Central Desert Joint Venture

RELINQUISHMENT REPORT FOR EXPLORATION LICENCE 9684

18th DECEMBER 1998 – 17th DECEMBER 2000

TANAMI REGION NORTHERN TERRITORY

COMPILED BY: M.MUIR

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SUMMARY

Exploration Licence 9684 was granted to initially to Stockdale Prospecting Ltd on the 18th of December 1996 for a period of six years. The Exploration Lease was transferred to Otter Gold NL on the 9th of April 1999. The tenure was subsequently accepted into the Central Desert Joint Venture by Acacia Resources (now AngloGold Australasia). On completion of the fourth term of the licence Otter Gold NL opted to surrender the licence. A proportion of EL9684 is now combined with the old EL1254 and is currently under application as SEL 10319 applied for on the 11th of December 1998.

Exploration work undertaken during the life of the licence comprised of purchase and analysis of the regional surface samples, helicopter regional surface sampling over selected areas and infill surface sampling programmes over targets generated. A total of seven rock chips, 2365 surface samples. High results of 1.3 ppb Au were returned from the surface samples and 543ppb Au from the rockchips.

Total Expenditure on Exploration Licence 9684 for the period 18th December 1998 to 17th December 2000 was $84478.
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1.0 INTRODUCTION

Exploration Licence 9684 was granted to initially to Stockdale Prospecting Ltd on the 18th of December 1996 for a period of six years. The Exploration Lease was transferred to Otter Gold NL on the 9th of April 1999. The tenure was subsequently accepted into the Central Desert Joint Venture by Acacia Resources (now Anglogold Australasia). On completion of the fourth term of the licence Otter Gold NL opted to surrender the licence. A proportion of EL9684 is now combined with the old EL1254 and is currently under application as SEL 10319 applied for on the 11th of December 1998 for the Central Desert Joint Venture.

EL 9684 is located approximately 70km north of the Tanami Mine Site west of the Lajamanu Road, extending over the majority of the Supplejack Pastoral Lease. EL 9684 comprises of 462 blocks covering an area of 1462km². See Figure 1.

2.0 GEOLOGY

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 and is considered to be one of the western most Palaeoproterozoic inliers of the Northern Australian Orogenic Province. The block is thought to have developed around the Barramundi Orogeny – major event 1845 – 1840 Ma (Blake et al., 1979).

The stratigraphy of the Tanami Region has been revised as a result of an intensive study recently completed by the NTGS (Hendrix et al., 2000). The stratigraphy outlined by Blake et al (1979) has had some significant modifications (Table 1).

The oldest rocks of Archean age belong to the Billabong Complex and the Browns Range Metamorphics. The Browns Range Metamorphics comprise granitic gneiss and muscovite schist intruded by fine-grained granite, thin granitic sills, aplite and pegmatite. The Billabong Complex comprises banded granitic gneiss’, which are generally elongated and fault bound.

Lying unconformably above the Archean basement is the palaeoproterozoic MacFarlane Peak Group. These rocks are characterised by a thick sequence of mafic volcanic, volcanioclastic and clastic sedimentary rocks, which possess a distinctive magnetic and gravity signature. This package of rocks is structurally complex and is considered to have a tectonic contact with the overlying Tanami Group.
The Tanami group is subdivided into three formations:

Twigg Formation: purple siltstone with minor sandstone and chert
Killi Killi Formation: turbiditic sandstone
Dead Bullock Formation: siltstone, mudstone, chert and banded iron formation

The Dead Bullock Formation occurs at the base of the Tanami Group and is dominated by fine-grained sedimentary rocks. The rocks outcrop at Dead Bullock Soak, Lightning Ridge and Officer Hill. At the Granites the rocks have been metamorphosed to amphibolite facies to form andalusite, garnet and hornblende bearing schists. The Dead Bullock formation is host to significant gold mineralisation at the Granites and Dead Bullock Soak.

The Killi-Killi Formation conformably overlies the Dead Bullock Formation and is the most extensive formation in the group. The sequence of turbidites includes micaceous greywacke, quartzwacke, and lithic greywacke, quartz arenite and lithic arenite, interbedded with siltstone, mudstone and occasional thin chert beds. Detrital mica is a characteristic feature. The Killi-Killi is metamorphosed to lower greenschist facies and is interpreted to be up to 4km thick.

The Twigg formation is confined to a narrow package of rocks immediately west of the Tanami Mine corridor. It comprises a sequence of interbedded purple siltstone with thin-bedded chert and minor medium bedded greywacke.

The Pargee Sandstone unconformably overlies the Tanami Group and is exposed on the western side of the Coomarie Dome extending into Western Australia. The
Pargee Sandstone comprises thick-beded quartz arenite, lithic arenite and conglomerate with pebbly sandstone and conglomerate at the base.

The Mount Charles Formation comprises an intercalated package of basalts and turbiditic sediments, which occur on the western side of the Frankenian Dome. The Mount Charles Formation is host to structurally controlled vein hosted gold mineralisation in the Tanami Mine Corridor. Sediments include sandstone, mudstone, carbonaceous mudstones and intraclast conglomerate. Basalts are predominantly massive units with pillow basalts and basaltic breccias also evident.

The Mt Winneke Group is also interpreted to lie unconformably over the Tanami Group. This group is divided into two units including siliclastic sediments and felsic volcanics.

The Nanny Goat Volcanics are characterised by extrusive volcanic rocks including quartz-feldspar ignimbrite, feldspar ignimbrite, rhyolite lava, basalt and minor siliclastic sediments.

The Birrindudu group comprises 3 units with Gardiner Sandstone at the base, overlain by Talbot Well Formation and Coomarie Sandstone. The Suplejack Down sandstone is interpreted to belong to this group but is relationship is unclear. The Birrindudu group lie unconformably over the Browns Range Metamorphic’s, MacFarlane Peak Group, Tanami Group, Pargee Sandstone, Nanny Goat Creek Volcanics and Mount Winnecke Group.

Cainozoic laterite, silcrete, calcrete, 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

Previous geological mapping within the region has expanded from the original AGSO mapping on the Tanami mapsheet 1:250,000 to mapping by the NTDME down to 1:100,000. The preliminary regional basement map the region is shown as Figure 2.

Geologically, the lease is predominantly part of the Coomarie Dome, which extends down to the Tanami Mine region. The Coomarie Dome has intruded Tanami Complex rocks (including Mt Charles Beds, Nanny Goat Creek Beds and Nongra Greek Beds). It is thought that inliers/ roof pendants may exist within some portions of the lease.

Covering these is a series of Upper Proterozoic Birrindudu Group Sediments (including Gardiner Sandstone, Talbot Well Formation and Coomarie Sandstone). To the east of the lease the majority of the younger Cambrian Antrim Plateau Volcanics lie (these consist of Tholeiitic basalt, minor tuffaceous sandstone, and lithic arenite). Previous experience and brief helicopter reconnaissance has suggested that not all the mapped Antrim Plateau Volcanics are as such and may be Tanami Complex in origin.

Obvious outcropping geology is restricted to the Birrindudu Group Sediments.
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EL 9684 - Suplejack Pastoral
CRC LEME Regolith Outlines

Figure 3

Otter Exploration

Suplejack Pastoral Lease

EL 9684

SEL 10319
EL 10397

Otter Exploration
Regolith Legend - Figure 4

- Saprolite partly covered by lags, thin residual soils and colluvium
- Saprolite covered by colluvium (typically < 2m thick)
- Saprolite covered by ferruginous colluvium (typically > 2m < 4m thick)
- Saprolite covered by colluvium or residual soils (typically < 2m thick)
- Saprolite partly covered by highly ferruginous lags, ferruginous lithosols and colluvium
- Saprolite covered by colluvium (typically > 2m < 4m thick)
- Saprolite covered by ferruginous colluvium (typically < 2m thick)
- Ferruginous sediments
- Alluvial and lacustrine sediments
- Saprolite with a veneer of colluvial sand/gravel
- Colluvial sediments
- Colluvial sediments (lateral movement on pediments on sheet flood fans)
- Aeolian sediments
- Saprolite covered by ferruginous colluvium (typically < 2m thick - lateral movement on pediments and sheet flood fans)
- Saprolite covered by colluvium (typically < 2m thick - lateral movement on pediments and sheet flood fans)
3.0 SUMMARY OF PREVIOUS EXPLORATION

An overview of exploration conducted within EL9684 for the previous four years is provided.

3.1 18th December 1996 – 17th December 1997

During the first year of exploration by Stockdale Prospecting, regional loam samples were taken in the search for diamonds. Additional surface samples were taken and kept for each site a loam sample was taken. The samples were taken separately from the loam samples in ‘geochem’ packets to a depth that did not exceed 20 centimetres. The samples were taken on two kilometre by two kilometre grid. An estimated $15,000 was spent on this helicopter reconnaissance by Stockdale.

3.2 18th December 1997 – 17th December 1998

Otter Gold NL and Stockdale Prospecting consolidated an agreement for Otter to explore for gold on Stockdale’s Suplejack licence before the Lease was converted to the Central Desert Joint Venture. During the end quarter of 1998 Otter gold NL was involved in the purchase of, and analysis of the 489 additional surface samples taken by Stockdale Prospecting. The samples were sent to ALS’s Perth laboratory for ZARG analysis.

3.3 18th December 1998 – 17th December 1999

The Exploration Licence was transferred from Stockdale Prospecting to Otter Gold NL on the 9th of April 1999. CRC LEME conducted a regolith study providing effective regolith mapping (see figure 3 & 4). All back ground information was researched. Areas were designated for follow up sampling during 1999 – 2000 after analysis of the surface sample results. Analysis of the results showed less than 1ppb Au anomalism (over a two kilometre by two kilometre grid) however even on this large scale the results ‘appear’ to outline trends that correspond with structures (see figure 5 & 6).

3.4 18th December 1999 – 17th December 2000

Regional surface sampling was carried out on 400m x 400m grid over selected areas highlighted from the Stockdale sampling. Seven of the eight areas tested were sampled using a Robinson helicopter (1058 samples). Of these eight programmes two produced anomalies worth following up (Hereford and Charolais). These were sampled on a 100m x 100m grid (510 samples and 308 samples respectively). These were carried out to define targets for angle RAB. Field visits to the region confirmed discrepancies with the BMR Outcrop Geology. Seven rockchips were taken during the field visits via a helicopter. There still remains an unexplained 543ppb Au rockchip. See Figures 7 to 25.
Area A

Area B

Area C

Area D

Area E

Charolais

Bullock Paddock

Killi Killi Beds

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EL9684 - Suplejack Pastoral
Location Map for Areas of Surface Sampling

Projection: AMG Zone 52 (AGD 84)

FIGURE 7

Scale: 1:250000

Date: 19/2/2001

Author: mm

Office: Tanami

Drawing:

Area A

Area B

Area C

Area D

Area E

Charolais

Bullock Paddock

Killi Killi Beds
Area of Interest

Location Map

Total Au - Surface Samples
Au (ppb)
0.5 to 500
0.3 to 0.5
0.2 to 0.3
0.1 to 0.2
0.05 to 0.1
0 to 0.05
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EL9644 - Suplejack Pastoral
Area F - Surface sampling
Results Map FIG 20

Area of Interest
Location Map

Total Au - Surface Samples
Au (ppb)
- 0.5 to 500
- 0.3 to 0.5
- 0.2 to 0.3
- 0.1 to 0.2
- 0.05 to 0.1
- 0 to 0.05
Figure 25

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EL 9684: Suplejack pastoral
Rockchip location and results Au (ppb)

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EL 9684: Suplejack pastoral
Rockchip location and results Au (ppb)

Figure 25
4.0 EXPENDITURE

Total expenditure on EL9684 during the period 18\textsuperscript{th} December 1998 to 17\textsuperscript{th} December 2000 is summarised in Table 2.

TABLE 2: EL 9684 EXPENDITURE SUMMARY

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Expenditure for December 1999-2000 was tied up in geochemistry which consisted of approximately half being surface sample assays and the other half being taken up with the hire of the helicopter to do the surface sampling.

Administration during the December 1999-2000 period is comprised of wages/salary 90\% and actual administration (tenements etc) 10\%.

The geology expenditure for the December 1998-1999 period is higher because of the input into the CRC LEME project and time spent on interpretation and acquisition of data.
5.0 REFERENCES


