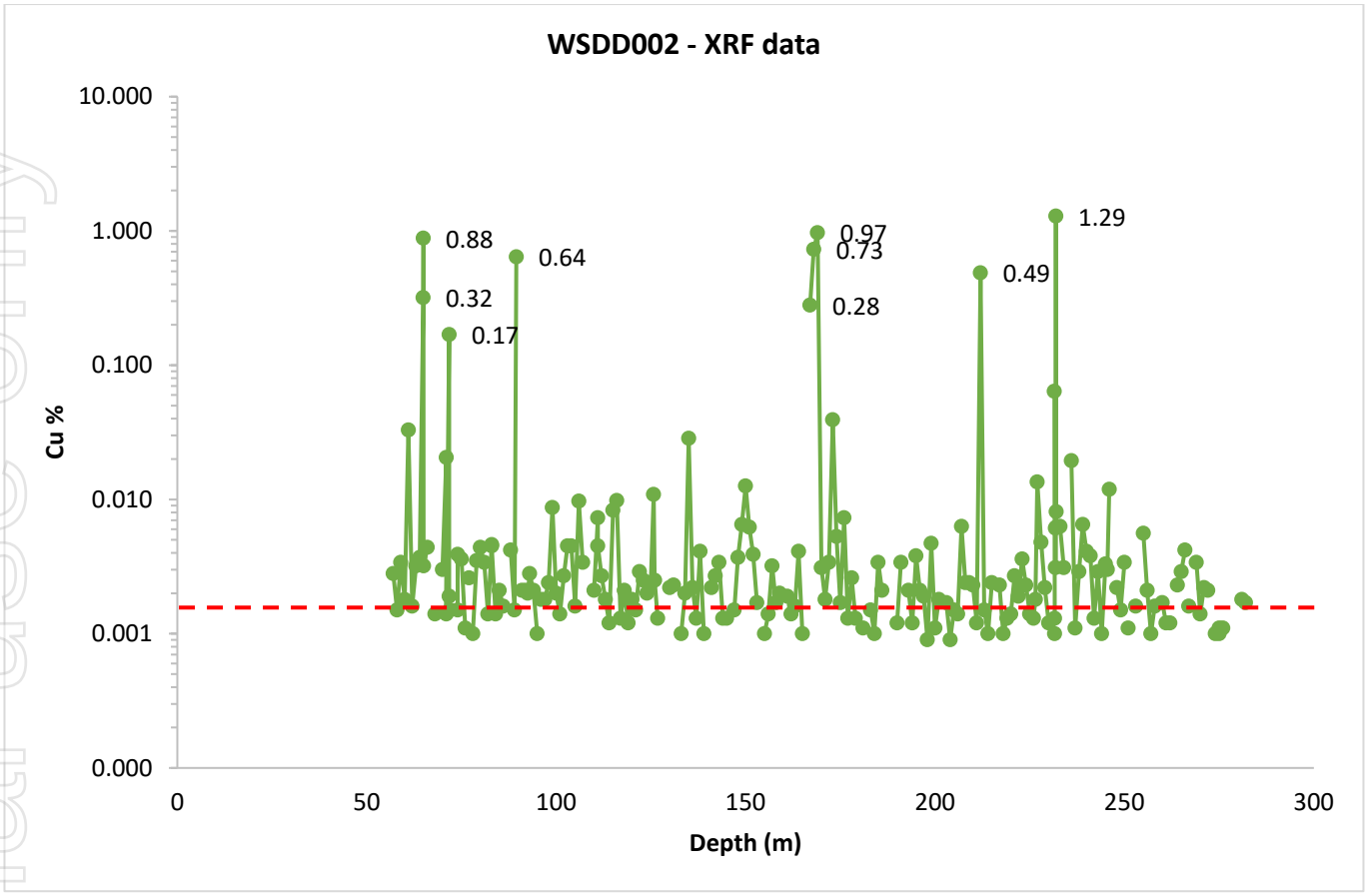


***Figure 2.*** *XRF copper readings from WSDD002 showing "background" copper content for granodiorite (dashed red line). (Note: readings were routinely taken every meter, with additional targeted readings taken where sulphide mineralisation was observed.)*

**Geochemical Vectors**

Examination of the multi-element XRF and assay data from this programme has highlighted geochemical vectors that could be useful for further exploration for IOCG mineralisation at Whaleshark.

Published data from the Prominent Hill and Carrapateena IOCG deposits in South Australia showed that monazite grains related to IOCG mineralisation have high La and Ce concentrations, and correspondingly low Y and Th concentrations, when compared to "background" samples.

This diagnostic high La and Ce geochemical signature has also been observed in analysis of cover sediments over the Prominent Hill deposit (Figure 3).

At Whaleshark, the aircore and diamond drilling results show similar distributions of La and Ce values from both XRF and multi-element analysis, with the highest La and Ce results in the diamond drilling coming from WSDD003 (Figure 4) suggesting a geochemical vector towards potential IOCG mineralisation in the northwest, where a large magnetic anomaly is seen.

The highest copper values observed in WSDD003 are associated with very coarse-grained magnetite confirmed by elevated magnetic susceptibility readings.

Combined, these two observations indicate that the large magnetic anomaly at the northwestern end of the structure could represent magnetite alteration associated with IOCG mineralisation.

**Upcoming Work Programme**

Further exploration at Whaleshark will include:

- Completion of a heritage survey over proposed diamond and aircore drill targets
- Diamond drilling of the magnetic anomaly at the northwestern end of the NW-trending fault
- Completion of interface aircore drilling over the MMI anomalies identified to date
- Investigation of suitable surface geophysical methods to help target further drilling

**For more information on Miramar Resources Limited, please visit the company's website at www.miramarresources.com.au, follow the company on social media on social media (Twitter @MiramarRes and LinkedIn @Miramar Resources Ltd) or contact:**

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This announcement has been authorised for release by Mr Allan Kelly, Executive Chairman, on behalf of the Board of Miramar Resources Limited.

**Reference**

*Forbes, CJ, Giles, D, Freeman, H, Sawyer M and Normington V 2016, "Using REE chemistry of glacially dispersed hydrothermal monazite to target IOCG deposits in the Gawler Craton." MESA Journal 81.*

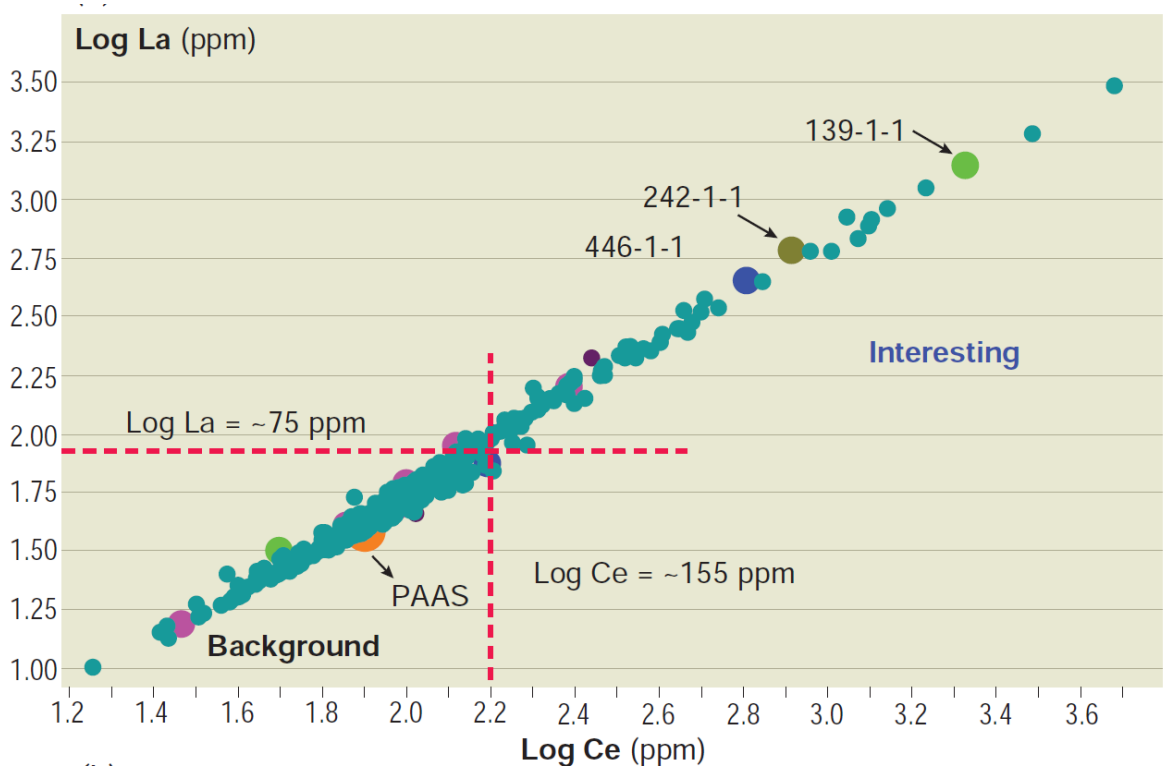



***Figure 3.*** *La vs Ce for sediments above the Prominent Hill IOCG deposit (Forbes et al, 2016).*

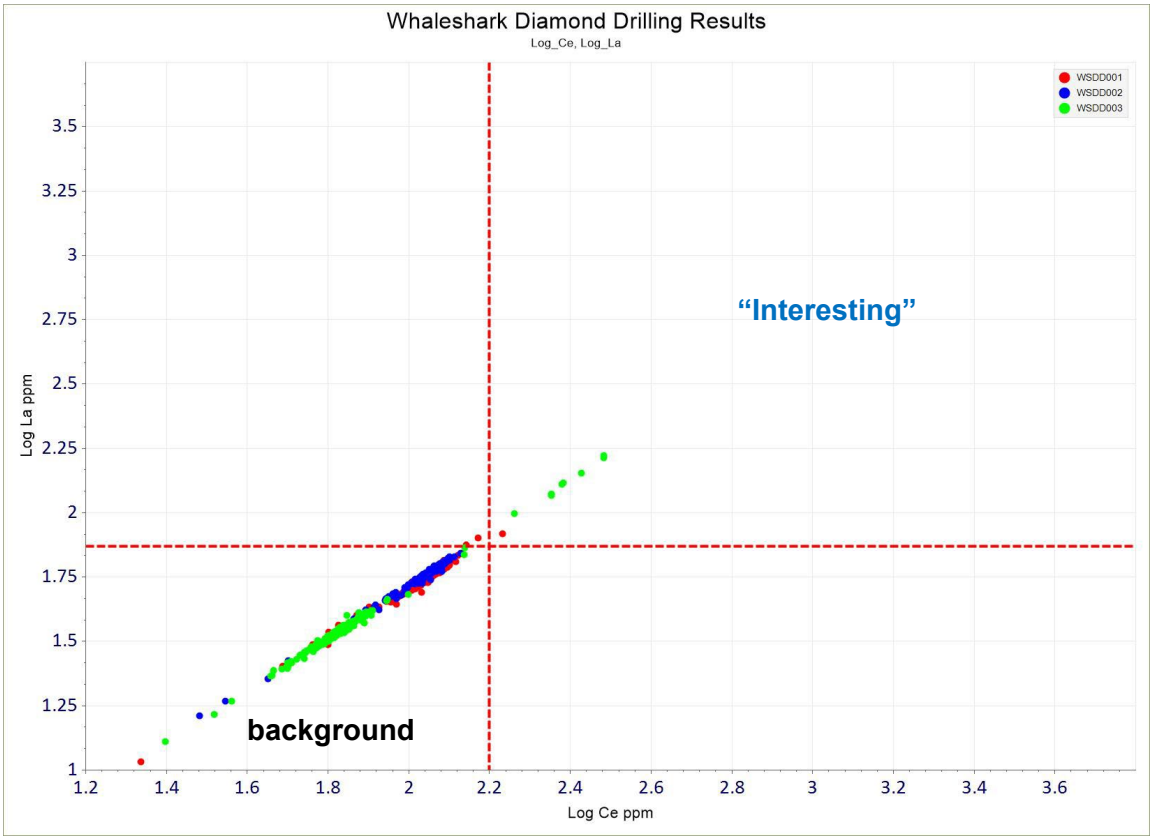



***Figure 4.*** *La vs Ce assay results for Whaleshark diamond drilling. The highest La and Ce values come from WSDD003 indicating a geochemical vector towards that hole.*

## COMPETENT PERSON STATEMENT

The information in this report that relates to Exploration Targets or Exploration Results is based on information compiled by Allan Kelly, a "Competent Person" who is a Member of The Australian Institute of Geoscientists. Mr Kelly is the Executive Chairman of Miramar Resources Ltd. He is a full-time employee of Miramar Resources Ltd and holds shares and options in the company.

Mr Kelly has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken 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'.

Mr Kelly consents to the inclusion in this Announcement of the matters based on his information and in the form and context in which it appears.

Historical exploration results for the Whaleshark Project, including JORC Table 1 and 2 information, is included in the Miramar Prospectus dated 4 September 2020.

JORC Table 1 and 2 information for recent exploration results at the Whaleshark Project is contained in the following ASX Announcements:

- 4 September 2023 - *Copper Mineralisation Confirmed at Whaleshark*
- 7 August 2023 - *Diamond Drilling Underway at Whaleshark*
- 14 June 2023 – *Whaleshark Project Update*
- 21 April 2023 – *Successful EIS Application for Whaleshark Diamond Drilling*
- 14 February 2023 - *Significant Basement Copper and Cobalt Results Upgrade Whaleshark IOCG Potential*
- 14 December 2022 – *Whaleshark REE Results Upgrade IOCG Potential*
- 7 Nov 2022 - *Aircore Drilling Confirms IOCG Potential at Whaleshark*
- 18 Aug 2022 – *Drilling underway at Whaleshark Copper-Gold Project*
- 13 Dec 2021 – *Large IOCG targets outlined at Whaleshark*
- 3 Sep 2021 - *Whaleshark Soil Survey Outlines Numerous Large Targets*

**Table 1. Diamond drillhole information**

| Hole ID | Easting | Northing | Dip /Azimuth | Basement depth | EOH depth |
|---|---|---|---|---|---|
| **WSDD001** | 352150 | 7607750 | -60/090 | 54.6 | 476.2 |
| **WSDD002** | 352250 | 7607900 | -60/040 | 57.15 | 282.3 |
| **WSDD003** | 352200 | 7608150 | -60/220 | 75.85 | 300.2 |

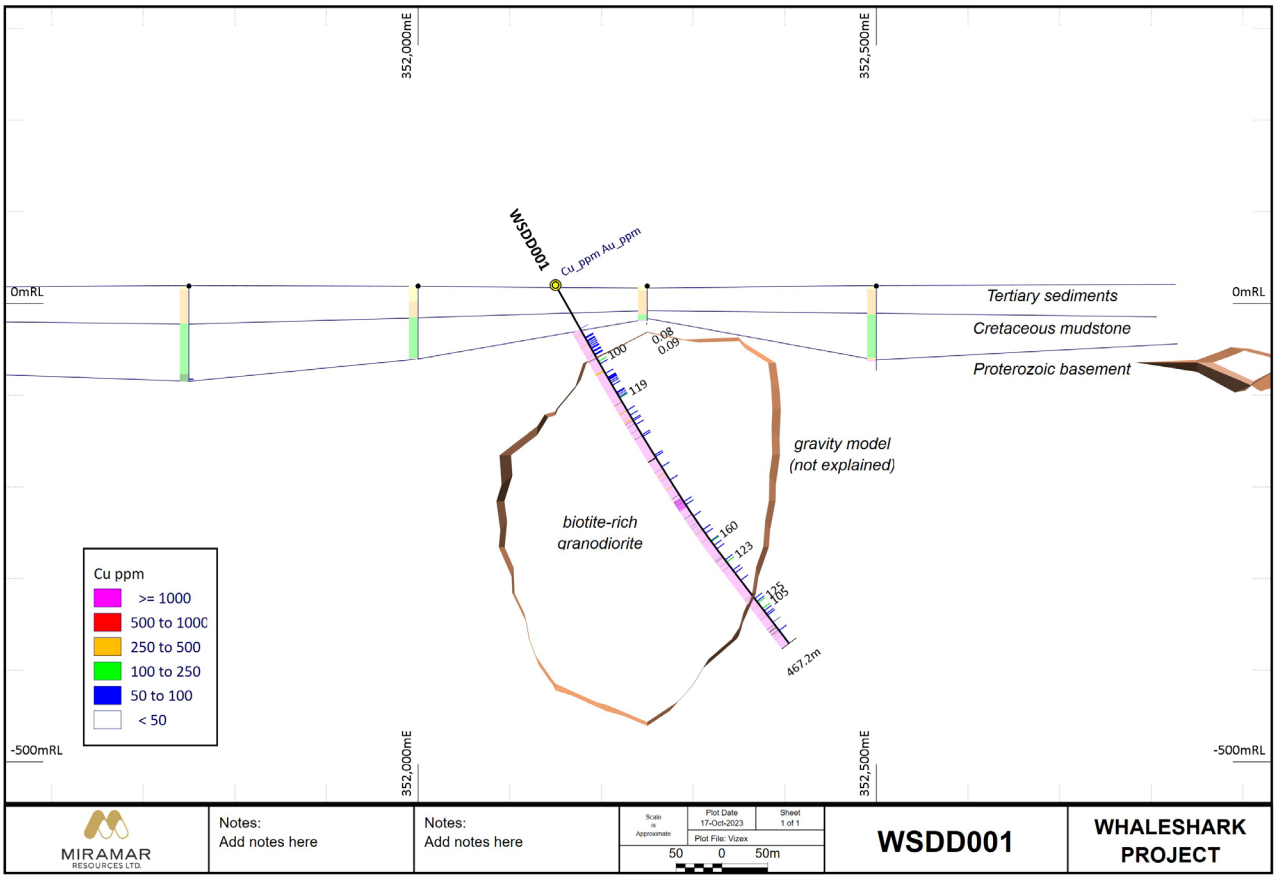



***Figure 5.*** *Cross Section showing WSDD001 compared to the modelled gravity anomaly.*

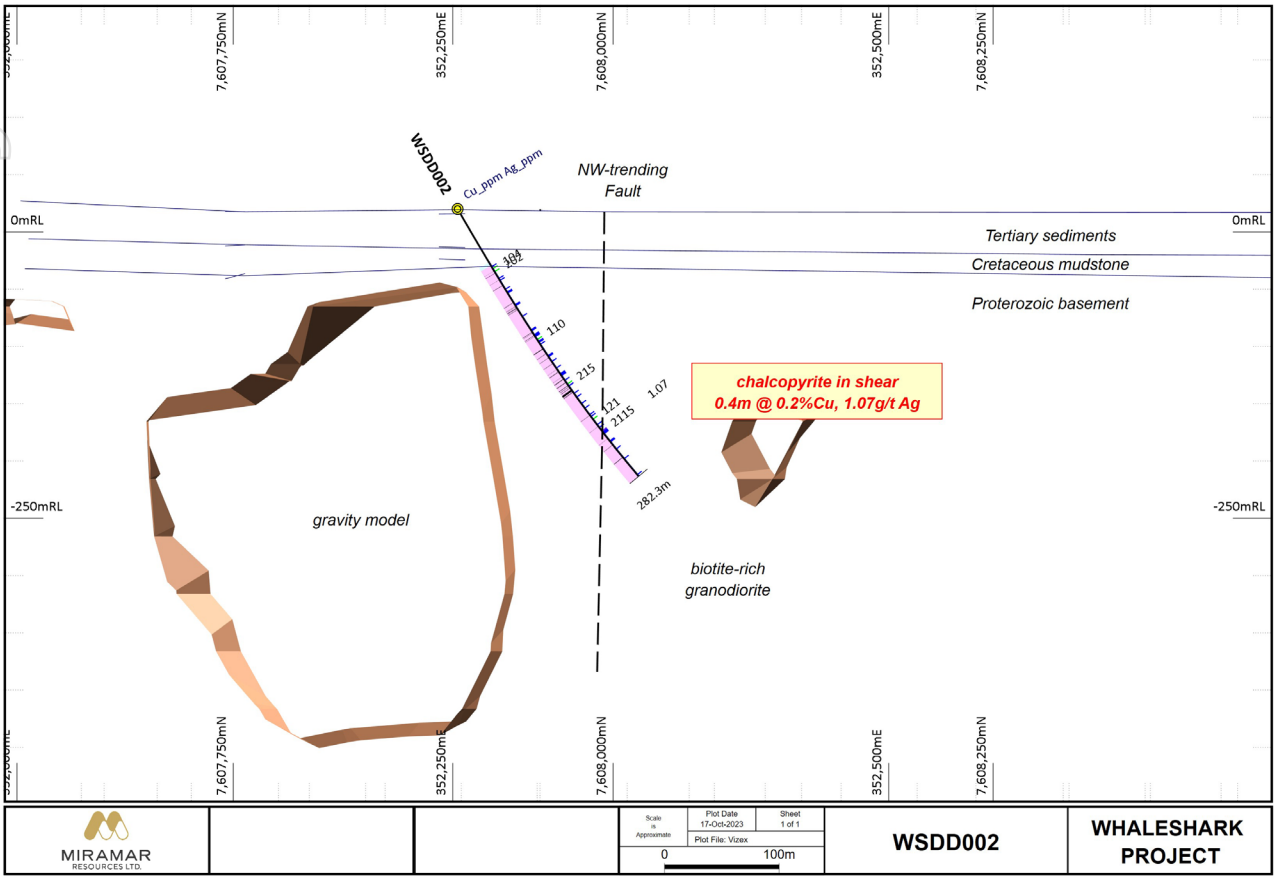



***Figure 6.*** *Cross Section showing WSDD002 and copper sulphides related to the NW-trending fault.*

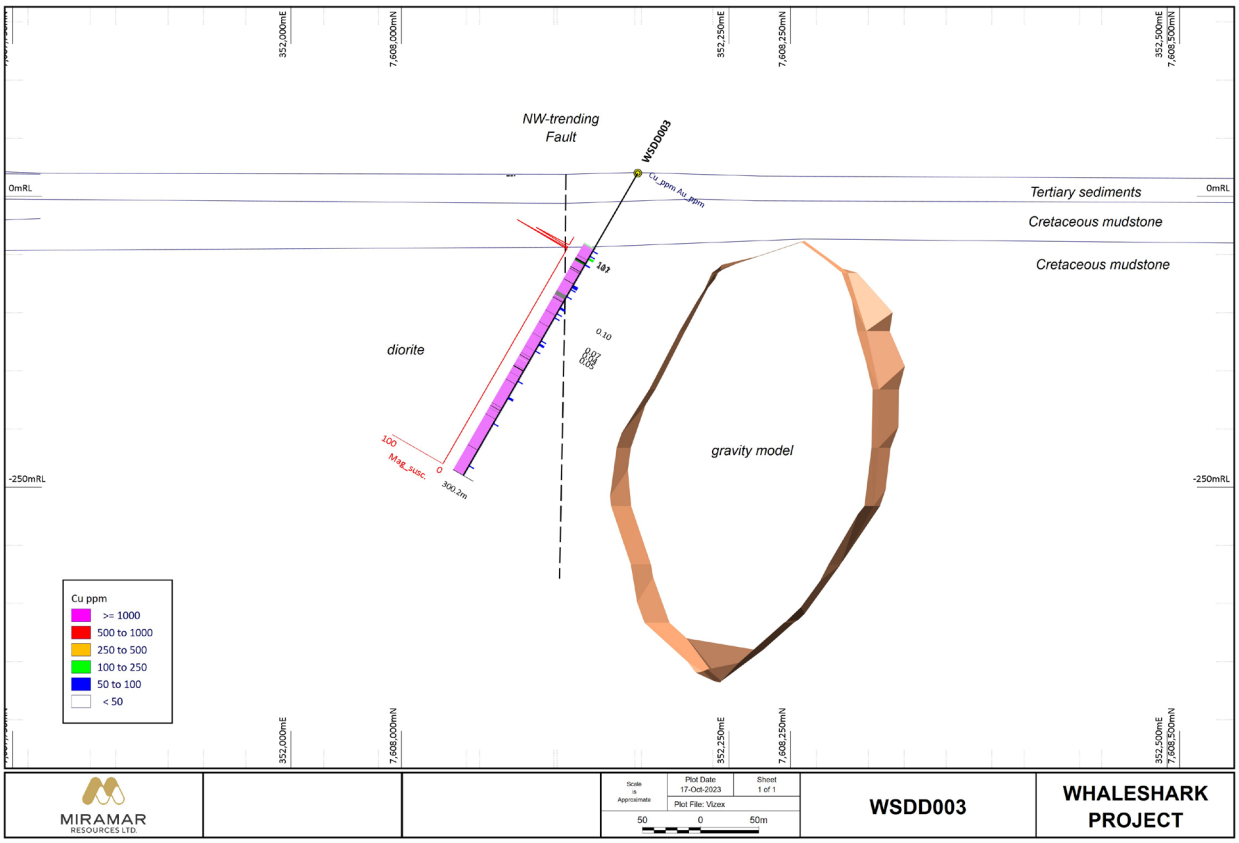



***Figure 7.*** *Cross Section showing WSDD003 with copper anomalism related to magnetite.*

## About the Whaleshark Project

The Whaleshark IOCG project is located in the Ashburton region of WA, approximately 40km east of Onslow. The Project is characterised by a large Proterozoic banded iron formation and granite intrusion beneath approximately 100m of Cretaceous sediments of the Northern Carnarvon Basin.

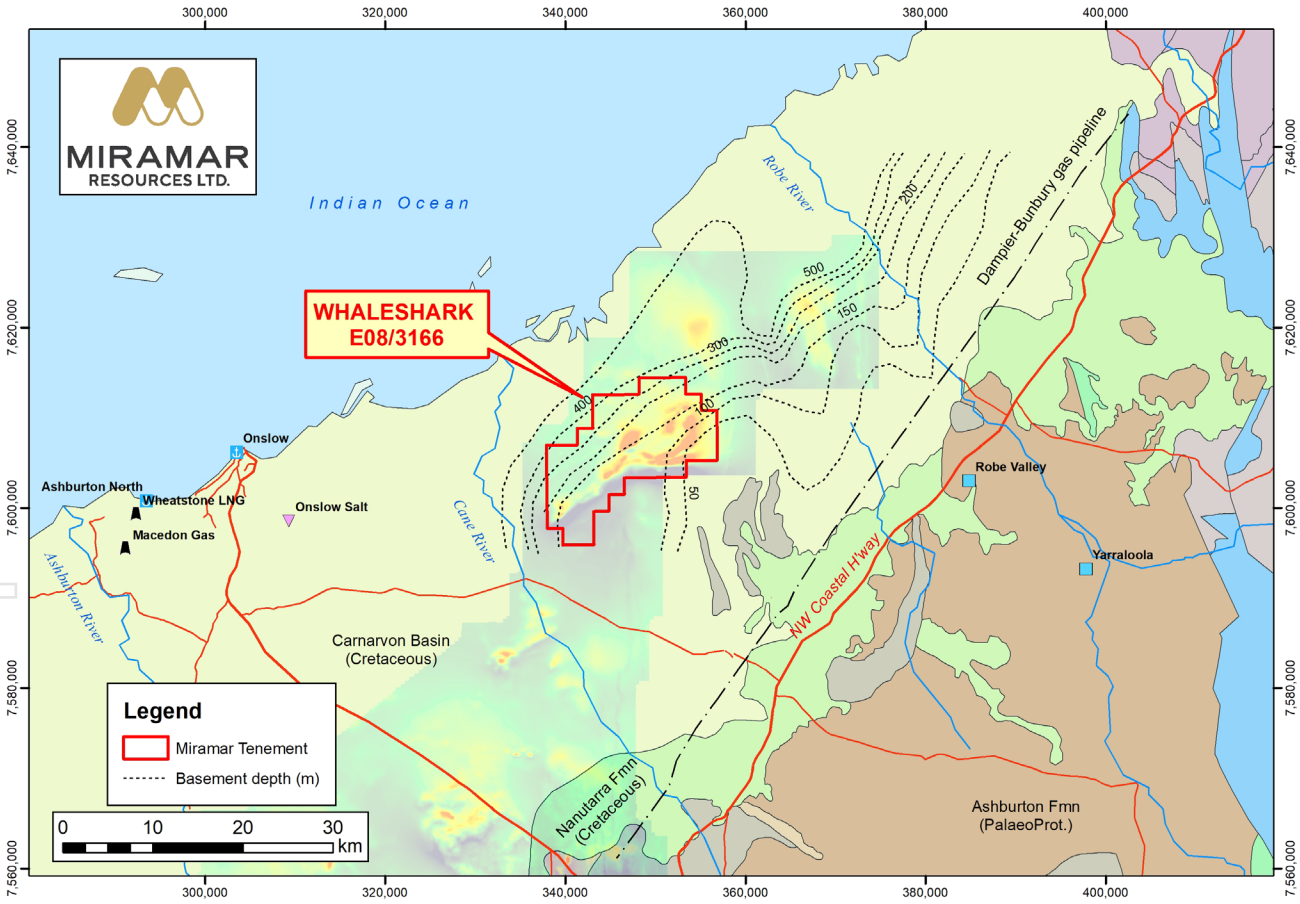
The Project has potential for discovery of a large shallow iron-oxide copper-gold (IOCG) deposit such as Ernest Henry, Starra, Carrapateena and Prominent Hill, but with the advantage of much shallower cover.

Since commencing exploration at Whaleshark in mid-2021, Miramar has identified strongly anomalous Cu, Co, Au, Ag and other IOCG pathfinders in shallow aircore drilling beneath surface geochemical anomalism.

Detailed gravity surveys identified a discrete gravity anomaly in the “neck” of the granite that has been crosscut by a NW-trending fault and is coincident with the surface and aircore geochemical anomalism.

The scale, magnitude and suite of elements seen at Whaleshark is very similar to the large Ernest Henry IOCG in Queensland.

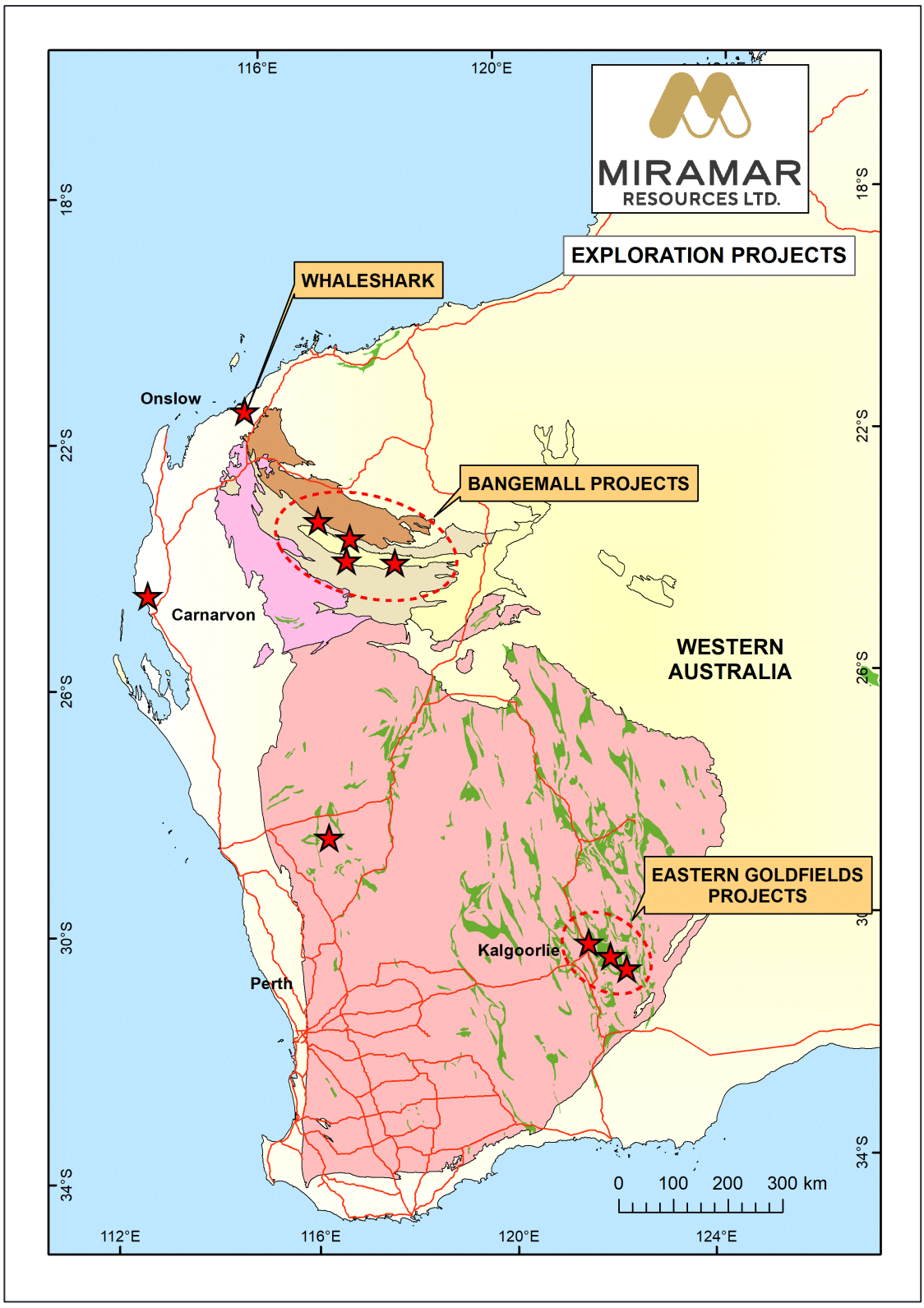
In addition, comparison of results from aircore drilling at Whaleshark with published results from research carried out at the Prominent Hill IOCG deposit in South Australia also indicate the potential for the rare earth element (REE) anomalism seen at Whaleshark to be related to buried IOCG mineralisation.



**About Miramar Resources Limited**

Miramar Resources Limited is an active, WA-focused mineral exploration company exploring for gold, IOCG and Ni-Cu-PGE deposits in the Eastern Goldfields and Gascoyne regions of WA.

Miramar's Board has a track record of discovery, development and production within Australia, Africa, and North America, and aims to create shareholder value through discovery of high-quality mineral deposits.



## JORC 2012 Table 1 – Whaleshark Diamond drilling

## Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Sampling techniques*** | • *Nature and quality of sampling (e.g. 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.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralisation that are Material to the Public Report.*<br>• *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 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.* | • Diamond core was logged and sampled at 0.4 – 1m intervals.<br>• Core was cut in half before sending for analysis |
| ***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).* | • Diamond drilling with mud rotary through cover sequence followed by HQ and NQ2 drilling to end of hole |
| ***Drill sample recovery*** | • *Method of recording and assessing core and chip sample recoveries and results assessed.*<br>• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*<br>• *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.* | • Core recovery was very high due to the competent nature of the rock |
| ***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.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*<br>• *The total length and percentage of the* | • Samples were logged for colour, weathering, grain size, geology, alteration and mineralisation where possible |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *relevant intersections logged.* | |
| ***Sub-sampling techniques and sample preparation*** | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *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.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | • Half core as sent for analysis with sample weights approximately 2-3kg each<br>• Standards were included every 50 samples |
| ***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.*<br>• *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.*<br>• *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.* | • Core samples were assays by a 4-acid digest followed by analysis by IPCMS<br>• Gold assays were conducted using a 50g fire assay |
| ***Verification of sampling and assaying*** | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | • No verification conducted to date |
| ***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.*<br>• *Specification of the grid system used.*<br>• *Quality and adequacy of topographic control.* | • Hole collar locations were recorded with a handheld GPS in MGA Zone 50<br>• RL was also recorded with handheld GPS but accuracy is variable |
| ***Data spacing and distribution*** | • *Data spacing for reporting of Exploration Results.*<br>• *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.*<br>• *Whether sample compositing has been* | • The spacing is appropriate for the stage of exploration |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *applied.* | |
| ***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.*<br>• *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.* | • Drill holes were planned to intersect the gravity anomaly and NW structure at right angles |
| ***Sample security*** | • *The measures taken to ensure sample security.* | • Samples were transported from site to Onslow by Miramar staff<br>• Samples were then shipped to the laboratory by a road freight contractor |
| ***Audits or reviews*** | • *The results of any audits or reviews of sampling techniques and data.* | • No audits have been undertaken |

## Section 2 Reporting of Exploration Results

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

| 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.*<br>• *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.* | • The exploration was conducted on E08/3166 which is owned 100% by "MQ Minerals Pty Ltd", a wholly owned subsidiary of Miramar Resources Limited |
| ***Exploration done by other parties*** | • *Acknowledgment and appraisal of exploration by other parties.* | • Exploration has been previously completed by other companies including WMC Resources Limited and Spectrum Minerals Limited, and included RC and diamond drilling, along with various geophysical surveys |
| ***Geology*** | • *Deposit type, geological setting and style of mineralisation.* | • The target is IOCG mineralisation +/- BIF-hosted gold mineralisation |
| ***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:*<br>  ○ *easting and northing of the drill hole collar*<br>  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>  ○ *dip and azimuth of the hole*<br>  ○ *down hole length and interception depth*<br>  ○ *hole length.*<br>• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not* | • Figure 1 shows the recent diamond drilling in relation to 2022 aircore drilling.<br>• Table 1 shows drill collar information |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *detract from the understanding of the report, the Competent Person should clearly explain why this is the case.* | |
| ***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.*<br>• *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.*<br>• *The assumptions used for any reporting of metal equivalent values should be stated.* | • Significant assay results have been reported |
| ***Relationship between mineralisation widths and intercept lengths*** | • *These relationships are important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>• *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').* | • No assumptions can be made about true widths at this stage |
| ***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.* | • See attached Figures |
| ***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.* | • All holes shown in Figure 1 |
| ***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 other relevant data |
| ***Further work*** | • *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*<br>• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | • Further diamond drilling planned |