

RioTinto

Rio Tinto Exploration Pty Limited (“RTX”)

(under a Farm-in and Joint Venture Agreement with Tenure Holder:
Red Fox Resources Pty Ltd)

COLLABORATIVE EXPLORATION INITIATIVE

FINAL REPORT

(ROUND 2 - CEI0027/038/0017442-002)

MIMDAS Survey within EPM 26332

(“Ernest Henry South” Project)

Report Author: John Hart – Principal Geoscientist, Australasia, RTX

Prepared and submitted by: RTX

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1. Executive Summary

A MIMDAS Survey was undertaken over part of EPM 26332, located in an area of subdued magnetic response to the immediate south east of the Ernest Henry copper-gold mine. The aim of the survey (at 400m line and 100m dipole spacing) was to collect detailed electrical geophysical data over an anomaly identified in the Cloncurry MT Survey (2km station spacing) to better discern and improve confidence in the nature of possible bedrock conductors. The conceptual deposit styles being targeted are structurally hosted copper mineralisation that have had less focus than the easier to explore magnetite hosted IOCG systems in the Cloncurry District.

The MIMDAS data was acquired in November and December 2019 using a 40 Channel MIMDAS System with a Zonge GGT30 transmitter combined with EMI BF-4 magnetometers. 10 lines of 3.2km each were initially planned. However, due to cattle interference, only 8 lines of data were successfully acquired. The detailed Magneto-telluric (MT) data acquired in the survey suggested that the resistivity anomaly apparent in the regional MT data is likely due to conductive (reduced) Proterozoic sediments, beneath Mesozoic cover. This conclusion was drawn from comparing the MIMDAS Survey data to data from a detailed Heliborne Electromagnetic Survey that was also acquired over the area. Based on this interpretation, drill testing is being planned for 2020 to determine the source of some of these anomalies.

2. Introduction

EPM 26332 is located approximately 35km north-east of Cloncurry, in northwest Queensland. The licence is 6 km south east of the Ernest Henry Copper Gold Mine. The location is shown in figure 1.

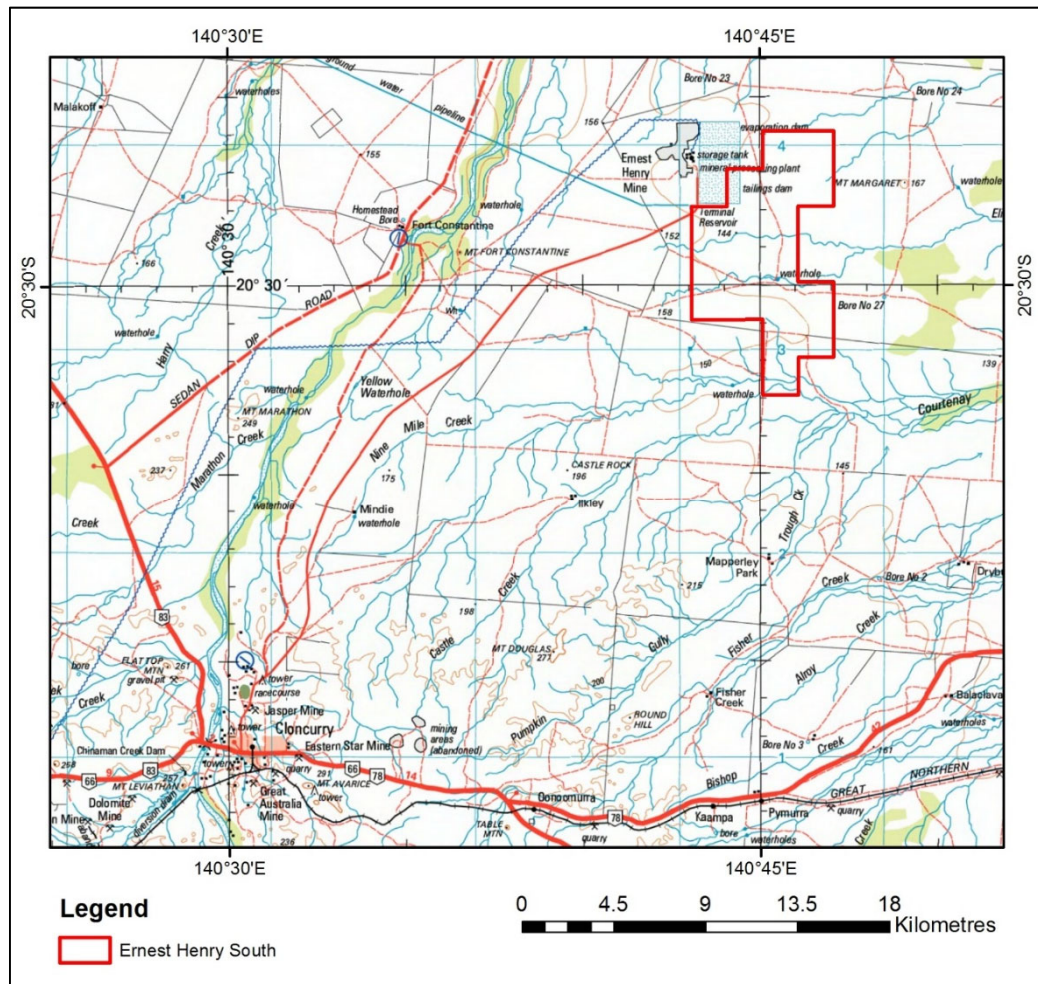


Figure 1: Location of Ernest Henry South Project.

Details of the Exploration Permit are as follows:

Permit Number	Permit Name	Granted	Term	Registered Holder
EPM 26332	Ernest Henry South	31/05/2018	5 years	Red Fox Resources Pty Ltd

RTX entered into a farm-in and joint venture agreement with Red Fox in relation to EPM 26332 on the 12th April 2019.

Red Fox was granted CEI Funding to undertake a MIMDAS Survey over an anomaly identified in the Cloncurry MT Survey. A survey of 12 lines, each 3km was long was proposed to cover the MT anomaly, which was amended to 10-11 lines of 3.2km. The CEI Funding Deed was executed in December 2018. The Funding Deed was subsequently assigned to RTX in October 2019. The program was undertaken in November and December 2019.

3. Regional Geology

The geology of EPM 26332 consists of mid-Proterozoic basement overlain by 20m to 100m of Mesozoic and Cainozoic sediments of the Eromanga and Carpentaria basins (Figure 2). Rio Tinto Exploration is targeting copper-gold mineralization within the Proterozoic basement, which is part of the Eastern Succession of the Mount Isa block.

Basement does not outcrop within the tenement, however it likely consists of a mix of the Mount Fort Constantine Volcanics (1746 ± 9Ma) that host Ernest Henry, and the Corella Formation (max 1770 ± 6 Ma). Previous drilling has intersected felsic volcanics with interbedded pelitic sediments (calcareous to graphitic), mafic volcanics, dolerite, and gabbro.

These units are folded, extensively faulted, and have been intruded by numerous plutons and stock related to the Naraka Batholith / Malakoff Granite (1505 ± 5 Ma). These intrusions form part of the Williams Supersite, which is thought to be a major driver of mineralization within the region.

The largest nearby deposit is Ernest Henry, where copper and gold mineralization occurs within a matrix supported magnetite-carbonate-sulphide breccia. Prior to mining, the resource consisted of 166Mt @ 1.1% Cu and 0.54 g/t Au (Ryan, 1998). Other significant deposits include the E1 group at 48.1 Mt @ 0.72% Cu, 0.21 g/t Au and the Monakoff group at 3.3 Mt @ 1.35% Cu, 0.44 g/t Au (ExCo,2010).

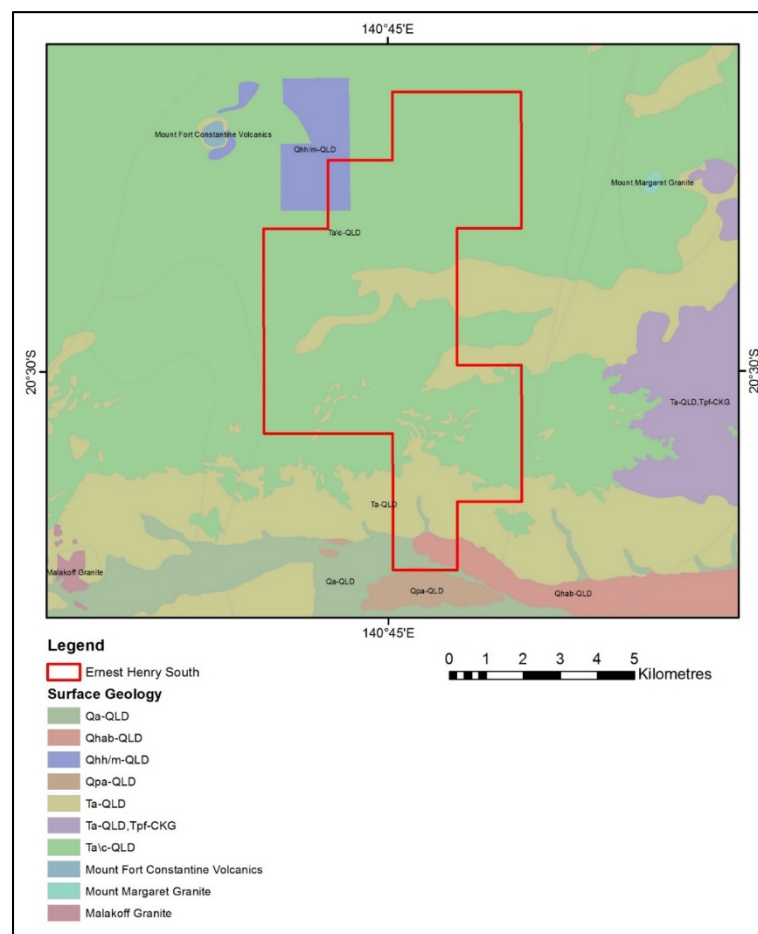


Figure 2: Queensland Geological Survey 1:100K surficial geology map Ernest Henry South Project

4. Previous Exploration

A total of nine EPMs have previously been held over portions of EPM26332. Of these, only three companies completed groundwork and the bulk of this was located on the margins of the tenement. There is no previous electrical geophysics or drilling over the MT anomaly within EPM26332.

Key points are as follows:

- The most recent work was completed by Equinox Resources, ExCom, and Liontown from 2006 to 2011. This involved an aeromagnetic survey, with drilling on a selection of targets. Anomalous copper up to 3320ppm was intersected in two holes (ECRC332 and ECRC313). These holes are located on the margins of an MT anomaly seen in the Cloncurry MT Survey (see Figure 3 and 4).
- From 1994 onwards WMC and numerous JV partners also completed an airborne survey, followed by IP, ground EM, RC and diamond drilling. The bulk of this work was in the sub-block adjacent to Ernest Henry; none of it is relevant to the MT anomaly.
- In the 1970s Chevron and MTA targeted roll-front uranium in the overlying Gilbert River Formation, prior to the discovery of Ernest Henry (CLDH series holes).

None of the drilling was in the area of the MT anomaly. All previous work is summarized in Figures 3 and 4 and Appendix 1.

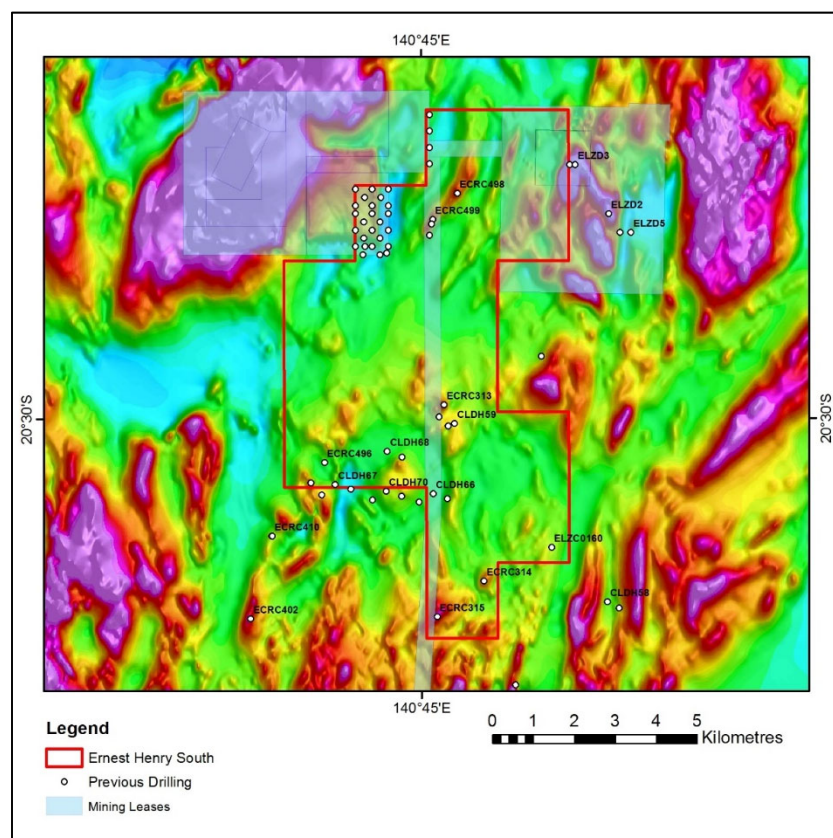


Figure 3: Location of previous drilling in the Ernest Henry South Project Area. Image: Reduced to Pole Aeromagnetic Data from the Cloncurry Aeromagnetic Survey.

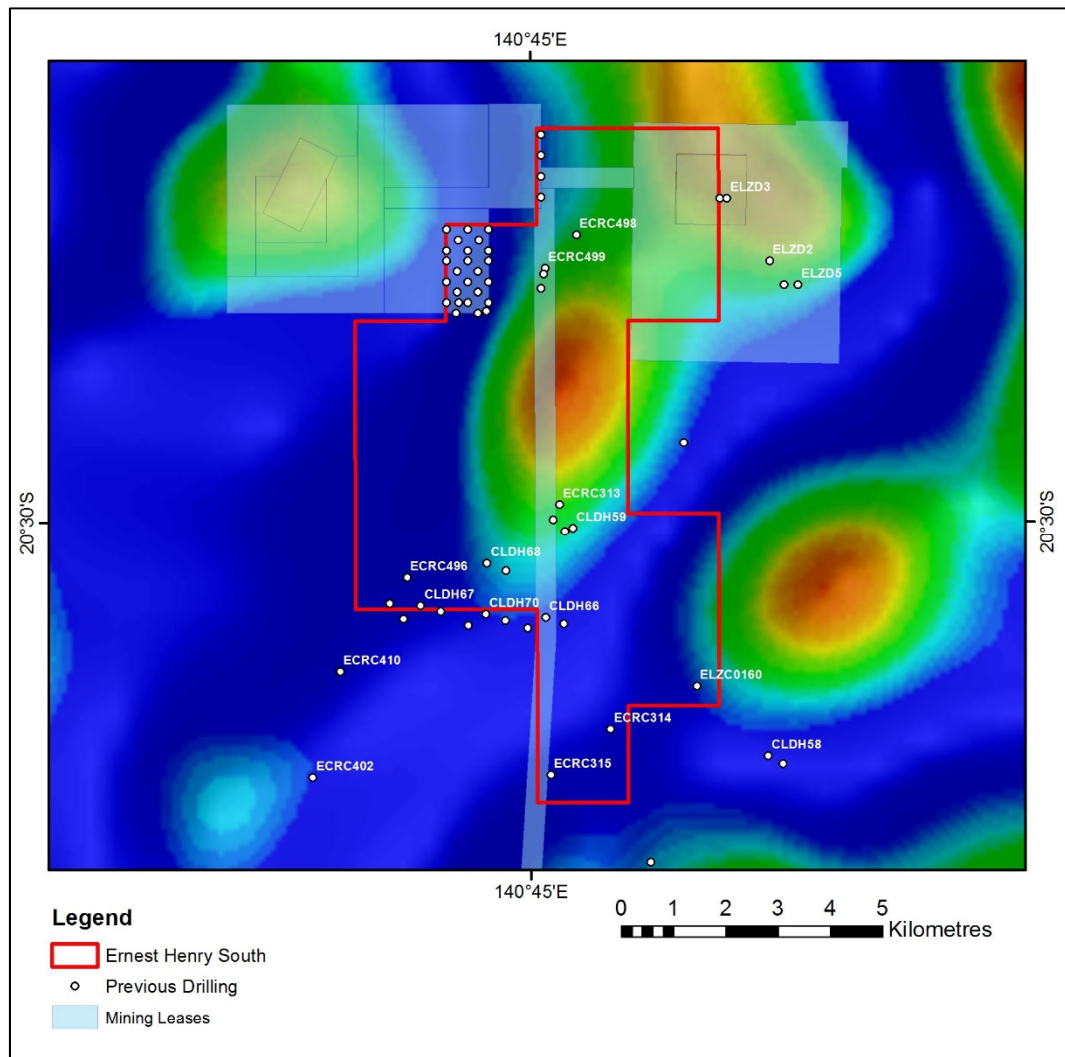


Figure 4. Location of previous drilling in the Ernest Henry South Project Area. Image: 900m depth slice from an inversion of the Cloncurry MT Survey.

5. Geology of the prospect/target

Traditional exploration within the Cloncurry district has largely targeted magnetite-dominant IOCG systems of a similar style to Ernest Henry. The availability of high quality, regional aerial magnetics data has made these targets an easy and attractive option, however has resulted in other deposit styles being overlooked.

In particular, Fundex believe the Cloncurry district is prospective for Western-Succession style, structurally-hosted copper similar to the Gunpowder, Lady Annie, and Mount Kelly deposits. Key elements of these deposits are as follows:

- Copper sulphides (and supergene copper oxides) with variable associated pyrite
- Occur proximal to regional-scale, long-lived fault zones
- Occur in areas of structural dilation e.g. intersection of two or more faults, jogs or beds

in faults.

- Often related to rock competency, e.g. brittle deformation in quartzite or silicified rock, or ductile deformation along the contact between contrasting lithology's
- Alteration is typically tightly focused within structures.
- Thought to have formed after peak regional metamorphism, and to be associated with deep-seated emplacement of large post-tectonic igneous bodies
- Copper source may be related to leaching of mafic rocks (e.g. Eastern Creek Volcanics in the Western Succession).

All of these elements are also present within the Eastern Succession: i.e. long lived structures, deep seated intrusions, complicated metamorphic history, rheological contrasts, and mafic rocks. RTX believes there is therefore a good chance for similar deposits to exist within the Eastern Succession that have been previously overlooked due to the intense focus on magnetic anomalies. Such sulphide mineralisation should provide a conductive response that shows up in the proposed MIMDAS survey (coupled with the AEM survey undertaken).

6. Ernest Henry South Project – Collaborative Exploration Initiative Round 2

Red Fox was successful in its application for a Round 2 CEI grant, which has been assigned to RTX as operator of the exploration under its farm-in and joint venture agreement. The funded work was to undertake a MIMDAS Survey over an MT Anomaly interpreted from a regional survey.

Following interpretation of newly acquired Airborne TEM data, as well as access difficulties due to the presence of an infrastructure (haul road) mining lease through the centre of EPM 26332, the MIMDAS Survey was moved south-west of the originally planned location.

Whilst 10 lines of 3.2km each were planned under the approved program, due to interference by cattle, only 8 lines of data were successfully acquired.

7. Methods

The Ernest Henry South Project Area was covered by three regional geophysical datasets collected by the Queensland Geological Survey. Data from these surveys have been used in the design of the MIMDAS Survey undertaken in the Project Area. These datasets are the Cloncurry MT Survey, the East Isa VTEM Survey and the Cloncurry Aeromagnetic Survey. A summary of the location of the regional geophysical datasets is shown in figure 5.

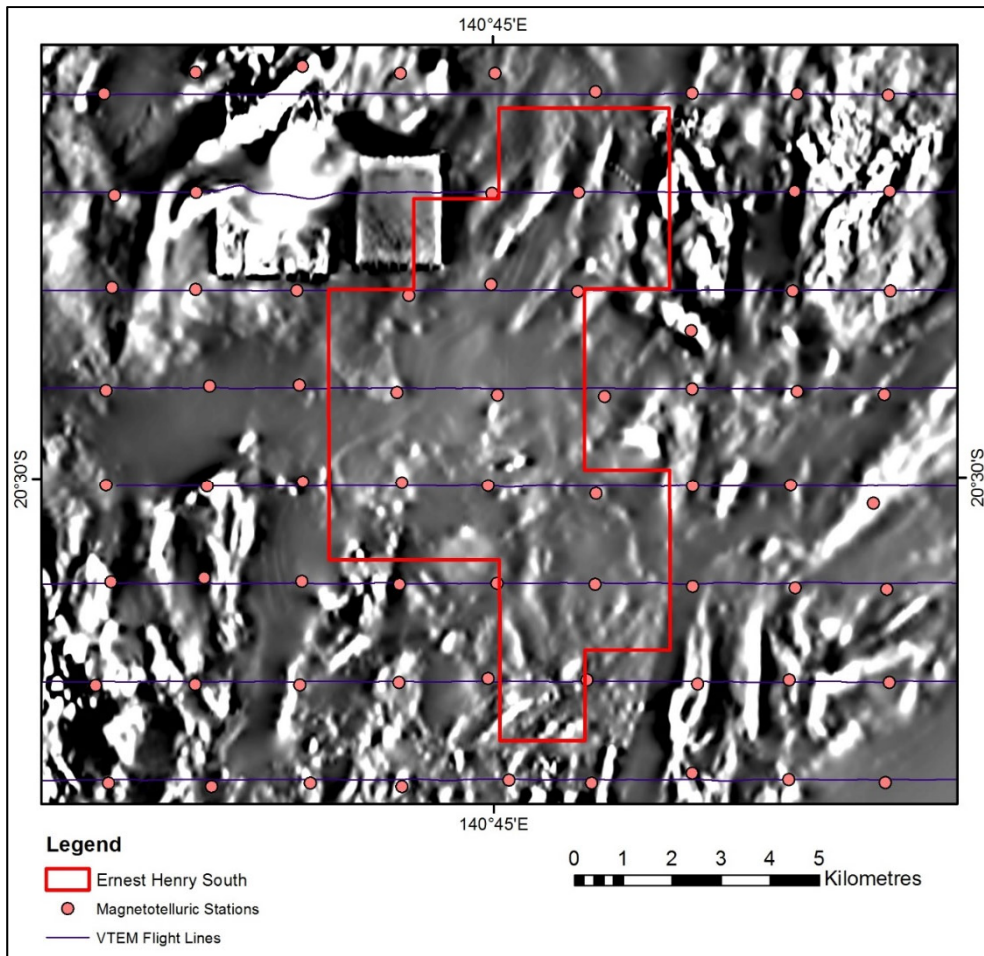


Figure 5: Regional Geophysical data coverage at the Ernest Henry South Project Area. Image: Reduced To Pole, First Vertical Derivative data from the Cloncurry Aeromagnetic Survey.

Interpretation of the inverted MT data highlighted a resistivity anomaly in the centre of EPM26332. An image of the 900m depth slice of the inverted data is shown in figure 6. The East Isa VTEM Survey also shows a two late time conductors that appeared semi-coincident with the MT anomaly (see figure 6). The MT station spacing is 2km, and the line spacing on the VTEM Survey is also 2km, so the anomalies are not well constrained by either dataset. In addition the MT anomaly is partially underneath Mining Lease, ML90299, which is the Monakoff Haul Road.

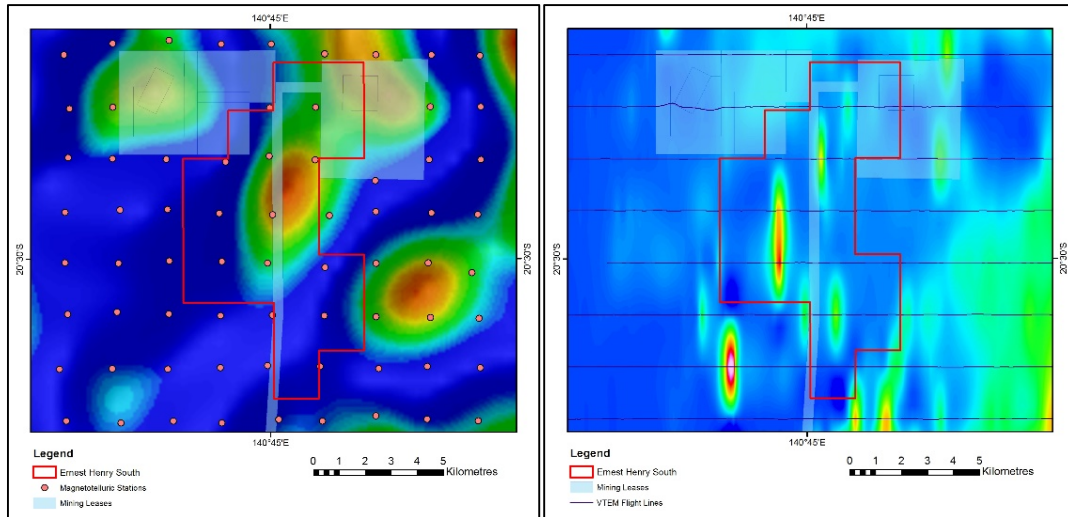


Figure 6: Depth slice of MT data (right) and late-time VTEM data (left) from the Ernest Henry South Project. Note that the MT anomaly is partially beneath Mining Lease 90299.

Rio Tinto undertook a helicopter AEM Survey to better define the EM anomalies seen in the East Isa VTEM Survey. This survey was flown using the NRG xCite System at 250m line spacing, and is therefore much higher resolution than the East Isa VTEM Survey. An image of the late-time data is shown in figure 7. The data shows a complex pattern of bedrock conductors. The MT anomaly appears to be associated with a synform (visible in both the xCite AEM data and aeromagnetic data, see figure 8). The conductive response appears due to reduced Proterozoic stratigraphy.

The location of the planned MIMDAS survey is shown in figure 9. As the planned survey was going to be covering an interpreted stratigraphic conductor the decision was made to move the survey to the south-west to cover an area of complex bedrock conductors highlighted by the AEM Survey. In addition to this new area being viewed as more prospective, it also meant that the MIMDAS survey did not have to cross ML 90299.

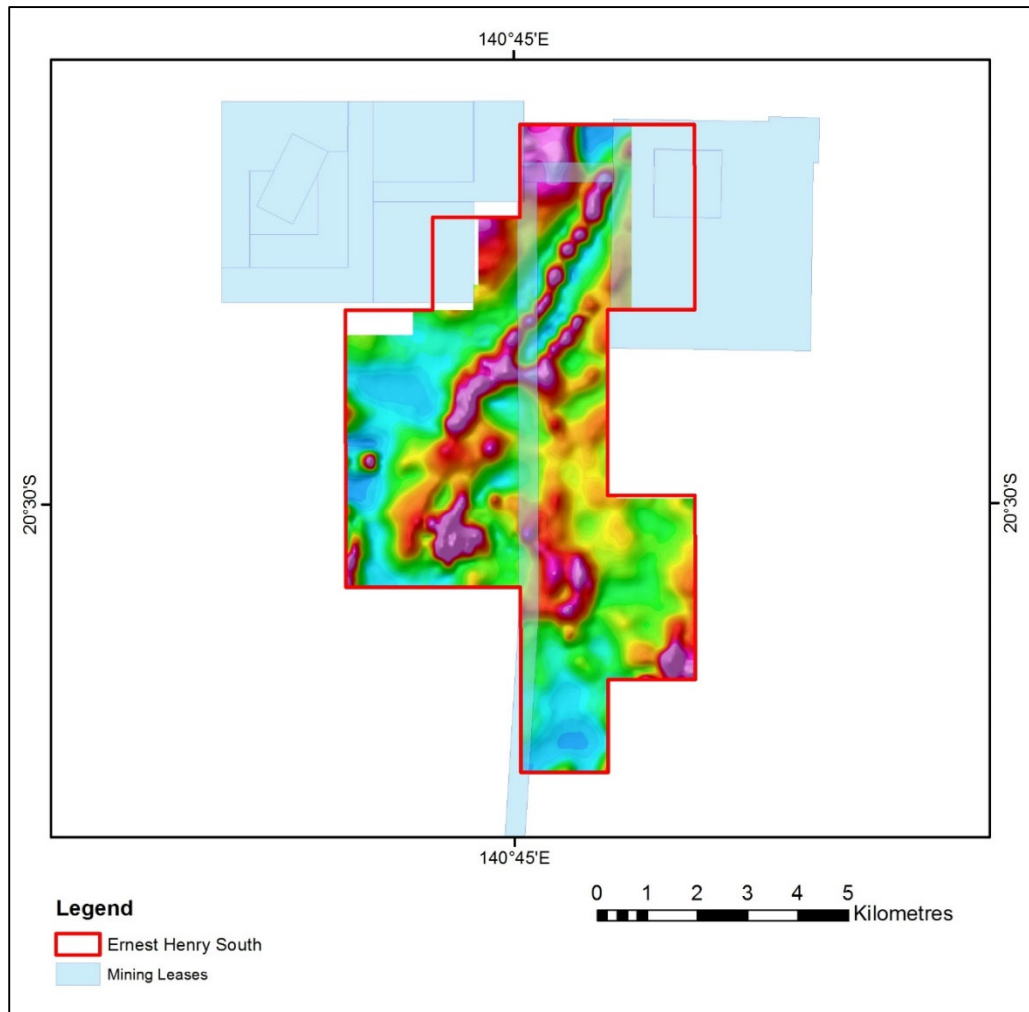


Figure 7: Z-Component dB/dT AEM data from the Ernest Henry South Project. Channel 40 data (3.536 msec after turnoff)

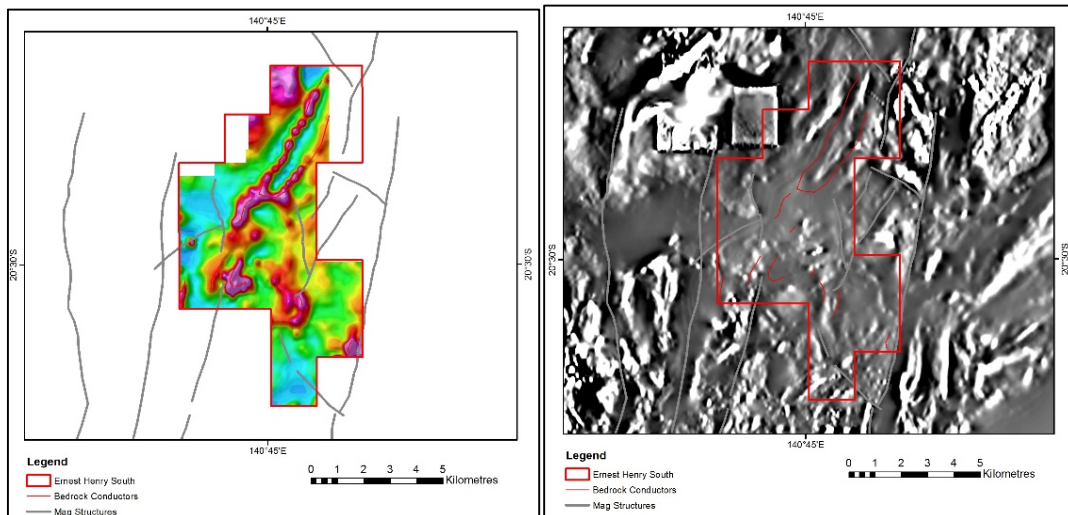


Figure 8: Z-Component dB/dT AEM data (right) and RTP1VD Aeromagnetic Data (left) from the Ernest Henry South Project. Noted interted synform in the north of the project Area.

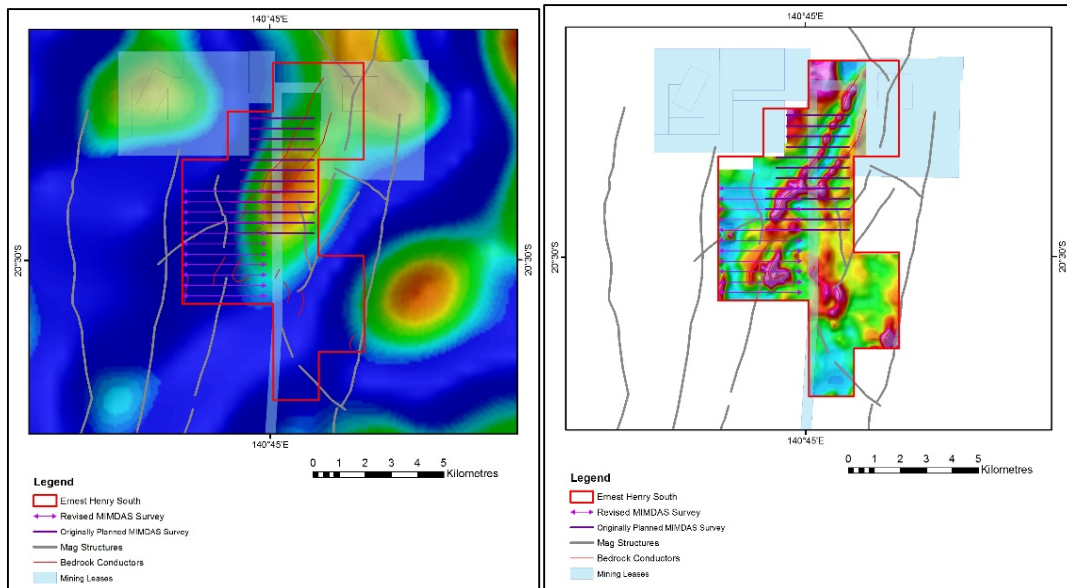


Figure 9: Location of originally planned MIMDAS Survey and revised MIMDAS Survey shown on right: 900m MT Depth Slice and left: Z-Component dB/dT AEM data.

The MIMDAS Survey commenced in November 2019 and completed in December 2019. The planned survey consisted of 10 lines, each 3.2 km long. Survey Specifications were as follows:

Contractor: Geophysical Resources and Services Pty Ltd.

Acquisition System: 40 Channel MIMDAS System

Transmitter: Zonge GGT30

Magnetometers: EMI BF-4 with a frequency response of between 0.0001 – 700Hz

No of Lines: 10 lines planned

Line Length: 3.2 km.

Line spacing: 400m

Dipole Spacing: 100m

In the end, data was only able to be collected on eight lines. Cattle in the survey area did significant damage to wire and data acquisition units whilst laid out, and meant that all equipment had to be collected each night and then laid out again the following morning. An example of the damage done by cattle are shown in figure 10. This significantly slowed production and meant that the planned data acquisition could not be completed in the time available. Figure 11 shows the location of the survey lines that data was collected on. The collected lines are considered to have covered the key areas of interest and not materially impacted the overall effectiveness of the project.



Figure 10: Wires damaged by cattle in the Ernest Henry South MIMDAS Survey.

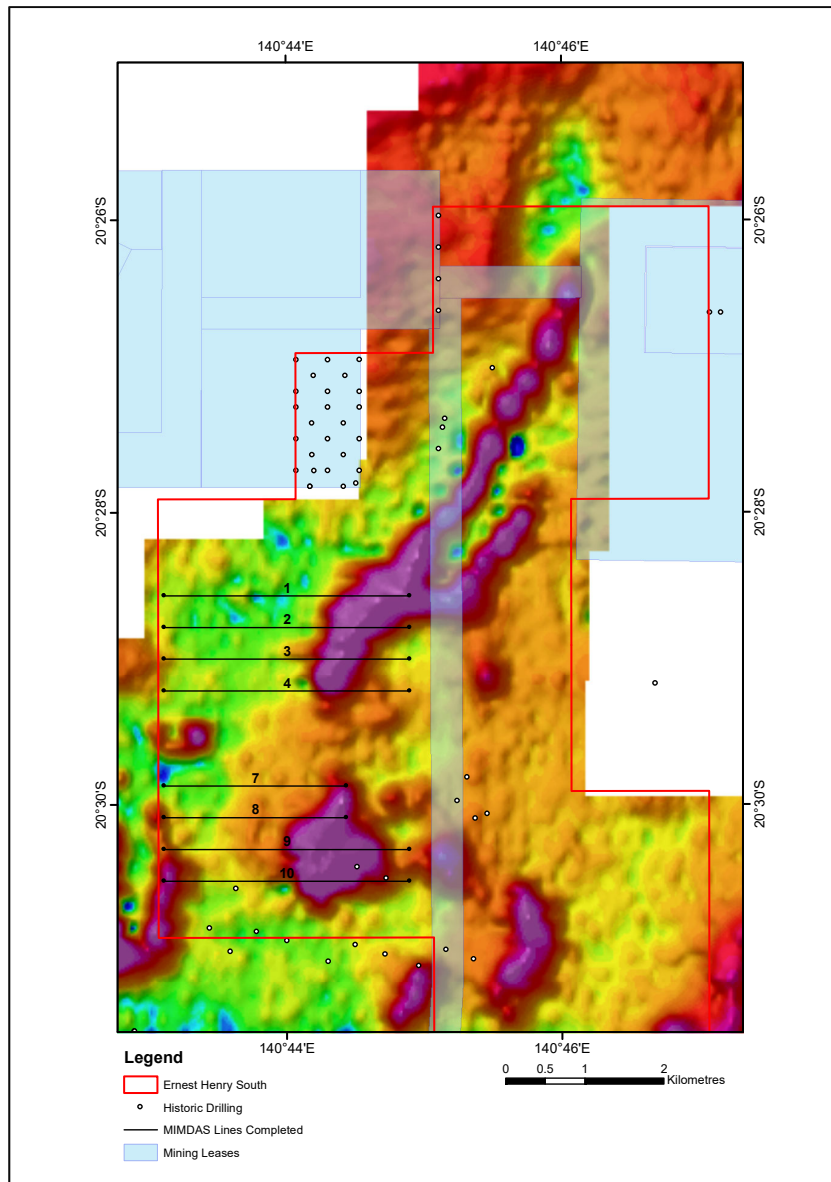


Figure 11: Final MIMDAS Survey on Z-Component dB/dT AEM data

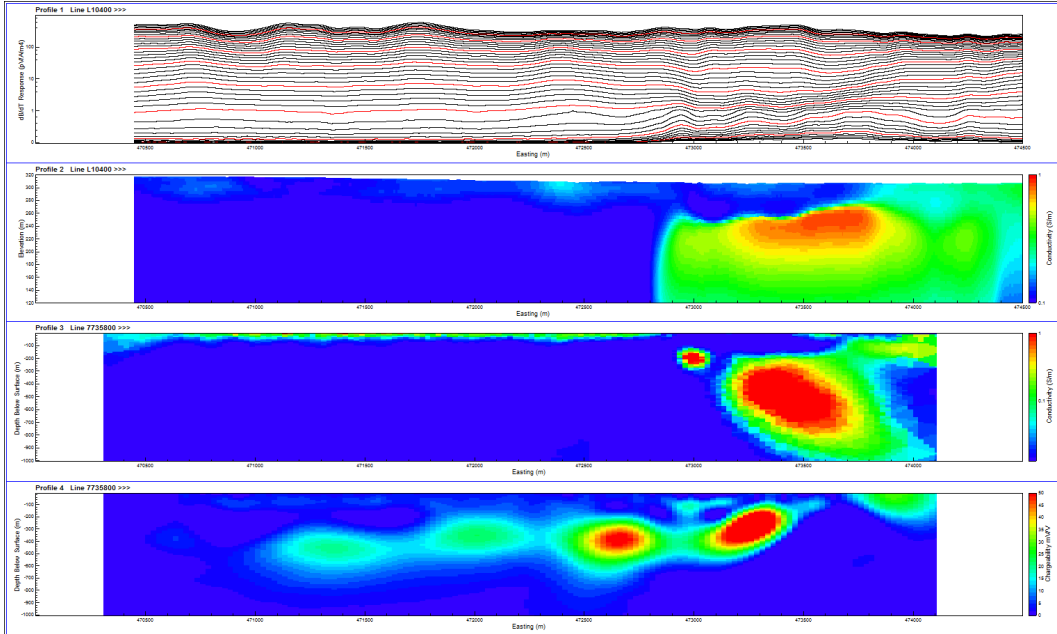
8. Results

Eight Lines of IP and MT data were collected at the Ernest Henry South Project. The strongest MT responses coincide with EM anomaly seen in the AEM Survey data acquired by Rio Tinto. The MT Inversions tend to put the source of the anomaly deeper than the TEM data but this may be due to the strength of the conductors.

Inversion of the MIMDAS data was undertaken by Peter Rowston of GRS. The 2D DC/MT data was inverted jointly using the MARE2DEM (Key, Kerry, 2016) software. The algorithm employs a similar smooth model methodology to that used for the resistivity and IP modelling. The final IP data has been modelled using the 'UBC' 2D smooth model inversion algorithm – the details of which are provided in Oldenburg and Li (1999 and 1994).

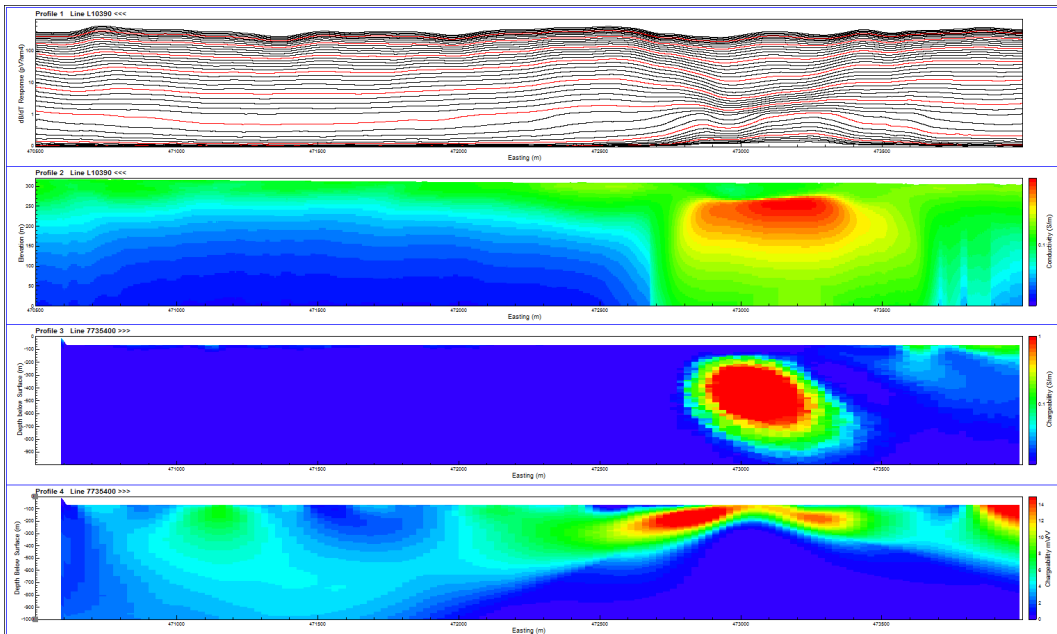
A comparison of data from selected survey lines shown below. In each figure the data from the AEM Survey (top two images) is compared to the MIMDAS IP and MT Survey data (bottom two images).

Line 1 - 7735800N



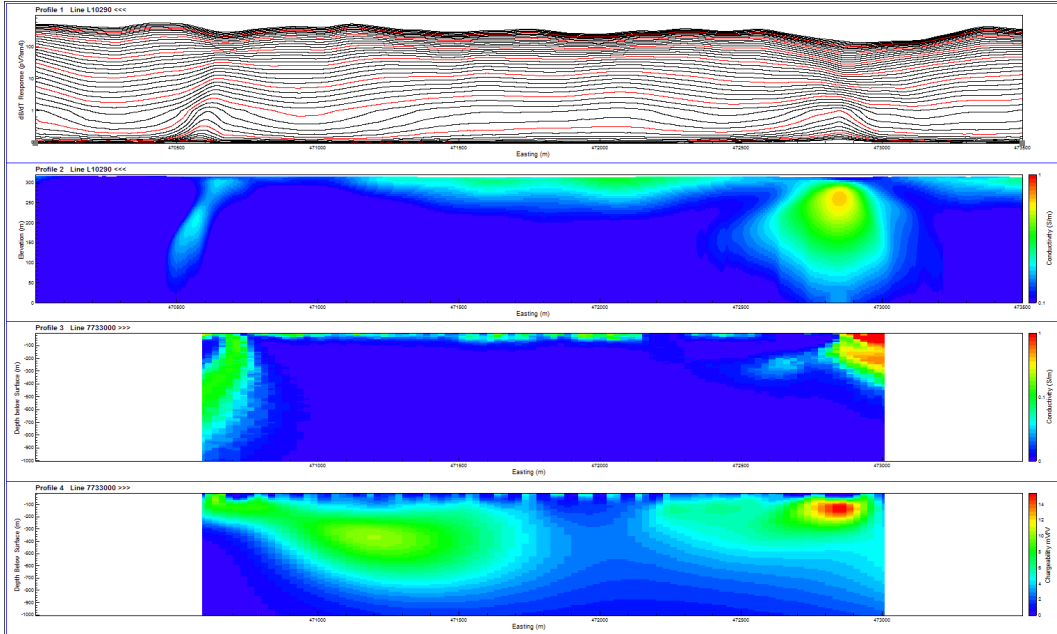
Data from Line 1 shows a coincident AEM, MT conductivity anomaly at the eastern end of the line. An IP chargeability anomaly is coincident with the conductor. To the west of the conductor is a weaker IP anomaly.

Line 2 - 7735400N



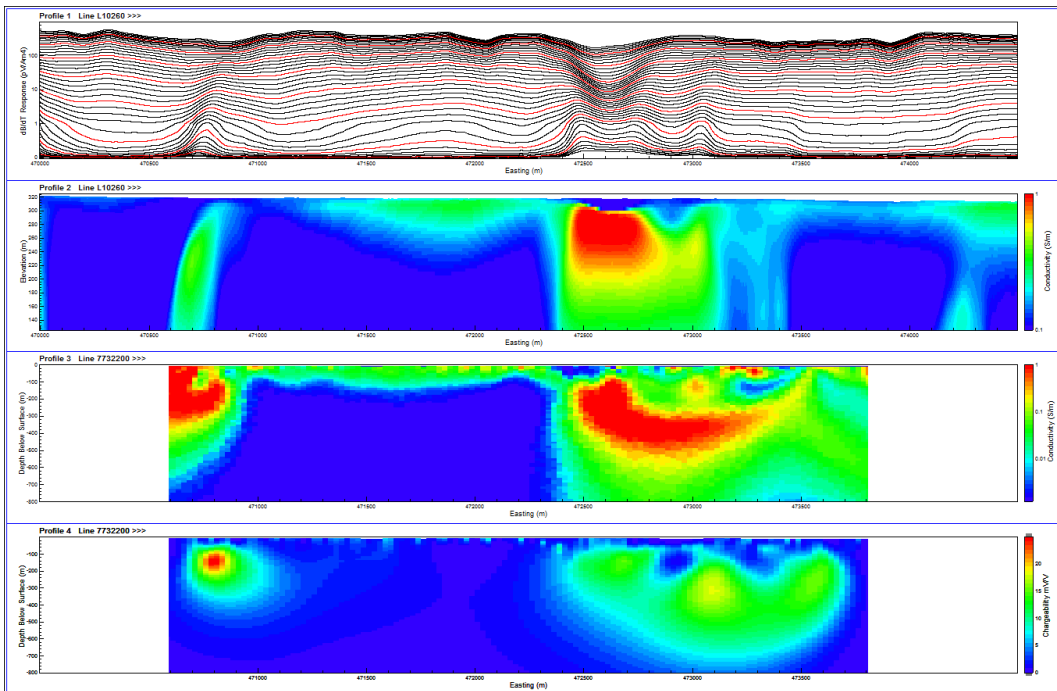
Data from Line 10, 7735400N, shows a strong MT Anomaly coincident with the AEM anomaly. The IP data shows a chargeability anomaly that appears to be on the margins of this conductive feature. There is also a second weaker chargeability anomaly located in the west of the line.

Line 8 - 7733000N



Data from Line 7733000N highlights bedrock conductors at either end of the line, visible in both the AEM data and the MT data. The IP data highlights chargeability anomalies that are coincident with these features, but also a large weak chargeability anomaly in the centre of the line.

Line 10 - 7732200N



The data from this lines shows a strong correlation between the AEM and MT conductivity anomalies and the chargeability anomalies from the IP data.

9. Interpretation of Results

A review of the AEM data in conjunction with the MIMDAS survey has shown the most likely cause of the MT anomaly seen in the regional Cloncurry MT survey is conductive Proterozoic-aged stratigraphy. The resistivity sections derived from both the MIMDAS MT data and the AEM agree to a large extent. The IP data from the MIMDAS Survey has shown that the conductive units are generally chargeable. The IP Data did highlight some additional weak chargeable anomalies not coincident with AEM or MT responses.

The MIMDAS Survey has highlighted the potential of using MT data to follow up AEM anomalies. As MT does not require a transmitter it could be used to collect data in areas where bringing a transmitter and generator could be logistically difficult.

The source of the chargeability anomalies that are not coincident with the AEM/MT conductivity anomalies is unknown at this stage

10. Recommendations for Further Work

The next stage of work at the Ernest Henry South Project will be the drilling of a selection of the conductivity and chargeability anomalies seen in the MIMDAS Survey. The results of this drill program will then dictate future work programs.

11. References

Exco Resource, 2010. Confidence grows at Cloncurry Copper Project with Maiden Measured Resource. *ASX Announcement 7th April 2010*.

Key, Kerry, 2016, 'MARE2DEM: a 2-D inversion code for controlled-source electromagnetic and magnetotelluric data', *Geophysical Journal International*, **207** (1), 571–588.

Oldenburg, D. W. and Li, Y., 1994, 'Inversion of induced polarization data', *Geophysics*, **59**, 1327-1341.

Ryan, 1998. Ernest Henry Copper-Gold Deposit. In Berkman, Mackenzie (Eds). *Geology of Australian and Papua New Guinean Mineral Deposits. The AusIMM, Melbourne*.

12. Appendices

Appendix 1 - Summary of Previous Work

EPM	Years	Company	Coverage	CRs	Work Done	Comments	Data
19775	2014 - 2015	Minotaur	All	92699	Data review	Good review of historical work. Identified a circular magnetic feature that was interpreted to be a small granitic pluton, emplaced within a NE-trending dilational jog along a fault zone parallel to but west of Mt Margaret Fault. Limited drilling and no ground EM or IP in this feature.	None
15004	2006 - 2011	Equinox, Exco, Liontown	All except 1sb	71302, 66131, 62156, 56716, 52100, 49694	Airborne magnetics, radiometrics, terrain survey, ground magnetics, RC drilling, Sub- Audio Magnetics	Holes generally targeted subtle to moderate magnetic anomalies. Interesting results from ECRC332 which targeted a NE trending mag anomaly and intersected a zone of approximately 22m with patchy elevated Cu up to 3320ppm. Three additional holes were drilled into the target but either failed to reach basement or failed to intersect magnetic lithologies. Some low level Cu (up to 0.14% over 2m intervals) intersected in ECRC313, which targeted a more discrete ENE trending mag anomaly. SAM surveys located on the margins of EPM.	Satellite imagery (IKONOS, ASTER), airborne geophysics (mag, radiometrics, terrain), drilling data
12190	2003 - 2006	Equinox	All except 1sb	42493, 42492	None	No work completed, converted to EPM15004.	
14412	2005	BHP	1 sb	42782	Data review	No ground work.	

8609		WMC, BHP, Exco, Eliza Creek (Exco subsidiary), Mount Margaret Mining (MIM subsidiary, later Glencore)	All	82724, 34186, 33229, 32611, 30135, 29668, 26621, 26070	Airborne magnetics, IP, ground EM, RC and diamond drilling (FTCC series)	Relinquishment reports only. Relevant reports to current area: 32611 (1 sb), 30135 (12 sb), 29668 (2 sb). Completed closely spaced drilling, IP and EM over 1 sb in the N of tenement, related to sterilisation for Ernest Henry. Also completed a series of EM lines in the SE, which identified one bedrock conductor: tested by RC hole ELZC0160, and found to be due to graphitic shales. Regional gravity survey completed over whole area (1km x 1km).	Regional gravity, ground EM, drilling data
8312			All	N/A			
3693	1984 - 1985	BHP	All	15358, 14217	Airborne mag, radiometrics, ground mag, drilling	No drilling in current area.	
1420		Chevron	7sb	5844, 5571, 5524, 5266	Drilling	Targeted uranium in the cover sequence. Assayed bottom of holes for multi-elements. Of the holes in the current area, CLDH68 returned elevated copper (340ppm) and zinc (82ppm).	Drilling data
1391		Chevron	7sb	5265, 5387	Drilling	As above.	

Appendix 2 - Digital Data from Survey.

Submitted via QDEX.