Title Holder	Territory Resources Limited (51%), Softwood Plantations			
	Pty Ltd (49%)			
Operator	Territory Resources Limited			
Tenement Manager / Agent	Australian Mining & Exploration Titles Services			
Titles / Tenements	EL23824			
Mine / Project Details	Millers			
Reporting Title	Annual Report EL23824 Millers for the Period 9 <sup>th</sup>			
	February 2010 to 8 <sup>th</sup> February 2011			
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Corporate Authors	Territory Resources Limited			
Company Reference Number				
Target Commodity	Iron Ore, Manganese			
Report Date	28 April 2011			
Datum / Zone	GDA94 / Zone 52			
250k Mapsheet	Pine Creek SD52-08			
100k Mapsheet	Pine Creek 5270			
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# **TERRITORY RESOURCES LIMITED**

A.C.N. 100 552 118

# ANNUAL REPORT EL23824 MILLERS

## NORTHERN TERRITORY

For the period

9<sup>th</sup> February 2010 – 8<sup>th</sup> February 2011

Pine Creek SD52-08 1:250,000 Sheet Pine Creek 5270 1:100,000 Sheet McKinley River 5271 1:100,000 Sheet

> Andy Burgess April 2011

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	REPORT)

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## **SUMMARY**

The following report describes work completed on tenement EL23824 by Territory Resources Limited from 9<sup>th</sup> February 2010 to 8<sup>th</sup> February 2011. EL23824 is held as a joint-venture tenement, with Territory Resources Ltd (51%) as majority holder and tenement manager, and Softwood Plantations Pty Ltd (49%) holding a minority interest. Australasia Gold Ltd originally had the gold exploration rights over the tenement, but have recently withdrawn their interest and it has reverted back to Softwood.

The activities on EL23824 during the reporting year consisted of:

- Ground gravity geophysical surveying: this tenement was part of a larger geophysical review that re-interpreted all the historical and recent geophysical survey data available in the Frances Creek region over Territory Resource Ltd's tenement holdings. Geophysical targets for iron mineralization were identified within EL23824;
- Review of the historical Mineral Resource estimation parameters for the Millers manganiferous goethite deposit (in-house);
- Generation of a full set of new drilling cross sections for the entire Millers deposit ahead of planning for a detailed and comprehensive large-diameter metallurgical diamond drilling programme at the Resource in 2011.

The Millers deposit is fully covered by the Mining Tenement application ML26429.

## 1. INTRODUCTION

This report is submitted by Territory Resources Limited to partly meet statutory reporting commitments on the tenement EL23824 for the year ended 8<sup>th</sup> February 2011. Softwood Plantations Pty Ltd is the minority (495) holder of EL23824.

Territory Resources is undertaking iron ore and manganese exploration under an agreement with Softwood Plantations Pty Ltd. Gold exploration is concurrently on-hold, since the rights were recently ceded back to Softwood Plantations Pty Ltd, when Australasia Gold Ltd withdrew from the relevant JV Agreement.

EL 23824 is located about 19km NNW of the old Frances Creek iron ore mining district from which about six million tonnes 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 (see Figure 1). Access from Pine Creek is along the sealed Kakadu Highway for 2km and then along the graded Frances Creek Mine road for 23km to the Frances Creek iron ore mine site area.

The 19km road from Frances Creek Mine to Millers is not maintained by either leaseholders or the NT authorities and use of 4WD vehicles is advisable. Vehicular access off this road is usually not possible during the December to March tropical monsoonal wet season.

## 2. TENURE

#### 2.1 Mineral Rights

EL23824 was granted to Softwood Plantations on 9 February 2004. Reduction deferrals were granted on 01/02/2006, 19/01/2007, 07/01/2008, and 09/01/2009. A renewal application was submitted on 06/11/2009 and the renewal was granted on 09/02/2010. The current term of the tenement expires on 8 February 2012.

The tenement covers 103.3 km<sup>2</sup> or approximately 31 graticular blocks and is approximately bounded by MGA94 Zone 52 co-ordinates 8504000mN and 8523000mN and 796000mE and 808600mE.

#### 2.2 Land Tenure

Land tenure under the title includes parts of:

 Ban Ban Springs Pastoral Lease, PPL 1111 – NT Portion 695, owned by Ban Ban Springs Station Pty Ltd, PO Box 7207, St Kilda Road, Melbourne, Vic 8004.

#### 2.3 Agreements

On the 30 September 2004, Territory Iron Pty Ltd entered into an Agreement with Softwood Plantations Pty Ltd by which Softwood granted Territory Iron the right to explore for iron ore and earn an interest in EL23824 under an unincorporated joint venture with Softwood.

On 22 April 2004 Softwood Plantations Pty Ltd entered into a joint venture agreement with Australasia Gold Ltd (since terminated). That JV covered EL23824 and adjacent EL22301 and provided a structure whereby Australasia might explore for gold and earn a 100% interest in gold deposits discovered and excised into successor tenements.

#### 2.4 Aboriginal Sacred Site Clearance & Native Title

A search of the Aboriginal Areas Protection Authority's sacred site digital register carried out prior to the commencement of drilling indicated no Registered or Recorded sites within that portion of the tenement area containing Millers prospect. A small site (FC168) has had a Permit to Disturb recorded in 2009. A Registered native title claim - DC01/21 Ban Ban Springs was lodged on 13 March 2001 and covers the tenement area.



Figure 1: Tenement location over aerial photography

## 3. LOCAL GEOLOGY

Palaeoproterozoic sediments of the Mt Partridge and the overlying South Alligator Groups occur within the tenement area. The Wildman Siltstone of the Mt Partridge Group predominates in the eastern part and rock units of the Koolpin Formation, Gerowie Tuff and Mt Bonnie Formation in the western part of the tenement.

The Wildman Siltstone comprises two informal sequences. The lower sequence consists of carbonaceous phyllite, hematite breccias, siltstone and phyllite, which at depth is reported to be pyritic and carbonaceous. The upper sequence consists of similar rock units, but also contains minor sandstone and rare dolarenite.

The Koolpin Formation consists of carbonaceous pelites, carbonates and iron formation. It is subdivided into three informal members. The Lower Member comprises carbonaceous mudstone, mudstone, siltstone and limestone. The Middle Member is characterised by the first appearance of banded iron formation. The Upper Member comprises thinly laminated carbonaceous shale and mudstone with abundant fine pyrite and pyrrhotite and shows up prominently on aeromagnetic imagery.

The Gerowie Tuff is composed of siltstone, phyllite, tuff and minor chert nodules. The Mount Bonnie Formation comprises two thick greywacke-mudstone units that are separated by 30-60m metres of laminated siltstone, shale, chert and tuff (Goulevitch, 1980).

Numerous conformable sills of pre-orogenic Zamu Dolerite have preferentially intruded the pelitic units of the Gerowie Tuff, Koolpin Formation and the underlying Wildman Siltstone.

These sediments, volcanics and dolerite sills have been moderately to tightly folded about NNW trending axes into a series of synforms-antiforms with vertical dips or steep dips to either side of vertical. On a regional scale, these structures form a regional anticline with a dominant westerly dip within the tenement area.

Regional lower greenschist grade metamorphism accompanied the folding event during a major deformation period between 1870-1810 Ma.

## 4. MINERALISATION

Iron mineralisation of two distinct genetic types occurs within EL23824. In the Koolpin Formation, iron formation of the Middle Member forms near-surface gossanous, hematite-limonite bodies which are reported by Ahmad et al (1993) to give way at depth to ferro-actinolite, Fe-rich chlorite, garnet, siderite, quartz, carbonates and sulphides.

All other iron mineralisation occurs mainly in the lower Wildman Siltstone as hematite or hematitegoethite-manganese mineralisation. Hematite deposits are believed to have formed by low temperature hydrothermal replacement of brecciated Wildman Siltstone. Breccia zones, and hence usually hematite mineralisation are frequently stratiform, with their distribution controlled by D3 folds and associated axial planar faults. Hematite-goethite-manganese deposits possibly have a similar hydrothermal origin but may have undergone extensive weathering related hydration, or may have had a sulphide rich parent rock.

Gold mineralisation is known on a regional scale to occur in: the Wildman Siltstone, the middle and upper Koolpin Formation, the Gerowie Tuff and Mount Bonnie Formation, and in sills of the Zamu Dolerite which intrude the Koolpin Formation and Gerowie Tuff. Gold mineralisation within the Pine Creek Inlier is probably associated with intrusion of the syn-orogenic granites (e.g. Cullen Batholith). It is certainly feasible that the bulk of the anticline-associated vein-type deposits most likely relate to structural re-activation of regional fold structures during intrusive events.

Possible gold mineralisation styles and targets related to these rocks are according to Goulevitch (1997): <u>sheeted and stockwork quartz-sulphide veins systems</u> with mineralisation preferentially associated with a strong carbonaceous and/or sulphide in the host sequence (e.g. Woolwonga, Moline) or with competency contrasts between greywacke and shale (e.g. Union Reef, Spring Hill); <u>sedimenthosted stratiform</u> mineralisation and <u>quartz-sulphide vein-hosted stratabound</u> mineralisation associated with chert iron formation and carbonaceous mudstone mainly in the Koolpin Formation (e.g. Mount Porter); <u>stratiform</u>, <u>massive to banded</u>, <u>sulphide-silicate-carbonate</u> mineralisation in the Mount Bonnie Formation (e.g. Mt Bonnie, Moline).

## 5. EXISTING MINERAL RESOURCE ESTIMATE

Tenement EL23824 contains a manganese-rich goethite deposit. In February 2008, Snowden constructed a Mineral Resource estimate grade model for the manganiferous Millers iron ore deposit. Mineral Resources were classified according to JORC guidelines into Indicated and Inferred categories. This is shown in the Table below.

RESOURCE CATEGORY	TONNES	Fe%	SiO2%	Al2O3%	Ρ%	Mn%	LOI%
Indicated	1,270,000	53.16	5.43	1.48	0.11	4.58	8.30
Inferred	10,000	52.02	3.62	1.18	0.18	0.43	8.58
TOTAL	1,280,000	53.15	5.42	1.48	0.11	4.55	8.30

*Table 1: Mineral Resource estimate statement for Millers, reported at a 50% (Fe+Mn) cutoff grade. \*Tonnes are rounded off to the nearest 1,000 tonnes.* 

The Millers deposit is fully overlain by the Mining Tenement application ML26249. The company is moving to finalise grant of ML26429, which was applied for on 11/09/2007, to allow potential economic exploitation of the Millers deposit.

Detailed metallurgical diamond drilling and subsequent test work programmes are planned for the Millers deposit in 2011, in order to ascertain the likely processing flow sheet required for producing an economic ore stream from the existing Resource.

There also remains potential for further definition of iron ores adjacent to Millers and in north eastern portion of EL23824 generally, where historical work has shown potential.

### 6. WORK COMPLETED

#### 6.1 Geophysical targeting

A detailed independent geophysical report by Hawke Geophysics Pty Ltd was submitted to Territory Resources Limited in November 2010. The report discusses the interpretation and target generation for hematite iron ore mineralisation from all currently available geophysical and geological data over the Frances Creek Project area tenements. The main objective of the study was to map stratigraphy to identify prospective target horizons as well as identify direct targets for iron ore mineralisation.

Geophysical survey coverage within the project area included:

- Regional government magnetic surveying at 400m line spacing.
- Detailed magnetic and radiometric survey covering the prospective Wildman Formation at a 50m line spacing and 25m flying height.
- Limited airborne EM coverage covering the historic mining area only.
- Several phases of gravity surveying, with station spacing varying from 50 x 250m down to 10 x 20m for individual surveys.
- 32.5 line kilometres of ground gravity surveying was completed by Haines Surveys Pty Ltd in EL23824 during the current reporting year.

A total of 45 targets for iron mineralisation were identified using the following criteria:

- Presence of (untested) outcropping iron ore mineralisation
- Strike extensions of known mineralisation
- Gravity high (due to mineralisation) adjacent to gravity low (due to carbonaceous shale)
- Subtle magnetic trend (secondary criteria)

The major initial focus was on a very detailed ground gravity survey programme. The survey was completed over the prospective Wildman Formation strata (that hosts the Frances Creek Mine's high-grade iron ore mineralisation) for about 20km of strike in the Frances Creek Project's northern tenements. This study included tenement EL23824 where the survey identified new drilling targets (see Figure 2). The full report and associated GIS data collated is located in Appendix 2 on the attached disc.



Figure 2: Tenement location over geology (geophysical targets shown inside EL23824)

## 7. EXPENDITURE DURING THE REPORTING PERIOD

Total expenditure for the reporting year by Territory Resources Limited was \$92,687. This is detailed in the NT Exploration Expenditure Statement attached as Appendix 1 to this report.

## 8. PROPOSED EXPLORATION ACTIVITIES – NEXT REPORTING YEAR

Based on the geophysical targets defined in the reporting year, Territory Resources Limited proposes to conduct detailed geological mapping and rock-chip sampling of hematite enrichment at the Millers – Bowerbird – Big Hill Trend.

This will be followed by a phased Aircore/RAB drilling programme and infill and extensional RC drilling and metallurgical diamond drilling if warranted. Territory proposes to conduct the following phased drilling programmes:

- Phase I broad spaced Aircore/RAB drilling on 200 metre spaced lines with 40 metre centres (50 holes; 2,500 metres).
- Phase II Infill Aircore/RAB drilling on a 100 metre by 20 40 metre spacing of significant hematite mineralisation intersected in Phase I drilling (25 holes; 1,250 metres).
- Phase III RC holes targeting hematite mineralisation defined by Phase I and II RAB drilling on an 80 metre by 40 metre spacing (40 holes; 4,000 metres).
- Phase IV Geotechnical and metallurgical diamond drilling (10 holes; 500 metres).

Refer to Figure 3 for the location of the drilling corridor within EL23824.

A metallurgical diamond drilling programme is being designed for the Millers manganiferous iron ore deposit within the tenement. The aim is to determine the physical and marketable properties of the ore stream prior to potential economic exploitation. The company is moving ahead to finalise grant of ML26429, which was applied for on 11/09/2007, to allow for the potential development of the Millers deposit.



Figure 3: Proposed Drill Corridor for Millers to Big Hill Trend on EL23824

## 9. REFERENCES

Ahmad, M. et al, 1993. Explanatory Notes and Mineral Deposit Data Sheets. *Pine Creek SD52-8* 1:250,000 Metallogenic Map Series

**Bowden, S.,** 2000. Summary of the Frances Creek Iron Deposits Northern Territory. *Hamersley Iron Pty Limited*, May 2000. (CR2001-0436).

**Eaton, S.,** 2008. EL23824 Millers, Northern Territory. Annual Report for the Period 9<sup>th</sup> February 2007 to 8<sup>th</sup> February 2008.

Freisen, B., 1972 Annual Report on Authority to Prospect 2255 Mt Wells Policy Reserve Area, Northern Territory. FIMCO, 14 February 1972. (CR 1972-006).

Goulevitch, J., 1997. Gold Mineralisation in the Pine Creek Geosyncline of Northern Territory, Australia <u>In</u> Rutland RWR & Drummond, BJ, (eds) Palaeoproterozoic Tectonics and Metallogenesis: comparative analysis of parts of the Australian and Fennoscandian Shield, 51-56, AGSO Record 1997/44.

**Goulevitch**, J., 1980. Stratigraphy of the Kapalga Formation north of Pine Creek and its relationship to base metal mineralisation. <u>In</u> Ferguson, J & Goleby, AB, (eds) Uranium in the Pine Creek Geosyncline, 307-318, International Atomic Energy Agency, Vienna.

Hill, T., 2005, Frances Creek, Ochre Hill, (MLA24727) and Millers deposit proposed Iron Mine Cultural Heritage Study, Report prepared for Territory Iron/MBS Environmental Pty Ltd October 2005.

Stuart-Smith, P.G., Needham, R.S., Bagas, L., and Wallace, D.A., 1987. Pine Creek Northern Territory – 1:100,000 geological map series and commentary. *Bureau of Mineral Resources, Australia.* 

**APPENDIX 1** 

# EXPENDITURE STATEMENT

APPENDIX 2 INTERPRETATION OF PAST AND RECENT GEOPHYSICAL SURVEYS IN THE FRANCES CREEK REGION, N.T. Hawke Geophysics Pty Ltd, November 2010