Compass Resources Pty Ltd (100%)
Territory Iron Pty Ltd
ELR146
Rum Jungle
Annual Technical Report ELR146 for the Period 19 <sup>th</sup>
September 2015 to 18 <sup>th</sup> September 2016
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18 <sup>th</sup> November 2016
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# TERRITORY IRON PTY LIMITED A.C.N. 125 984 401

ANNUAL TECHNICAL REPORT ELR146

For The Period 19<sup>th</sup> September 2015 – 18<sup>th</sup> September 2016

Darwin SD52-04 1:250,000 Geological Map Sheet Bynoe 5072 1:100,000 Geological Map Sheet

NORTHERN TERRITORY

LM Glass November 2016

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## SUMMARY

This report describes exploration activities conducted by operator Territory Iron Pty Ltd at the Rum Jungle (Yarram) Project area which is partially located within ELR146 for the period 19<sup>th</sup> September 2015 to 18<sup>th</sup> September 2016.

ELR146 is located about 8 km NW of Batchelor and 60 km SSE of Darwin in the Northern Territory and comprises1008 hectares. The Rum Jungle (Yarram) Project Area covers an approximate 2.1 km<sup>2</sup> area over tenements ELR125, ELR146 and MLN1163, and is subject to an agreement between Territory Iron Pty Ltd and tenement owners Compass Resources Ltd (90%) and Guardian Resources Ltd, (10%) whereby Territory Iron has the right, subject to certain royalty terms, to explore, mine and purchase iron ore from the title holders. The portion of ELR146 within the Rum Jungle (Yarram) Project Area covers an area of 74 hectares.

Exploration activities during the reporting year included desktop studies to evaluate the iron ore potential and earthworks and rehabilitation of earlier drill sites. A site audit was undertaken in 2015 to assess and evaluate the status of regrowth over drill sites and tracks on ELR146 and surrounding tenure.

Expenditure for the reporting period was \$9,854

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## **1.0 INTRODUCTION, LOCATION AND ACCESS**

This report describes exploration activities conducted by operator Territory Iron Pty Ltd at the Rum Jungle (Yarram) project area within tenement ELR146 during the reporting period 19<sup>th</sup> September 2015 to 18<sup>th</sup> September 2016. The tenement is part of a portfolio in which ownership is 50/50 with HNC Australia Resources Pty Ltd.

The Yarram Project Area includes portions of ELR125, ELR146 and MLN1163 and is subject to an agreement between Territory Iron Pty Ltd and tenement owners Compass Resources Ltd (90%) and Guardian Resources Ltd, (10%) whereby Territory Iron has the right, subject to certain royalty terms, to explore, mine and purchase iron ore from the title holders.

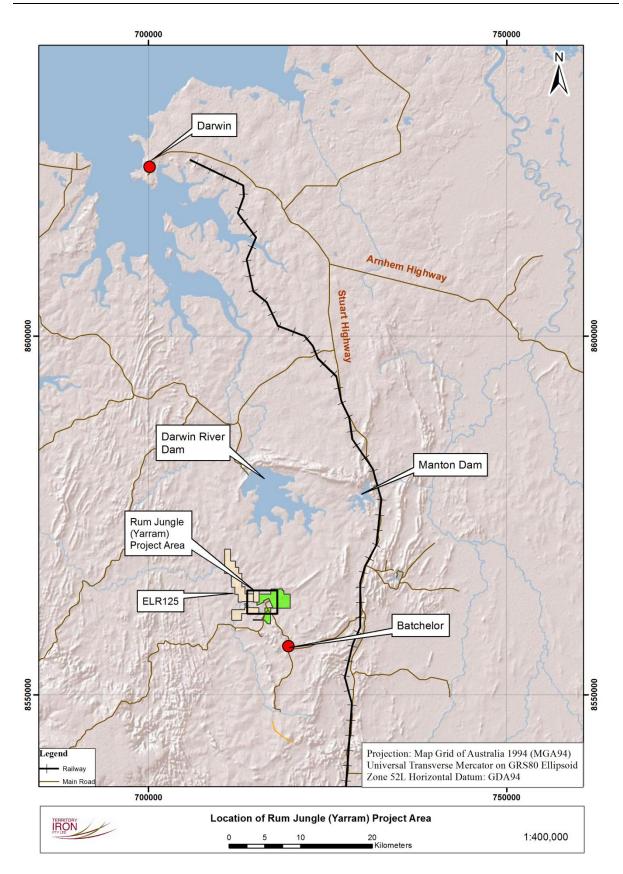
The Yarram Project Area is located approximately 9 km NW of the township of Batchelor in the Rum Jungle Mineral Field and 61 km SSE of the city of Darwin in the Northern Territory, Figure 1. All weather road access is approximately 8 km via the Batchelor - abandoned Rum Jungle Uranium Mine access sealed road; then 1.3 km along White Road (gravel) for 1.3 km to the west.

## **2.0 TENURE**

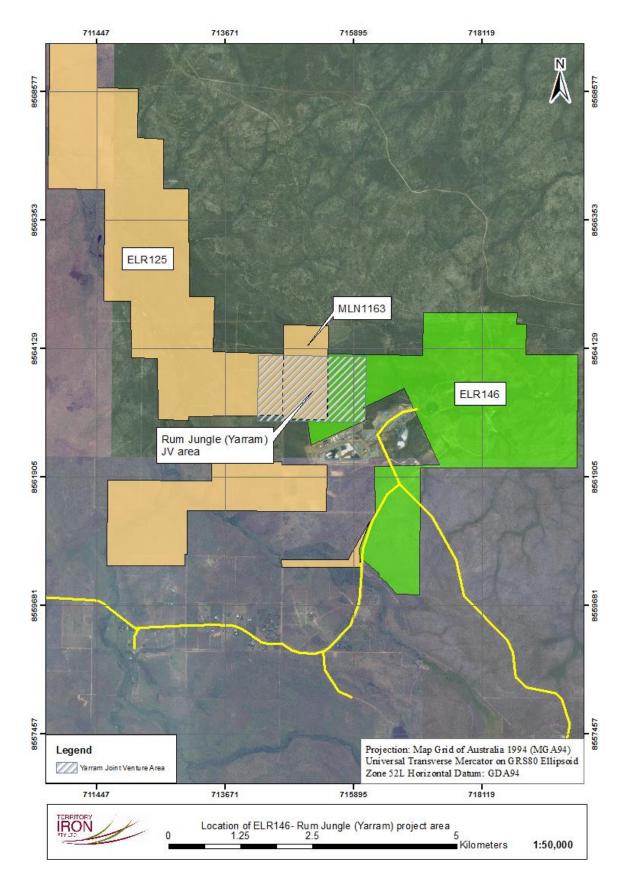
## 2.1 TENURE AND MINERAL RIGHTS

ELR146 is currently held by Compass Resources Limited (100%). The tenement is part of a portfolio in which ownership is 50/50 with HNC Australia Resources Pty Ltd. It covers 1,008 hectares, and was granted on the 19<sup>th</sup> September 2001.

The Yarram Prospect is subject to an *'Iron Ore Rights Agreement'* between Territory Iron Pty Ltd (TIPL) and Compass Resources Ltd and Guardian Resources Pty Ltd, which also includes adjacent tenements MLN1163 and ELR125 (shown in Figures 2 and 3).



**Figure 1**: Location Map of Rum Jungle (Yarram) Project with ESRI world shaded relief defining background topographic elevation. The black rectangle highlights the project area and in green, ELR146. The beige polygons show the location of adjacent Compass Resources and Guardian Resources tenure associated with the Rum Jungle Project



**Figure 2:** Location map of the Rum Jungle (Yarram) project area (hatched) and ELR146 (shown in green). The tan polygons represent the extension of MLN1163 and ELR125 which make up part of the project area. ESRI world satellite imagery defines background relief.



**Figure 3:** Detail of Rum Jungle (Yarram) project area (hatched) and the portion covered by ELR146 (underlain in green). ESRI world satellite imagery defines background relief.

#### 3.0 GEOLOGY

#### 3.L: REGIONAL GEOLOGY

The Rum Jungle (Yarram) project area is located within the Palaeoproterozoic Pine Creek Orogen which forms part of the North Australian Craton. The Pine Creek Orogen covers an area of ~50,000 km2 and represents a >4 km succession of carbonate, clastic and carbonaceous sedimentary and volcanic rocks, which unconformably overlie Neoarchaean (~2500 Ma) basement granite and gneiss. Based on the timing of sedimentation, magmatism and metamorphism, the Pine Creek Orogen has been divided into three distinct domains, from west to east; the amphibolite to granulite facies Litchfield Domain, the greenschist facies Central Domain and the amphibolite facies Nimbuwah Domain. The Frances Creek mine site and adjacent exploration area is located within the Central Domain.

In the Central Domain, the oldest rocks in the region are the Dirty Water and Stanley Metamorphics which stratigraphically underlie Neoarchaean 2674 Ma Woolner Granite and 2545–2520 Ma, Rum Jungle Complex respectively. The Rum Jungle Complex is comprised of the Rum Jungle and Waterhouse domes. Overlying Palaeoproterozoic stratigraphy include the ~2020 Ma Woodcutters Supergroup (Namoona Group, (Masson Formation) Manton Group (Beestons Formation and Celia Dolostone) and Mount Partridge Group (Crater Formation, Coomalie Dolostone, Whites Formation) Mundogie Sandstone, Wildman Siltstone, Acacia Gap Quartzite Member, Mount Deane Volcanic Member), Ahmad and McCready, 2001). These are unconformably overlain by the ~ 1860 Ma Cosmo Supergroup (South Alligator Group, (Koolpin Formation, Gerowie Tuff and Mount Bonnie Formation) and Finniss River Group, Burrell Creek Formation, Chilling Sandstone). The stratigraphy was intruded by the Zamu Dolerite.

Syn- to post-orogenic activity is represented by intrusion of the 1835-1800 Ma Cullen Supersuite granitoids. Intrusion of the granite led to contact aureoles in the surrounding pre-orogenic Masson Formation, Mundogie Sandstone and Zamu Dolerite.

Two major episodes of folding are recognised, earlier tight to isoclinal F1 folds followed by younger open (widely spaced) folds (Stuart-Smith *et al.*, 1987). The major structural controls in the tenement area are related to D3 1-3 km scale northwest-trending non-cylindrical folds, which plunge gently to the northwest to form a series of anticlines and synclines pre-dating the intrusion of the Cullen Supersuite, and 1-3 km long northwest and northeast-trending faults.

#### 3.2: LOCAL GEOLOGY AND MINERALISATION

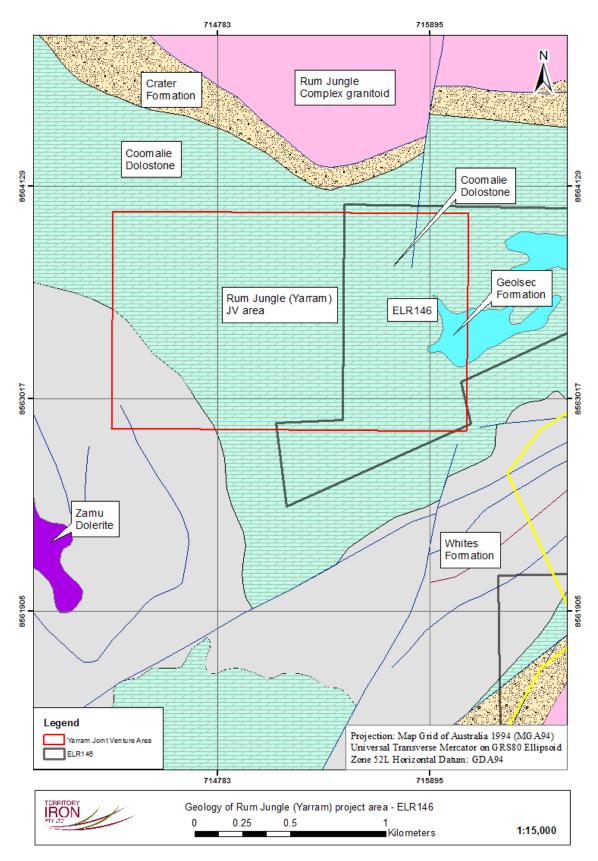
In the project area (Figure 4) the Rum Jungle Complex Neoarchaean granite and gneiss is unconformably overlain by the Beestons Formation (Manton Group), which is comprised of a coarse, poorly sorted, feldspathic sandstone overlain by a thin, vein quartz pebble conglomerate (Ahmad *et al* 2006). Unconformably overlying the Beestons Formation is the poorly outcropping Celia Dolostone (Manton Group), a silicified dolostone, dolostone or stromatolitic magnesite.

The Manton Group stratigraphy is unconformably overlain by the Mount Partridge Group, including the basal Crater Formation, which is a poorly sorted conglomerate/sandstone unit, consisting of clasts of pebble- to boulder-sized hematitic banded ironstone and vein quartz in a quartz-hematite matrix, overlain by a well-sorted, arkosic coarse sandstone (Ahmad *et al* 2006). Conformably overlying the Crater Formation is the poorly-outcropping Coomalie Dolostone. The Coomalie Dolostone is composed of stromatolitic magnesite and dolostone, with minor interbedded units fo calcareous metapelite and para-amphibolite (Ahmad *et al*, 2006). It is this unit (sub-surface) that the Rum Jungle (Yarram) project is located over, Figure 3. The Whites Formation conformably overlies and interfingers with the Coomalie Dolostone and is conformably overlain by the Wildman Siltstone (finely laminated argillite and shale) containing the Acacia Gap quartzite member and the Mt Dean Volcanics para amphibolite member.

Around the southern margin of the Rum Jungle Complex, the Geolsec Formation sedimentary strata unconformably overlie the Coomalie Dolostone. It is a hematitic quartzite breccia (HQB), including hematitic sandstone, siltstone and mudstone, with rare shale breccia. The siltstone is phosphate rich with microcrystalline fluroapatite ( $Ca_{10}(PO_4)_6F_2$ ) associated with hematitic siltstone. Contemporaneous development of the phosphatic siltstone and breccia suggest the breccia may have been deposited into a shallow marine environment (Lally 2002).

Multiple folding and faulting events affected Pine Creek Orogen rocks from 1880-1760 Ma. Early northwest-directed thrusts were overprinted by tight to isoclinal north-trending folds, accompanied by upper greenschist-facies metamorphism. Open folding and kinking was the distal expression of granite emplacement to the east and southeast. Retrograde lower greenschist-facies metamorphism accompanied regional-scale, northwest-trending strike-slip faulting. Multiple deformation events are recorded in the Rum Jungle Mineral field.

The major structural feature in the Rum Jungle area is the >200 km Giants Reef Fault, Figure 4. The Giants Reef Fault is a major northeast-trending dextral strike-slip fault which has undergone vertical and horizontal displacement.



**Figure 4:** Local solid geology map for the Rum Jungle Project Area. The red rectangle defines the boundary for the Rum Jungle (Yarram) project area and the black rectangle ELR146. The overlap between the two rectangles shows the project area for ELR146

The portion of ELR146 that overlaps with the Rum Jungle (Yarram) Joint Venture area comprises subsurface Coomalie Dolostone and part of the Geolsec Formation, Figure 4.

Significant U, Pb Zn, Ag, Cu, Ni, Co and Au mineralisation is associated with the Rum Jungle area. Sub economic occurrences of phosphate, magnesite and iron ore are also documented in the region. Iron mineralisation was not described in the explanatory notes for the Rum Jungle region (Lally 2002) although they were annotated on the NTGS 1:100,000 Interpreted Geology Special Map (Lally 2003). Iron-bearing oxides in the region include hematite ( $Fe_2O_3$ ) and goethite (FeO(OH)).

#### 4.0: EXPLORATION ACTIVITIES - CURRENT REPORTING YEAR

During the reporting period, Territory Iron undertook desktop geological studies to evaluate the iron ore potential and also monitor the status of rehabilitation for drill sites and tracks from the previous years' drill programme. A site audit was undertaken in 2015 to assess and evaluate the status of regrowth over drill sites and tracks on ELR146 and surrounding tenure. The drill pads and tracks are remediating well and showing good signs of natural regrowth.

#### **5.0: CONCLUSIONS AND RECOMMENDATIONS**

An in-depth review of all available data including geophysical data is required to further evaluate the economic potential of the tenement. Activities should also include reconnaissance fieldtrips to the project area to map and take field samples if necessary and also to assess the ongoing remediation of drill sites and tracks to ensure they are in compliance with the Department of Mines and Energy requirements.

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