FINAL REPORT FOR EL7870 (SORE TOOTH SOUTH) COVERSING THE PERIOD OF TENURE FROM 1995 TO 1998

1:250,000 SHEET REFERENCE: MOUNT SOLITAIRE SF52-4
1:100,000 SHEET REFERENCE: REIFF
- Mines & Energy 56/2
- National Mapping 5157
- LAKE SURPRISE
  - Mines & Energy 56/3
  - National Mapping 5257

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SM ADRICHEM
DECEMBER 1998
NORMANDY RN: 50014
NFM RN: SMA9812
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LIST OF APPENDICES

Appendix 1 Digital Data: EL7870_99.xls (EXCEL file on 3.5" disk) containing the following sheet names:
- EL7870 (drillhole and sample data, assays and logs)
- Header Descriptions
- Prospect Specific Headers
- Logging Codes
- Lab Tests (laboratory analytical techniques including detection limits)

Final Report For EL7870, December 1998
Normandy NFM Limited
SUMMARY

EL7870 has been surrendered after three years of tenure. As an annual report for the third year of tenure was submitted to the Department in October 1998, this report therefore serves only to provide a summary of all exploration carried out since grant on 12th September 1995.

Exploration by Normandy NFM Limited (then North Flinders Mines Limited) commenced in 1996. First pass regional work was undertaken during the first year of tenure which included lag sampling at nominal 1000x500m spacings and associated rock chip sampling where appropriate. Anomalous arsenic results (<240ppm) in the north west portion of the licence area prompted follow up lag sampling (at 250m spacings) which returned arsenic levels up to 500ppm. In addition, a ground magnetic survey was carried out over the prominent WNW trending aeromagnetic feature.

During the second year of tenure, infill sampling at 800x25m spacing was achieved via vacuum drilling due to the paucity of lag material at this density. This work outlined a highly anomalous arsenic anomaly (<700ppm) over an area measuring 1600m by 600m, open ended along strike. Gold was detected to a maximum concentration of 16ppb. A single traverse of RAB drillholes failed to intersect any mineralisation of interest.

Further investigation of the arsenic anomaly was undertaken with RAB and vacuum drilling during year three, coupled with MMI sampling to test for a low level gold response. The work effectively closed off the arsenic anomalous zone to a strike length of 2km. No gold was detected.

In summary, exploration during the third year of tenure comprised:

- Gridding 3.7 line km
- Vacuum Drilling 92 holes for 593.1m, 181 samples
- MMI Sampling 78 samples
- Lag Sampling 4 samples
- RAB Drilling 20 holes for 1005m, 321 samples
- Petrological Examination 4 samples

Exploration during the second year of tenure comprised:

- Gridding 2.4 line km baseline
- Vacuum Drilling 161 holes for 988m, 313 samples
- RAB Drilling 26 holes for 1041m, 344 samples

Exploration during the first year of tenure comprised:

- Rock Chip Sampling 93 samples
- Lag Sampling 162 samples
- Petrological Examination 10 surface samples
- Gridding 8.1 line km
- Ground Magnetic Survey 8.1 line km
1. INTRODUCTION

Sore Tooth South (EL7870) is located 110km east of The Granites Gold Mine. Figure 1 indicates the position of the licence area in relation to other Normandy NFM tenements.

The exploration licence has been held by Normandy NFM Limited for a period of three years and was reduced in area by 50% in 1997. Rather than effect a second relinquishment in 1998, the entire licence has been surrendered.

2. TENEMENT DETAILS

EL7870 was applied for on 29th June 1992, and granted on 12th September 1995. A 50% reduction of the licence area, comprising the first relinquishment was effected September 1997. A further 50% reduction was notified to the Department in August 1998, however the licence was subsequently surrendered on 7th December 1998.

TABLE 1: Tenement Summary, EL7870 (Sore Tooth South)

<table>
<thead>
<tr>
<th>Date</th>
<th>Holding (no of blocks)</th>
<th>Area (km²)</th>
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<tr>
<td>Grant:</td>
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<td>49</td>
<td>158</td>
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<td>First Relinquishment:</td>
<td>11/09/97</td>
<td>25</td>
<td>81</td>
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<tr>
<td>Second Relinquishment:</td>
<td>11/09/98</td>
<td>13</td>
<td>42</td>
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3. LOCATION, ACCESS AND PHYSIOGRAPHY

Situated within the Mt Solitaire 1:250 000 map sheet (SF52-4), EL7870 lies 110km east of The Granites Gold Mine (see Figure 1). Access from The Granites is via a track which services the Mt Davidson Outstation and then continues northeast to EL8287. A track then heads southeast to access the Sore Tooth South licence area. Figure 2 shows the network of tracks and grids within the tenement area.

The eastern portion of the tenement consists of scattered outcrops of granitic rocks, up to 20m in relief over a sandy plain. The remainder of the tenement is of low relief, with outcrops occurring along an axial ridge up to 5m in elevation. To the south and west of the low axial ridge sandy plains and scattered patches of thick mulga scrub occur. Sandy plains occur to the north of the axial ridge.
4. PREVIOUS EXploration

There is evidence of activity by early prospectors on the licence area. A shallow pit has been excavated on a pegmatite dyke (possibly in search of gemstones) and there is evidence of dry blowings on a separate outcropping quartz reef.

Between 1962 and 1978 the BMR carried out a regional mapping program and a helicopter supported gravimetric survey of the Mt Solitaire sheet. The work outlined outcropping granite and metasediments of the Lander Rock Beds. Outcrop is more common on this exploration licence than over the abutting Sore Tooth North tenement (EL8287) to the northwest.

In 1989 the Tanami Joint Venture partners commissioned an airborne magnetic/radiometric survey (terrain clearance 90m, flight line spacing 500m) which covered the area currently held as EL7870. Shortly afterward, in May 1989, Harlock Pty Ltd was granted EL5420 (which includes all of EL7870). The TJV team were initially attracted to the more magnetically responsive zones away from the area covered by this report.

In August 1990 a helicopter supported geochemical sampling program was carried out. Outcrop, subcrop, laterite and quartz-ironstone gravel were collected and subjected to multi-element assay. However, it appears only a single sample was collected for multi-element analysis from ground subsequently relinquished by the TJV out of EL5420 and later granted to Normandy NFM (then North Flinders Mines Ltd) as EL7870.

5. ExPLORATION OBJECTIVES

Exploration and mine studies have indicated that gold mineralisation in the region has an association with a range of geological environments. Models of gold occurrence for which the Tanami is believed to be most prospective include:

- Disseminated, stratabound deposits hosted by banded iron formations;
- DBS-Granites styles of mineralisation, controlled by anticlinal folding and iron-rich lithologies
- Discordant stockwork deposits of gold in relatively late stage quartz veins;
- Gold mineralisation in veins hosted by shear zones with strong alteration characteristics;
- Deposits in regolith containing gold concentrated by alluvial, eluvial or alteritic processes.

With these models in mind, the Company’s geologists have selected prospective target exploration areas based on regional geological, structural, geophysical and geochemical data.

The detailed assessment of these targets has been undertaken by a range of exploration techniques, designed to reveal the geology of the target area, and the presence of indicator elements, particularly gold itself, in anomalous quantities.
6. GEOLOGY

6.1 Tanami Regional Geology

The Granites-Tanami Goldfield lies in the eastern part of the Early Proterozoic Granites-Tanami Inlier which is part of the Northern Australian Orogenic Province (Plumb 1990). The Inlier abuts the Arunta Complex to the south and east and is onlapped by younger cover sequences including the extensive Paleozoic Wiso Basin on its northeastern margin. To the west, clastic sediments of the Middle Proterozoic Birrindudu Basin overlie and separate the Inlier from similar age rocks in the Halls Creek Province.

Tertiary drainage channels, now completely filled with alluvial and lacustrine clays and calcrite are a major feature of the region. Some drainage profiles are 10 km wide and 100m deep, presenting a formidable barrier to mineral exploration.

Gold mineralisation within the NFM tenement holding is hosted by the Mt Charles Beds, a sequence of fine to medium-grained turbiditic metagreywackes with lesser amounts of metapelite, graphitic schist, banded iron-formation, chert and basic volcanic rocks (Blake et al 1979). Owing to their more resistant nature, only the cherts and iron-formations and associated interbedded graphitic schists tend to outcrop above the sand plain.

A suite of syn-to post-deformation dolerites and gabbros frequently invade the graphitic schist components of the sequence. Large plutons of mostly undeformed late-to post-orogenic adamellite and minor more mafic variants comprising The Granites Granite suite are widespread throughout the area.

Residual hills of gently folded Carpentarian Gardiner Sandstone unconformably overlie Early Proterozoic lithologies. Younger flatlying Cambrian Antrim Plateau Basalts are also preserved as platform cover in areas protected from erosional stripping.

Complex, polyphase deformation during the Barramundi Orogeny has affected the entire Granites-Tanami Inlier. It appears to have been largely controlled by two sets of regional scale fundamental crustal fractures that trend NNE and WNW. This is evidenced by the orientation of successive phases of macroscopic folding in the region and the consistent sympathetic trends of late tectonic faults.

Peak metamorphism during the Barramundi Orogeny reached amphibolite facies at The Granites Gold Mine, but is more generally greenschist facies as at Dead Bullock Soak. Contact metamorphic aureoles, commonly identified in pelitic schist units by randomly orientated andalusite porphyroblasts, are well developed at the margins of the post-orogenic granite plutons.

6.2 Tenement Geology

The geology of the tenement includes abundant granitic rocks and greywacke. A linear magnetic feature trending northwest and central to the tenement area is thought to represent Killi Killi beds, but these rocks are not fully tested. Tourmaline rich granite and pegmatite sills in metasediments are an expression of this feature in the central portion of the tenement where they are exposed as a prominent ridge. Pegmatitic dykes are common in the granite exposures. Foliated syenogranite has also been identified within the tenement.

Weathering has obscured much of the mineralogy indicative of the grade of metamorphism.
7. SUMMARY OF WORK UNDERTAKEN SINCE GRANT

7.1 Gridding
The existing grid is shown on Figure 2.

7.2 Surficial Sampling
First pass regional work was undertaken during the first year of tenure which included lag sampling at nominal 1000x500m spacings and associated rock chip sampling where appropriate. Anomalous arsenic results (<240ppm) in the north west portion of the licence area prompted follow up lag sampling (at 250m spacings) which returned arsenic levels up to 500ppm.

MMI samples were collected from two traverses within the zone of peak arsenic anomalous. No gold nor pathfinder elements were detected.

Sample locations are shown on Figure 3.

7.3 Ground Magnetic Survey
A ground magnetic survey was conducted over three traverses (Figure 2) to further define a prominent WNW trending aeromagnetic feature running the length of the tenement (refer to Archibald 1996 for TMI image). The central traverse was subsequently drilled.

7.4 Vacuum Drilling
A total of 202 vacuum holes have been drilled within the licence area as a cost effective means of investigating anomalous arsenic results returned from lag samples. BOH (preferably bedrock) and drill-derived lag samples were collected for analysis. The drilling defined an E-W striking anomalous arsenic (<465ppm) zone measuring 600m x 2000m.

The drillhole locations are plotted on Figure 4.

7.5 RAB Drilling
RAB drilling was largely utilised to investigate beneath the peak lag and vacuum drill sample defined arsenic anomaly in the central portion of the licence.

Information gained from the drilling suggests that bedrock arsenic anomaly (>70ppm) is associated with quartz veining within greywackes. A maximum gold result of 8 ppb (SSRB008, 27m) was returned from a sample of schist determined to be the cause of the prominent magnetic feature. Many of the holes which penetrated basaltic rocks returned low arsenic concentrations.

As deep cover towards the west of the grided area prevented successful bedrock sampling with a vacuum drill rig, angled RAB drilling was utilised to determine bedrock and test for gold mineralisation. The holes reached depths between 29 and 51m and in places penetrated cover of up to 30m.

A further 6 angled RAB holes (SSRB041-SSRB046) were drilled to test for mineralisation at depth. These holes ranged in depth between 64 and 88m and all intersected schistose biotite gneiss. No gold assays of interest were received. Arsenic levels were elevated as predicted, however a dramatic reduction in the concentrations was evident when fresh rock was sampled.

Figure 4 displays the locations of the 46 RAB drillholes drilled within the licence area.

7.6 Petrology
Both surface and drill rock chip samples were submitted to consultant Petrologists, Pontifex and Associates, for confirmation of rock types.
EL 7870
Sore Tooth South

Normandy NFM Limited
NORTH FLINDERS EXPLORATION
EL 7870 - SORE TOOTH SOUTH
VACUUM & RAB DRILLHOLE LOCATION PLAN
17 JUNE 1999

Vacuum Drillhole
RAB Drillhole

FIGURE 4
8. EXPENDITURE INCURRED FOR THE REPORTING PERIOD

A summary of exploration expenditure for the three years of tenure is tabled below.

**TABLE 2: Summary of Exploration Expenditure for EL7870**

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<th>EL7871</th>
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<td>Year 1</td>
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<td>Year 3</td>
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9. REFERENCE LIST / ANNUAL REPORT BIBLIOGRAPHY

References


Reports to NT DME


