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ML 30864

Verdelho

FINAL REPORT

LICENSEE:
SANTEXCO PTY LTD
ACN: 002 910 296
A wholly owned subsidiary of Emmerson Resources Ltd

AUTHOR: ADAM WALTERS
SEPTEMBER 2018

DISTRIBUTION:
Department of Primary Industry & Resources ☐
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MAP SHEETS:
TENNANT CREEK SE53-14
SHORT RANGE 5659

☐ 1:100 000

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1. SUMMARY

This Final Report records exploration work done on Mineral Lease 30864 (ML 30864) up to 13 July 2018.

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 remaining moderate over the subject title, therefore the action to surrender the ML and conduct any future activities under the overarching Exploration Licence (EL).

The title ceased on 13 July 2018.

2. INTRODUCTION

ML 30864 covered an area of 20ha, approximately 40km northwest of the Tennant Creek Township. The Licence falls on the Short Range (5659) 1:100,000 scale map sheet.

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

Figure 1 shows the location of ML 30864 with respect to the Tennant Creek Township.

This Final Report records exploration work done up to 13 July 2018.

3. LOCATION

ML 30864 covered an area of 20ha, approximately 40km northwest of the Tennant Creek Township. The Licence falls on the Short Range (5659) 1:100,000 scale map sheet.

The principal access to the title from Tennant Creek is north via the Stuart Highway, then north west along the Warrego Road until approximately 4km from Warrego where a dirt track runs south from the Warrego Road to the Navigator Group area which includes the subject title. Access to the title from the group area is by various dirt roads and fence line tracks. However, much of the area is rocky, without tracks and difficult to reach, even in a 4x4 vehicle. The unsealed tracks become impassable during the wet season.

Figure 1 shows the location of ML 30864 with respect to the Tennant Creek Township.

4. TENURE

ML 30864 was granted as a replacement title for MCC 790 on 19 June 2015 under the Mineral Titles Act.

MCC 790 was granted 15 November 1988.

The title is located on –

- NT Parcel 00408, Perpetual Pastoral Lease 946, Phillip Creek Station

The subject title has no AAPA and CLC registered sacred sites.

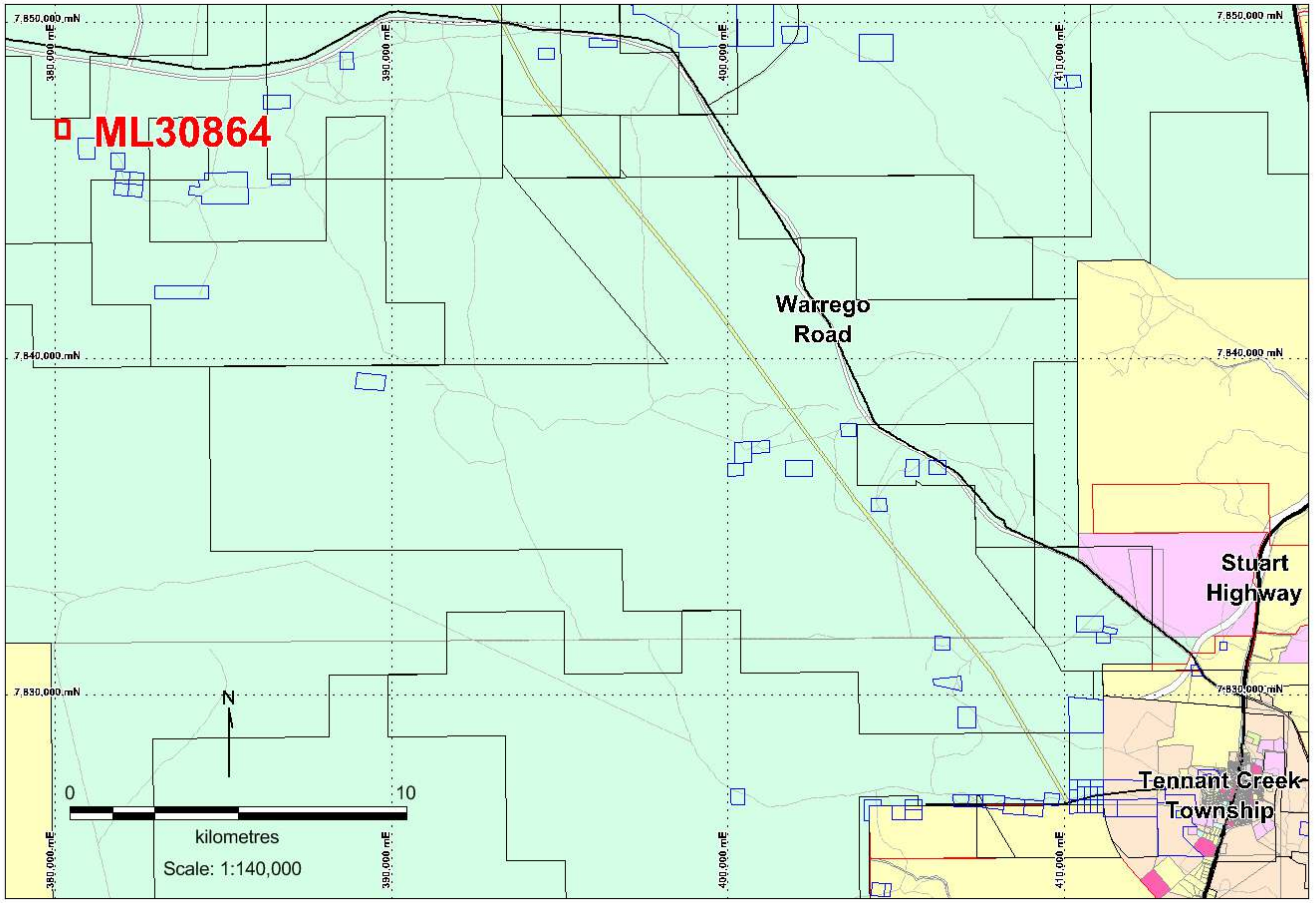

Figure 1: ML30864 Location

ML 30864 was subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the CLC and Giants Reef.

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 Flynn 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 rocks consist of turbidite sediments of the Palaeoproterozoic Warramunga Formation (1865-1855 Ma), predominately greywacke and siltstones. This formation is host to virtually all the magnetite-haematite (ironstone–hosted) gold-copper-bismuth mineralisation and ore bodies in the Tennant Creek goldfield.

The Warramunga Formation is characterised in a number of places by outcropping ridges which comprise scattered outcrops of weathered siltstone and greywacke with felsic volcanics or volcanically derived sedimentary rocks of the Flynn Sub-group/ Tomkinson Creek Sub-group (Ooradidgee Group), quartz-rich dissected colluvial fan deposits with minor, colluvium scree, felsic porphyry and alluvial deposits in active channels and on floodplains.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Short Range 1:100 000 sheet 5659, which covers the area of the title.

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.

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 conducted by Emmerson over the subject title area consisted of a detailed ground gravity survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson's Tennant Creek tenure package and included the subject title. The survey was conducted by three teams, each team consisted of a quad bike and rider equipped with a station meter. The three teams were supported by a Toyota Landcruiser 4WD Ute. The readings were taken on a 500m station spacing's, on lines 500m apart oriented North – South. Readings in areas requiring more detail were taken on 50 station spacing's on 100m spaced lines oriented North - South. The survey was completed during October 2008.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008. The survey included vast areas of the Tennant Creek Mineral Field (TCMF), including the subject title. The survey was flown

with a FU24 – 954 fixed wing survey aircraft on 75m line spacing's, with 750m tie line spacing's and a sensor height of 25m for a total Line KM of 38,278. Magnetic Data was captured using a Scintrex Cesium Vapour CS-2 total field magnetometer, Fluxgate three component vector magnetometer, RMS Aeromagnetic Automatic Digital Compensator (AADC II) and a Diurnal monitoring Magnetometer (Scintrex Envi8mag). Radiometric Data was captured using an Exploranium GR-820 gamma ray spectrometer and Exploranium gamma ray detectors.

During 2010/11 Emmerson and contract geophysical consultants, Spinifex Geophysics, further developed a processing technology, Vector Residual Magnetic Intensity (VRMI) aimed at existing magnetic data from Emmerson's Tennant Creek tenure package, figures 2 (pre-VRMI) & 3 (VRMI) represent the success of the VRMI technology. Immediate identification of highly prospective VRMI targets reprioritised Emmerson's target matrix during these years, the Red Bluff Area in Emmerson's Western Project Area became the No. 1 priority area for exploration activities. Drilling during 2010 at Red Bluff confirmed the VRMI technology with significant intercepts of thick ironstones, although assay results were mixed, the successful ironstone intercepts were evidence to support

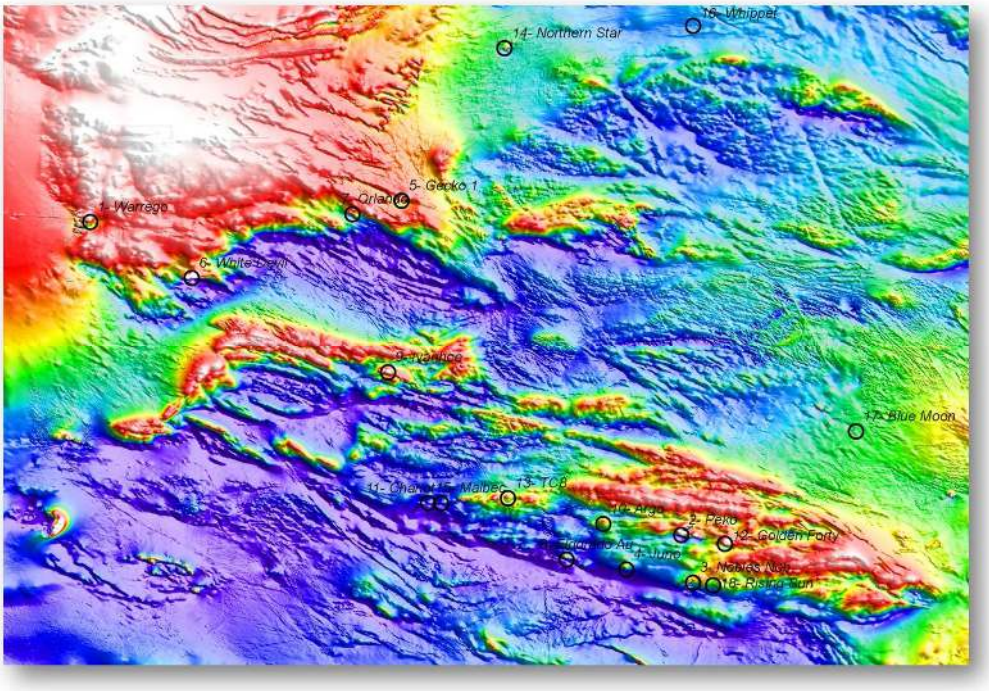

Figure 2: Conventional Magnetics

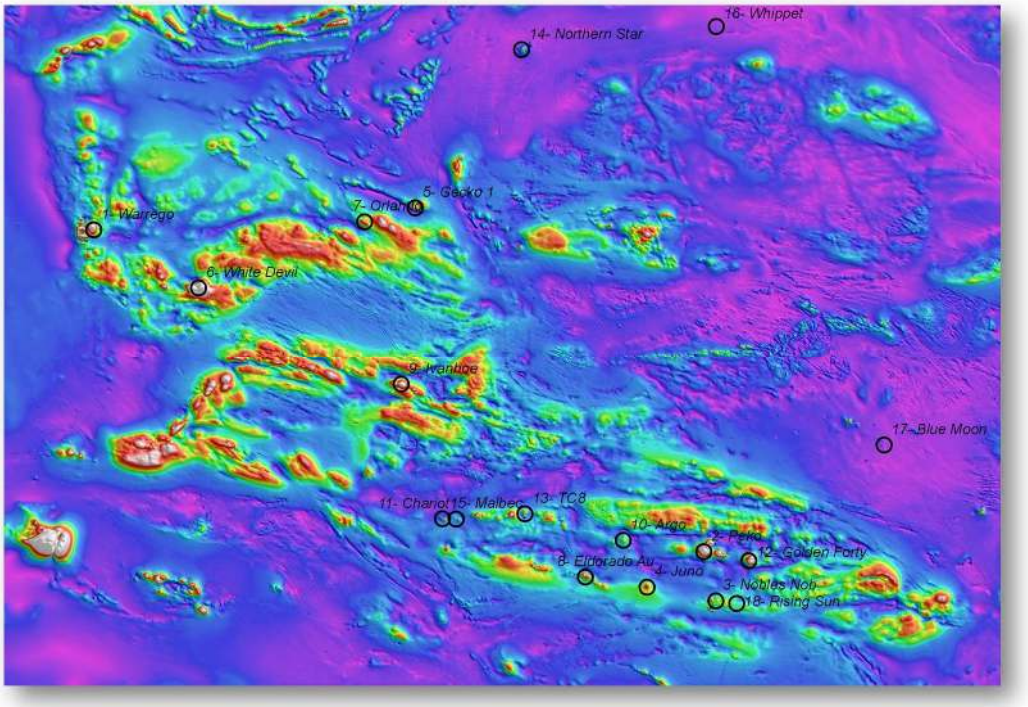

Figure 3: VRMI

the development and use of VRMI technology. A VRMI assessment of the subject title further supported its initial prospectivity, although no further work from generated VRMI anomalies was conducted.

Other 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 0461-02 Western Project Area.

8. CONCLUSIONS

Results from activities conducted has resulted in the prospectivity remaining moderate over the subject title, therefore the action to surrender the ML and conduct any future activities under the overarching Exploration Licence (EL).

9. COPYRIGHT STATEMENT

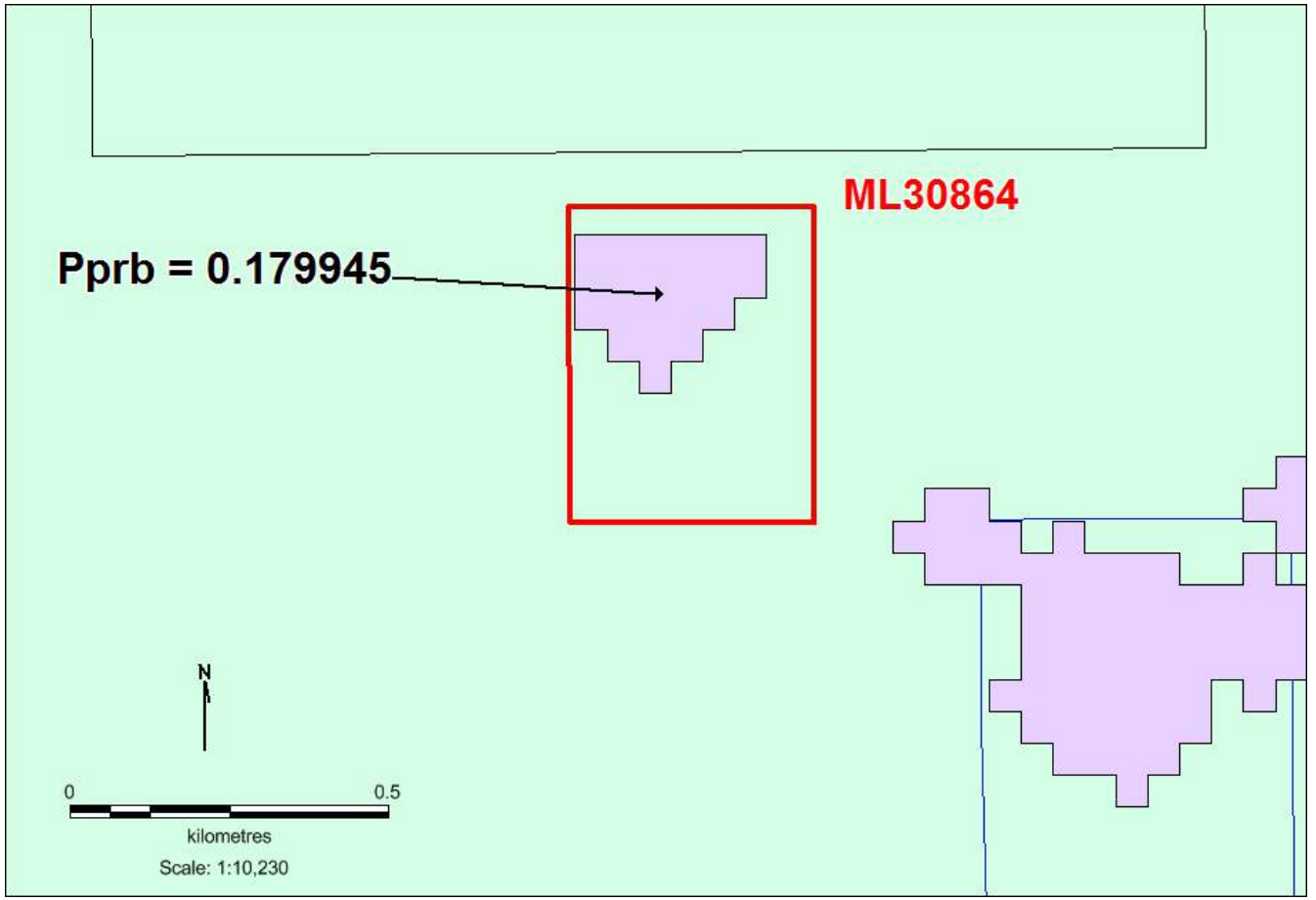

Figure 4: ML 30846 vs. Kenex generated targets (magenta polygons)