PARTIAL RELINQUISHMENT REPORT

EL 10404

MORDOR

From 21 May 2002 to 20 May 2004

Author
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July 2004

Distribution:
- Department of Business, Industry, & Resource Development (1)
- Central Land Council - Native Title Unit (1)
- Tanami Gold NL (1)

File: cr29dbirdRR2004_Mordor
1.0 SUMMARY

EL 10404 ‘Mordor’ is situated approximately 60 km northeast of Alice Springs (Figure 1). It contains the Middle Proterozoic Mordor Alkaline Igneous Complex (MAIC), an intrusion within Proterozoic metasediments of the Arunta Block. It comprises two distinctive, separate sub-complexes; one dominantly syenitic in composition and the other an ultramafic intrusion composed of fractionated cyclic units.

EL 10404 was granted to Tanami Exploration NL (TENL), a wholly owned subsidiary of Tanami Gold NL (TGNL), on 21 May 2002. After two years of tenure the tenement was reduced in size pursuant to the requirements of section 26 of the NT Mining Act. Exploration on the relinquished area is the subject of this report.

Reconnaissance rock chip sampling was carried out in 2000 and 2001 prior to grant of the tenement under the fossicking provisions of the Mining Act. No exploration was carried out by TENL on the relinquished area in Year 1 and 2. A total of 8 rock chip samples were taken targeting gold mineralisation and a total of 9 rock chip samples were collected targeting platinum group minerals. No significant assay results were returned.

2.0 INTRODUCTION

EL 10404 ‘Mordor’ is named after the Mordor Alkaline Igneous Complex, which is located 65 km northeast of Alice Springs, and approximately 60 km east of the Stuart Highway and Darwin-Alice Springs Railway (Figure 1). The tenement is situated on the Gardens Station (pastoral lease) and can be accessed from either the west or northeast via station tracks from the main east-west Arltunga tourist road (Figure 2).

This report documents reconnaissance and first-pass geochemical exploration conducted on the surrendered area of EL 10404 prior to and during the first two years of grant. The primary exploration strategy in the first year was to assess the potential of existing anomalism and mineral occurrences and to commence geochemical exploration over areas of residual regolith terrain and areas of shallow transported cover.

In this document, the acronym PGE refers to the six platinum-group elements, namely platinum (Pt), palladium (Pd), rhenium (Rh), iridium (Ir), osmium (Os) and ruthenium (Ru). Although technically a platinum-group element, gold (Au) will be dealt with separately. In this report the PGE and Au will be discussed separately unless noted, and PGE essentially refers to the combined values of Pd + Pt.

3.0 TENURE

EL 10404 forms part of the Winnecke Project. The tenement was granted to Tanami Exploration NL (TENL), a wholly owned subsidiary of Tanami Gold NL (TGNL), on 21 May 2002. At the end of the second year of term it was reduced in area pursuant to the requirements of section 26 of the NT Mining Act, see Table 1. This report covers exploration conducted within the relinquished area (Figure 2).
FIGURE 1

ORIGINATOR: C.Rohde
DATE: Aug 2004
DRAWN: M.H.Bailey

WINNECKE

EL 10404 - MORDOR
TENEMENT LOCATION

TANAMI GOLD NL

PLAN No: 49014_Tt_003
### TABLE 1: Tenement Details

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<td>15</td>
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EL10404 was incorporated into the Company’s Harts Range Indigenous Land Use Agreement (ILUA) by a Deed for Covenant executed on 20 May 2003. The associated Exploration Deed between TGNL and the Central Land Council (CLC) sets out the terms and conditions for conducting exploration in accordance with the wishes of traditional Aboriginal owners.

Work Area Clearance for non-ground disturbing exploration under the fossicking provision of the Mining Act was approved by the CLC in late 2001 and clearance prior to drilling was approved in September 2002. A number of exclusion zones were identified in the Mordor region however none lie within the area of interest and have had no impact on exploration activities.

### 4.0 GEOLOGY

EL 10404 ‘Mordor’ lies within the Alice Springs 1:250,000 sheet SF53-14, which is covered by second edition geological mapping carried out by the Bureau of Mineral Resources, and the AGSO Strangways 1:100,000 geological map. Most of the following section has been taken from Anderson et al, 2003.

The Middle Proterozoic **Mordor Alkaline Igneous Complex (MAIC)**, dated at 1132±5 Ma (SHRIMP U-Pb; Hoatson & Clauoe-Long, 2002) intrudes the high-grade Arltunga granitic gneisses and granitic intrusives of the Palaeoproterozoic Arunta Block (Plate 1). The MAIC is situated close to the Woolanga Gravity Lineament, which is an inferred deep-seated NW-SE trending structure. The Woolanga Gravity feature may also have been involved in the genesis of the Mud Tank Carbonatite approximately 50 km to the NW.

The Neoproterozoic Amadeus Basin unconformably overlies both the Arunta Block metasediments and intrusive units, and the MAIC. The basal unit of the Amadeus Basin sequence, the Heavitree Quartzite, has been preferentially eroded and retreated over the MAIC, forming a three-sided box-shaped basin surrounded by a steep escarpment, the Georgina Range. This three-sided box-shaped morphology inspired BMR geologists to name the area “Mordor Pound” owing to the resemblance to the fictional “Mordor” shown in maps attached to the book ‘Lord of the Rings’ by J.R.R. Tolkien.

The “Grenvillian” age of the MAIC in the context of the regional geology is not understood. The ~1130 Ma thermal and magmatic event (the “Teapot Event”) has been identified in the southern half of the Arunta Block (Clauoe-Long, 2003), but other than the MAIC, the Teapot Granite and widespread resetting of isotopic systems the event has little geological expression.

The MAIC is an unusual multi-phase intrusive body with magnesio-potassic geochemistry. Total areal extent of outcropping / subcropping MAIC is approximately 35 km². In detail, the MAIC consists of two separate sub-complexes, the syenitic and the ultramafic sub-complex. These are spatially and temporally related, although the internal development and petrogenetic history of the two sections are very different. Field relationships, including isolated pods and crosscutting apophyses of ultramafic material in the syenitic section suggest that the ultramafic sub-complex has intruded into the syenitic sub-complex.
The surrendered portion of EL 10404 is interpreted to be underlain by the syenite sub-complex of the Mordor Igneous Complex in the east, Palaeoproterozoic undifferentiated gneisses in the west and Neoproterozoic Heavitree Quartzite in the north (Plate 1).

The syenite sub-complex forms the western sector of the MAIC and is roughly circular in shape. The areal extent of outcrop is approximately 20 km². It has been suggested that this unit may have originally roofed the entire complex. This part of the MAIC is composed entirely of a relatively uniform, leucocratic, coarse-grained K-feldspar syenite with accessory clinopyroxene and phlogopite. The K-feldspar laths have a weak planar preferred orientation that may indicate a magmatic foliation. This rock is a true syenite as defined by Le Maitre et al. (1989).

5.0 PREVIOUS EXPLORATION

Extensive exploration has been carried out previously on the Mordor Alkaline Igneous Complex, however most work concentrated on the retained tenement area of the ultramafic sub-complex of the MAIC. All previous exploration on EL 10404 is shown on Plate 2, with most work done on the surrendered tenement portion by Ramsgate Resources in form of regional rock chip sampling.

CRA identified the MAIC from aerial photography and explored the area from 1969-1971 for magmatic sulphide and rare earth potential (McCoy et al., 1996). Exploration included geological mapping, geophysical surveying in form of ground magnetics and gravity, stream sediment, soil and rock chip sampling. CRA concluded that the metal values reflected natural rock compositions rather than economic mineralisation and subsequently relinquished the ground.

The NTGS held the area of the MAIC in the 1970’s and 1980’s for the purpose of academic study. During this time BMR / NTGS geologists intermittently investigated the complex as part of ongoing regional geological investigations to assess the MAIC’s potential for hosting diamonds, rare earths and magmatic nickel-sulphide mineralisation. Exploration included re-investigation of CRA’s soil sampling data, which re-confirmed the correlation between soil geochemistry and underlying geology, detailed geological mapping, diamond (4 holes) and auger drilling (Barraclough, 1981).

The BMR /NTGS research was mainly aimed at investigating magmatic petrogenesis and intrusive history. Investigations into economic potential largely appear to have been a sideline. The NTGS concluded that whilst the MAIC has certain chemical affinities with carbonatites and kimberlites the complex had no diamond potential. No immediate indications of near surface Cu-Ni-PGE sulphide mineralisation were found, however it was recognised that the investigations were of a limited extent, in particular drilling was shallow and poorly sited. Therefore potential, particularly at depth, remained largely untested (Derriman, 1986).

Airborne magnetic and radiometric surveys were completed by the Australian Geological Survey Organisation (AGSO) over the Alice Springs 1:250,000 Sheet to 400 metre line spacing in 1993.

Ramsgate Resources explored the ground between 1987 and 1989 under EL 5486 and undertook geochemical reconnaissance sampling (Plate 2).

CRAE concluded that the Mordor complex held limited potential for significant world class Ni-Cu-PGE, diamond or uranium deposits and the tenement was subsequently relinquished.

6.0 TENL EXPLORATION

All Exploration conducted by TENL on the surrendered portion of EL 10404 from application to May 20 2004 is summarised in Plate 3. Reconnaissance rock chip sampling was carried out in 2000 and 2001 prior to grant of the tenement under the fossicking provisions of the Mining Act. No exploration was carried out by TENL on the relinquished area in Year 1 and 2.

Initial reconnaissance rockchip samples were taken in 2000 in the northern portion of the tenement over Palaeoproterozoic basement lithologies, targeting quartz vein –hosted gold mineralisation. Reconnaissance rock chip sampling for PGE mineralisation was carried out in 2001. A total of 17 rock chip samples were taken summarised in Table 2.

TABLE 2: Summary of Sampling Programs

<table>
<thead>
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<th>Program</th>
<th>Samples</th>
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<td>WC 196 - 203</td>
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<tr>
<td>Reconnaissance rockchip sampling for PGE</td>
<td>HRCRC 316 – 320; MDCR 1 - 4</td>
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Samples with WC prefix were analysed by Australian Laboratory Services for

- As using G102 with 10ppm detection limit,
- Au using PM219 with 1ppb detection limit and
- Cu, Pb, Zn using G102 with 5ppm detection limit.

All samples with HRCRC prefix were analysed by Genalysis for Ag, as, au, Bi, Cd, Co, Cu, Ir, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Ta, U, W, and Zn and all samples with MDCRC prefix by Genalysis for Au, Cu, Ni, Pd and Pt. All exploration data is presented as digital appendices.

No significant results were returned.

7.0 REHABILITATION

No ground disturbing work was conducted and therefore no rehabilitation is required.

8.0 REFERENCES


Barnes, S.J. (2002). Petrography, geochemistry and PGE distribution in selected samples from the Mordor Complex, Arunta Block: a pilot study. CSIRO Exploration and Mining Report 980R.


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