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FINAL TECHNICAL REPORT

**EPM 18283 (HINKLER WELL)
QUEENSLAND**

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April 2014

1:250 000 Map reference CLONCURRY SF54-2
1:100 000 Map reference Clonagh 7057

Date of grant : 28/02/2011
Period of validity: 5 years

DISTRIBUTION Minotaur Exploration
JOGMEC
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ABSTRACT

Exploration activities for Cu+Au IOCG-style mineralization undertaken by Minotaur on tenement EPM 18283 (Hinkler Well) since the tenement was granted on 28th February 2011 include limited ground EM and gravity surveys with land access issues preventing more extensive activities. Geophysical surveys undertaken have yet to delineate any positive anomalies which might represent IOCG-style mineralization.

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1 INTRODUCTION

This report summarizes mineral exploration activities undertaken by Minotaur Operations (a wholly owned subsidiary of Minotaur Exploration) on tenement EPM 18283 (Hinkler Well) between the tenement being granted on 28th February 2011 and conditional surrender on 10th March 2014.

Tenement EPM 18283 (Mouse) is located ~55 km NNE of Cloncurry in the Proterozoic Mt Isa Inlier geological province (Figure 1). Within the Eastern Succession (eastern portion of the inlier) are numerous world-class ore deposits including Cannington Ag+Pb+Zn, Ernest Henry Cu+Au, Tick Hill Au and the Selwyn area Cu+Au deposits. Several of the world's largest sediment-hosted base metal deposits occur in the western portion of the Mount Isa Inlier, including Mount Isa and Century.

Exploration is for copper and gold mineralisation, either oxide-rich or sulphide-rich systems, in the region north of Ernest Henry Mine where basement units are not exposed due to overlying sequence of Mesozoic sediments being ~50–150 m thick.

2 LOCATION AND TENURE

Tenement EPM 18283, encompassing an area of ~38 km², occurs within the Cloncurry 1:250,000 topographic map sheet (#SF54-02) and on the Clonagh 1:100,000 sheet (#7057). The tenement is located ~30 km N of the Ernest Henry Mine (Figure 1). Access to the area from Cloncurry is via the Ernest Henry Mine and Sedan Dip roads.

EPM	NAME	LICENCEE	SUB-BLOCKS	GRANT	EXPIRY
18283	Hinkler Well	Minotaur Ops	12	28/02/2011	27/02/2016

Table 1: Tenement particulars for EPM 18283

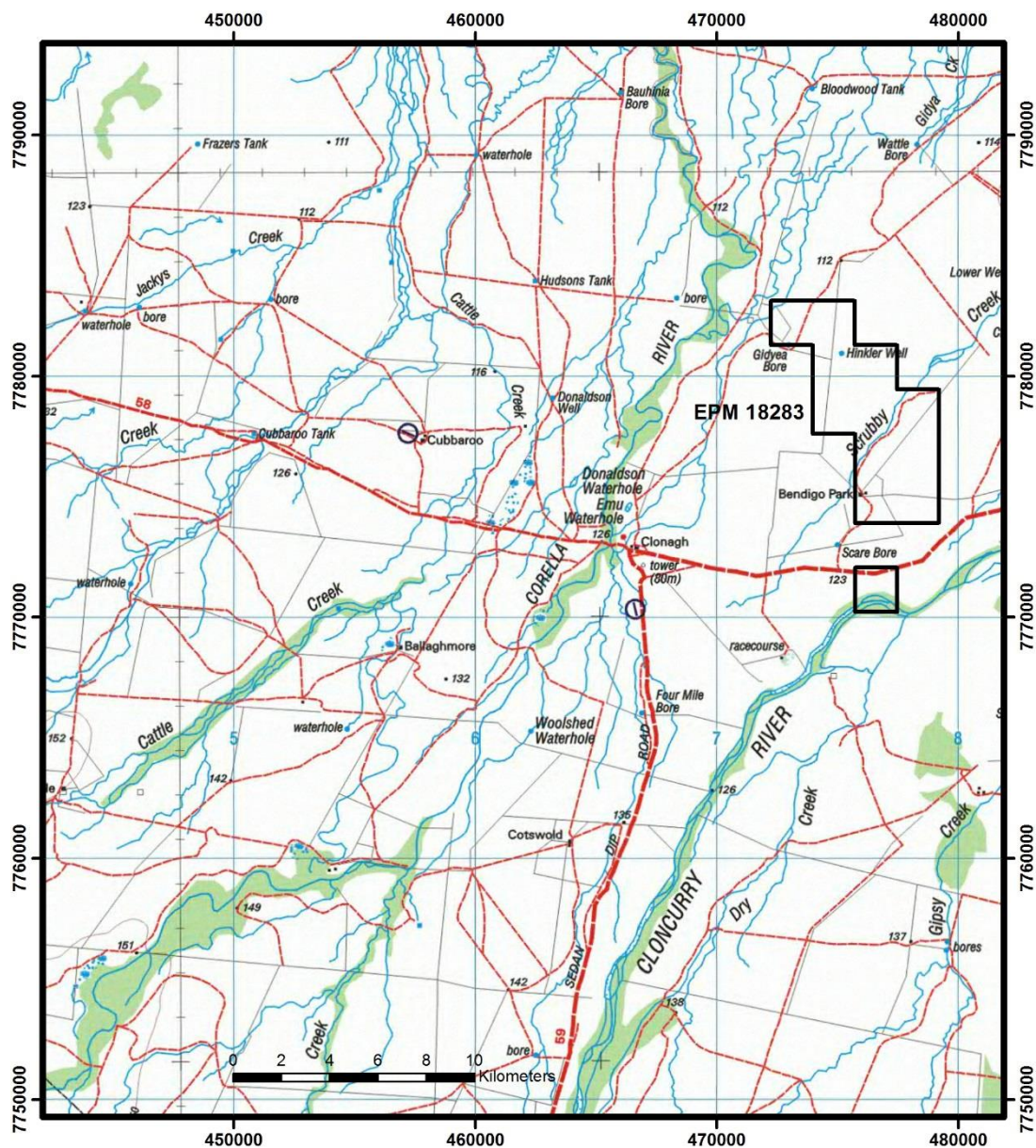


Figure 1: Regional location plan of tenement EPM 18283

Tenement EPM 18283 (Hinkler Well), encompassing 12 sub-blocks, was granted to Minotaur Operations on the 28th February 2011 (Figure 2). Sub-block listing is;

- CLON33, U,
- CLON34 Q, V, W,
- CLON106 A, B, C, G, H, M, N, W

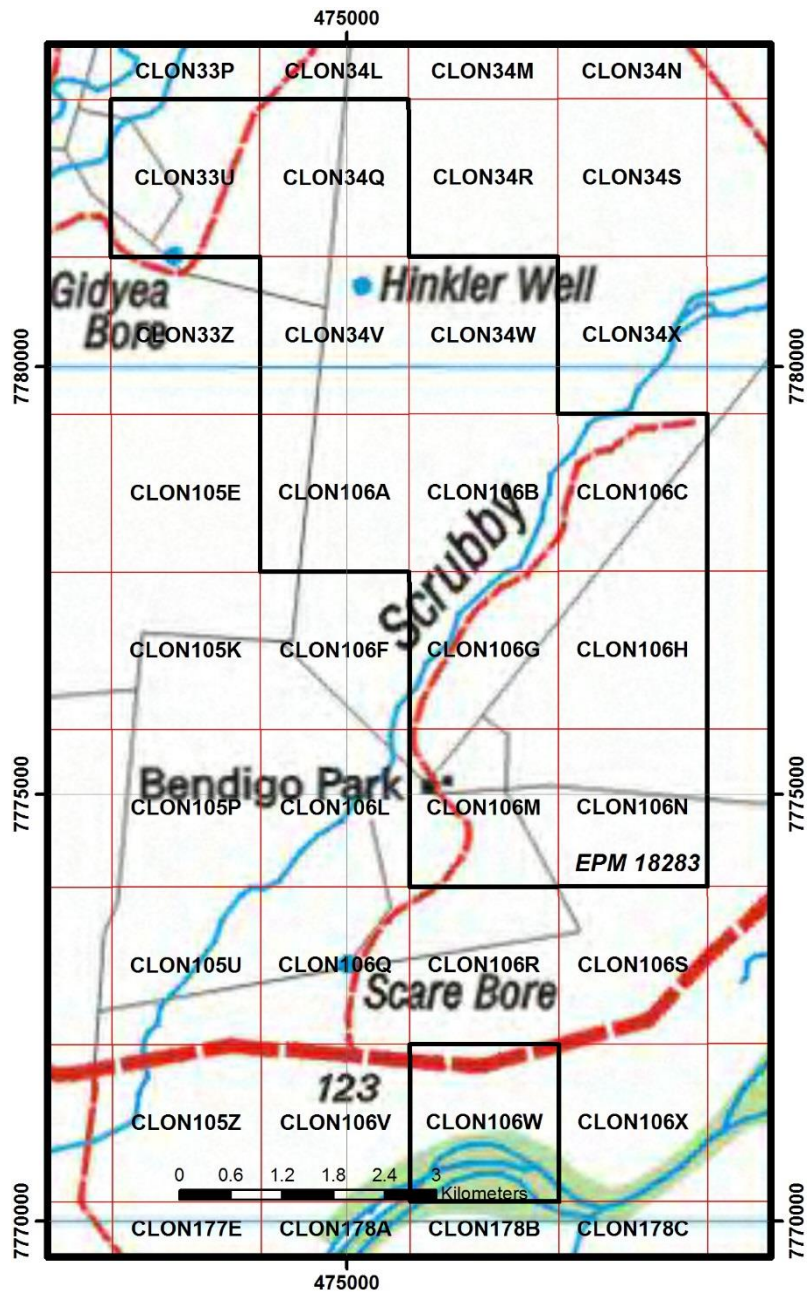


Figure 2: Sub-block map for EPM 18283

Tenement EPM 18283 (Hinkler Well) is one of 17 tenements within the Cloncurry Joint Venture between Japan Oil Gas and Metals National Corporation (JOGMEC), Minotaur Operations and Minotaur Exploration. In order to simplify administration, administrative costs and technical reporting requirements, an application (EPMA 19530) was lodged to amalgamate 9 existing tenements within the Joint Venture, including EPM 18283. The amalgamation was approved on 10th March 2014, resulting in simultaneous conditional surrender of tenement EPM 18283.

3 GEOLOGICAL AND TECTONIC SETTING

The Eastern Succession of the Mount Isa Inlier broadly consists of three Proterozoic domains bounded by major N-trending shear zones /faults — the oldest Mitakoodi Domain, Canobie Domain and the youngest Soldiers Cap Domain (Figures 3–4) (Betts and Giles., 2006; Hutton et al., 2012).

The Mitakoodi Domain (1760–1750 Ma) is highly magnetic and includes felsic volcanic strata (Bulonga Volcanics), mafic volcanic strata of the Magna Lynn and Marraba Volcanics rocks, overlying siliceous Mitakoodi Quartzite and uppermost Overhang Jaspilite.

The Canobie Domain, which hosts Ernest Henry Cu+Au deposit, is a narrow north-south trending (260 x 60 km) zone strongly magnetic sequence of Mount Fort Constantine Volcanics (1745 ± 9 Ma), calc-silicate (Corella Formation) and granitic rocks within the various plutons of the Williams Igneous Event. The domain is fault bounded and bordered to the east and west by the Soldiers Cap Domain.

The Soldiers Cap Domain contains various units of the ~1700–1650 Ma Lower and Upper Soldiers Cap Groups, which are regionally characterised by low degrees of magnetisation. The Lower Soldiers Cap Group (Llewellyn Creek Formation and Mount Norma Quartzite) consists predominantly of psammitic and pelitic rocks along with dolerite sills whereas the Upper Soldiers Group consists of basalt (Toole Creek Volcanics). Units within the Soldiers Cap Domain were deformed and metamorphosed during the Isan Orogeny.

Major IOCG-style mineralising events in the Cloncurry and Osborne region occurred during the Isan Orogeny; however, mineralization occurred at different stages though predominantly spatially and temporally associated with the granitoids of the Williams and Naraku Batholiths (Figure 4). IOCG mineralization at Osborne Mine is dated at ~1600 Ma, whereas Fe-rich hydrothermal fluids at Ernest Henry Mine are dated at ~1500 Ma. Despite the age differences, all the IOCG deposits are structurally controlled and occur within dilatational sites along N- and NE-trending splays off larger shear zones and faults.

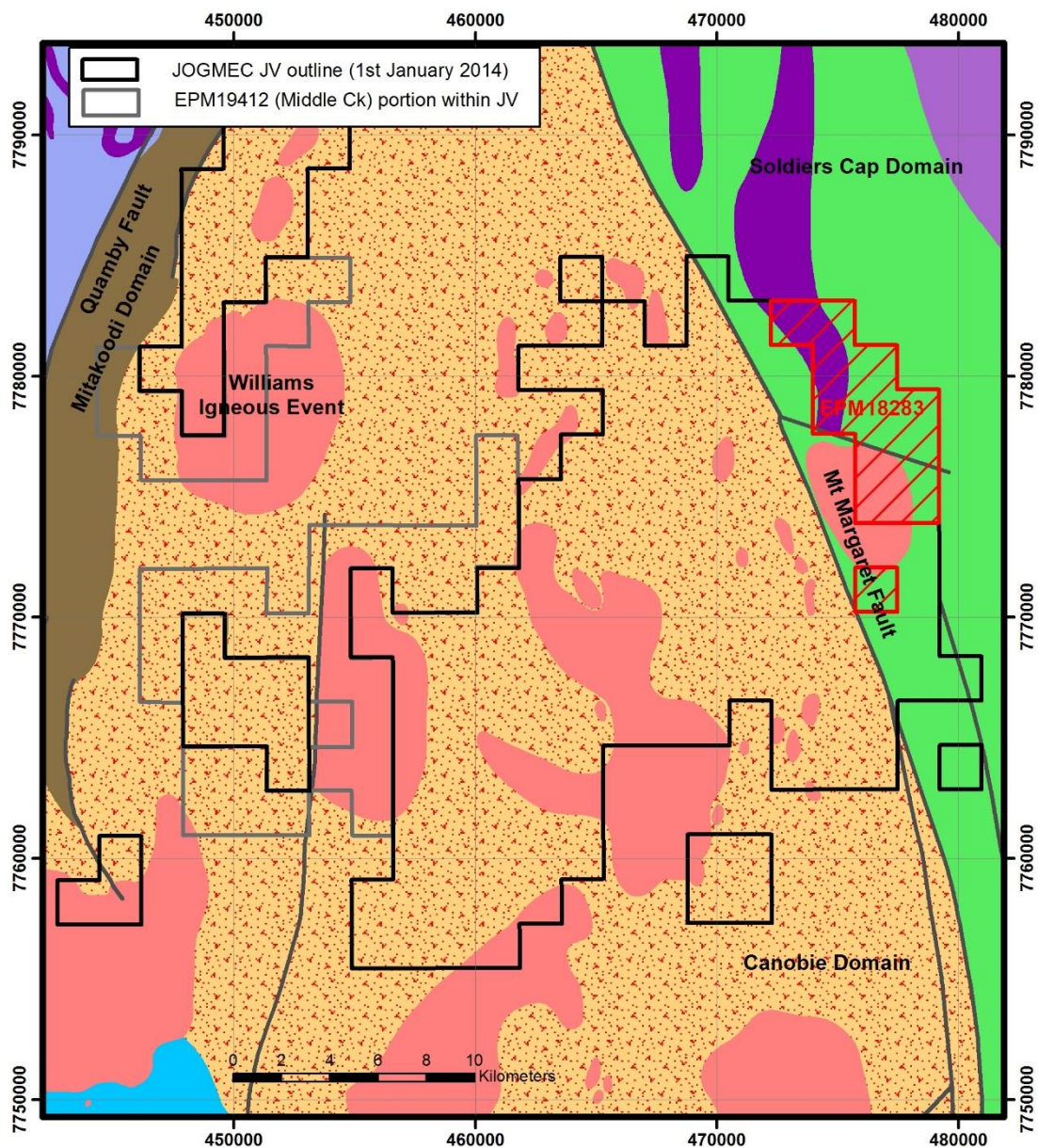


Figure 3: Tectonic map for EPM 18283 and the JOGMEC Cloncurry JV

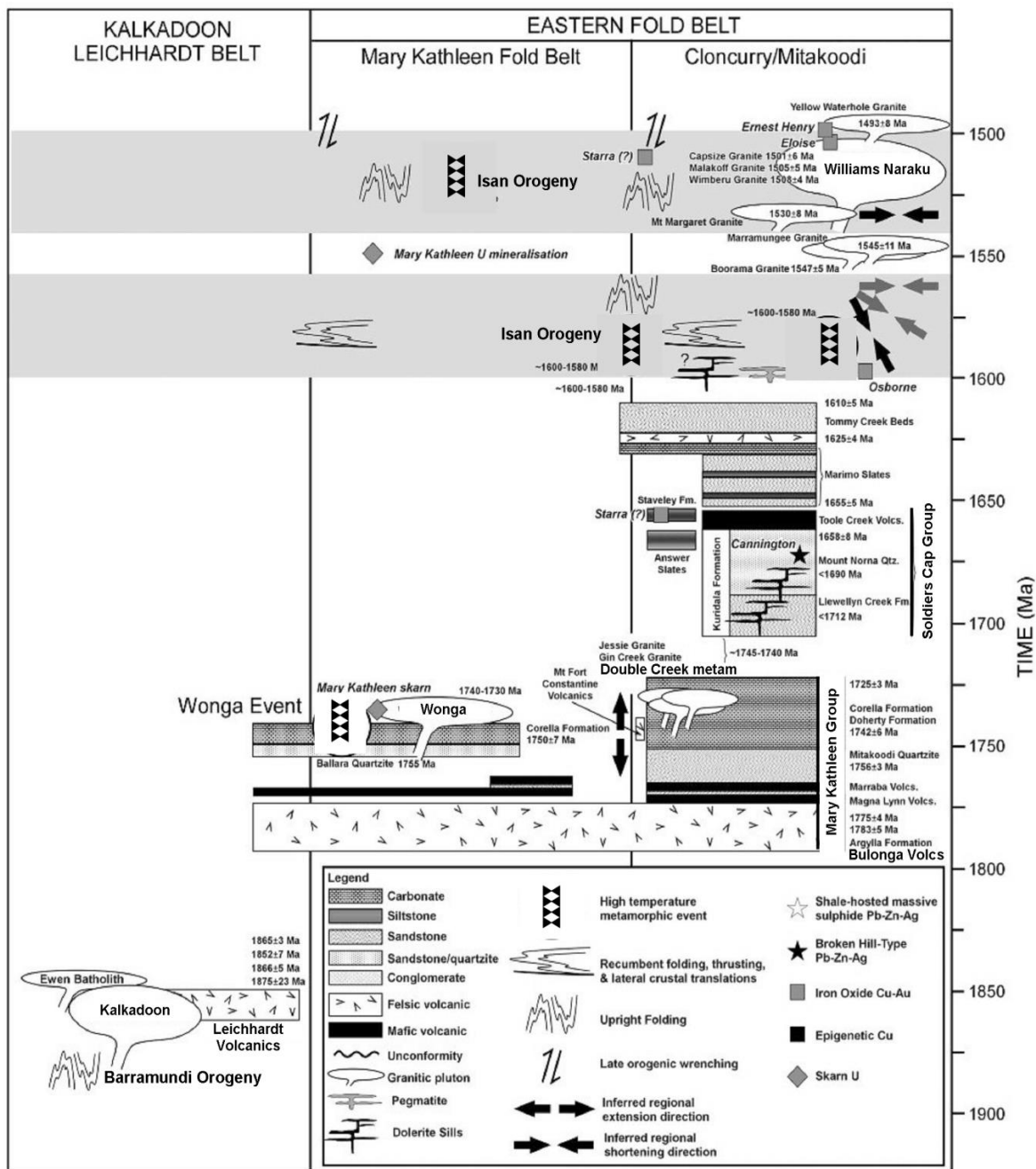


Figure 4: Proterozoic event stratigraphy for the Eastern Fold Belt (Betts and Giles, 2006)

4 HISTORICAL EXPLORATION

WMC (1992–1996) completed ground gravity, magnetic, TEM, induced polarization (IP) and airborne magnetic surveys over then tenement EPM 8608, part of which coincides with current tenement EPM 18283 (Hinkler Well). The geophysical surveys identified several targets, but these were not drill tested. BHP Ltd (1997) then acquired tenement EPM 8608 from WMC in the late 1990’s, completing ground magnetic and gravity surveys and drill tested (NRCD-11)

a magnetic anomaly located at Sparrow East (E15) prospect (Figure 5) (Report CR33228). Hole NRRCD-11 was drilled at -60° due north to a total depth of 269.3 m and intersected medium-grained gabbro with low copper values (<270 ppm) and high magnetic susceptibilities ($30\text{--}920 \times 10^{-3}$ SI).

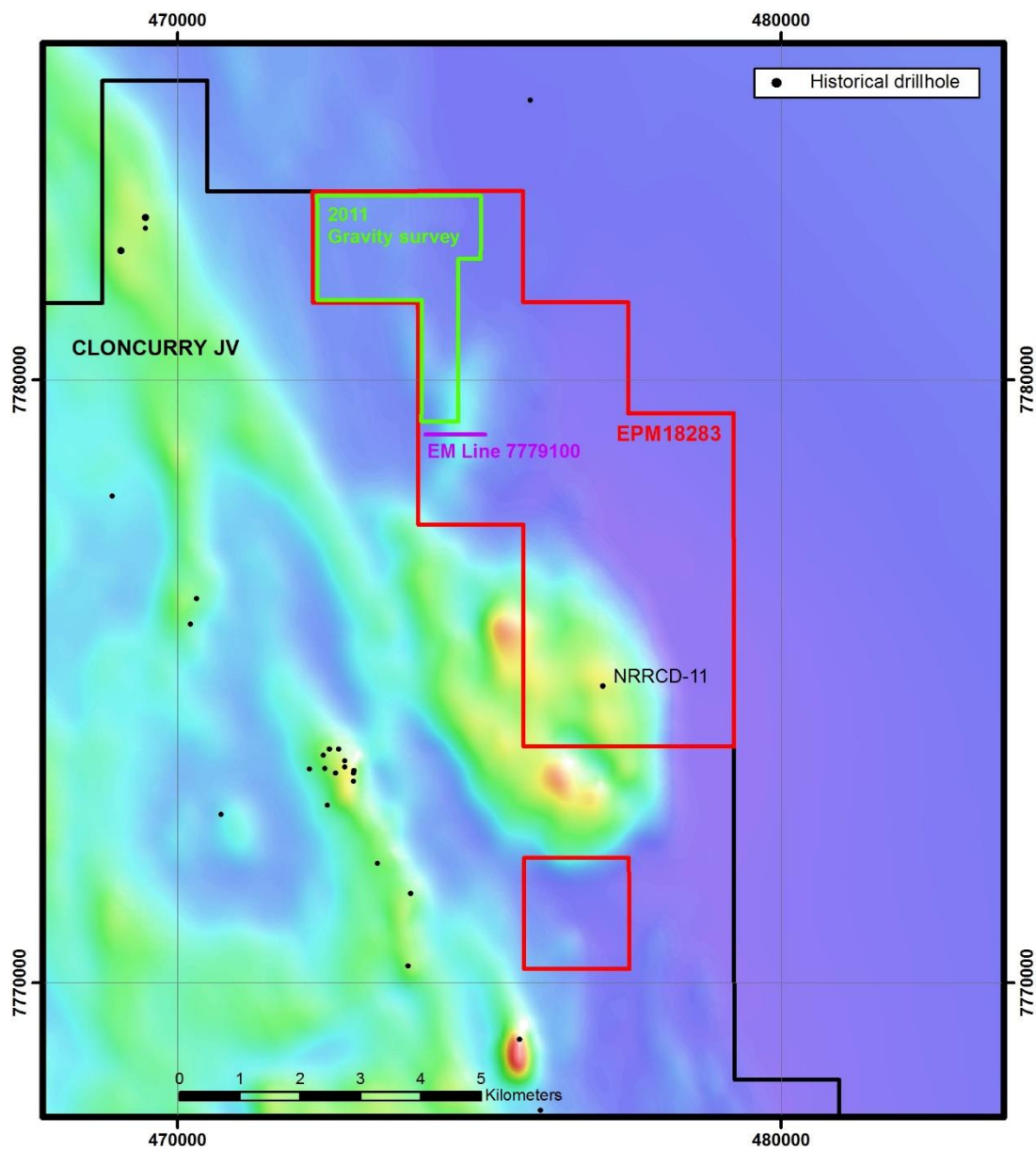


Figure 5: Historical drill holes and past Minotaur geophysical surveys on EPM 18283 (TMI-RTP image)

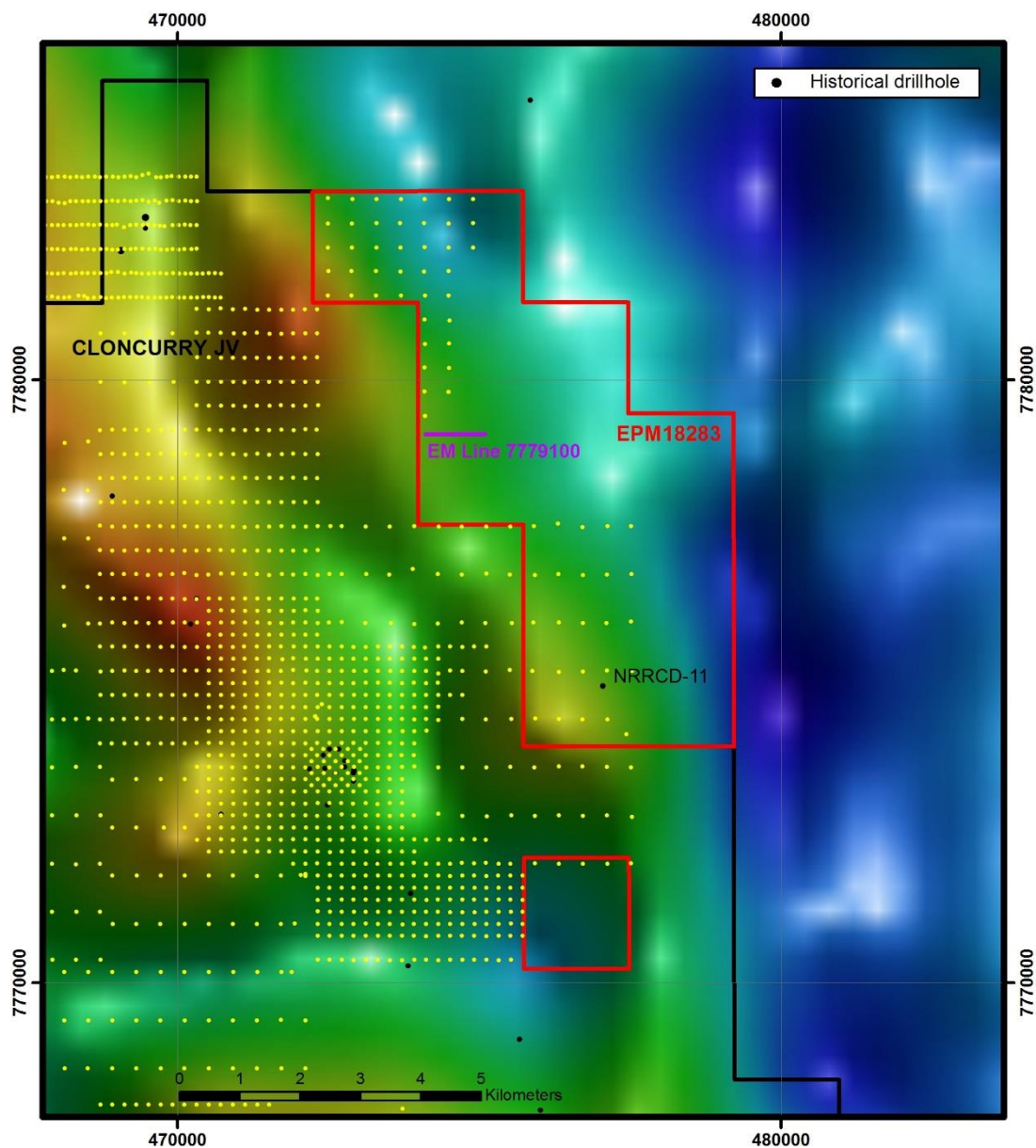


Figure 6: Gravity stations (yellow dots) for all detailed gravity surveys on EPM 18283 (regional 1VD gravity image)

5 MINOTAUR EXPLORATION ACTIVITIES

Minotaur’s exploration activities on tenement EPM 18283 (Hinkler Well) include a gravity survey in July 2011 (Morris and McAllister, 2012) (Figures 5–6). Only a small portion of the gravity survey was completed on the tenement due to land-owner access issues. No gravity anomalies of interest were recorded within the surveyed portion of the tenement.

During October 2012, a moving-loop ground electromagnetic (EM) survey was conducted along Line 7779100 (1 km long) to ascertain if any massive sulphides were coincident with a NNE-trending positive magnetic anomaly (Figure 5). The sensor used was a B-Field fluxgate magnetometer connected to a Smartem 24 receiver whereas the transmitter was a Gap MLTx200 which achieved 100 amp current into the transmitting loop in order to penetrate through the thick and conductive cover sediments. However, no late-time basement conductors were identified (Morris, 2013).

No new technical investigations were undertaken during either 2012 or 2013 (Morris, 2013; Flint, 2014). However, during 2013, ground EM surveying on the adjacent tenement EPM 18068 (Gudyea Bore) indicated the presence of basement conductors though ascertaining their precise orientation and position was difficult. Extension eastwards for ~1 km of the survey line onto EPM 18283 is scheduled for middle 2014.

6 CONCLUSIONS

Limited gravity and ground EM surveys have yet to delineate any positive geophysical anomaly which may represent IOCG-style mineralisation and additional ground EM surveying is proposed.

7 REFERENCES

- Betts, P.G. and Giles, D., 2006. The 1800–1100 Ma tectonic evolution of Australia. *Precambrian Research*, 144:92–125.
- Blake, D.H., Etheridge, M.A., Page, R.W., Stewart, A.J., Williams, P.R. and Wyborn, L.A.I., 1990. Mt Isa Inlier. Regional geology and mineralisation. In: Hughes, F.E. (editor), *Geology of the Mineral Deposits of Australia and Papua New Guinea*. Australian Institute of Mining and Metallurgy Monograph 14 (1):915–925.
- Flint, R.B., 2014. Annual technical report for EPM 18283 (Hinkler Well), Queensland, for year ending 27th February 2014. *Minotaur Exploration Ltd* (unpublished).
- Geological Survey of Queensland, 2011. *Northwest Queensland Mineral and Energy Province Report*. Queensland Department of Employment, Economic Development and Innovation, Brisbane.
- Hutton, L.J., Denaro, T.J., Dhnaram, C. and Derrick, G.M., 2012. Mineral systems in the Mount Isa Inlier. *Episodes* 35 (1): 120–130.

EPM18283, Final technical report

Morris, G., 2013. Annual technical report for EPM 18283 (Hinkler Well), Queensland, for year ending 27th February 2013. *Minotaur Exploration Ltd* (unpublished).

Morris, G. and McAllister, L., 2012. Annual technical report for EPM 18283 (Hinkler Well), Queensland, for year ending 26th February 2012. *Minotaur Exploration Ltd* (unpublished).

8 APPENDICES

APPENDIX A:

Listing of digital files

Digital file only "EPM18283_2014_F_02_FileListing.txt"