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EL 3944

SUNNY CREEK

FIRST PARTIAL SURRENDER REPORT FOR THE PERIOD 8/10/2007 TO 7/10/2008

Submitted by
Minotaur Exploration Ltd
2008

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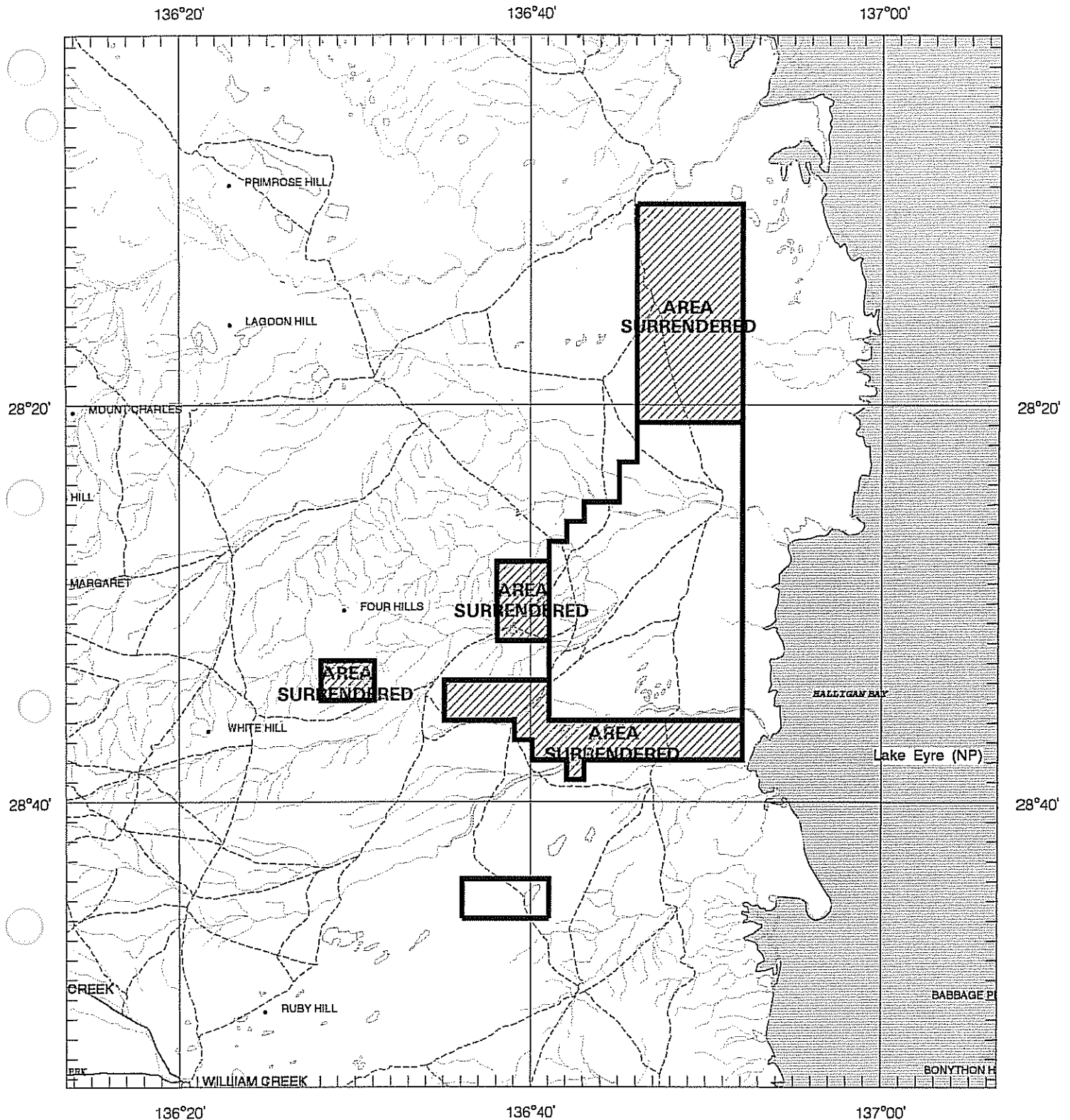
Enquiries: Customer Services Branch
Minerals and Energy Resources
7th Floor
101 Grenfell Street, Adelaide 5000

Telephone: (08) 8463 3000
Facsimile: (08) 8204 1880



Government of South Australia
Primary Industries and Resources SA

SCHEDULE A



APPLICANT : **MINOTAUR OPERATIONS PTY LTD**

FILE REF : **71/07**

TYPE : **MINERAL ONLY**

AREA : **464 km² (approx.)**

1:250000 MAPSHEETS : **WARRINA LAKE EYRE**

LOCALITY : **SUNNY CREEK AREA - Approximately 60 km north of William Creek**

DATE GRANTED : **08-Oct-2007**

DATE EXPIRED : **07-Oct-2008**

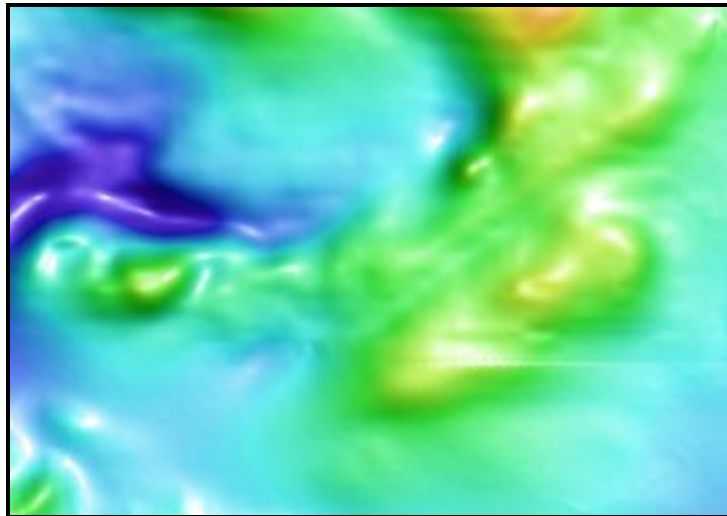
EL NO : **3944**

Minotaur Exploration Ltd
247 Greenhill Rd, Dulwich 5065, South Australia
Tel: +61 8 8366 6000 Fax: +61 8 8366 6001
Email: admin@minotaurexploration.com.au

PARTIAL REDUCTION REPORT

EL 3944 SUNNY CREEK
SOUTH AUSTRALIA

FOR AREA REDUCED 8th OCTOBER 2008



R.B. Flint & L.L. Klingberg

Minotaur Exploration Ltd
247 Greenhill Rd, Dulwich 5065, South Australia
Tel: +61 8 8366 6000 Fax: +61 8 8366 6001
Email: admin@minotaurexploration.com.au

PARTIAL REDUCTION REPORT

EL 3944 SUNNY CREEK SOUTH AUSTRALIA

FOR AREA REDUCED 8th OCTOBER 2008

R.B. Flint & L.L. Klingberg

December 2008

SUMMARY

- A regional gravity survey was undertaken during July 2007 at a station spacing of 500 m in order to compliment existing surveys and achieve regional coverage of the entire tenement. The survey incorporated 274 new observations in the relinquished portion of EL 3944 (Sunny Creek).
- The exploration target is IOCG-style mineralisation and after review of all existing data, the area to be relinquished is interpreted to have no significant potential for sizable IOCG-type deposits. Depth to basement and presence of the artesian Mesozoic aquifer are additionally significant impediments to further exploration activities.

MAP REFERENCE: 1:250 000: WARRINA (SH 53-03), LAKE EYRE (SH 53-04)
MAP REFERENCE: 1:100 000: Piarooka (6241) Douglas (6240) Anna Creek
DISTRIBUTION: (6140)
PIRSA
MINOTAUR EXPLORATION LTD

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1.0 INTRODUCTION

Exploration Licence 3944 (Sunny Creek) is situated approximately 45 km north of William Creek on the north-eastern portion of the Gawler Craton, central South Australia (Figure 1). The tenement covers 832 km² and was acquired by licensee Minotaur Operations Pty Ltd on 8th October 2007 for the purpose of exploration for Fe-oxide Cu-Au deposits with the operator being Minotaur Exploration Ltd (Figure 1).

In October 2008 EL 3944 was reduced by ~55% resulting in an amended area of 464 km² (Figure 2). This report summarises all work undertaken on the recently relinquished portion (368 km²) of EL 3944.

After review of all the existing data, the area to be relinquished was interpreted to have no significant potential for a sizable IOCG-type deposit.

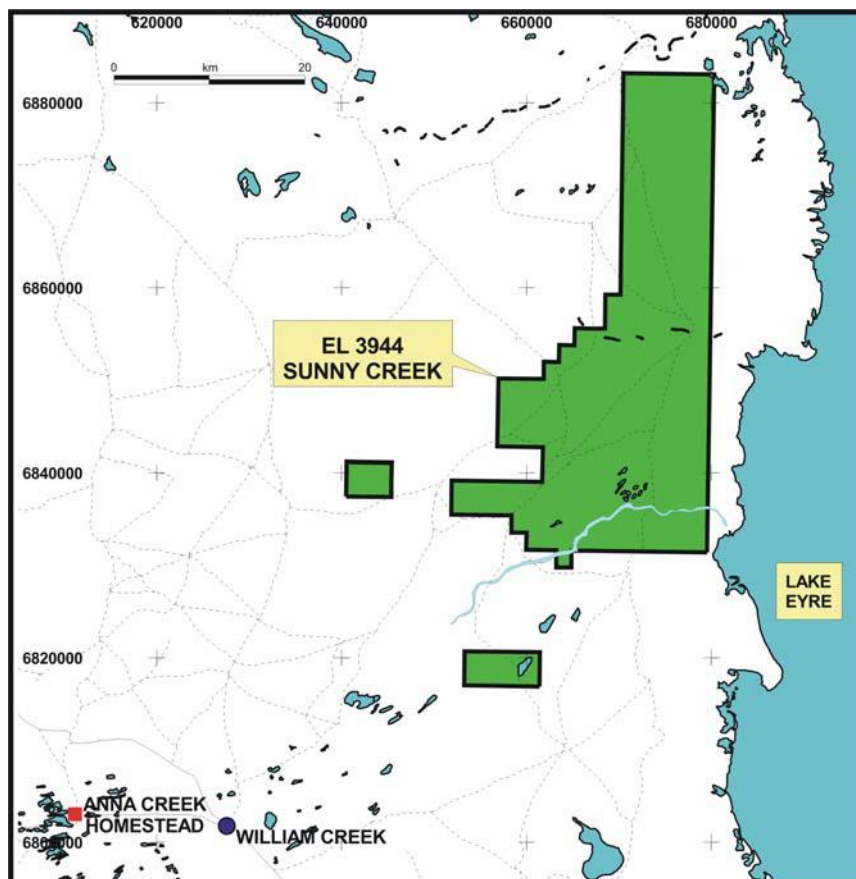


Figure 1: Location plan for EL 3944, South Australia.

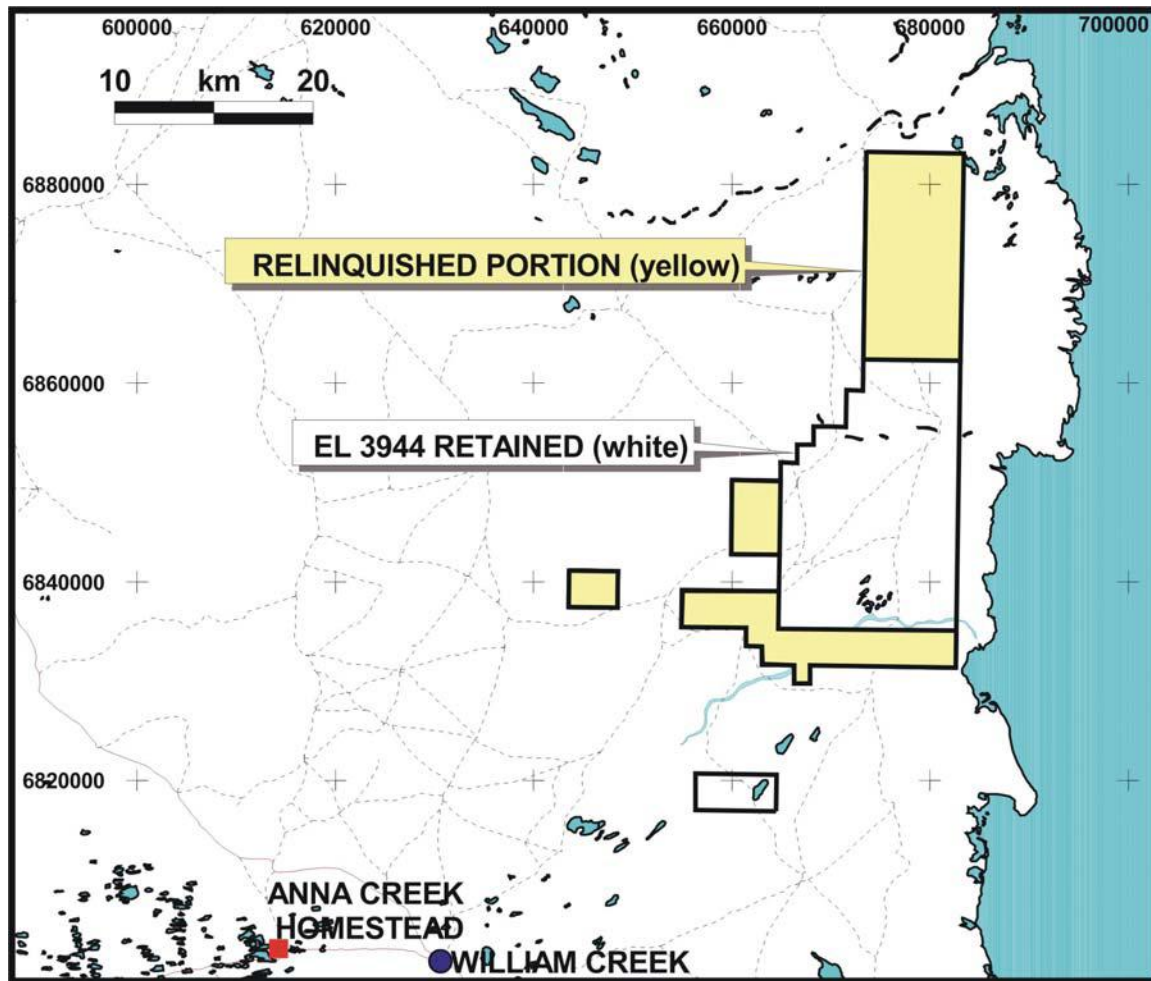


Figure 2: Relinquished area (yellow) and Retained area (white) of EL 3944.

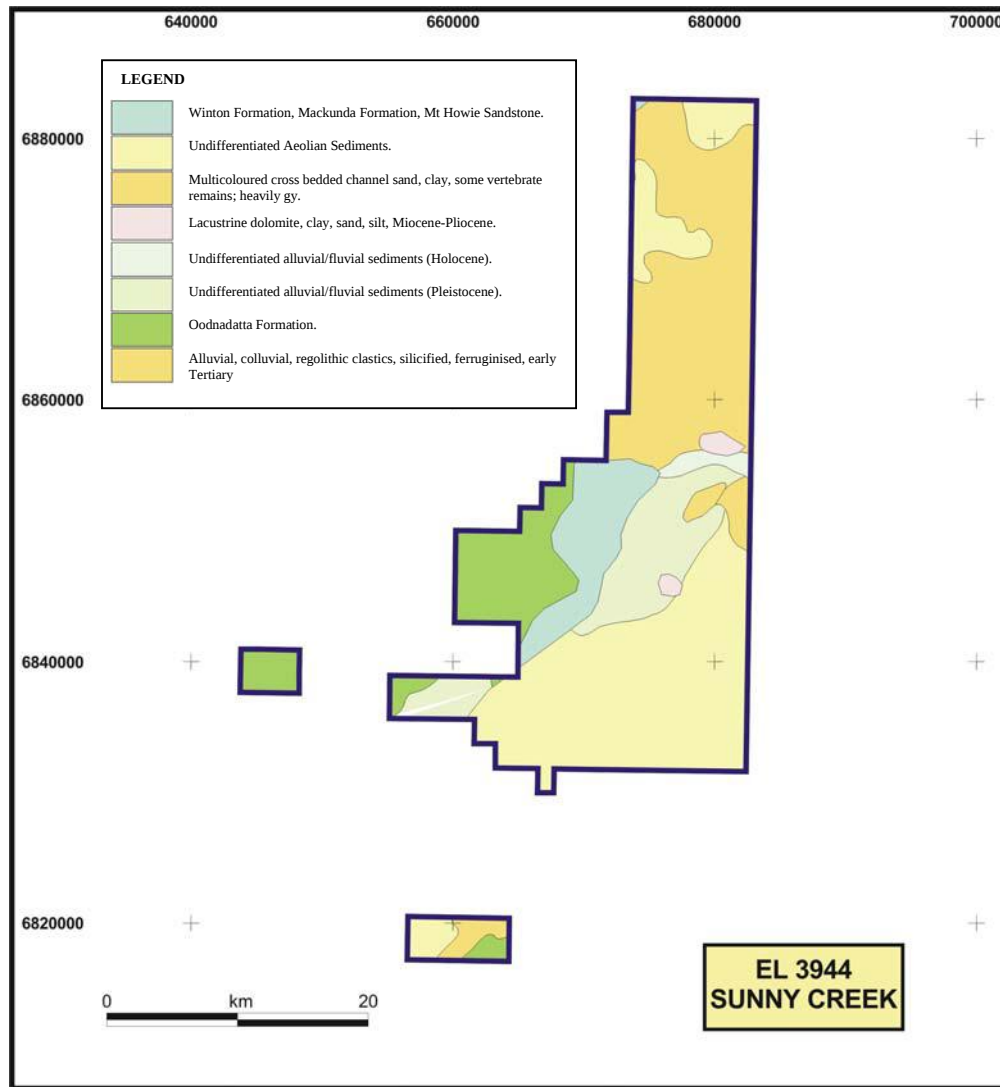


Figure 3: Outcrop geology of EL 3944.

2.0 TENURE

Tenement tenure details of the amended area of EL 3944 Sunny Creek are listed below in Table 1

LICENCE	AREA (km ²)	DATE GRANTED	TERM	EXPIRY DATE	EXPENDITURE REQUIREMENT	PASTORAL LEASE
EL 3944 Sunny Creek	464	8/10/2008	1 year	7/10/2009	\$75,000	Anna Creek Station

Table 1: Tenement Details for amended area of EL 3944 Sunny Creek.

3.0 REGIONAL GEOLOGY

The Peake and Denison Inliers are situated on the fractured northeast margin of the Gawler Craton and within a northern extension of the Adelaide Geosyncline. Regional stratigraphic units, geological evolution and geochronology of Palaeoproterozoic to Mesoproterozoic units of the Peake Metamorphics have been summarized by Ambrose *et al.* (1981) and Rogers and Freeman (1996), and discussed regionally with respect to units on the Gawler Craton by Daly *et al.* (1998). No Archaean rocks or Palaeoproterozoic units older than 1800–1790 Ma have yet been identified within the Peake and Denison Inliers.

The Peake Metamorphics (collective term for all basement rocks within the Peake and Denison Inliers) are dominated by interlayered metabasalt and quartzite. Metamorphic grade varies from greenschist to middle amphibolite facies. Two cycles of sedimentation and volcanism are recognized within the Peake Metamorphics. At least one episode of bimodal volcanism occurred around 1800–1780 Ma. The Wirriecurrie Granite 1793±8 Ma (Fanning *in* Rogers and Freeman, 1996) indicates that its emplacement was coeval with bimodal felsic volcanism within the Tidnamurkuna Volcanics and Baltucoodna Quartzite.

Within the Peake and Denison Inlier, volcanism also occurred around 1750–1740 Ma (Fanning *in* Rogers and Freeman, 1966). This sequence consists of minor felsic volcanics, but predominantly interlayered schist, gneiss, quartzite, calcsilicate and breccia, but is poorly represented in limited exposures.

The age(s) for metamorphism and deformation within the Peake Metamorphics is poorly constrained, aided through thermal overprinting effects of the Musgravian (~1100 Ma) and Delamerian (~500 Ma) Orogenies. Regional metamorphism and deformation minimal age within the Peake Metamorphics is considered to be approximately 1690 Ma, additionally there was development of major thrusts and mylonite zones. A major phase of magmatism at 1535–1530 Ma resulted in the emplacement of magnetic and felsic granitoids, brecciation and Fe + Si metasomatism.

Major rifting during the Neoproterozoic was associated with emplacement of northwest-trending mafic Gardiner Dyke Swarm, basic volcanism (Cadlareena Volcanics) within the initial rift phase, and thick sedimentary sequences within the evolving Adelaide Geosyncline.

Subsequent deformation during the Cambrian–Ordovician Delamerian Orogeny was associated with emplacement of the Bungadillina Monzonite (Ambrose *et al.*, 1981; Rogers and Freeman 1996).

4.0 MINERAL PROSPECTIVITY

The Proterozoic geology of the Peake and Denison Inliers has many similarities to the Mt Isa Inlier, and though much smaller in areal extent, has a high potential for Cu+Au mineralisation, and low to moderate potential for Pb+Zn+Ag mineralisation (Flint, 2001). No known mineralisation is known to occur on EL 3944, and the license was acquired for the purpose of exploration for Fe-oxide Cu-Au deposits.

5.0 PREVIOUS MINERAL EXPLORATION

No significant mineral exploration has been undertaken previously on EL 3944.

6.0 EXPLORATION UNDERTAKEN IN THE RELINQUISHED AREA

Details of existing technical data and history of exploration activities on the relinquished ground are presented in the previous annual technical report for EL 3944 (Flint, Godsmark & Thompson, 2008).

Exploration activities have included:

- Interpretation and modelling of gravity data,
- Assessment of geophysical data with respect to generating targets for potential IOCG-style mineralization,
- Joint Venture negotiations initiated with other parties.

A gravity survey incorporating EL 3944 Sunny Creek and adjacent tenement Primrose Hill (EL 3890), by Atlas gravity contractors was undertaken in July 2007 (Figure 4). A total of 1004 gravity stations were collected at 500 m interval grid spacing, and the survey was conducted as an extension to the SA government 2007 PACE gravity survey. Of the total gravity stations, 274 stations were located within boundaries of the relinquished area of EL 3944.

Additionally, Atlas gravity contractors also collected a further 328 gravity stations at intervals of 750 m on the Sunny Creek and Primrose Hill tenements for PIRSA as part of the 2008 PACE gravity program in the Olympic Domain.

Historical data collected in 1998 by RioTinto at 1 km grid spacing merged with new data collected by PIRSA and Minotaur identified and resolved the extent of a broad residual gravity high in the southern half of EL 3944. A gravity low in the north of Sunny Creek is thought to be due to a granite pluton, while the gravity high could be due to mafic intrusions or IOCG hematite alteration. The magnetic data however suggests the target has some magnetic association, indicating probable mafic sources.

No gravity anomalies of interest were identified within the relinquished area. There are no significant major positive Bouguer gravity anomalies and the area overall is magnetically subdued (Figures 4–7).

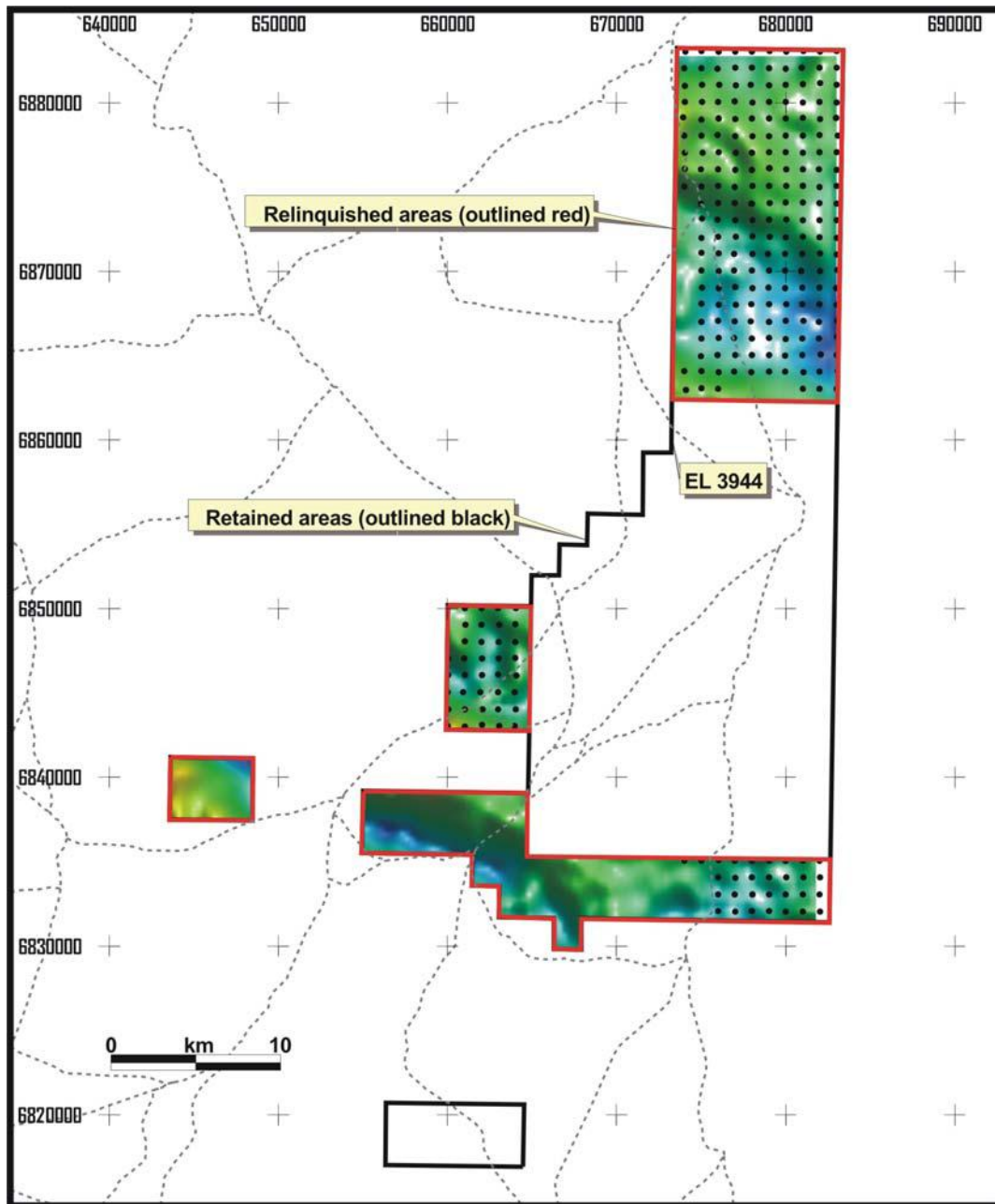


Figure 4: First Vertical Derivative gravity image and Minotaur gravity stations within the relinquished portions of EL 3944.

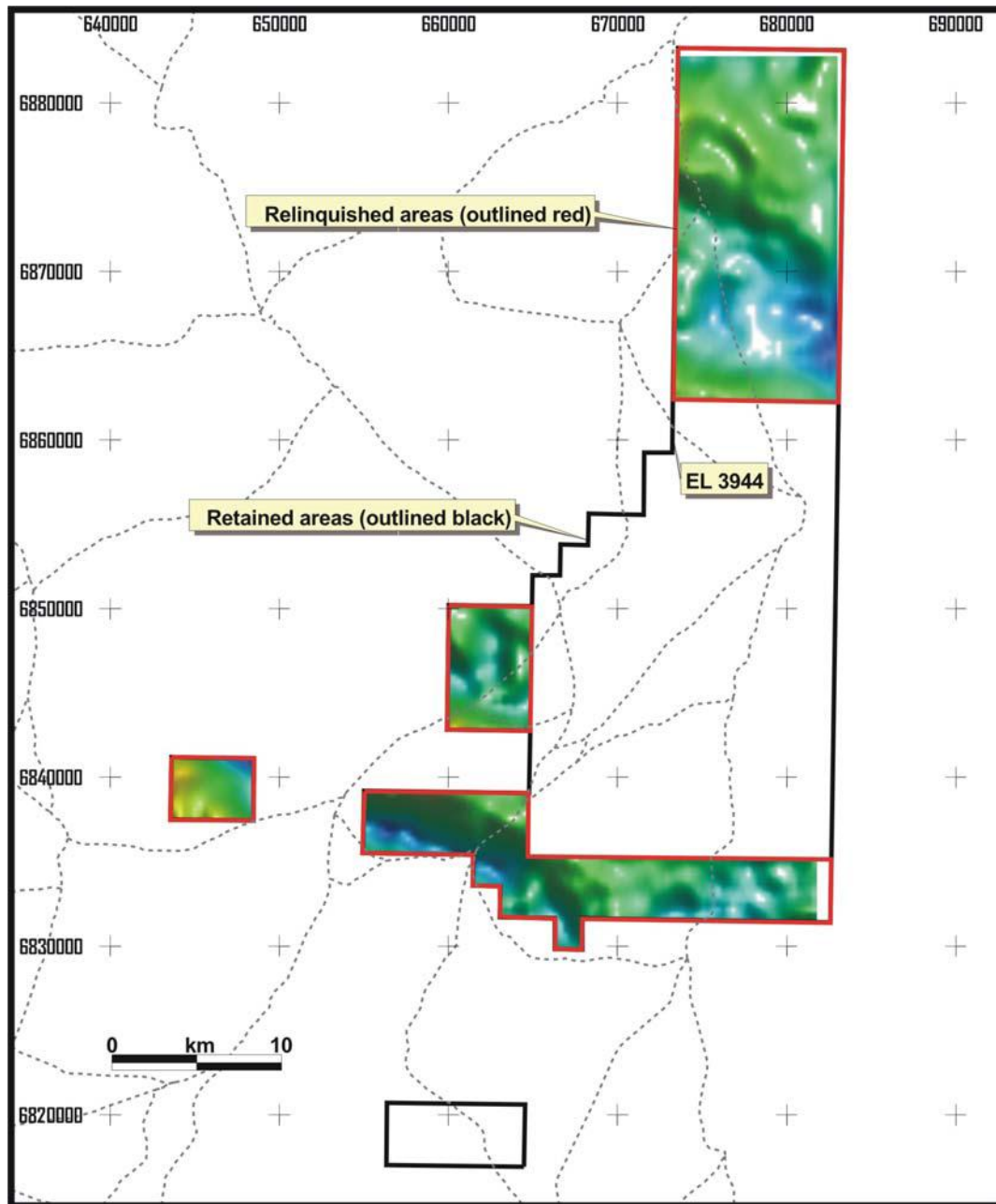


Figure 5: First Vertical Derivative gravity image of the relinquished portions of EL 3944.

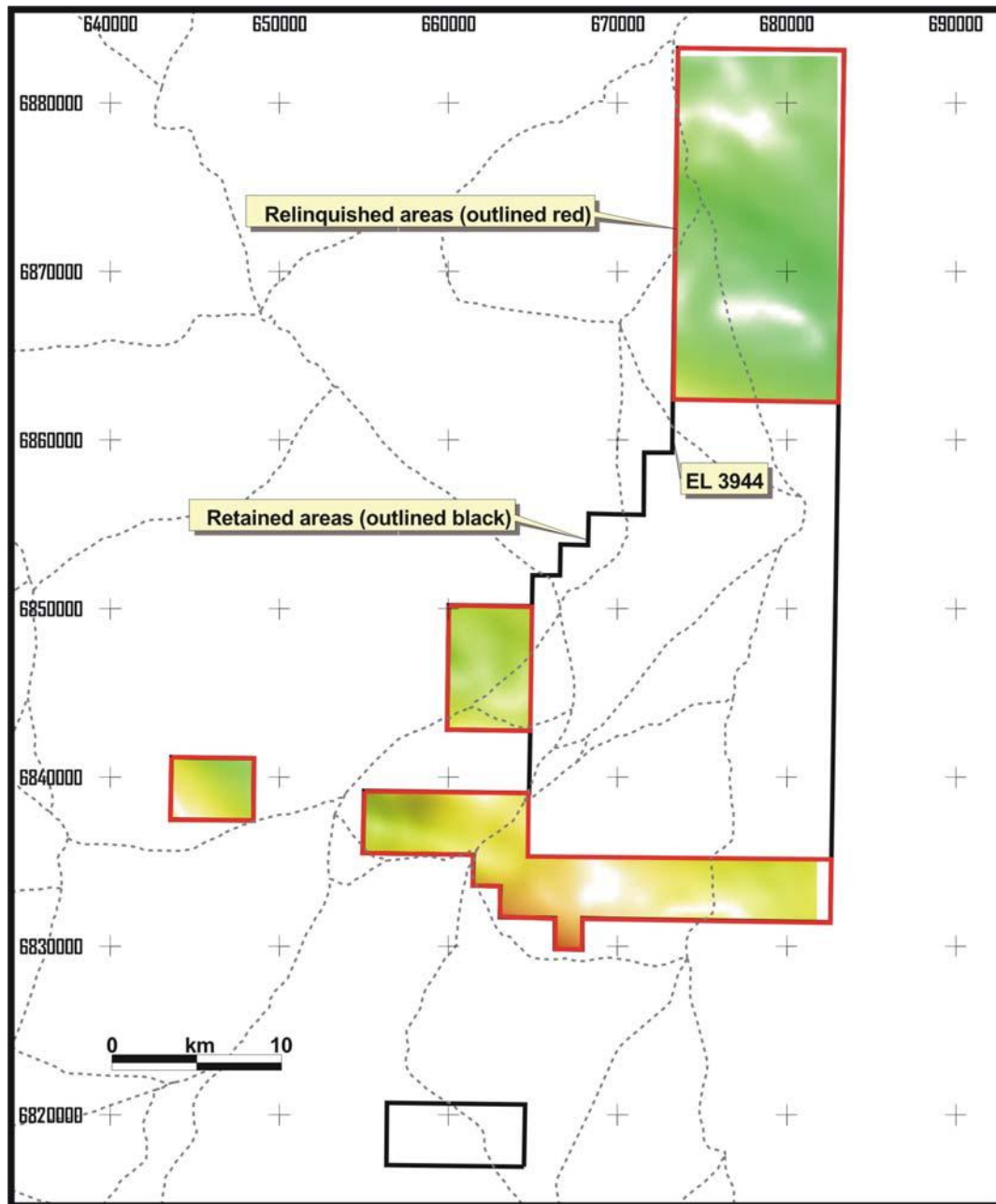


Figure 6: Bouguer gravity image of the relinquished portions of EL 3944.

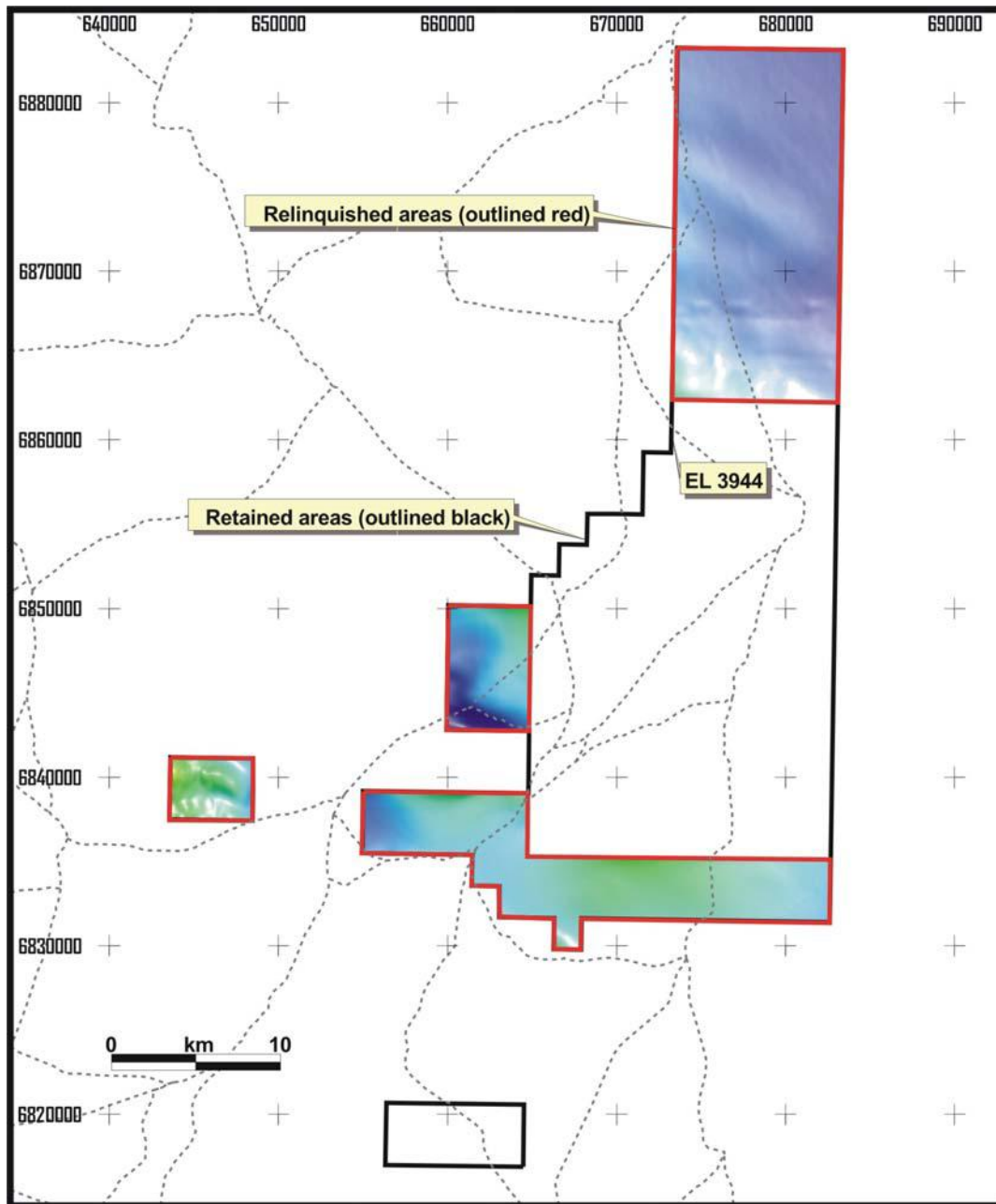


Figure 7: RTP TMI image of the relinquished portions of EL 3944.

The regional gravity survey incorporating the relinquished area of EL 3944 did not identify any gravity anomalies of interest within the relinquished area. Depths to gravity sources are deep and due to the presence of the artesian Mesozoic aquifer this makes it difficult and expensive to explore.

7.0 REFERENCES

- Ambrose, G.J., Flint, R.B. and Webb, A.W., 1981. Precambrian and Palaeozoic geology of the Peake and Denison Ranges. *South Australia. Geological Survey. Bulletin*, 50.
- Daly, S.J., Fanning, C.M. and Fairclough, M.C., 1998. Tectonic development and exploration potential of the Gawler Craton, South Australia. *Australian Geological Survey Organisation, Journal*, 17(3):145–168.
- Flint, R.B., 2001. Geophysical interpretation and mineral potential of the Peake and Denison Inliers, South Australia. *Geosurveys Australia Technical Report* (unpublished).
- Flint, R.B., Godsmark, J.M. and Thompson, A.D., 2008. Annual technical report for EL 3944 (Sunny Creek), South Australia, for year ending 7th October 2008. *Minotaur Exploration Ltd* (unpublished).
- Rogers, P.A. and Freeman, P.J., 1996. WARRINA, South Australia, sheet SH53-3. *South Australia. Geological Survey. 1:250 000 Series — Explanatory Notes*.

8.0 APPENDICES

APPENDIX A Gravity station locations and data, digital file.
Conducted by Atlas gravity contractors, undertaken in July 2007.

Digital File EL3944_2008_P_02_Gravity.txt