PARTIAL SURRENDER REPORT
GARDINER – TANAMI PROJECT
EXPLORATION LICENCES
EL26541

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Date: October 2014

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DME BIBLIOGRAPHIC DATA SHEET

Project Name: Gardiner - Tanami

Combined Report Number: GR318

Tenements: EL26541

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Tenement holder: Northern Minerals Ltd

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INTRODUCTION

This report is the partial surrender report for Exploration Licences EL23932 / EL26498 / EL26541 / EL27367 / EL29592 / EL29593 / EL29595, which formed part of the Gardiner-Tanami Project within the Tanami - Birrindudu Region of the Northern Territory. The tenements and associated project have previously been reported under Group Report Number GR318-13 in conjunction with EL25009 and EL25171 (which are not included in this partial surrender report). Partial relinquishment has occurred across each of the 7 exploration licences as per Division 1 Section 29 (2) of the NT Mineral Titles Act 2011 following the second anniversary of granting on 20th August 2014.

This report covers exploration conducted during the period 21st August 2012 to 20th August 2014.

1.1 Location and Access

The Gardiner-Tanami Project is located in the Granites-Tanami region approximately 600km north-west of Alice Springs, along the Western Australia (WA) and Northern Territory (NT) border. The project occupies land owned by the Purta, Mt Frederick and Central Desert Aboriginal Land Trusts.

Access to the project from Alice Springs can be made via the Tanami Road for approximately 600km. The Tanami Road passes along the southern margin of the projects between the Tanami Mine and the WA/NT border. From the Tanami Road, cleared lines, old exploration tracks and the ‘old’ Tanami Track pass through the project area.

Alternatively, the project can be reached by travelling 300km along the Tanami Road eastwards from Halls Creek in WA. The northern portion of the Gardiner-Tanami Project are most easily accessed from Halls Creek, WA eastwards along the Duncan and Gordon Downs Road to the Ringer Soak community and thence station and exploration tracks.

1.2 Tenure and Agreements

Tenements EL29592, 29593 and 29594 were originally part of a single tenement application under EL24174. Following changes in the Mineral Titles Act in 2010, the original tenement application area was found to exceed the maximum permissible area for an exploration licence and was split up into three separate tenement applications (EL24174, 29592, 29593). Tenements EL29594 and 29595 were originally part of the tenement application EL23932 which was split up into three tenements for the same reason. Tenement EL27367 was applied for on 28 May 2009. All of the above tenements were granted on the 21 August 2012 following the signing of a Deed for Exploration between the Central Land Council, Traditional Owners and Northern Minerals on the 8 February 2012. All tenements are held 100% by Northern Minerals Ltd.

Joint group reporting was applied for the Gardiner-Tanami Project, incorporating EL25009,
EL23932, EL26498, EL26541, EL27367, EL29592, EL29593 and EL29595, on 30 August 2013, and was approved by the Northern Territory Department of Mines and Energy (NT DME) on 6 September 2013 (Reporting Group GR 318-13).

Table 1. 2nd Year Partial Relinquishment Area by Lease

<table>
<thead>
<tr>
<th>Lease</th>
<th>Grant Date</th>
<th>Expiry Date</th>
<th>Current Area (Blk)</th>
<th>Relinquished Area (Blk)</th>
<th>Holder</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL23932</td>
<td>21/08/2012</td>
<td>20/08/2018</td>
<td>190</td>
<td>40</td>
<td>Northern Minerals</td>
</tr>
<tr>
<td>EL26498</td>
<td>21/08/2012</td>
<td>20/08/2018</td>
<td>20</td>
<td>26</td>
<td>Northern Minerals</td>
</tr>
<tr>
<td>EL26541</td>
<td>21/08/2012</td>
<td>20/08/2018</td>
<td>5</td>
<td>5</td>
<td>Northern Minerals</td>
</tr>
<tr>
<td>EL27367</td>
<td>21/08/2012</td>
<td>20/08/2018</td>
<td>127</td>
<td>62</td>
<td>Northern Minerals</td>
</tr>
<tr>
<td>EL29592</td>
<td>21/08/2012</td>
<td>20/08/2018</td>
<td>140</td>
<td>72</td>
<td>Northern Minerals</td>
</tr>
<tr>
<td>EL29593</td>
<td>21/08/2012</td>
<td>20/08/2018</td>
<td>104</td>
<td>97</td>
<td>Northern Minerals</td>
</tr>
<tr>
<td>EL29595</td>
<td>21/08/2012</td>
<td>20/08/2018</td>
<td>89</td>
<td>94</td>
<td>Northern Minerals</td>
</tr>
</tbody>
</table>

Figure 1 – Gardiner Tanami Project (green) prior to partial surrender of blocks
1.3 Geological Setting

The Gardiner-Tanami Project area covers the highly deformed Lower Proterozoic Tanami Group and Lower-Mid Proterozoic metasedimentary sequences of the Birrindudu- Victoria Basins. The Killi Killi beds are part of the Lower Proterozoic Tanami Group, and consist of steeply dipping, strongly folded and foliated greywacke, lithic arenite, siltstone and mudstone with some interbedded quartzite, chert, basalt and felsic volcanics. This sequence has been intruded by Early Proterozoic granite, granodiorite and pegmatitic granitoids, such as the Slatey Creek Granite to the southwest of the Gardiner Range.

Deposition in the Birrindudu Basin began with sandstone transgressing over 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.

Within the project areas, the Killi Killi beds are unconformably overlain by the Middle Proterozoic Gardiner Range Sandstone, the lower member of the Birrindudu Group. It is this unconformity that is considered prospective for uranium mineralisation. The Gardiner Range Sandstone is a flat-lying sequence of sandstones and grits, with a basal conglomerate which passes upwards into a series of felspathic sandstones and grits. The lower sandstone unit is overlain by a series of marls, siltstones and shales, which in turn is overlain by a sequence of flaggy sandstones and grits. The Gardiner Range Sandstone is estimated to be between 150-200 m thick within the project area, with dips of less than 15 degrees.

Numerous ESE trending, steeply dipping fault zones transect the project area, some of which have been interpreted as steep-angle reverse faults. These normal and thrust faults occur along and parallel to fold hinges. Faulting in the Killi Killi beds is marked either by hematite veining and iron oxide replacement or by pervasive silicification. Zones of presumed shearing are poorly exposed, being highly chloritic. Further to the south of the project area is the Trans-Tanami fault, an ESE trending regional-scale structure, which is associated with gold mineralisation in the Granites and Dead Bullock Soak/Callie region.

Overlying the basal Birrindudu Group sediments are a thick package of predominantly siliciclastic and carbonate rocks, with minor shales and muddy sediments. Some coarser grained sediments are also present suggesting that basin scale faulting was active during sedimentation. Sedimentation in the Victoria/Birrindudu Basin was terminated by regional uplift in Neoproterozoic times. The basin is unconformably overlain by remnant outcrops of several thousand metres of Neoproterozoic glacial and fluvioglacial rocks, basalts, and other sedimentary rocks of the younger basinal sequences.
Large portions of the project area, particularly those underlain by Lower Proterozoic rocks are covered by surficial deposits including alluvium and Aeolian sand. The plateau areas which are underlain by the Gardiner Sandstone are frequently capped by a silcrete layer of variable thicknesses. These areas may have hindered exploration in the past by masking potential zones of mineralisation.

**Figure 2** – Gardiner-Tanami project area with TMI Magnetic underlay.
2 EXPLORATION ACTIVITIES COMPLETED

1st Year

There was no on-ground work completed on any tenement during the first year of tenure.

Work consisted of the compilation and interpretation of publically available geophysical and geological data sets including historical exploration data. A review of this data provided targets for follow-up work in the following year.

The annual expenditure for the first year was as follows:

<table>
<thead>
<tr>
<th>Lease</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL23932</td>
<td>$18,553</td>
</tr>
<tr>
<td>EL26498</td>
<td>$28,825</td>
</tr>
<tr>
<td>EL26541</td>
<td>$19,689</td>
</tr>
<tr>
<td>EL27367</td>
<td>$19,689</td>
</tr>
<tr>
<td>EL29592</td>
<td>$17,135</td>
</tr>
<tr>
<td>EL29593</td>
<td>$17,135</td>
</tr>
<tr>
<td>EL29595</td>
<td>$17,135</td>
</tr>
</tbody>
</table>

Includes Aboriginal & Native title costs, equating to $16,138.85 (EL's 23932, 25498, 26541 & 27367) and $15,288 (EL's 29592, 29593 & 29595)

2nd Year

An airborne magnetic and radiometric survey was completed over parts of tenements EL23932, EL29592 and EL29593 on a 100m line spacing as part of a large, regional program covering several tenements in the area of the Gardiner-Tanami/Boulder Ridge Projects. The survey commenced on 6th June 2014, which followed a three week delay whilst repairs and maintenance were conducted on the aircraft. The survey was finally completed on 5th August following further delays due to aircraft problems and high winds.

A Work Program proposal was submitted to the CLC in June 2014 which comprises reconnaissance geological mapping and rock chip sampling (helicopter supported), surface geochemical soil programs and track maintenance, covering parts of all Gardiner-Tanami Project tenements.

A Heritage Clearance Survey has recently been completed by the Central Land Council (CLC) and representatives of the Traditional Owners. The heritage survey was part of a large survey covering most of the Gardiner-Tanami project. The survey duration was four days and was completed on 10 August 2014. The final report from the CLC is expected in mid-October, until which time, the Company cannot commence its on-ground exploration in these areas.

Second year expenditure for the Gardiner-Tanami Project tenements is still to be finalised at the time of this report, however a summary of expenditure is as follows:
Table 3. Gardiner-Tanami Expenditure summary by Lease (21/08/2013 – 31/07/2014)

<table>
<thead>
<tr>
<th>Project</th>
<th>Gardiner-Tanami</th>
</tr>
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<tbody>
<tr>
<td>Tenement</td>
<td>EL23932</td>
</tr>
<tr>
<td>Administration costs</td>
<td>$7,759</td>
</tr>
<tr>
<td>Land Access &amp; Native Title Costs</td>
<td>$7,886</td>
</tr>
<tr>
<td>IT &amp; Communications</td>
<td>$555</td>
</tr>
<tr>
<td>Geological Consultants</td>
<td>-</td>
</tr>
<tr>
<td>Tenement Management</td>
<td>$7,990</td>
</tr>
<tr>
<td>Geophysics</td>
<td>$16,641</td>
</tr>
<tr>
<td>Remote Sensing &amp; Aerial Photography</td>
<td>-</td>
</tr>
<tr>
<td>Assaying costs</td>
<td>-</td>
</tr>
<tr>
<td>Field, camp and vehicle costs</td>
<td>-</td>
</tr>
<tr>
<td>Contract Field Staff</td>
<td>$1,680</td>
</tr>
<tr>
<td>Salaries &amp; Superannuation</td>
<td>$16,976</td>
</tr>
<tr>
<td>Total ($)</td>
<td>$59,487</td>
</tr>
</tbody>
</table>
PARTIAL RELINQUISHMENT DETAILS BY TENEMENT

Partial relinquishment has occurred across each of the 7 exploration licences (EL23932 / EL26498 / EL26541 / EL27367 / EL29592 / EL29593 / EL29595) as per Division 1 Section 29 (2) of the NT Mineral Titles Act 2011 following the second anniversary of granting on 20th August 2014.

Relinquished blocks were based on Northern Minerals geological interpretation of the project area as discussed in the ‘Conclusion’ and the areas likelihood to contain xenotime hosted Heavy Rare Earth mineralisation.
Details of relinquished blocks for each lease are as follows:

**EL23932 – 40 Blocks Relinquished**

**EL26498 – 26 Blocks**
Gardiner – Tanami Project: Partial Surrender Report

EL26541 – 5 Blocks

Gardiner-Tanami NT
Proposed Partial Surrender

EL27367 – 62 Blocks

Gardiner-Tanami NT
Proposed Partial Surrender
EL29592 – 72 Blocks

EL29593 – 97 Blocks
Since 2010, Northern Mineral’s exploration programs have focused on hydrothermally formed xenotime deposits located at the western edge of the Browns Range Dome in Western Australia. The xenotime is enriched with heavy rare earths, in particular dysprosium and yttrium. Considerable success has been attained with these programs, most significantly at the Wolverine deposit, and Northern Minerals is aiming to advance the project into production by 2016. As such, until this year, there have been limited resources available to implement the required exploration programs on the Gardiner-Tanami project; however Northern Minerals expects to meet second year expenditure commitments for all tenements. The focus of Northern Minerals HRE exploration programs is now shifting from Western Australia to the Northern Territory, which includes the Gardiner-Tanami project.

Recent geological studies completed at Browns Range have led to the development of a conceptual geological model for the formation of xenotime hosted Heavy Rare Earth deposits. The model has highlighted the importance of the Birrindudu Basin, as an important component in the formation of these deposits. The Birrindudu Basin is represented in the Gardiner Range and Browns Range area by the Gardiner Sandstone. Northern Minerals plans to further assess the entire Gardiner-Tanami Project for xenotime mineralisation. This will include investigating all airborne uranium radiometric anomalies, including those within Gardiner Sandstone and equivalent rock units.

4 CONCLUSION

Since 2010, Northern Mineral’s exploration programs have focused on hydrothermally formed xenotime deposits located at the western edge of the Browns Range Dome in Western Australia. The xenotime is enriched with heavy rare earths, in particular dysprosium and yttrium. Considerable success has been attained with these programs, most significantly at the Wolverine deposit, and Northern Minerals is aiming to advance the project into production by 2016. As such, until this year, there have been limited resources available to implement the required exploration programs on the Gardiner-Tanami project; however Northern Minerals expects to meet second year expenditure commitments for all tenements. The focus of Northern Minerals HRE exploration programs is now shifting from Western Australia to the Northern Territory, which includes the Gardiner-Tanami project.

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Exploration is currently in progress on all tenements, and their potential is yet to be fully assessed. An airborne magnetic and radiometric survey has only recently been completed over these tenements. The final, processed data has only just finished being processed, from which a detailed interpretation will be completed in order to select targets for field work scheduled for the second half of 2014.

The Work Program proposal, which was submitted to the CLC in June 2014, comprises reconnaissance geological mapping and rock chip sampling (helicopter supported), surface geochemical soil programs and track maintenance, covering parts of all four tenements. The heritage survey for the work program was completed on 10 August 2014, and was part of a large survey covering most of the Gardiner-Tanami, Browns Range and Boulder Ridge projects. The final report from the CLC is expected in mid-October 2014, until which time, the Company cannot commence its on-ground exploration in these areas.

5 REFERENCES


Wilson, R & Warburton, K (2014), Waiver of Reduction Application Browns Range / Gardiner-Tanami / Boulder Ridge Projects EL23932, EL24174, EL24177, EL24193, ELe7367, EL29592, EL29593, EL29594. Company Report (Northern Minerals Limited)