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# **ANNUAL REPORT FOR MINERAL LEASE 30623**

# **07 NOVEMBER 2014 – 06 NOVEMBER 2015**

LICENCEE:

SANTEXCO PTY LTD A.C.N. 002 910 296

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MAP SHEETS:	
TENNANT CREEK	SE53-14
	1:250 000
TENNANT CREEK	5758
	1:100 000

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# 1.0 SUMMARY

During the reporting period no exploration activities were conducted due to corporate reasons, which entailed the seeking of a Joint Venture (JV) Partner or further funds to continue exploration in the Tennant Creek area and more specifically ML 30623. Emmerson Resources Ltd (Emmerson) succeeded in securing Evolution Mining Ltd (Evolution) as a Joint Venture Partner who has committed to spend \$25M over the next 5 years.

Following the formation of this JV, Emmerson has commenced exploration activities which have included the application of seismic geophysics both regionally and locally, but not directly related to ML 30623 and also the Kenex Project which is a predictive modelling project aimed at identifying under explored areas in the Mineral Field. Kenex has generated target areas and included the historical Ajax and Pinnacles mines, but to date higher ranked targets are currently being explored elsewhere in the field, most significant are the targets being explored to the east and north east of ML 30623 which will have greatest significance to the prospectivity of ML 30623. Emmerson will evaluate the prospectivity and then rank work for the title as per its prospectivity in comparison to the other generated Kenex targets as results and concepts are updated from current exploration activities. It is expected that ML 30623 ranks very highly for prospectivity therefore exploration activities should resume in the near future.

# 2.0 INTRODUCTION

This report details activities conducted over ML 30623. ML30623 is the replacement of the now expired, MCC 1426 and covers the Pinnacles and Ajax historical mines. The title remains active to search for Tennant Creek style iron oxide copper-gold deposits (IOCG). Santexco Pty Ltd (Santexco), the registered holder, is a wholly owned subsidiary of Emmerson.

This annual report records any activities completed on this title during the reporting period from 7<sup>th</sup> November 2014 to the 6<sup>th</sup> November 2015.

# 3.0 LOCATION

The title covers an area of approximately 0.23km<sup>2</sup> east of the Tennant Creek Township.

The principal access to the title is east along Peko Road and south via various unsealed 4WD and fence line tracks, the unsealed tracks become impassable during the wet season.

Figure 1 shows the location of the title with respect to the town of Tennant Creek.



Figure 1: ML30623 with respect to the Tennant Creek Township

# 4.0 TENURE

Tenure details for the title are as follows:

Exploration Licence	Licence Holder	На	Area (km²)	Date of Expiry	Period of Grant/ <i>Renewal</i>
ML 30623 PINNACLES SOUTH	SANTEXCO PTY LTD	23	0.23	06 November 2024	10

Table 1: Title Tenure details.

The title lies within NT Portion 04440, Crown Land.

ML 30623 replaced non compliant tile MCC 1426 on 06 November 2014.

The title has no AAPA registered sacred sites or CLC Exclusion or Restricted Work Areas.

# 5.0 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 Licences.

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

## 5.2 Geology of ML 30623

The title is located in the eastern region of the Tennant Creek Province. The geology is characterised by outcropping ridges which comprise scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation, quartz-rich dissected colluvial fan deposits with minor, colluvium scree, felsic porphyry and alluvial deposits in active channels and on floodplains.

Known mineralisation in the title is generally located along NW trending structures. These structures also correlate well with the many mapped outcropping Ironstones, which represent potential hosts for ironstone related Au-Cu-Bi mineral deposits.

## 5.3 Mine Geology

The title contains a number of historical mine workings as detailed in the table below;

Mine Name	Operating Period/s	Production	Grade	Produced Metal
Ajax	1938	18t	7.5g/t Au	4.3oz Au
Pinnacles	1933 – 50, 1967	1,400t	31.1g/t	1,401.7oz Au

Table 3: Historical Mines of ML 30623

# 6.0 PREVIOUS EXPLORATION

Emmerson purchased a group of assets out of administration in 2006 which included Santexco and its tenure, more specifically ML 30623. ML 30623 replaced non compliant tile MCC 1426 on 06 November 2014. Emmerson conducted a successful IPO in 2007 and subsequently listed on the ASX. Emmerson's on ground exploration started in 2008.

During 2008 Emmerson conducted a detailed ground gravity survey over the entire Tennant Creek Mineral Field, and included ML 30623.

During 2010 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, 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 the development and use of VRMI technology.

VRMI assessment of the title area clearly displays low order VRMI anomalism associated with the historical Ajax & Pinnacles Mines, refer to figure 4.



Figure 2: Conventional Magnetics



Figure 3: VRMI



Figure 4: VRMI vs. ML30623.

During 2011 Emmerson Resources Ltd (Emmerson) flew a Heli-TEM survey over a number of areas in Emmerson's Eastern Project Area (EPA), which ML 30623 forms part, to firstly orientate the survey over known deposits and secondly to fly over the highest priority VRMI target areas. Heli-TEM is a helicopter mounted system capable of measuring the conductivity of the rocks to significant depth and will utilise the world's most powerful airborne, time-domain electromagnetic system. A breakthrough during late 2010 and early 2011 has been the recognition that drill core from the mineralised portions of Tennant Creeks historic deposits is conductive up to 80times the background levels. Emmerson hopes that encouraging results from the Heli-TEM survey will further refine the exploration search workspace within recognised VRMI targets areas.

Emmerson has flown this first survey over one area of interest in the EPA, more precisely over the Golden Forty area (known deposits, Block 5) but did not include the subject title, refer to figure 5. Interpretation and analysis have identified a number of Heli-TEM anomalies within the title area. Exploration and a 'proof of concept' drilling program was focused around the Gecko area in Emmerson's Northern Project Area (NPA). Results from this drilling were very successful with intersections of both high grade gold and copper resulting in two new discoveries, Goanna and Monitor, located either side of the historical Gecko Mine Area.



Figure 5: HeliTEM Survey Block 5

The drilling of HeliTEM targets at Gecko has provided great encouragement for the prospectivity of the title area, the most significant factor in the application of HeliTEM at the Goanna and Monitor discoveries (in the Gecko Area) is that it occurs in subdued magnetic signatures, therefore confirming that magnetic anomalies are not the only potential hosts for economic mineralisation in the Tennant Creek Field. Figure 6 below shows the magnetic image (VRMI) of the Gecko Corridor, it can be seen that the drilling at both Monitor and Goanna has focused on the 'blue' area (magnetic low), compare this with the HeliTEM image in figure 7 and it can be seen that the drilling has focused on a HeliTEM anomaly not seen in the magnetics, this has vast implications for exploration in the rest of the field, in particular the title area.



Figure 6: Gecko Corridor vs. VRMI



Figure 7: Gecko Corridor vs. HeliTEM (depth Slice at 350m below surface)

# 7.0 WORK DONE DURING THE REPORT PERIOD

During the reporting period no exploration activities were conducted due to corporate reasons, which entailed the seeking of a Joint Venture (JV) Partner or further funds to continue exploration in the Tennant Creek area and more specifically ML 30623. Emmerson succeeded in securing Evolution as a Joint Venture Partner who has committed to spend \$25M over the next 5 years.

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## 8.0 REHABILITATION

Rehabilitation was not required as no exploration activities were carried out during the reporting period. Any future rehabilitation will be performed as detailed in the Eastern project Area (EPA) Mining Management Plan – Authorisation 0463-04.

# 9.0 CONCLUSIONS

With the new application of seismic geophysics potential significance for ML 30623 will be revealed over the 2016/17 fields seasons and also the Kenex Project which is a predictive modelling project aimed at identifying under explored areas in the Mineral Field. Kenex has generated target areas and included the historical Ajax and Pinnacles mines, but to date higher ranked targets are currently being explored elsewhere in the field, most significant are the targets being explored to the east and north east of ML 30623 which will have greatest significance to the prospectivity of ML 30623. Emmerson will evaluate the prospectivity and then rank work for the title as per its prospectivity in comparison to the other generated Kenex targets as results and concepts are updated from current exploration activities. It is expected that ML 30623 ranks very highly for prospectivity therefore exploration activities should resume in the near future.

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