



## Potential Iron Oxide (Cu-Au) Targets Identified by Gravity and Magnetic Surveys at Eucla Project in WA

### SUMMARY

Enterprise Metals Limited (“Enterprise” or “the Company”, ASX: “ENT”) wishes to announce that it has completed several detailed aeromagnetic surveys and reconnaissance gravity surveys over a number of unusual magnetic bodies in the Balladonia area of Western Australia.

At the Balladonia Prospect on the western edge of the Nullarbor Plain, a circular strongly magnetic body approximately 2,300m in diameter has been identified. The Company has completed four lines of gravity surveying over this body and has identified an **8 milligal gravity anomaly**. This coincident gravity and magnetic anomaly suggests a large quantity of magnetite and/or hematite occurs within the body.

This and the other strong discrete magnetic anomalies in the area are each several square kilometres in extent and may indicate the presence of several large magnetite/hematite-rich intrusive bodies. The anomalies are located in an area east of the NE trending Fraser Complex within the Albany-Fraser Orogen. Many of the magnetic anomalies are elongated and occur along major NE trending structures. Enterprise believes that these targets display a number of the diagnostic features common to iron oxide Cu-Au (“IOCG”) deposits such as Olympic Dam in South Australia. Most IOCG deposits contain breccia bodies with significant amounts of iron oxide and possibly sulfide mineralization.

The Company is awaiting the grant of the tenements so that drill testing can commence.

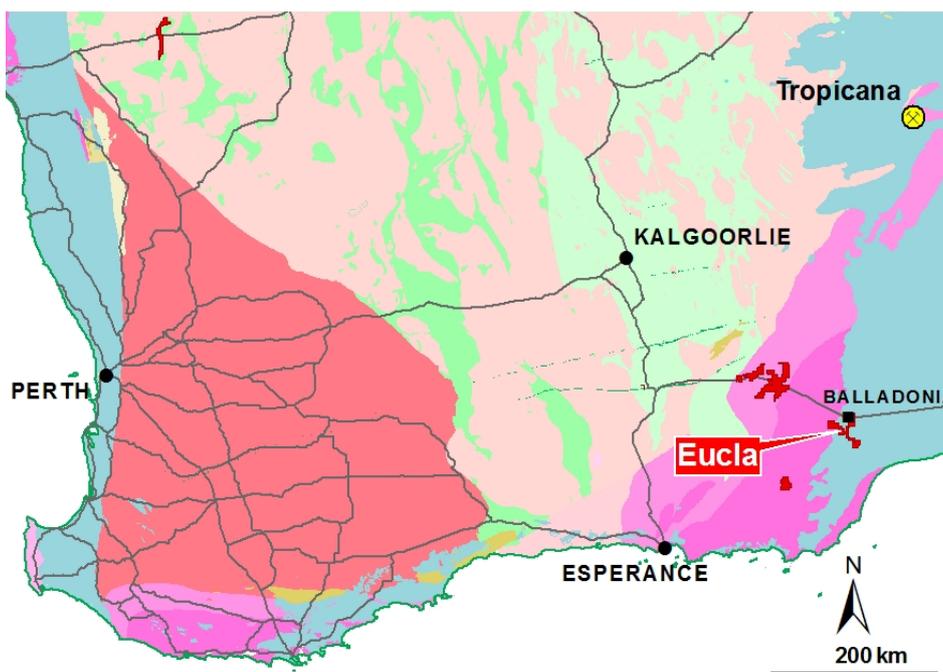


Figure 1. Eucla Project – Location Plan

**Background**

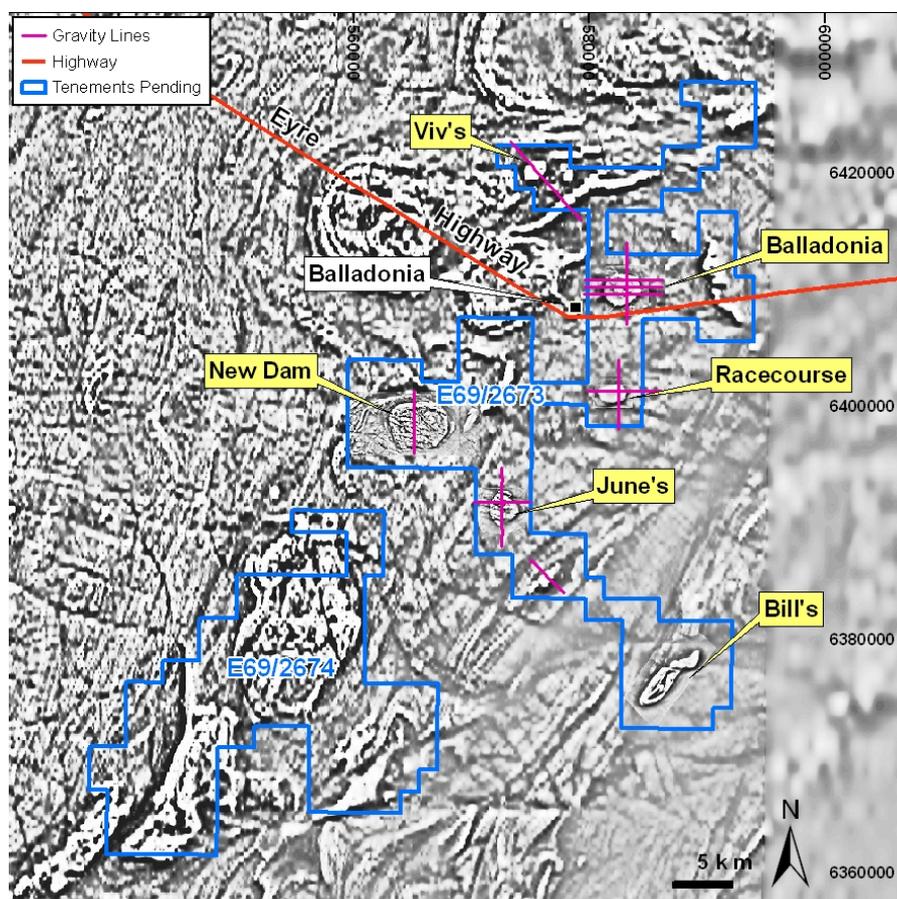
In March 2009 the Geological Survey of Western Australia (“GSWA”) released newly flown 400 metre line spaced magnetic and radiometric survey data over the Esperance and Balladonia 1: 250,000 map sheets. Following the release of this data, Enterprise applied for several exploration licences to cover a series of strong discrete magnetic anomalies that were evident in the data in the vicinity of Balladonia on the western margin of the Eucla Basin (Refer Figure 1).

The tenement applications lie to the immediate east of the Proterozoic Fraser Range Orogenic Complex, within the Nornalup Complex, which is made up of intensely deformed, high grade migmatitic, ortho- and paragneisses, intruded by granite sheets.

The regional magnetic data suggests the area may contain enclaves of granulite and upper amphibolite high grade metamorphics and/or thin linear belts of mafic volcanics, mafic-ultramafic layered complexes, and acid volcanics with sulphide-rich intrusive bodies. Tertiary sedimentary units covering most of the magnetic targets are thought to be generally less than 50 metres thick.

The strong discrete magnetic anomalies are several square kilometers in extent and may indicate the presence of large magnetite/hematite rich intrusives or metamorphosed iron-rich sedimentary bodies. Alternatively they may relate to enclaves of mafic and/or ultramafic rocks prospective for gold and base metals. (Refer Figure 2)

Enterprise carried out detailed airborne magnetic surveys (100m flight line spacing) over several of these anomalies in June 2009. Reconnaissance gravity surveys were then completed in late October 2009, with a total of 69.2 line km of readings (eleven individual lines, shown in green in Figure 2).



**Figure 2. Eucla Project - GSWA/Enterprise Magnetic VD1 Image & Gravity Survey Lines**

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**Balladonia Prospect**

The Balladonia Prospect lies approximately 5 km to the NE of the Balladonia Roadhouse. The magnetic response suggests a strongly magnetic circular body (diatreme?) approximately 2,300m in diameter (Figure 3). Modelling suggests the magnetic source is at less than 200m depth.

Four lines of gravity have completed over the Balladonia magnetic anomaly. There is very high gravity response (up to **8 milligals**) that coincides with the magnetic anomaly (Figures 3, 4 and 5).

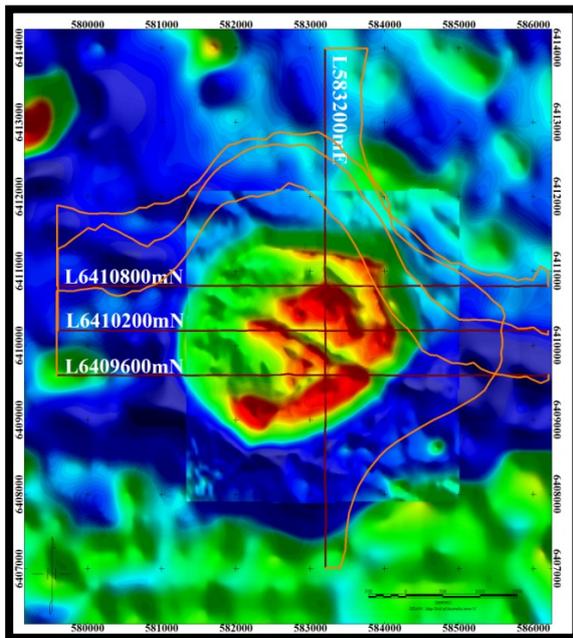


Figure 3. TMI Magnetics & Gravity Profiles

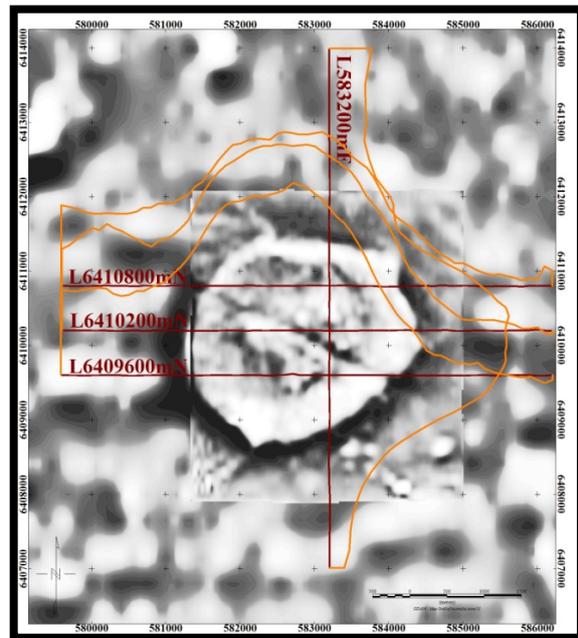


Figure 4. TMI VD1 Magnetics & Gravity Profiles

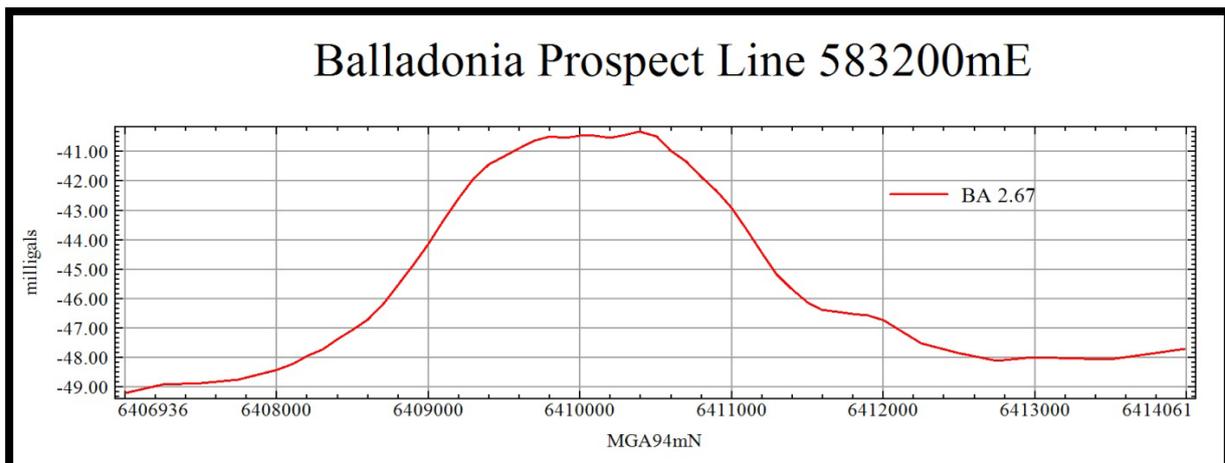


Figure 5. Balladonia Prospect - Gravity Bouguer Anomaly Profile (BA 2.67)

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Racecourse Prospect

The Racecourse Prospect lies approximately 7.5 km to the SE of the Balladonia Roadhouse. The magnetic response suggests a strongly magnetic sub-circular body (diatreme?), approximately 2,350m by 1,600m (Figure 6). Modelling suggests the magnetic source is at less than 200m depth

Two lines of gravity have completed over the Racecourse magnetic anomaly. There is a strong gravity response (up to **3 milligals**) that coincides with the magnetic anomaly (Figures 6, 7 and 8). Note the gravity anomaly appears to stronger on the western flank.

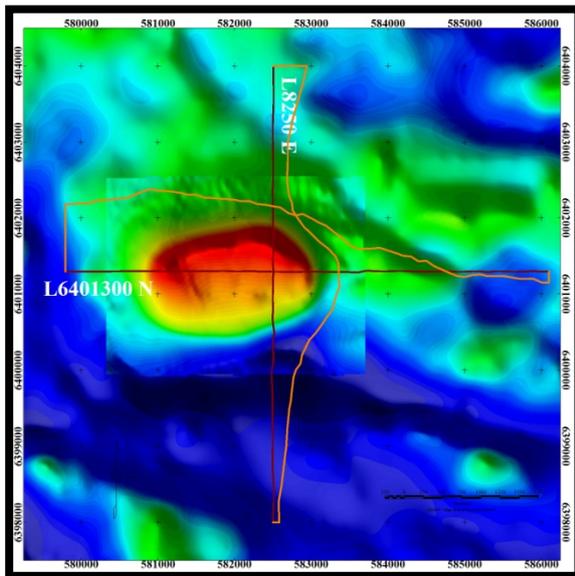


Figure 6. TMI Magnetics & Gravity Profiles

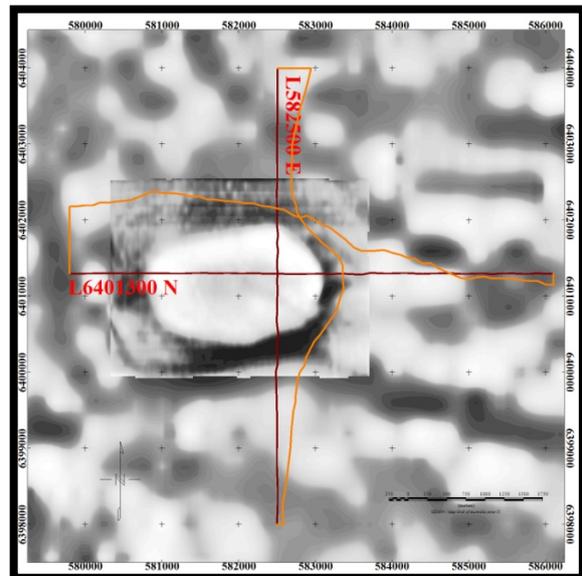


Figure 7. TMI VD1 Magnetics & Gravity Profiles

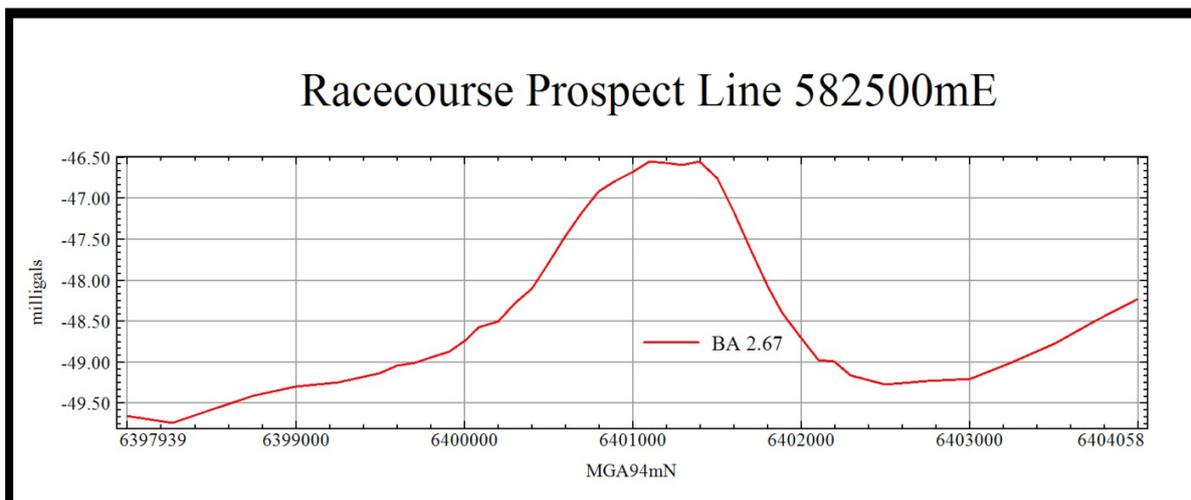


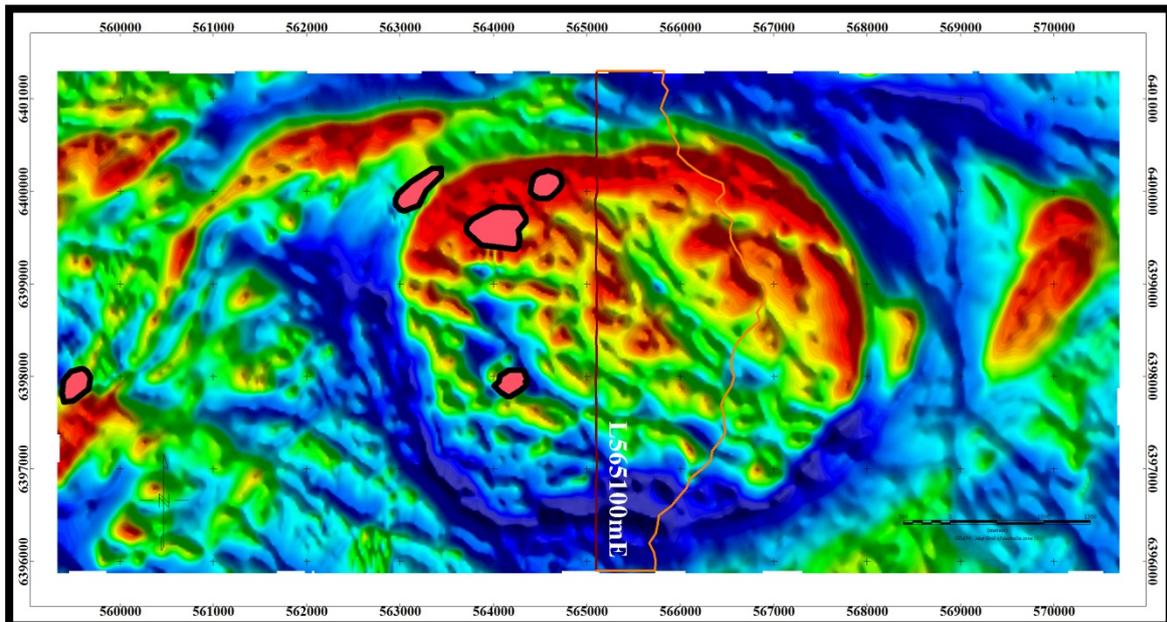
Figure 8. Racecourse Prospect - Gravity Bouguer Anomaly Profile (BA 2.67)

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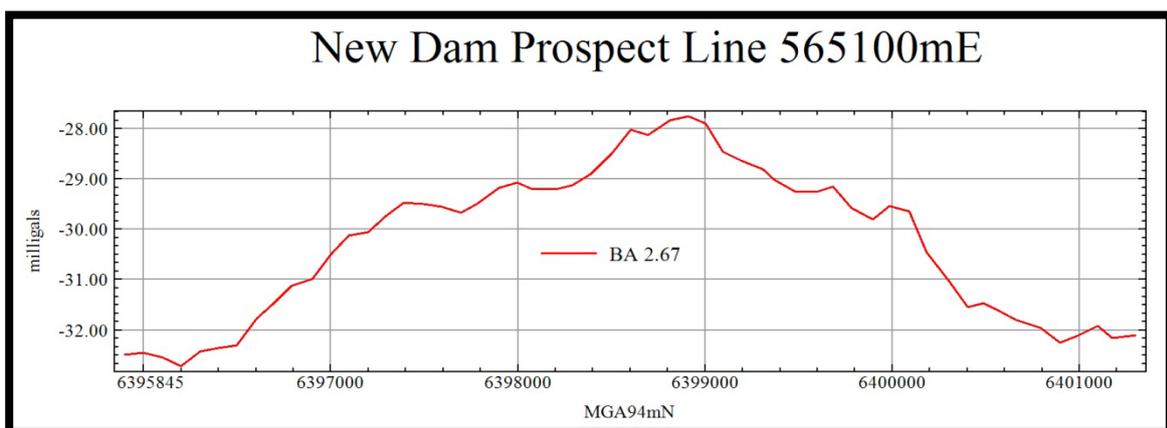
**New Dam Prospect**

The New Dam Prospect lies approximately 15 km to the SW of the Balladonia Roadhouse. The magnetic response suggests a strongly magnetic circular body (diatreme?) approximately 4,000m by 5,000m. Modelling suggests the magnetic source is between 25 and 200m deep. The GSWA has mapped outcropping Proterozoic granite on the NW margin of the magnetic anomaly (Figure 9).

A single line of gravity readings has completed over this magnetic anomaly. There is a strong gravity response (up to **4 milligals**) that coincides with the magnetic anomaly (Figures 10). The response of the magnetic and gravity profiles is complex and has multiple sources.



**Figure 9. TMI Magnetics and Gravity Profiles**



**Figure 10. Gravity Bouger Anomaly Profile (BA 2.67)**

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**June's Prospect**

The June's Prospect lies approximately 17 km to the SSW of the Balladonia Roadhouse. The magnetic response suggests a strongly magnetic circular body (diatreme?) approximately 2,300m by 2,400m. (Figures 11 & 12).

Two lines of gravity have been completed over the June's magnetic anomaly. There is a strong gravity response (up to **4 milligals**) that coincides with the magnetic anomaly. The response of the magnetic and gravity profiles is complex and has multiple sources. (Figures 11, 12 & 13).

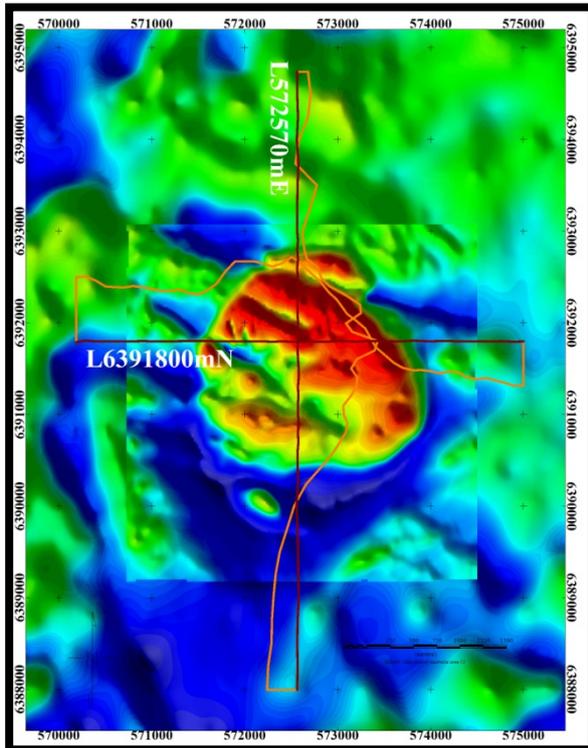


Figure 11. TMI Magnetics & Gravity Profiles

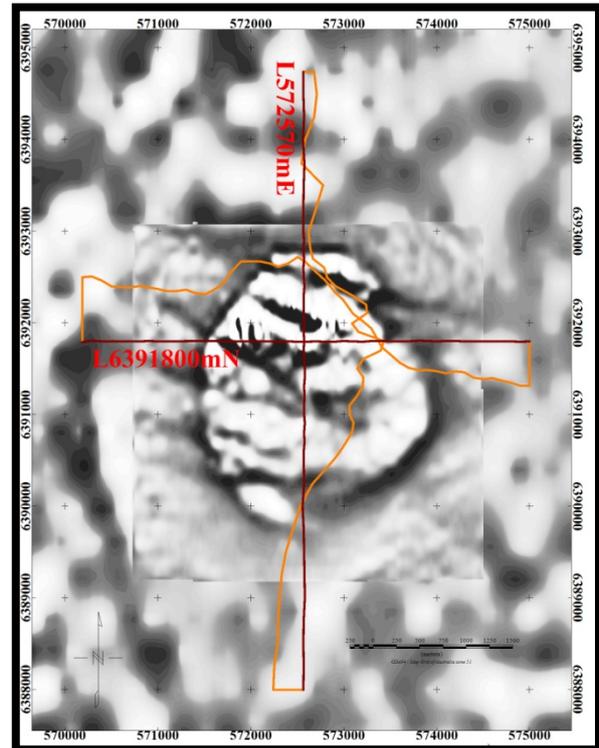


Figure 12. TMI VD1 Magnetics & Gravity Profiles

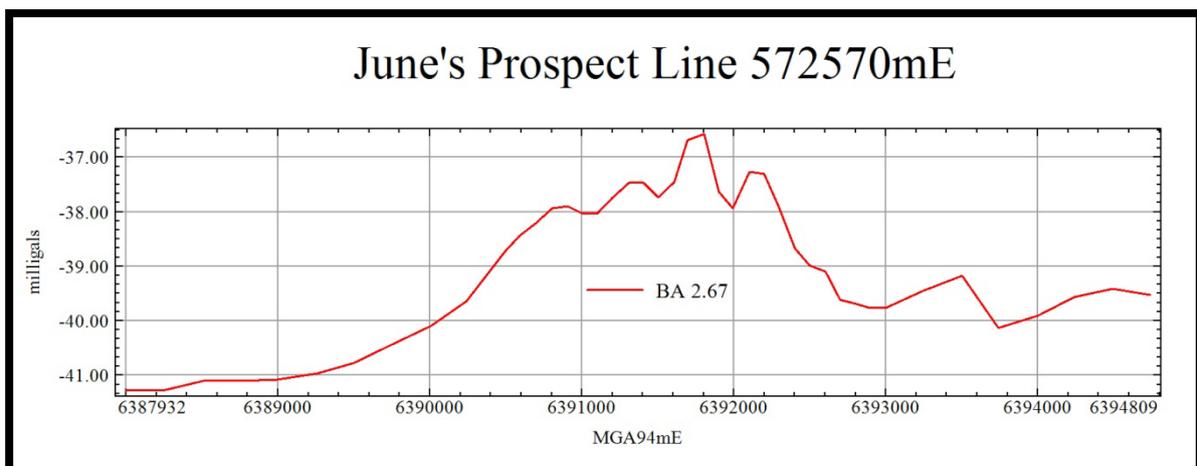


Figure 13. June's Prospect - Gravity BA Profile (BA 2.67)

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South June Prospect

The South June Prospect lies approximately 7 km to the SW of the June's . The South June magnetic response is high located within SW-NE trending corridor, approximately 1400m by 3000m. Depth estimates of the magnetic source is less 200m. This target has not been flown with high resolution detailed magnetics.

A single of gravity has completed over the South June magnetic anomaly. There is a strong gravity response (up to **4 milligals**) that coincides with the magnetic anomaly (Figures 15, 16 and 17).

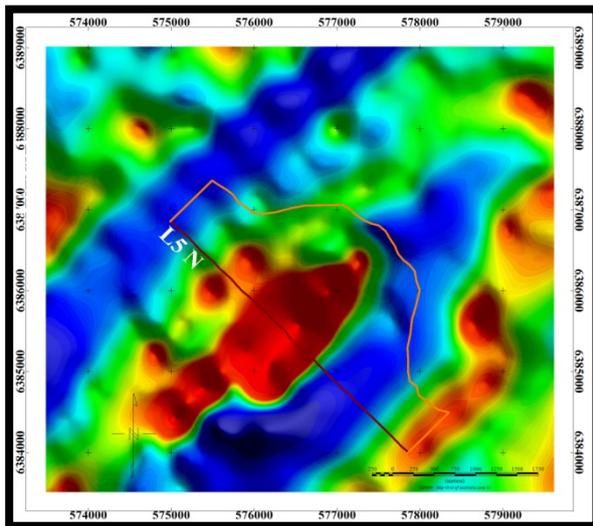


Figure 14. TMI Magnetics & Gravity Profile

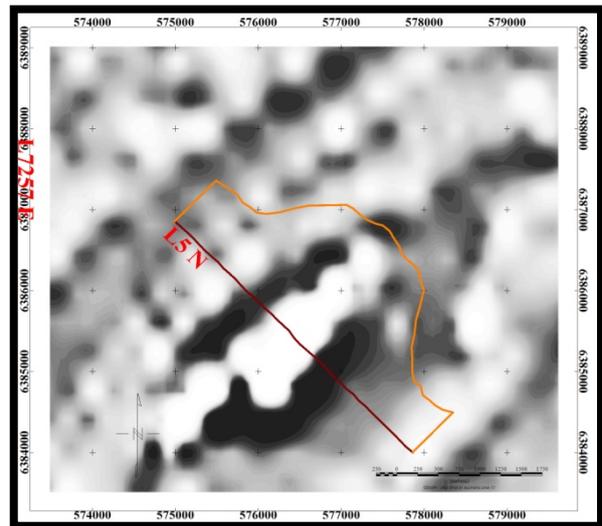


Figure 15. TMI VD1 Magnetics & Gravity Profile

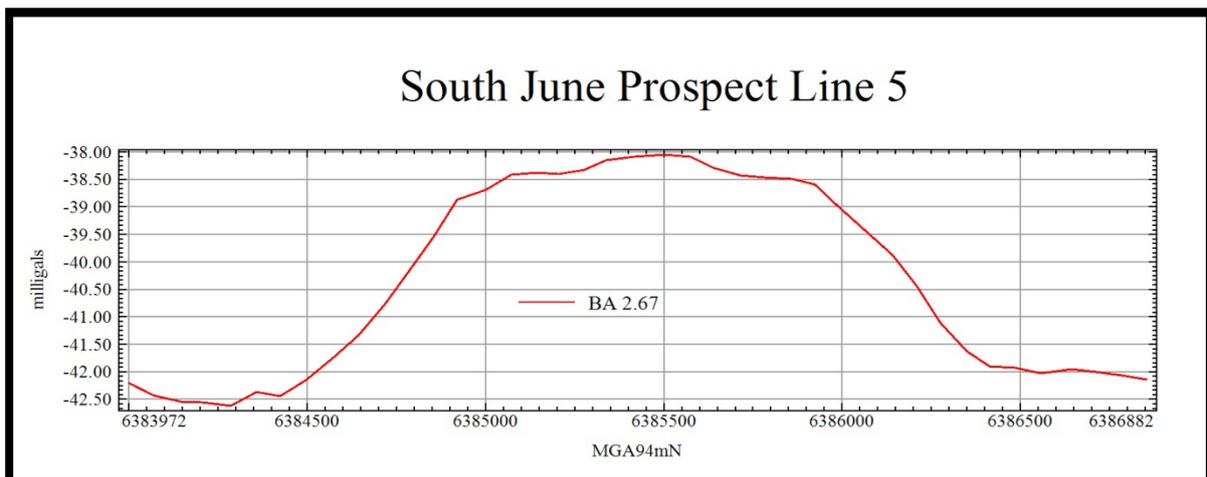
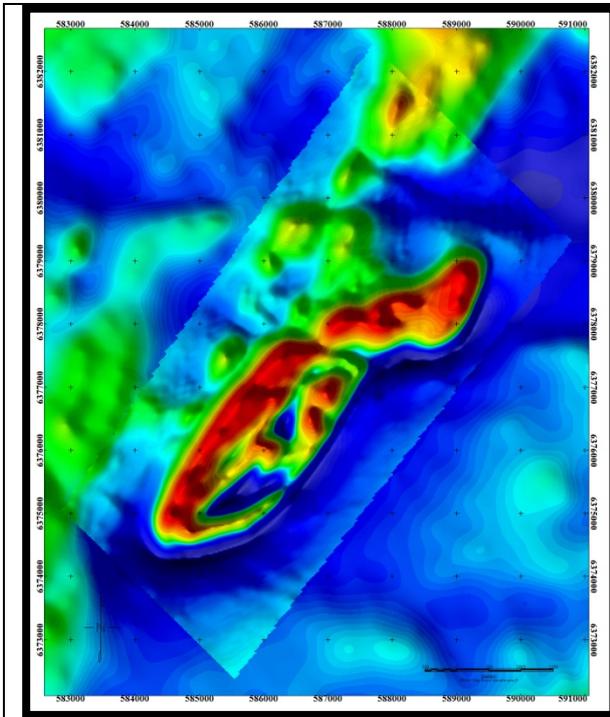


Figure 16. South June Prospect - Gravity Bouguer Anomaly Profile (BA 2.67)

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**Bill's Prospect**

Bill's Prospect lies approximately 7 km to the SW of the South June prospect. Bill's magnetic response is a strong high approximately 6,800m by 2,000m located within SW-NE trending corridor. (Figures 17 & 18). Depth estimates of the magnetic source are less 200m. Gravity surveying is planned.



**Figure 17. TMI Magnetic Image**



**Figure 18. TMI VD1 Magnetic image**

**Viv's Prospect**

Viv's Prospect lies approximately 12 km to the north of the Balladonia roadhouse. Viv's Prospect has two distinct magnetic anomalies. The first is a strong discrete diatreme like body, approximately 1,600m by 2,200m. The second response, to the south, is an elongated magnetic high trending NE-SW (1,000m by 14,000m). Depth estimates of the magnetic sources are less than 200m.

This target has not been flown with high resolution detailed magnetics. A single of gravity has completed over the Viv's magnetic anomalies. There is a strong gravity response (up to **2 milligals**) that coincides with the magnetic anomaly (Figures 19 and 20).

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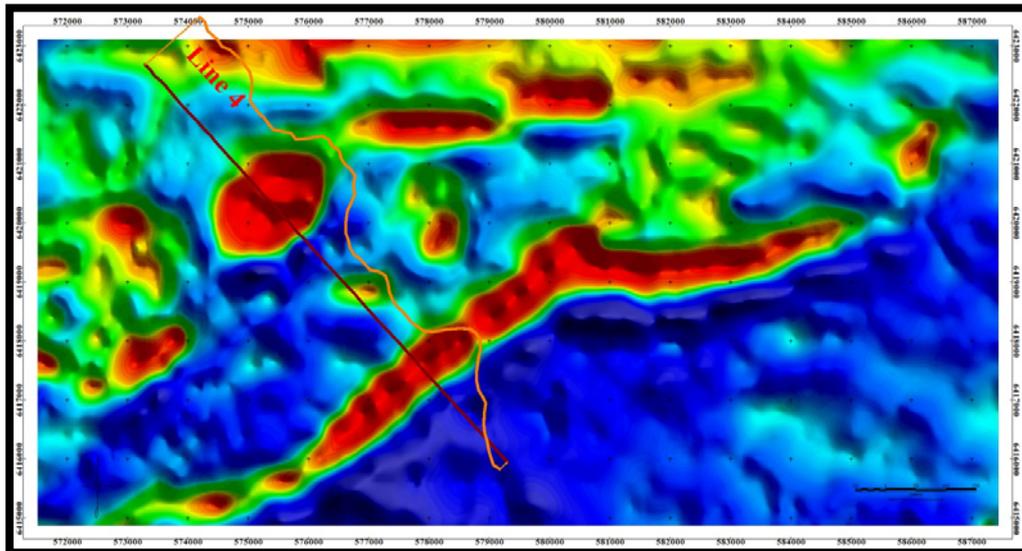


Figure 19. Viv's Prospect - TMI Magnetics & Gravity Profile

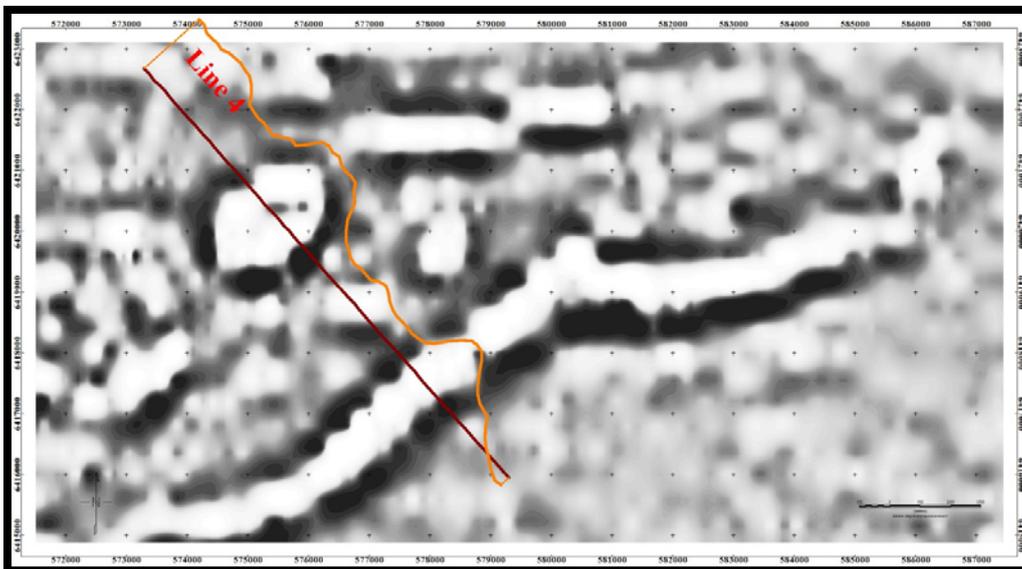


Figure 20. Viv's Prospect – TMI VD1 Magnetics & Gravity Profile

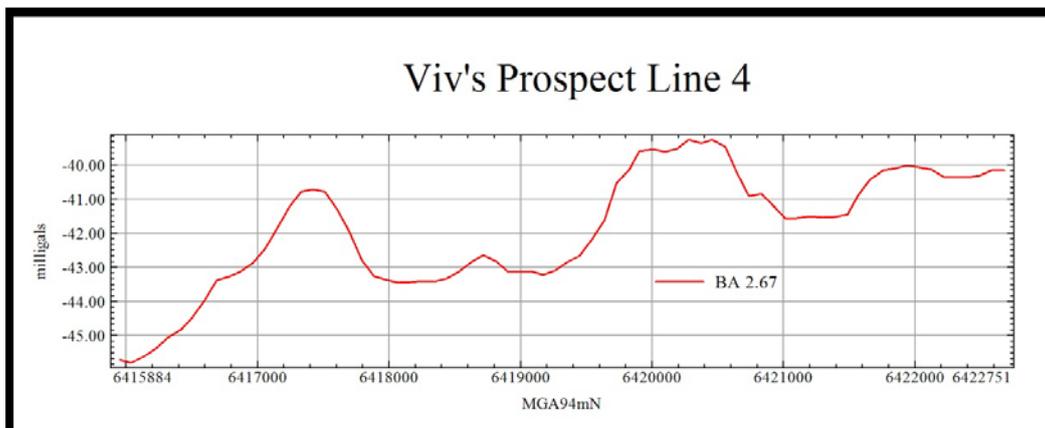


Figure 20. Viv's Prospect - Gravity Bouguer Anomaly Profile (BA 2.67)

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**Discussion – IOCG Deposits and Possible Analogies for Eucla**

**Iron oxide copper gold deposits (“IOCG”)** constitute a class of deposits containing iron-rich, low-titanium rocks formed in extensional tectonic environments. These deposits are believed to be related to deep crustal structures which have tapped volatile rich hydrothermal fluids.

Most known deposits are found in early to mid-Proterozoic host rocks (1.1 - 1.8 Ga). The deposits are located in areas that were cratonic or continental margin environments, such as the Fraser Range, and in many cases there is a close association with areas of extensional tectonics. Many of the deposits are elongated parallel to regional or local structural trends, and occur along major structures or sutures.

The ores are predominantly iron oxides, both hematite and magnetite. Deposits may occur as massive concordant bodies or strongly discordant veins and breccias. Most breccia bodies contain significant amounts of iron oxide.

Sulfide mineralisation appears to be a late-stage event in all the breccia bodies. In the deeper breccias, chalcopyrite replaces magnetite and is intergrown with, or replaces pyrite and hematite. Studies indicate that the hydrothermal fluids responsible for alteration and mineralisation in these breccia bodies had magmatic compositions.

These types of deposit may be mined for magnetite (Eg. Kiruna in Sweden,) or copper/gold/uranium (Eg. Olympic Dam in Australia) or rare earths (Eg. Bayan Obo in China, the world’s largest rare earth deposit).



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*The information in this announcement that relates to Geophysical Exploration Results has been compiled by Mr Bill Robertson, who is a Member of the Australian Institute of Geoscientists, and a full time employee of geophysical consultancy Value Adding resources Pty Ltd. Mr Robertson has sufficient relevant experience in the geophysical techniques being reported and styles of mineralisation and types of deposit under consideration, and in the activity he is undertaking, to qualify as a Competent Person as defined in the 2004 Edition of the “Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves” (the JORC Code), and consents to the inclusion of the information in the form and context in which it appears.*