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EL 30167

Dolomite

RELINQUISHMENT REPORT

LICENSEE:
GIANTS REEF EXPLORATION PTY LTD
ACN: 009 200 346
A wholly owned subsidiary of Emmerson Resources Ltd

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SEPTEMBER 2018

DISTRIBUTION:		MAP SHEETS:	
Department of Primary Industry & Resources	☐	TENNANT CREEK	SE53-14
Central Land Council	☐	TENNANT CREEK	5758
Emmerson Resources Ltd	☐		
	☐		1:100 000

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1. SUMMARY

This Relinquishment Report records exploration work conducted over the area relinquished from the subject title.

Recent exploration carried out consisted of a regional detailed ground gravity survey, airborne magnetics survey, VRMI modelling and interpretation and predictive modelling.

Results from activities conducted has resulted in the prospectivity being ranked as low to very low, therefore this area of the subject title has been relinquished to allow the reservation for a new public fossicking area and the area remaining as moderate to high prospectivity has been retained.

The relinquishment was accepted on 5 June 2018.

2. INTRODUCTION

EL 330167 covered an area of 5.14km^2, approximately between 1km and 3km southeast of the Tennant Creek Township. The Licence falls on the Tennant Creek (5658) 1:100,000 scale map sheet.

The title was acquired by Giants Reef Exploration Pty Ltd (Giants Reef) to search for Tennant Creek style iron oxide copper-gold deposits (IOCG). Giants Reef is a wholly owned subsidiary of Emmerson Resources Ltd (Emmerson).

Figure 1 shows the location of EL 30176 with respect to the Tennant Creek Township.

This Relinquishment Report records exploration work done on the relinquished area of the subject title.

3. LOCATION

EL 330167 covered an area of 5.14km^2, approximately between 1km and 3km southeast of the Tennant Creek Township. The Licence falls on the Tennant Creek (5658) 1:100,000 scale map sheet.

Access to the Licence area is south via the Stuart Highway for approximately 12km, then further access to the licence area is east via a series of unsealed tracks and fence lines, which during and immediately after rain generally become inaccessible.

Figure 1 shows the location of EL 30167 with respect to the Tennant Creek Township and Figure 4 shows the areas of relinquishment and retention.

4. TENURE

EL 30167 was granted 18 September 2014.

The title is located on –

- NT Portion 02087 and 04440, Crown Land

5. GEOLOGY

5.1 Regional Geology

The reader is referred to AusIMM Monograph 14 (Geology of the Mineral Deposits of Australia and Papua New Guinea), Volume 1, pp. 829-861, to gain a good introduction to the regional geology and styles of gold-copper mineralisation of the area.

In 1995 the Northern Territory Geological Survey released a geological map and explanatory notes for the Tennant Creek 1:100,000 sheet, which covers the area of the licenses.

The rocks of the Warramunga Formation host most of the orebodies in the region and underlie most of the Exploration Licenses.

5.2 Local Geology

The geology of EL 30167 is dominated by ridges and isolated hills scattered throughout the title. These ridges and isolated hills comprise scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation, and most likely underlies Cainozoic sediments. The Cainozoic sediments are predominately made up of sheet and dune sand and sandy soil, with less extensive dissected colluvium fan deposits, colluvium scree and a relict fluvial system covered by sands.

The licence contains the Dolomite and Pup Mines which are located in the north of the licence and are covered by a series of MLC's, and therefore will not be covered in this report.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Tennant Creek 1:100 000 sheet 5758, which covers the area of the license.

6. EXPLORATION

6.1 Targets and Concepts

Proterozoic Inliers world-wide, and particularly in Australia, are renowned for their iron-rich mineralisation and world class base metal deposits. For many years prominent geologists and researchers in the industry have pointed out the geological similarities that the broader Proterozoic Tennant Creek Inlier shares with the Gawler Craton, host to the Olympic dam deposit, and to the Eastern Succession of the Mt Isa Inlier that hosts the Ernest Henry and Selwyn deposits. These similarities, though recognised, had not been widely acted upon by the industry.

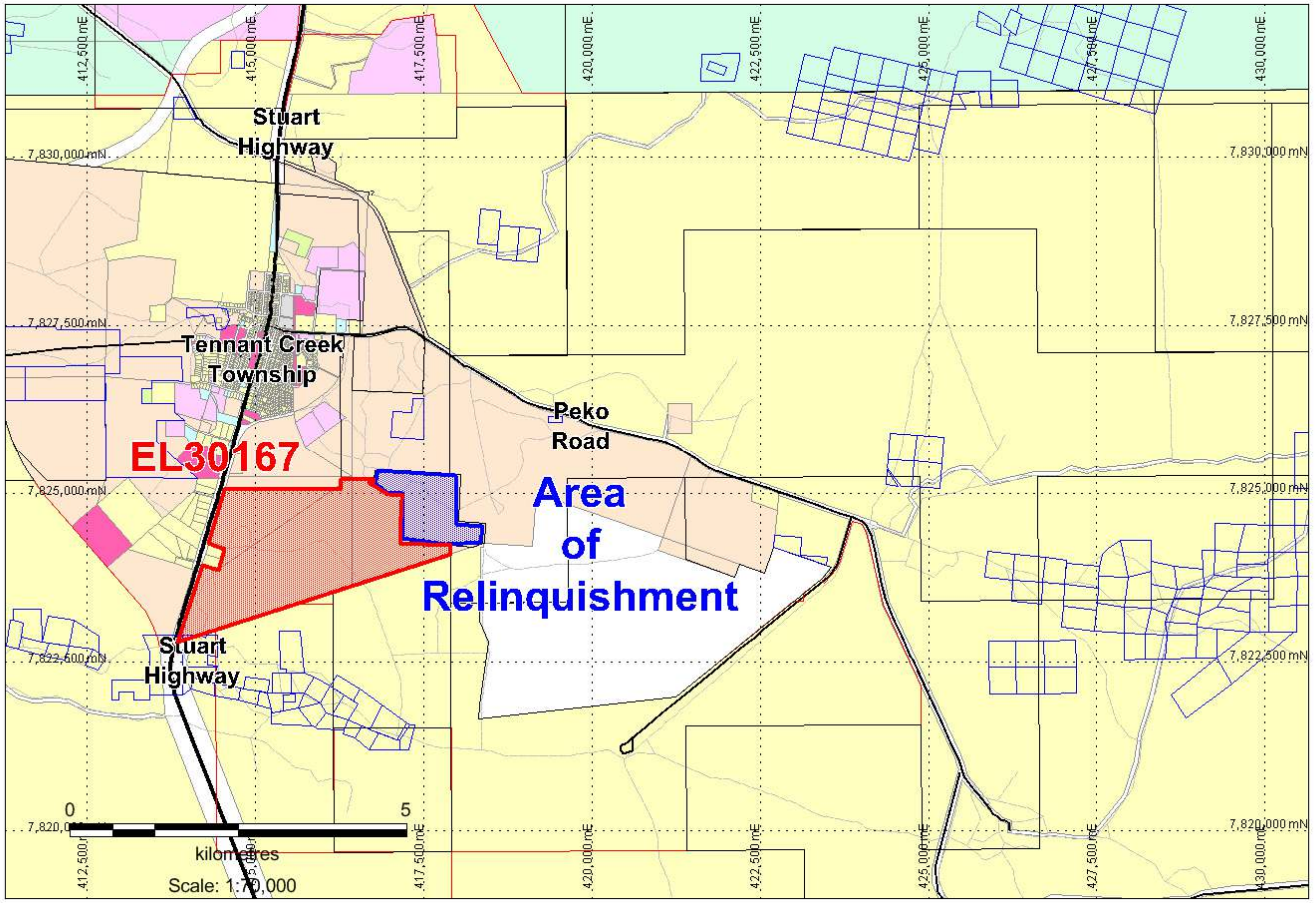

Figure 1: EL30167 Location

Exploration was aimed at discovering large deposits of base metals along with substantial gold and/or silver, probably accompanied or hosted by large volumes of iron oxide minerals.

Emmerson's target model iron oxide-rich lithologies and are therefore likely to be associated with regional or district-scale gravity anomalies, and potentially coincident with a magnetic anomaly.

The discovery of the haematite-magnetite Chariot deposit in 1998 has shown the potential for variations on the classic magnetite ironstone hosted gold +/- copper deposits, where lower order magnetic anomalies, plus gravity methods can define new targets. Discoveries by Giants Reef of mineralisation such as at Malbec West, Marathon and Billy Boy further support this. Emmerson considers the potential for the discovery of mineralisation in hematite dominant ironstones in the relinquished group is limited.

6.2 Recent Exploration

Exploration work included Emmerson's engagement of Kenex Pty Ltd (Kenex) in 2012/13 to construct a predictive model for the Tennant Creek Mineral Field and included the subject title. This product was completed, but provided no further targeting for the subject title.

Kenex targets are generated from the Kenex Pty Ltd (Kenex) predictive modelling of the Tennant Creek Mineral Field, this product is a statistical predictive tool for predicting the possible prospective sites for Tennant Creek style mineralisation. The model produced many target areas which contain all or some of the essential criteria for possible economic mineralisation in the Tennant Creek Mineral Field. Emmerson is assessing the generated targets and ranking them in order of potential prospectivity. The highly ranked targets are selected for field visits and desktop data compilation and validation. All this data is compiled and some rock chipping may take place during site visits to compile a geological and geophysical assessment of the target which is then ranked for future exploration.

Emmerson provided Kenex with the Tennant Creek Datasets available, from these data sets Kenex generated 15 predictive maps of 15 key parameters, as listed in the table below. Kenex run to models a Weights of Evidence (WOE) model, which used all 15 predictive maps, a Lineal Regression (LR) model which used 12 of the 15 predictive maps and they also generated a 3D model which used 11 of the predictive maps.

A selected area for target generation is gridded into cells and these predictive maps give a numerical weighting for each cell in terms of its adherence to the parameter being assessed. The values for each parameter are combined to give a number of resultant values predicting different statistical relationships. The aim of these resultant values is to generate a target area that has the essential parameters to host Tennant Creek Style

Mineralisation. Of all the resultant values Emmerson uses the Post Probability (Pprb) value to identify and rank its targets, in a range of 0 – 1, with 1 being the highest potential value and values above 0.85 to be very significant, although all targets need to be considered in the context of "if the assessed cell has a low value" is it because the relevant data isn't significant or has it not been recorded/captured.

	PARAMETER	Description
1	Warramunga Formation	Spatial relationship of stratigraphy to mineralisation
2	Distance to porphyry	Distance to porphyries that pre-date or are synchronous with mineralisation
3	Distance to mafics (Mafic Lithologies)	Spatial relationship of mafic lithologies older than cover to mineralisation
4	Radiometry - U	Anomalous U relation to mineralisation
5	Distance to D_0-$D_{1\ major}$ faults	Faults of D1 age relation to mineralisation
6	Distance to low order faults (Faults length < 1 km)	Fault length pre to syn mineralisation
7	Distance to F1 Anticlines	Spatial relationship of antiforms pre to syn mineralisation to mineralisation.
8	Distance to F1 Synclines	Spatial relationship of synforms pre to syn mineralisation to mineralisation.
9	Distance to Redox boundaries	Base of oxidation as the boundary between haematite/magnetite.
10	Distance to IOCG Haematite end-member	Relationship of iron alteration to mineralisation
11	Distance to mag and gravity slope highs coincident	Proximity to dense, magnetic highs
12	Distance to ironstones	Ironstones - All
13	Ironstones - high mag/gravity coincident	Ironstones - All - High gravity & mag
14	Distance to anomalous rock/DH geochem	Combined anomalous Au, Cu and Bi buffered ((Au >= 0.1ppm, Bi >= 10ppm, Cu >= 100ppm)
15	Distance to anomalous regolith Au geochem	Soil & Vacuum Au

Table 1: Kenex Predictive Modelling Parameters

7. REHABILITATION

Rehabilitation has not required as no ground disturbing activities were conducted, should any rehabilitation been required it would have been conducted in accordance with the procedures outlined in the appropriate Mining Management Plan (MMP) – Authorisation 0463-04 Eastern Project Area.

8. CONCLUSIONS

Results from activities conducted has resulted in the prospectivity being ranked as low to very low, therefore this area of the subject title has been relinquished to allow the reservation for a new public fossicking area and the area remaining as moderate to high prospectivity has been retained.

9. COPYRIGHT STATEMENT

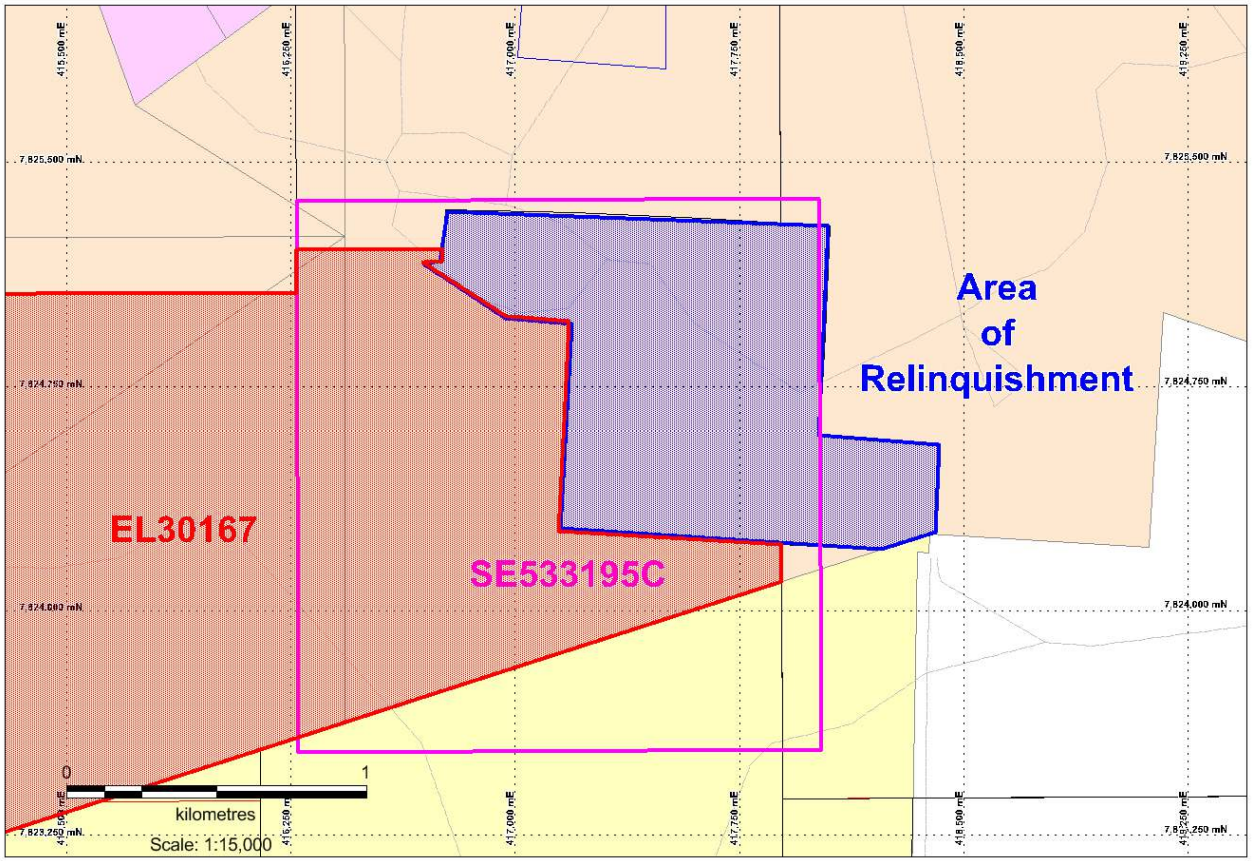

Figure 4: EL 30167 Areas to be retained (Red) and areas to be relinquished (Blue)