

northernminerals



TORO JV PROJECT

**ANNUAL REPORT for the period
16th February 2013 to 15th February 2014
Exploration License EL27000**

**LICENSEE
TORO ENERGY LIMITED
OPERATED BY
NORTHERN MINERALS LIMITED**

ANNUAL REPORT

GROUP REPORT:

NAME: TORO JV PROJECT – ANNUAL REPORT EL27000

PREPARED BY: N. HEESH

DATE: 07/04/2014

NTU Report No: 2014-15

TARGET COMMODITIES: Heavy Rare Earths (HREE)

NT 1:100,000 SHEET: 4859 "Breaden"

NT 1:250,000 SHEET: SE5215 "Tanami"

Abstract:

Tenement EL27000 was granted to Toro Energy Ltd on the 16 February 2012. Toro Energy subsequently announced it was entering a joint venture agreement with Northern Minerals for a group of seven tenements, including EL27000, which together were named the Toro JV Project.

The tenement is interpreted to be completely underlain by an undifferentiated intrusive near the south eastern margin of the Browns Range Dome. Little to no outcrop occurs within the tenement, and the surface geology is dominated by unconsolidated Quaternary sediments.

Northern Minerals is currently exploring the tenement as part of a wider exploration program covering contiguous tenements in the Tanami region of the Northern Territory. The targeted commodity is Heavy Rare Earths associated with xenotime mineralization, similar to that discovered at the Wolverine prospect on the Western Australian side of the Browns Range Dome. Other occurrences of xenotime mineralization have been reported from within the Tanami Region, including Northern Mineral's Boulder Ridge prospect.

During the report period, no new on-ground exploration was completed on the project.

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To the best of our knowledge, this document conforms to the format outline for an annual report, as shown by the Northern Territory Geological Survey- Minerals and Energy Division website.

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1.0 INTRODUCTION

The tenement EL27000 was granted to Toro Energy Limited on the 16/02/2012.

On the 23/04/2012, Northern Minerals announced to the ASX that it had entered into a joint venture agreement with Toro Energy Limited, where it can earn up to an 80% stake for the non-uranium rights in exploration licenses EL26270, EL26271, EL26286, EL26635, EL27001 EL27590 and EL27000, together referred to as the Toro JV Project. The agreement was not however formally signed off until the 08/02/2013, after which Northern Minerals was appointed project manager of the tenements

2.0 LOCATION & ACCESS

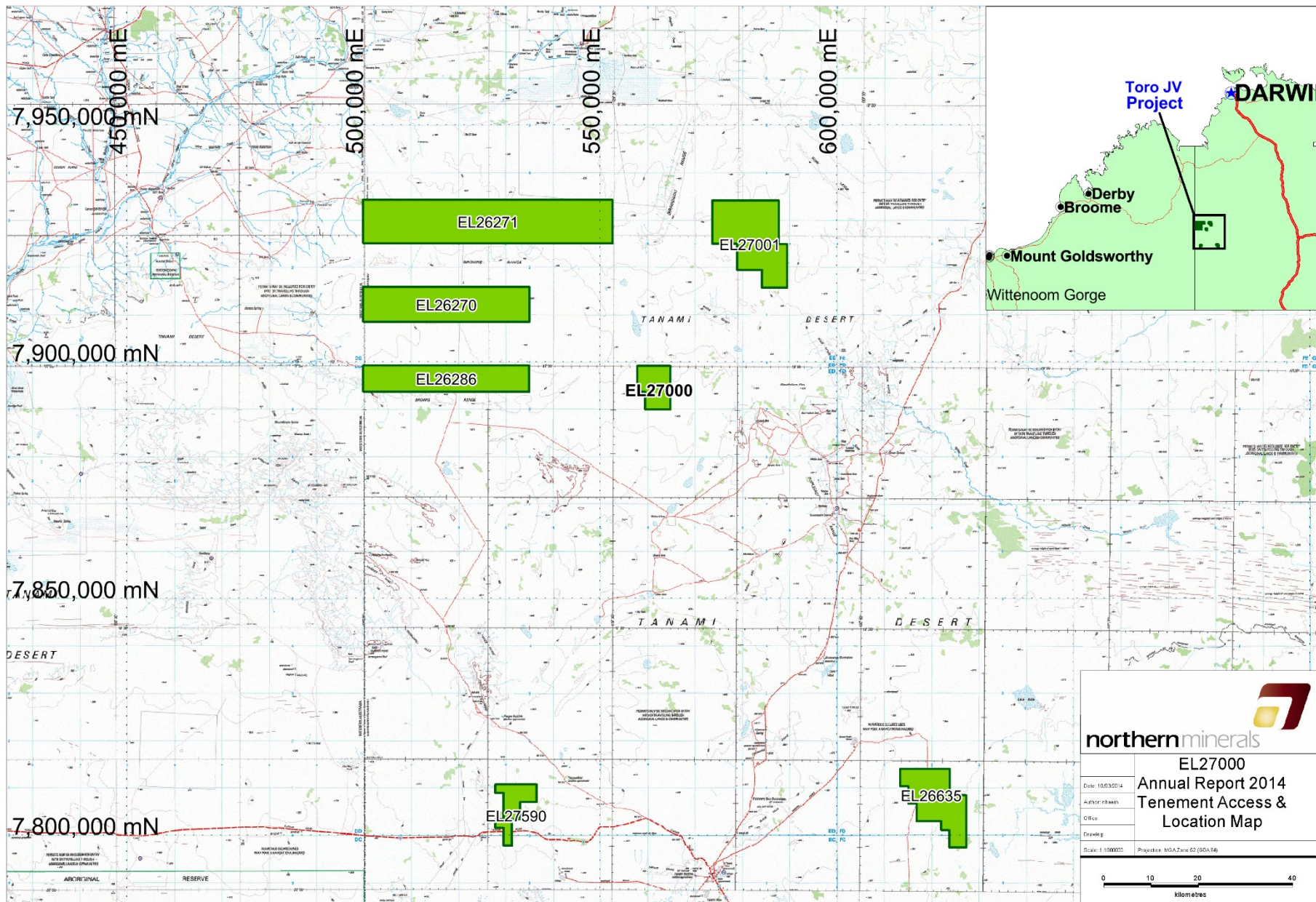
The tenement is located approximately 680km northwest of Alice Springs (Figure 1) within the Central Desert Aboriginal Land Trust where it meets the northern boundary with the Suplejack Downs pastoral lease. Access to the tenement is via the Tanami Track to the Tanami Mine site, approximately 650km from Alice Springs or alternatively 400km from Hall Creek in Western Australia. From the Tanami Track, access is via the Lajamanu Road heading north-northeast for approximately 90 kilometres to the Suplejack Downs homestead, from which a limited number of station tracks head north westwards towards the tenement.


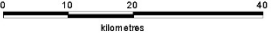
3.0 TENURE

The tenement EL27000 was applied for on the 9/07/2007 and granted on the 16/02/2012, consisting of 18 graticular blocks and covering an area of 58.5 square kilometers (Table 1). The tenement is held in the name of Toro Energy Limited.

Table 1: Tenement Schedule

Tenement	Tenement No.	Blocks	Blocks Relinquished	Grant Date	Expiry Date
Toro JV Project	EL27000	18	0	16/02/2012	15/02/2018



 northern minerals	
EL27000 Annual Report 2014 Tenement Access & Location Map	
Date: 10/03/2014	
Author: rbbash	
Client:	
Drawn by:	
Scale: 1:100000	Projection: MGA Zone 62 (GDA 84)
 0 10 20 40 kilometres	

4.0 REGIONAL GEOLOGY

In the Tanami Region, one of the most important tectonic units in the North Australian Craton, the stratigraphic succession shows similarities with the Pine Creek and Halls Creek Orogens, other Palaeoproterozoic successions in northern Australia.

Within the region, the MacFarlane Peak Group, which is interpreted to be the basal unit of the Palaeoproterozoic sequence, is dominated by volcanic and volcanoclastic rocks, along with clastic and calc-silicate sediments. These are overlain by siltstone, carbonaceous shale, calc silicates and BIF of the Dead Bullock Formation. This in turn is overlain by a thick sequence of turbidites, the Killi Killi Formation. Interbedded siltstone, greywacke and chert west of Tanami are included in the Twigg Formation. The latter three units are grouped together in the Tanami Group.

The Pargee Sandstone and the Mount Charles Formation occur in small extensional basins. A period of wider extension follows, accompanied by felsic volcanism in the Mount Winnecke Group and Nanny Goat Volcanics. Five main granitic suites are recognised in the Tanami Region, the most important being the Coomarie and Frederick Suites. The youngest granites in the area belong to The Granites Suite. Archaean rocks identified from drilling comprise of the Browns Range Metamorphics and the Billabong Complex.

Deposition in the Birrindudu Basin began with sandstone transgressing over the metamorphic and crystalline basement probably at about 1.7 Ga. This was accompanied by regionally extensive north-trending growth faults and volcanism, possibly indicating rifting. The Birrindudu and Tolmer Groups represent the exposed basal section of this basin and may be as much as 6,000m thick locally. Apart from minor felsic volcanic rocks (tentatively assigned to undifferentiated Birrindudu Group) and carbonate rocks and shale in the upper Tolmer Group, these units are dominated by coarse clastic sedimentary rocks.

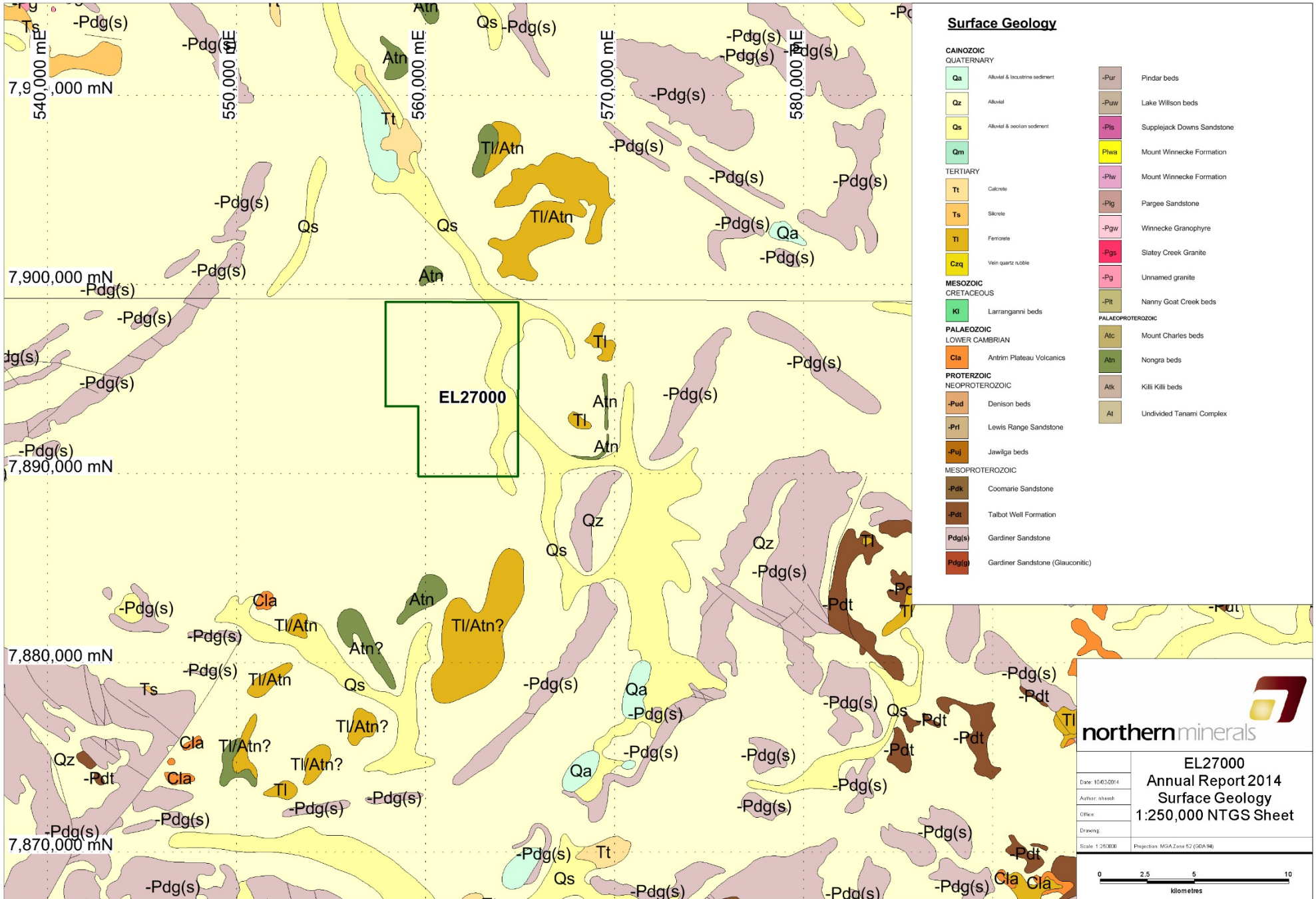
Cambrian flood basalts (Antrim Plateau Volcanics) overlie the Mesoproterozoic Gardiner Sandstones of the Birrindudu Basin.

Several ESE, SE and N-trending structures have been identified within the region, which represent subsidiary structures to the major regional ESE-trending structures, such as the Trans-Tanami Fault and the Bluebush Fault.

Large portions of the region are covered by ferricrete as well as surficial deposits including alluvium, lateritic lag and windblown sand. The Gardiner Formation outcrops are frequently capped by a silcrete layer of variable thickness.

EL27000 is located along the northern margin of the Tanami 1:250,000 Sheet, near the south eastern margin of the Browns Range Dome. It is largely covered by unconsolidated surficial deposits with minimal to no outcrop. The tenement is interpreted to be completely underlain by a variably magnetic, undifferentiated intrusive unit. Along the western margin of the tenement, the intrusive is interpreted to be in contact with the Palaeoproterozoic MacFarlane Peak Group.

Figure 2 shows the outcrop geology taken from the NTGS 1:250,000 scale geological mapping of the area.



Surface Geology

CENOZOIC

QUATERNARY

- Qa Alluvial & lacustrine sediment
- Qz Alluvial
- Qs Alluvial & eolian sediment
- Qm

TERTIARY

- Tt Calcicrete
- Ts Siltcrete
- Tl Ferroncrete
- Czaq Vein quartz rubble

MESOZOIC

CRETACEOUS

- Kl Larranganni beds

PALAEOZOIC

LOWER CAMBRIAN

- Cla Antrim Plateau Volcanics

PROTEROZOIC

NEOPROTEROZOIC

- Pud Denison beds
- Pri Lewis Range Sandstone
- Puj Jawilga beds

MESOPROTEROZOIC

- Pdk Coomarie Sandstone
- Pdt Talbot Well Formation
- Pdg(s) Gardiner Sandstone
- Pdg(l) Gardiner Sandstone (Glaucopitoid)

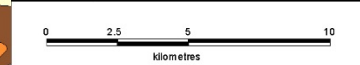
- Pur Pindar beds
- Puv Lake Willson beds
- Pls Supplejack Downs Sandstone
- Plwa Mount Winnecke Formation
- Plw Mount Winnecke Formation
- Plg Pargee Sandstone
- Pgw Winnecke Granophyre
- Pgs Staley Creek Granite
- Pg Unnamed granite
- Pit Nanny Goat Creek beds

PALAEOPROTEROZOIC

- Alc Mount Charles beds
- Atn Nongra beds
- Alk Killi Killi beds
- At Undivided Tanami Complex



EL27000
 Annual Report 2014
 Surface Geology
 1:250,000 NTGS Sheet



5.0 EXPLORATION TARGET RATIONAL

Northern Minerals is currently exploring for Heavy Rare Earth (HRE) mineralisation on its tenement holdings in the Tanami Region of WA and the NT. At the Browns Range project in WA, HRE mineralisation associated with xenotime mineralisation was first identified at what was called the Area 5 prospect in 1986 by PNC Exploration (Australia) Pty Ltd. The primary host of this mineralisation was vuggy quartz veins within a Palaeoproterozoic arkose unit of the Browns Range Metamorphics; although the xenotime also pervaded the arkose forming massive veins up to 30cm width. Subsequent shallow drilling at the prospect was disappointing.

More recently, Northern Minerals identified xenotime mineralization from highly silicified and brecciated arkose at the Wolverine, Gambit and Gambit West Prospects, located within 3-5km north of Area 5. A JORC compliant resource of 6.48 million tons for 47,997t of contained TREO has recently been estimated for the aforementioned prospects, together with Area 5. The HRE distribution, of which the primary components were the elements yttrium and dysprosium, constitute 84% of the total rare earths.

Elsewhere in the Tanami Region, occurrences of xenotime associated HRE mineralization have been identified at the Killi Killi Hills, where it is associated with the basal conglomerate unit of the Mesoproterozoic Gardiner Sandstone at the unconformity with the underlying Killi Killi Formation; and at the Boulder Ridge prospect located within Palaeoproterozoic - Mesoproterozoic Pargee Sandstone. The potential for additional (economic?) occurrences of xenotime mineralisation in the Tanami region is being assessed.

The exploration strategy is to survey specifically targeted areas with different airborne geophysical techniques in order to help generate targets for further ground based follow-up work, including geological mapping and geochemical sampling, and ultimately to provide drill targets. The geophysical surveys would likely comprise of a detailed airborne radiometric and magnetic survey and a hyperspectral survey.

The detailed airborne radiometric and magnetic survey is designed to locate radiometric anomalies that may possibly be associated with xenotime. It will also help understand in more detail the structural and geological framework of the project area.

The hyperspectral survey is able to detect superficial mineral alteration zones that may correspond to alteration haloes surrounding hydrothermal mineralisation.

6.0 EXPLORATION ACTIVITIES

No on-ground exploration was completed on EL27000 during the reporting period due as resources were concentrated on the Western Australian side of the dome to improve the established prospects. As a result of this, there was insufficient time to arrange a heritage survey over any of the Toro Joint Venture tenements before the onset of the wet season, therefore preventing access to EL27000.

7.0 PROPOSED EXPLORATION

Future work on the project initially will include completing the compilation of available government datasets and of historic exploration results. Due to the apparent lack of outcropping geological features, a geological interpretation and targeting exercise based on available geophysical and geomechanical datasets is required to determine the potential for the tenement to host HRE and other styles of mineralization. Prior to any on-ground reconnaissance activities approval will be sought from the traditional owners of the area, and if determined necessary a heritage survey will be completed.

8.0 REFERENCES

Tanami, NTGS 1:250,000 Geological Series Explanatory Notes, Sheet SE/52-15