SOUTH TANAMI
JOINT VENTURE

FINAL REPORT

EL 7679
MURIEL RANGE

June 1992 to June 1999

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Distribution:
NT DME
CLC
Delta Gold NL
Otter Gold NL
Exploration Licence (EL) 7679 was originally granted to Delta Gold NL on the 28th June 1992. In December 1996, Otter Gold NL entered into a joint venture agreement with Delta Gold NL to explore Exploration Licence 7679.

Prior to the signing of the JV, Delta Gold NL completed an initial work program including gridding, soil and lag sampling, and a combined airphoto/aeromagnetic interpretation. This was followed by geological mapping, ground magnetics, rock chip sampling and rotary air blast (RAB) drilling. This led to detection of the Ice and Camp Prospects. Drilling of these prospects returned a premium assay result of 0.31 g/t over 3 metres in Hole IC20.

Exploration by Otter Gold NL has consisted of a historical overview, airborne magnetics and regional posthole drilling. This work generated two broad geochemical anomalies and several discrete high spots. Anomaly 1 had a peak gold value of 22ppb. Anomaly 2 was defined by a subtler geochemistry (up to 1.7ppb Au) at the unconformable contact. The follow up posthole program did not expand the interpreted anomalous trends outlined in anomaly 1 and anomaly 2. The only assay result, from the posthole drilling, which can be regarded as anomalous is a 15 ppb result taken from 1 to 3 metres in hole MRPH 306.

A total expenditure for the life of EL 7679 has been over $428,000.

No known mineralisation exists within EL 7679. Generally low sampling values combined with an extensive cover has failed to indicate the presence of any mineralisation.
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1.0 INTRODUCTION

In December 1996, Otter Gold NL entered into a joint venture agreement with Delta Gold NL to explore EL7679. Otter is the manager of the joint venture, which is known as the South Tanami Joint Venture (STJV).

1.1. Location and Access

EL is located within the central to southern sector of The Granites 1:250,000 Sheet Area (SF 52-3) and originally covered 165 square kilometers prior to a 77 square kilometer at the end of 1998. The tenement is located approximately 25km of the Tanami Downs Station (Figure 1). The project area is accessible from the station via the Wild Potato Bore and Graveyard Bore tracks. Delta Gold NL arranged the grading of a north-south running track to access the southern portion of the licence.

1.2. Tenure

Exploration Licence (EL) 7679, originally comprising 49 graticular blocks was granted to Delta Gold NL on 28th June 1992, for a period of six years. The Southern Tanami Joint Venture Agreement between Otter Gold NL and Delta Gold NL was stamped on 23rd December, 1996. Management of the project was assigned to Otter.

A first renewal application for a further 2 years was lodged with the Northern Territory Department of Mines and Energy (NTDME) on 22nd May 1998. Two separate waivers of reduction had been granted prior to June 1998. The renewal application covered only 24 blocks of the existing 49 blocks (50% reduction).

The Minister’s consent to enter into negotiations with the Central Land Council (CLC) was received 31/12/98 but application (proposal) with the CLC was overlooked. Consequently, the Minister’s consent was withdrawn and subsequent refusal to renewal eventuated. Hence effective 31/03/99 EL 7679 was lost to the STJV.

1.3 Reporting

Active exploration was reported to the NTDME annually.

This report summarises exploration activity over the life of EL 7679 and detail exploration undertaken in the period since June 1998 to April 1999.
2. GEOLOGY

Subdued topography, deep weathering, scattered outcrop and absence of marker horizons all conspire to limit the understanding of the geology in the Lower Proterozoic Granites-Tanami Block. Thus, current geological interpretations are largely derived from remotely sensed data (notably aeromagnetic surveys) and, locally, from exposures created by mining activity or the ever-expanding drilling database.

2.1 Regional Geology

The Granites-Tanami Block is bounded to the west by the Canning Basin and to the east by the Wiso Basin. It is considered to be one of the western-most Palaeoproterozoic inliers of the North Australian Orogenic Province, developed during the Barramundi Orogeny (Blake et al., 1979).

Blake et al. (1975) divide the Lower Proterozoic Tanami Complex sequence into five informal units:

1) Killi Killi Beds;
2) Mount Charles Beds;
3) Nanny Goat Creek Beds;
4) Helena Creek Beds;
5) Nongra Creek Beds.

No stratigraphic distinctions are made between these units, as they are inferred to be lateral equivalents of one another. Blake et al. (1979) stated that the Mt. Charles Beds were the only unit to host Au mineralisation and although this still holds true for economic concentrations of gold, several mineralised prospects have since been discovered in other units e.g. the Kookaburra Prospect hosted by Killi Killi Beds (Doust, 1997).

Tunks (1996) re-evaluated the geological data and further subdivided the Tanami Complex into two domains. His subdivision separates the higher metamorphic grade Ditjiedoonkuna suite (Killi Killi and Davidson Beds) from the low-grade Black Peak formation (Nanny Goat Creek, Helena Creek, Nongra and Mt. Charles Beds).

Unconformably overlying the Black Peak formation is the Birrindudu Group consisting of the Purgee Sandstone, Supplejack Downs Sandstone, Gardiner Sandstone and the Mt. Winneckie Formation. Although none of these units are known to host Au mineralisation, gold-bearing structures in the Tanami Mine Corridor are observed to crosscut the overlying Gardiner Sandstone.

The Proterozoic Browns Range and Coomarie Granites are observed to intrude the Killi Killi and Mt. Charles Beds, and are overlain by the Gardiner Sandstone. These relationships would suggest that the granites were Lower Proterozoic in age. Overlying the Gardiner Sandstone are the Carpentarian Talbot Well Formation and the Coomarie Sandstone. The contact between the Talbot Well Formation and the Coomarie Sandstone is inferred to be conformable.
The Cambrian Antrim Plateau Volcanics consist of intensely weathered basalt capped by pisolithic laterite. The basalts are mainly sub-aerial, extrusive basalts, although the occurrence of pillow structures south of Browns Range Dome suggests that some basaltic extrusion occurred in sub-marine conditions. Unnamed Cambrian sediments are also observed in the Tanami region. These include chert, and carbonates, which are more prevalent in Western Australia.

Cainozoic laterite, silcrete, calcrite, and Quaternary debris cover 60 – 70% of the Tanami Desert. The Quaternary sediments are generally unconsolidated, representing the most recent phase of erosion and deposition of sands, gravels and lithic fragments.

2.2 Local Geology

The oldest rocks exposed within the licence area are tightly folded and highly cleaved sedimentary and volcanic rocks of the Lower Proterozoic Mt Charles Beds. The Mt Charles Beds comprise mainly phyllitic and schistose greywacke, shales, arkose and chert intercalated with lesser ultramafic and BIF horizons. These rocks have been metamorphosed to upper greenschist facies. Granite has been mapped in the central portion of the EL and the active magnetic signatures may reflect dolerite dykes or amphibolitic roof pendants. The Muriel Range Sandstone unconformably overlies the Tanami Complex along the southern and western boundary of the licence. It is Carpentarian in age and consists dominantly of sublithic and quartz arenite. Tertiary deposits of laterite, silcrete and calcrite occur as low rises and a relatively thin (3-5m) veneer of Quaternary aeolian sand covers most of the licence.

The prospect scale RAB drilling carried out by STJV (Otter Gold NL) on the EL suggest the sequence is dominated by granite, siltstone, sandstone and lesser feldspar porphyry and dolerite dyke. At least 60% of the EL is covered by transported overburden comprising of aeolian sand, pisoliths and lithics. Outcrop is restricted to the southern and western portions of the EL where sublithic and quartz arenites are exposed as Muriel Range Sandstone. Mapping undertaken by Delta in the central portion of the EL has identified amphibolite and granite. The amphibolite is thought to represent remnants of the MT Charles Beds preserved as roof pendants within the granitic intrusive bodies.

2.3 Mineralisation

The Tanami and Granites Mines represent the most richly mineralised areas in the Tanami region. The largest known Au deposit in the Tanami region is the Callie deposit in the Dead Bullock Soak (DBS) area. Callie is currently mined both from an open pit and underground. North Flinders Mines (NFM) manage the DBS deposits. Gold occurs where a corridor of quartz stringers intersects a micaceous, meta-siltstone in a zone sub-parallel to the axial plane of the Callie Anticline (Shareholder Rep., 1995). Mineralisation is broadly stratabound but does extend into the surrounding sedimentary units.
The Granites deposits, also managed by NFM, occur within a sequence of schists, dolerite intrusives, and meta-pelites extending over a strike length of 8.5km. Sub-economic mineralisation continues at depth below each of the ore-bearing structures.

Recent exploration of the Western Tanami by Tanami Gold and Glengarry Resources has yielded some good results with the definition of significant gold mineralisation at Kookaburra, Sandpiper, and Hawk, along with a host of anomalies which are yet to be tested. A preliminary resource of 1.7 million tonnes at 2.1g/t Au (115,000oz) has been estimated for the Kookaburra Deposit at a 0.5g/t cut-off grade (Tanami Gold Annual Rep., 1997). Definition drilling continues at Sandpiper and Hawk although, initial results suggest that they may be of a similar size to Kookaburra.

Mineralisation in the western Tanami is structurally controlled, and high-grade Au is loosely associated with thin, non-magnetic mafic units. Characteristic features are "paddy" occurrences with low-level (<100ppb) surface expression due to leaching of Au from the upper regolith profile. Recent drilling has shown that oxidation (and leaching) of mineralisation commonly extends to depths of over 100m, implying that grade and width increase below the redox front.

The Tanami Mine Sequence has yielded over 1,000,000oz Au that was mined from numerous pits that are commonly developed on high-grade ore shoots. These shoots are localised at the intersection of 020º and 060º trending structures and plunge ~60º to the southeast. In section, the orebodies display an en-echelon array of one or more sub-parallel shoots dipping to the east at a high angle to stratigraphy (Marsh, 1996). The mineralisation tends to occur in clusters of deposits where the total gold content is of the order of 250,000 oz of gold. Individual deposits typically range from 5,000 oz to 200,000 oz.

No known mineralisation exists with EL7679. A small gold working was identified at the Ice Prospect, located in the southeast portion of EL 7679 Figure 2). Within the Ice Prospect a major "quartz blow" was identified by Delta, and was located in the centre of a soil anomaly. Further RAB drilling by Delta revealed no mineralisation, with the highest result being 0.3 g/t Au, the remaining results were in the vicinity of detection limit 0.01 ppm.

3. EXPLORATION HISTORY

A brief overview of exploration conducted within EL 7679 is provided. A more detailed account of previous exploration can be attained in Annual Reports to the NT DME.

3.1 Previous Exploration
a) 1965, BMR: The Bureau of Mineral Resources undertook an airborne magnetic and radiometric survey of the Tanami Region in 1965. A flight line spacing of 500 metres and an altitude of 90m were used for the survey. Standard total field magnetic intensity maps are available for the Northern Territory Department of Mines and Energy.

b) 1972-1978, BMR: The Bureau of Mineral Resources undertook a regional mapping exercise in the Tanami Region between 1972 and 1978. This work included a considerable amount of stratigraphic drilling and all of this work is presented in the following publications; Bulletin 197, Report 174 and Record 1974/104.

c) 1974-78, Otter Exploration N.L: An airborne magnetic and radiometric survey was conducted within Exploration Licence 1266. A large anomalous area at Office Hill, 5km east of Muriel Range, was gridded and geochemically sampled. Base - metal values of up to 3000ppm Cu, 3000ppm Pb and 10000ppm Zn were reported from sand and lag samples collected over the gridded area. There are no reports of any follow - up to these initial results.

d) 1983-89, North Flinders Mines: Exploration consisted of an airborne radiometric and magnetic survey, limited geological reconnaissance, percussion and diamond drilling. The drilling was undertaken at various locations within EL 2368, however nothing was done within Delta’s Muriel Range licence. No further work was completed within the area demarcated by EL 7679.

e) 1988-89, Feldstone Investments P/L: A re-interpretation at the magnetic data flown by North Flinders was completed which basically confirmed the depth to magnetic basement encountered during the drilling conducted by North Flinders. This magnetic interpretation defines a major unconformity, which strikes East - West through 559000E/771300N. No groundwork was undertaken by Feldstone Investments.

3.2 Exploration Summary 1992 to 1998

1992-1993

A regional surface sampling and mapping program was performed. Soil samples were taken on an offset 500 m x 500 m grid pattern combined with lag sampling where appropriate. This exploration resulted in the definition of several soil anomalies, which were followed up with additional sampling. Exploration targets using aeromagnetic and aerial photograph interpretation were also followed up with ground magnetic and auger traverses. A single highly anomalous gold in soil result was produced in the south of the licence (see 1st Annual Report).

Total expenditure for the first licence year was $ 51,885.50.

1993-1994
The highly anomalous soil geochemistry result located in 1992 was christened the Ice prospect and follow up gridding, ground magnetics, surface geochemistry, and detailed geological mapping were performed on the prospect (see 2nd Annual Report).

Total expenditure for the licence year was $37,433.48.

1994-1995

Shallow RAB drilling was performed on the Ice Prospect and surface also geochemistry defined two new targets. As a result of continued geochemistry new a prospect was established at campsite where gold and copper soil anomalies have been defined cross cutting banded chert dominated lithologies (see 3rd Annual Report).

Total expenditure for the licence year was $117,390.91.

1995-1996

Further RAB drilling on the Ice prospect, detailed geochemistry at the Campsite prospect, which initiated RAB drilling at the Campsite prospect. The results gained from these drilling programs did not encounter significant gold mineralisation (see 4th Annual Report).

Total expenditure for the licence year was $99,354.

1996-1997

Exploration on EL 7679 through a joint venture between Delta Gold and Otter Gold NL (SDJV) was entrusted to Otter Gold NL.

Exploration consisting of a review of previous exploration, an aeromagnetic survey and interpretation, and a regional post-hole drilling program were performed in the time period. The geochemistry associated with the posthole drilling generated two broad geochemical anomalies (Anomaly 1 and Anomaly 2) and several spot discrete spot highs (refer Schusterbauer 1997 STJV 5th Year Annual Report).

Total expenditure for the licence year was $82,790.

1997-1998

Exploration over the period on EL 7679 initially consisted of follow post hole drilling on anomalies 1 and 2 which were outlined in the previous years post hole drilling program. The holes were MRPH 297 – 405 totalling 920 metres.
of drilling. The lithologies encountered in the follow up drilling consisted of granite and quartz biotite schist intruded by a felspar porphyry dyke swarm.

The follow up posthole program did not expand the interpreted anomalous trends outlined in anomaly 1 and anomaly 2. The only assay result, from the posthole drilling, which can be regarded as anomalous is a 15 ppb result taken from 1 to 3 metres in hole MRPH 306.

Total Expenditure for the licence year was $32,950.00.

3.3 Otter Gold NL 1998-1999

During the period between 29th June 1998 and 28th June 1999 no exploration efforts were engaged upon EL 7679. The subject EL was under application for renewal as the initial 6 year period had expired.

An application for renewal of Exploration Licence 7679 (Muriel Range) was made on 22/05/98. The Minister’s consent to enter negotiations with the CLC was given on 31st December 1998. However, the requisite application (Proposal) was not lodged with the CLC within the period stipulated under ALRA. Hence, effective 31/03/99, consent was deemed withdrawn and the renewal refused.

Prompted by failure to renew the EL the STJV has since conducted an exhaustive appraisal of the area’s prospectivity. The STJV have opted not to reapply for the ground.

Total Expenditure for the Final licence year was $6,620.00.
4. EXPENDITURE

Total expenditure on EL 7679 during the period 29th June 1998 to 28th June 1999 (31/03/99) is summarised together with that for life of the tenement (29th June 1992 to 31st April 1999) in Table 1.

**TABLE 1 EL7679 Expenditure Summary**

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5.0 REFERENCES


