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Operator	Territory Resources Limited	
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Corporate Authors	Territory Resources Limited	
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## **TERRITORY IRON LIMITED**

A.C.N. 100 552 118

## FRANCES CREEK PROJECT

ANNUAL REPORT

FOR THE PERIOD

22<sup>nd</sup> July 2008 – 21<sup>st</sup> July 2009

**Tenement EL9999** 

Pine Creek SD52-08 1:250,000 Sheet Pine Creek 5270 1:100, 000 Sheet NORTHERN TERRITORY

Prepared by R.H. Tomlinson Territory Iron Ltd.

#### SUMMARY

This report details exploration activity conducted by Territory Iron Pty Ltd within the Frances Creek Tenement EL9999 during the year ending 21<sup>st</sup> July 2009. During the reporting period, Territory Iron undertook the following work:

- > Reconnaissance and geological mapping
- > Geophysical data analysis and target generation
- > Heritage surveys

Total expenditure for the tenement during the reporting period was \$8,500.

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## 1. INTRODUCTION

This report details exploration activities for iron mineralisation conducted by Territory Iron Ltd within EL9999 (Ochre Hill) for the reporting period ending 21 July 2009.

EL9999 is located about 6km north of the old Frances Creek iron ore mining district, from which about eight million tonnes of iron ore was produced during the period 1967 to 1974. The mining district lies 23km north of the township of Pine Creek which is located on the Stuart Highway about 220km south of Darwin. Access from Pine Creek is along the sealed Kakadu Highway for 2km and then along the graded Frances Creek Mine access road for 23km to the Frances Creek Iron Ore Mine site area, Figure 1.

## 2. TENURE

#### 2.1 Mineral Rights

EL9999 is held 100% by Territory Resources. The current term of the tenement expires on 21 July 2009. The tenement covers approximately 6.68 km<sup>2</sup> or 2 graticular blocks. On 5 April 2007 approximately 1.1 km2 covering the Ochre Hill mine was excised from the tenement and converted to ML24747. ML24747 now covers the majority of the mineralisation at Ochre Hill.

#### 2.2 Land Tenure

The tenement includes parts of the following land tenure:

Ban Ban Springs Pastoral Lease, PPL 1111 – NT Portion 695, owned by Ban Ban Springs Station Pty Ltd (Linda Claris, fax 89782630), C/-Level 5, 478 Albert Street, East Melbourne.

#### 2.3 Native Title

Registered native title claims are in place over the pastoral lease:

DC01/21(Paddy Huddleston & Ors) – PPL 815.

An AAPA Clearance certificate is held for mineral exploration by Territory Resources in respect of EL9999. No registered or recorded sites are located within tenement area.

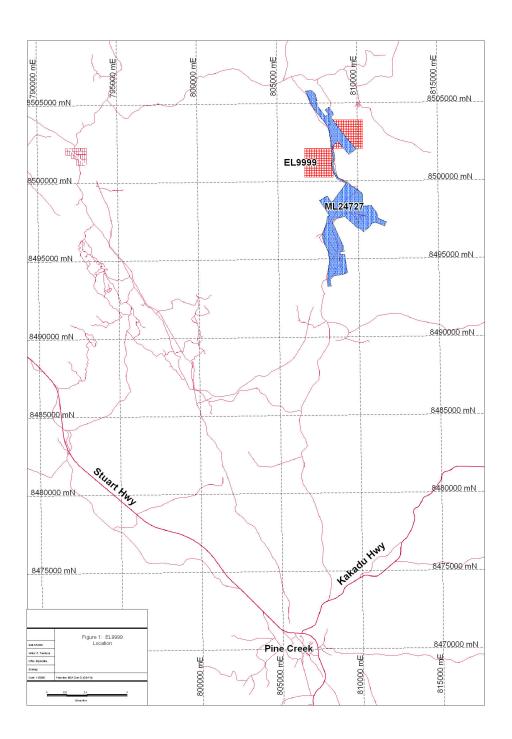


Figure 1. EL9999 Locality Map.

### 3. LOCAL GEOLOGY

The Frances Creek tenement group provides a cross section of the Early Proterozoic sedimentary stratigraphy of the Pine Creek Geosyncline. The eastern most tenements cover sedimentary rocks of the Namoona and Mt Partridge Groups; the central tenements (including EL9999) cover sedimentary rocks of the South Alligator and Mt Partidge Groups, including the iron-prospective Lower Wildman Siltstone, whilst the western tenements cover sediments of the Finnis River and South Alligator Groups. The sediments are complexly folded in a NNW trend. Conformable sills of Early Proterozoic Zamu dolerite are folded with the sediments. Cretaceous quartz-pebble conglomeritic sandstone forms remnant plateaus over the central tenement area.

The Frances Creek Iron deposits are hosted by the lower Wildman Siltstone, which is predominantly composed of Lower Proterozoic carbonaceous shales and siltstone. The iron mineralisation on a broad scale is stratiform as it follows the trace of a regional NNW trending shallowly plunging non-cylindrical anti-form and its subordinate parasitic folds. The iron deposits generally have moderate to steep dips on the fold limbs and appear to attain best grades and thicknesses within smaller parasitic drag folds, flexures and associated fold/fault breccias. The major folds reportedly formed as a result of ENE-WSW shortening during regional deformation event D3 (NTGS, 1993). However, the iron mineralisation itself appears to post-date the D3 folding event.

Undeformed breccia textures and textures indicative of high level open-space deposition (euhedral haematite and quartz, crystal lined voids, colloform banding) are ubiquitous within the deposits. The ore bodies were probably formed by low temperature hydrothermal (probably supergene) haematite (+-euhedral quartz+-kaolin) deposition within pre-existing breccias, which were formed by both high level folding in the siltstone host and within breccias possibly formed by the dissolution collapse and replacement of specific carbonate and/or sulphide beds within the Wildman Siltstone. Dolomitic carbonate and major cavities intersected in drilling directly below the Helene 6/7 and Helene 11 deposits support the role of carbonates in breccia formation. The fold breccias are frequently associated with F3 axial planar faults (M.Morowa, 2005) and folds or Post-D3 faults. Evidence of deformation subsequent to the formation of the iron mineralization is scarce and is restricted to brittle faulting and jointing.

Dykes of Early Proterozoic Zamu dolerite are intimately associated with the iron deposits. They appear to predate iron deposition, and are mostly conformable sills that have undergone the same folding and brecciation events as the host sediments. The dolerites may also in part be replaced by haematite. The apparent close relationship of dolerites and iron mineralisation is probably due to increased brecciation around the margins of the dolerites due to pre-existing weaknesses caused by their intrusion, associated hornfelsing of sediments and the resulting rheological contrasts between dolerite and the host meta-sediments. There is no evidence to suggest that the dolerites

were a source of the hydrothermal iron bearing fluids. None of the weathered dolerites seen at Frances Creek appear depleted in iron.

Bleaching of siltstones in the hanging wall sequence has been postulated as an indicator of hydrothermal fluid flow. However, drill core frequently shows no or little bleaching of the carbonaceous shale footwall even where extensive areas of haematite breccia are present. Bleaching of the hanging wall is therefore more likely to be due to weathering. Typically, the footwall contact is a sharply defined redox boundary between the fully oxidised hanging wall and the relatively unaltered, weakly sulphidic carbonaceous shale footwall, with the iron ore bodies possibly formed in a redox front.

Distribution of goethite and phosphorous within the deposits is not well understood. Goethite probably formed due to late hydrological processes specific to each deposit. At Helene 5, goethite-phosphorous is restricted to a discrete zone at depth and is not a continuous feature over the deposit, and may be due to late faulting. At Thelma Rosemary a zone of stratiform >0.5% P iron ore within the orebody may be either fault related or may reflect a natural sedimentary variation in the protolith.

## 4. WORK COMPLETED & RESULTS

During the reporting period, Territory Iron carried out the following exploration activities on tenement EL9999:

- > Reconnaissance and geological mapping
- > Geophysical data analysis and target generation
- > Heritage surveys

Geological mapping was undertaken over parts of the Frances Creek tenure, including inpart EL9999 (see Appendix 1). A review of all available geophysical data was also conducted in order to develop drill targets. This was completed for the whole of the Frances Creek tenement package, including EL9999 (see Appendix 2). Heritage surveys have also been conducted over much of the Frances Creek tenure; including EL9999 (see Appendix 1).

## 5. EXPENDITURE

Territory Iron's expenditure for the reporting period amounted to \$8,500; see the NT Exploration Expenditure sheets in Appendix 3 for further detail.

## 6. 2009 WORK PROGRAMME AND BUDGET

The following work is anticipated to be undertaken in 2009:

RC drilling of generated targets

Estimated expenditure for this work is \$10,000

## 7. REFERENCES

Morowa, M. Report on Prospecting Activities, Structural Mapping and Regional Targeting, Frances Creek Region, Eastern Pine Creek Geosyncline. *TFE company report* 2005.

# APPENDIX 1 – Geological Map of EL9999 & Identified Heritage Sites



