FINAL REPORT
07 JULY 2008 – 17 SEPTEMBER 2010

SUBSTITUTE EXPLORATION LICENCE 26596
HANKINSON

LICENSEE:
GIANTS REEF EXPLORATION PTY LTD
A.C.N. 009 200 346

AUTHOR:
A.WALTERS

December 2010
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Figure 1. SEL 26596 Hankinson Licence Area
1. SUMMARY

Substitute Exploration Licence 26596 Hankinson, was on the north-eastern margin of Emmerson Resources Ltd (Emmerson), parent company of Giants Reef Exploration Pty Ltd (Giants Reef), Tennant Creek Tenement holdings, approximately 45km north-east of Tennant Creek.

This report records the exploration work done on SEL 26596 during the tenure, from 07 July 2008 to 17 September 2010.

Emmerson Exploration Manager Steve Russell and Emmerson consultant geophysicist Steve Massey both reviewed SEL 26596 and proposed the surrender of the entire tenement. This review concluded that the geology of the tenement was high up in the regions stratigraphy, therefore downgrading the prospectivity of the area.

Total expenditure on the SEL during the term was $17,135.73.

2. INTRODUCTION

Substitute Exploration Licence 26596 Hankinson, was on the north-eastern margin of Emmerson Resources Ltd (Emmerson), parent company of Giants Reef Exploration Pty Ltd (Giants Reef), Tennant Creek Tenement holdings, approximately 45km north-east of Tennant Creek.

Substitute Exploration Licence 26596 was granted to Giants Reef Exploration Pty Ltd on the 07 July 2008, for a period of 4 years.

SEL 26596 is a licence in substitute of EL’s 10166 & 7810.

This report records the exploration work done on SEL 26596 during the tenure, from 07 July 2008 to 17 September 2010.

3. LOCATION

SEL 26596 HANKINSON is located between approximately 42km and 48km north east of the Tennant Creek Township, on the Flynn (5759) 1:100 000 scale map sheet.

The principal access to the general license area from Tennant Creek is north via the Stuart Highway and then east, past the Whippet Mine, by various dirt roads and fence line tracks. However, much of the license areas are rocky, without tracks and difficult to reach, even in a 4x4 vehicle. The unsealed tracks become impassable during the wet season.

Figure 12 shows location SEL 26596 with respect to the Tennant Creek Township.
### 4. TENURE

Tenure details for the Substitute Exploration License are as follows:

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Substitute Exploration Licence 26596 was granted to Giants Reef Exploration Pty Ltd on the 07 July 2008, for a period of 4 years.

SEL 26596 is a licence in substitute of EL’s 10166 & 7810.

The SEL lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Substitute Exploration Licence 26596 is 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 Central Land Council (CLC), and Giants Reef.

At the end of the first tenure year an Application for a Waiver of Reductions was submitted and granted for SEL 26596.

At the end of the second year Emmerson submitted a surrender of the Licence Area of SEL 26596.
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 Licence.

5.2 Local Geology

The geology in northern portion of the licence area consists of minor outcrops of weathered siltstone and greywacke of the Paleoproterozoic Warramunga Formation, limited to the north west areas of the licence, these outcrops form a series of north westerly striking low ridges. In the western end of these low ridges the beds all dip steeply southwards with the occasional parasitic fold indicating a variable easterly plunge. Colluvium, scree and alluvial deposits in active channels and on flood plains dominates the geological landscape of the licence, with less extensive alluvial red soil plains confined to the north east area of the licence.

The licence area is located at the northern limit of the Tennant Creek Province. Outcrop within the tenements is limited to ridges and these comprise scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation and felsic volcanics or volcanically derived sedimentary rocks of the Flynn Sub-group/ Tomkinson Creek Sub-group (Ooradidgee Group).

More than 90% of the region is covered by Quaternary sands and gravels in relict fluvial systems, active channels, floodplains and quartz-rich dissected colluvial fan deposits.

Known mineralisation in this EL is located along WNW trending structures.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Flynn (5759) 1:100 000 sheet, which covers the area of the license.
6. WORK DONE DURING THE TERM

SEL 26596 was a licence in substitute of EL’s 7810 & 10166, exploration conducted is detailed below;

EL 10166

EL 10166 was acquired to search for IOCG deposits hosted in Warramunga Formation units within the Northern Star - Edna Beryl – Whippet trend and to evaluate a dipole magnetic feature identified in a 1993 Western Mining (WMC) aeromagnetic survey. The magnetic feature is located approximately 2 km east of the Whippet Hill mine and is referred to as the “Whippet East” magnetic anomaly.

The work completed on the Whippet East magnetic anomaly, which includes areas of EL 10166, included modelling the Whippet East anomaly, by Lindeman Geophysics Pty Ltd, using the 1998 AGSO aeromagnetic data, however due to the lack of detailed resolution in this data no encouraging bodies were delineated and a more detailed ground magnetic survey was recommended in order to better define potential ironstone bodies/magnetic anomalies. The proximity of the anomaly to the Whippet Hill mine (18,800 ounces of gold produced) and other significant prospects such as Edna Beryl, Troy, Marathon lend some support to the prospectively of this particular trend.

Exploration work conducted included;

• Collection and entry of exploration data into Giant’s Reefs GIS and MicroMine databases.

• Compilation of an inventory of all copper-gold resources and drilled prospects;

• Assessment and ranking of resources and prospects;

No further exploration work was conducted over the licence area.

EL 7810

Introduction and target concept - Exploration within EL 7810 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. The project area was well away from the established Tennant Creek goldfield, in the relatively younger and geologically distinct Ashburton Province, and any mineral deposits found here are likely to be very different from the well-known ironstone-related gold-copper deposits of the Tennant Creek Province.

The focus of exploration is within the area of the major Alexander Gravity Anomaly (Giants Reef’s term) which is centred about the Stuart Highway, extending from neighbouring EL 10129 through EL 10311 and north into EL 7810. This gravity anomaly was interpreted as being caused by dense, probably iron-rich, rocks and may be a favourable geological environment in which to be searching for sort of large-scale mineral deposits envisaged.
Exploration during the first year of tenure included;

Literature search and secondary targets - Apart from the Alexander Gravity Anomaly, which was the most important target in the Alexander project area, there are five other prospects or anomalies that Giants Reef had identified from various reports on previous work and the geology of the region, all within EL 7810. These are all outside the central area of the Alexander Gravity Anomaly, and were therefore regarded as secondary targets. They are:

1. The Explorer 98 magnetic anomaly, located in the Hayward Creek drainage about 9km east of the highway, in an area of no outcrop. GeoPeko identified this anomaly in the 1970s and attributed it to a magnetic basic dyke, but Giants Reef did not have reports of the work that led to this conclusion.


3. A “dark gossanous rock” at the head of the northern branch of Phillip Creek (same reference, page 24).

4. A magnetic anomaly in the north-central part of EL 7810, at (AGD84) AMG 408800E 7888000N.

These are regarded as secondary targets, as the focus of exploration, under the alliance agreement with BHP Billiton, was to find major base metals or base metals/precious metals deposits possibly associated with the Alexander Gravity Anomaly.

Reconnaissance and rock sampling - A ground reconnaissance trip was made to locate and sample the magnetic anomaly in the north-central part of EL 7810. The anomaly stood out well on the old 1970’s magnetic contours, but was not so clearly visible on the 1999 AGSO aeromagnetic images. The target wasn’t reached because the old tracks were very overgrown or had disappeared altogether, and there were still patches of soft ground along the Attack Creek valley. Six rock samples (74585-74590) were taken from very ferruginous exposures of the Morphett Creek Formation at several locations. This material was probably a duricrust or ferricrete.

On a later occasion, a helicopter was used to visit several of the above target areas in EL 7810. The target 5 magnetic anomaly was located and sampled. It occupies an area of dark recessive outcrops of basic or intermediate volcanics, probably belonging to the Whittington Range Member at the top of the Hayward Creek Formation, a unit that includes volcanic lithologies.

Finding the gossanous laterite outcrops (target 2) reported by Dunnet and Harding 1967, from “near the confluence of Phillip Creek and Gibson Creek” proved to be unsuccessful, perhaps because the location description covers a rather broad area.
Target 3 in the headwaters of the northern branch of Phillip Creek, where Dunnet and Harding had reported gossanous-looking exposures, was also visited and sampled. The exposures were very ferruginised, and were probably dolerite sills or dykes.

Another area of EL 7810 visited and sampled during the helicopter reconnaissance was a road metal quarry a few hundred metres west of the Stuart Highway at (very approximately) 412300E 7885600N. These very dark weathered and ferruginised outcrops, probably of Tertiary ferricrete developed on the Brumbreu Formation.

In all, 24 rock samples (422757-780) were taken from the areas visited by helicopter. Nearly all of them were iron-rich (20% to 44% Fe) but none of them showed any notable base metals or gold anomalism. This was also true of the earlier ground reconnaissance rock samples (74585-74590).

NTGS/AGSO gravity survey assessment - Consulting geophysicist Frank Lindeman, of Lindeman Geophysics Pty Ltd, Melbourne, assessed the new NTGS/AGSO gravity data over ELs 7810, 10129 and 10311. This data came from the NTGS/AGSO gravity survey covering the whole Tennant Creek 1:250,000 sheet, plus some adjoining areas. The survey was conducted in mid-2001.

Mr Lindeman’s assessment, dated 28 February 2002, deals with a number of areas both inside and outside the Alexander project area ELs, and is therefore not appended to this report. However, an extract of the relevant paragraphs is reproduced here: “The (Alexander project) ground holdings ... were designed to cover a discrete N-S trending lozenge-shaped Bouguer gravity response as defined on the original gravity data. Although many of the gravity stations in the area are from the original regional 11 km station interval survey, the regional stations, which define this anomaly, were augmented by a roughly N-S road gravity traverse. It had been hoped that any additional data would have produced a more confined and definite anomaly on which to focus. The new 4 km spaced gravity data however failed to “deliver” for this anomaly, but appears to have developed a small response of some interest to the east of the original response. The Bouguer gravity response in the Alexander tenements should be discussed at two levels; from the Bouguer gravity and residual Bouguer gravity perspectives. The new Alexander Bouguer gravity data divides the original response into (1) two separate responses plus (2) the new anomaly to the east. The first anomaly is a >35 km NNE trending response, the southern half of which parallels, some 30 km to the NW, the eastern “leg” of the inverted U-shape of the Rosella Bouguer response (located about 25km to the west). The second is a small response centred at 412000E, 7889000N and which emanated from the northern end of the original response. Neither of these responses is compelling from a targeting perspective, as they appear to be more like part of the same regional response than being caused by possible ore deposits. The processed Bouguer residual for both these anomalies, while showing the anomalous responses discussed above without the anomalous background, also shows that the broad station density of mostly ~ 4 km, which defines this anomaly. It is my contention that it is this station density, rather than being due to a series of higher density “possible ore deposit geology” which is principally responsible for the individual anomaly peaks within this response. It is likely that more data would smooth out these responses into much more convincing looking regional responses. So despite the insufficient station spacing, the gravity data fails to enthuse
enough to demand closer station follow-up, which would be necessary to define possible targets. Centred at 425000E 78976000N, (a separate) small and discrete response is well located within the gradient of the large gravity response. It is defined by both some of the recent 4km-spaced data and several additional stations, probably read by Normandy. Despite this coverage, more data would need to be collected if it was thought that this anomaly maintained some potential. Comparison of the three gravity responses above with the aeromagnetic data shows ... that there is little correlation between the two data sets. The strongly magnetic sediment horizons are seen within and outside of the gravity anomalies although locally it does appear that there appears some relationship between magnetic and gravity responses. However it would be magnetic responses from other than from these sediments and coincident with gravity responses that could constitute an area of interest. It is therefore difficult to find an area in the Alexander holdings where interesting co-incident gravity and magnetic responses could be seen as a possible drill target. The anomaly described in (2) above is devoid of any coincident magnetic response, sediment or otherwise. Although the Alexander project area contains a wide gravity station spacing, the broad nature of the anomalous responses, and the lack of convincing and related magnetic anomalisism, leads me to the conclusion that no geophysical target exists and no further closer spaced data need to be considered. This conclusion is supported by the absence of any other geoscientific data which could provide some encouragement.”

This observation downgraded the exploration potential of the Alexander Gravity Anomaly target, and the previous intention of drilling a test hole or holes in the centre of the residual Alexander Gravity Anomaly peak was reconsidered.

Explorer 98 magnetic anomaly - The Explorer 98 magnetic anomaly was centred at approximate AGD84 co-ordinates 422400E 7883000N. In images of the AGSO 1999 aeromagnetic data, this anomaly does not stand out very clearly from the strong neighbouring magnetic activity, whereas in the old 1970’s magnetic contours, it appears as a more discrete or isolated anomaly. This may simply be a function of the broader flight line spacing of the older survey. On images of the residual Bouguer gravity data from the mid-2001 NTGS/AGSO gravity survey, Explorer 98 shows a moderate amplitude one-station gravity high. Giants Reef did not examine the Explorer 98 magnetic anomaly in any detail, but the apparent coincidence of elevated magnetic and gravity responses at this locality suggested that a short study may have been warranted.

Hydrogeochemistry - Giants Reef sampled the ground water from three cattle station water bores in the Alexander project area, and the water samples were analysed by the CSIRO. This work was done in conjunction with a much larger groundwater sampling program over the Bluebush Gravity Anomaly, located about 50km southwest of Tennant Creek. The sampling was aimed at finding indications of mineralisation in the and around the regional Alexander Gravity Anomaly. The sampling and analytical techniques used have been developed over many years by the CSIRO, in particular by Senior Principal Research Scientist Angela Giblin, who visited Giants Reef’s Tennant Creek offices to discuss the project. Giants Reef’s field work was conducted under her guidance.

An initial step was to find out the locations of all old bores and drillholes in the Alexander area. This was done by visits to the Water Resources Section of the NT Government
Department of Lands, Planning and Environment in Alice Springs, where a database on disk was obtained, and photocopies made of a large number of geological logs of all the relevant drillholes and bores. Sampling involved making readings at each site for ambient and sample temperature, acidity, conductivity, water depth, sample depth, GPS location and remarks on the water quality. The sample bottles were sent to the CSIRO’s laboratory at North Ryde, NSW for the sensitive analysis work.

None of the Alexander water samples displayed pH-redox conditions suggestive of sulphides or magnetite, or any indications of Cu, Pb or Zn in their source rocks. However, given that there were only three samples taken over a very wide area of the Alexander anomaly, these three samples cannot be expected to give a fair indication of the presence or otherwise of anomalous base metals somewhere in the district.

Access clearance from the Central Land Council - The Central Land Council commenced land access clearance for the work proposed by Giants Reef in a program submitted under the ILUA in February 2001.

Exploration during the second tenure year was limited as a result of the downgrading of the Alexander Gravity Anomaly in EL 7810. Giants Reef focused their field season commitments primarily within the Bluebush tenements of EL 8882, 8883 and 10402.

As a result no in ground exploration was undertaken over the Alexander project area (including EL 7810) in the second tenure year.

A tenement review was conducted as part of an internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities during the tenure year, this assessed the future exploration potential of EL 7810 and the prospects within the Licence. The review recommended that Giants Reef substantially reduce the tenement holding of EL 7810 and retain only the areas covering the targets which may still hold potential for Tennant Creek style shallow or substantial gold mineralisation. At the end of the second year of tenure the Licence area was reduced from 83 to 13 graticular blocks.

Alliance Meeting - A technical meeting was held between Giants Reef and BHP Billiton in Melbourne on the 2nd December 2002. The meeting focussed on drilling results from the Bluebush Project Area. Information was presented to BHP Billiton representatives. There was a general agreement at the meeting that the gravity anomalies in the Alexander project area did not rate in comparison with the Bluebush project area. The minutes from the meeting were accepted as accurate, and were signed on the 16th December 2002 by Giants Reef and BHP Billiton.

Exploration during the third tenure year included the termination of the Strategic Alliance - In early 2003, BHP Billiton indicated to Giants Reef that they no longer wished to continue with the Strategic Alliance. Giants Reef prepared a summary report for BHP Billiton detailing all the exploration conducted over the joint venture tenements, including EL 7810 during the period of the Strategic Alliance between 1999 to 2003. Correspondence from BHP Billiton on the 25th July 2003, confirmed the termination of the Bluebush Joint Venture and hence the closure of the Strategic Alliance.
During the fourth tenure year Giants Reef reviewed the company’s data base and cross referenced old geographic data with the current data in the system. After extensively studying the geology and geophysics over the Licence area it was recommended that Giants Reef Exploration relinquish the northern half of the tenement, which occurred at the end of the fourth year.

No in-ground exploration was conducted over the licence during the following years.

**SEL 26596**

Following the completion of the detailed ground gravity survey and the airborne magnetics survey conducted by Emmerson in 2008, work commenced on the analysis, interpretation and modelling of the captured data. Although SEL 26596 was not included in either of these surveys the interpretation, analysis and modelling of the captured data will have a significant effect on the prospectivity of the licence area. The first phase of the analysis was completed on 16 April 2009, which identified all the high priority targets (56 Green fields and 45 Brownfields), the second phase of analysis, interpretation and modelling of the data has commenced and will continue during the 2009 field season and into 2010. The next tenure year for SEL 26596, will focus on the application of the geoscientific models developed from the analysis, interpretation and modelling of the recently captured geophysical data and the results of drill testing targets developed from the application of the developed models in higher priority areas within the NPA and greater Tennant Creek Mineral Field.

### 7. REHABILITATION

As all exploration activities were limited to desktop studies and evaluations, with some site visit, resulting in minimal to no impact and no Inground exploration was conducted no rehabilitation has been required.

### 8. CONCLUSIONS

Emmerson Exploration Manager Steve Russell and Emmerson consultant geophysicist Steve Massey both reviewed SEL 26596 and proposed the surrender of the entire tenement. This review concluded that the geology of the tenement was high up in the regions stratigraphy, therefore downgrading the prospectivity of the area.
9. EXPENDITURE

Expenditure for the term of the tenure for SEL 26596 is as follows:

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## EMMERSON RESOURCES LIMITED

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