BURNSIDE OPERATIONS P/L

ANNUAL EXPLORATION REPORT

EL23536

"MT OSBORNE"

YEAR ENDING 28th July 2004

BATCHELOR 1:100,000 SHEET

Buffalo Creek Mines P/L, Territory Goldfields NL

Distribution:-

1. **DBIRD Darwin NT**
2. **Northern Gold NL Perth**
3. **Burnside Operations P/L Brocks Creek**
4. **Harmony Gold (Australia) Perth**

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SUMMARY

EL23536 of 22 blocks is located 140km SE of Darwin, NT and surrounds the Brocks Creek mining tenements adjacent to the Darwin-Adelaide railway.

The tenement is subject to the Burnside Joint Venture, managed by Burnside Operations P/L comprising Territory Goldfields NL and Buffalo Creek Mines NL. The latter are subsidiaries of Northern Gold NL and Harmony Gold (Australia) P/L respectively.

The licence covers a variety of Lower Proterozoic geosynclinal metasediments and dolerite sills that are ascribed to the Burrell Creek and Mt Bonnie Formations. The rocks are asymmetrically folded along north-westerly striking axes and have been dislocated by reverse faults sub parallel to the fold axes. Within the adjacent and contiguous Brocks Creek gold project tenements are several open pits and underground workings that since 2002 have been extensively explored by the Burnside Joint Venture. The joint venture has identified several potentially economic gold deposits at Brocks Creek and is continuing its resource development activities in the area.

This is the first year following grant of the licence and the annual expenditure was set at $27,400.

Work on EL23536 has been subordinate to activity on other JV tenements as the emphasis has been on establishing gold resources at established mineralised prospects with a view to production using a local treatment facility. The joint venture has just purchased the Union Reef mill and tenements, which would allow rapid commencement of mining and treatment of Burnside gold deposits already proven.

Expenditure during 2003-04 comprised a remote sensing interpretive study and reporting which extended from work on adjacent MLN1139. This amounted to $850.00.

Parts of the tenement are optimally located to cover extensions to prospective gold-bearing structures that are known within the Brocks Creek and Fountain Head tenements. The tenement requires reconnaissance screening for favourable lithologies and structures supported by rock chip sampling. The historical data in the Brocks Creek library require sorting and collation in 2004-05 which will advance the state of understanding of the tenement's prospectivity. This phase of work is costed at $950.00.

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1.0 INTRODUCTION

EL23536 (Mt Osborne) was applied for to cover vacant ground adjacent to the joint venture's focal Brocks Creek mining tenements. See Fig 2. The tenement has just completed its first anniversary since grant.

The Burnside Joint Venturers comprising Buffalo Creek Mines NL and Territory Goldfields NL have other mineral assets in the immediate area and at Pine Creek. The partners have recently purchased the Union Reef treatment plant and exploration tenements.

Since April 2002 the joint venture has carried out extensive drilling programs on joint venture tenements in the Burnside region and developed the Zapopan underground mine in 2003.

This report deals with exploration activity carried out on EL23536 during the year ending 28th July 2004.

2.0 TENURE DETAILS

EL23536 was granted on 29th July 2003 and expires on 28th July 2009. It comprises 22 blocks that cover approximately 70.84sq.km. The component blocks are considerably fragmented and reduced in effective area by pre existing titles. See Fig. 2.

It is registered in the names of Territory Goldfields NL and Buffalo Creek Mines NL in equal shares. Both companies are signatories to the Burnside Joint Venture.

The expenditure covenant set for this, the first year, was $27,400.

3.0 LOCATION AND ACCESS

EL23536 is situated 140km SE of Darwin NT and partly surrounds MLN1139 and links other component tenements of the Burnside Joint Venture.

The title lies on part of pastoral leases Douglas (Tovehead Pty Ltd, Branir Pty Ltd) and Ban Ban Springs (Ban Ban Springs Station Pty Ltd) Native title rights are administered under the Northern Territory Land Corporation.

Access may be achieved vial the Fountain Head road from the Stuart Highway, the western most block lies close to the Stuart Highway, and the northern sectors may be accessed via the Brocks Creek mill access road that runs east-west on the north side of the railway. The Mt Osborne transmitter mast service road also crosses the tenement.

4.0 GEOLOGICAL SETTING

4.1 Regional Geology

EL23536 is situated within the Pine Creek Geosyncline, a tightly folded sequence of fine to coarse grained clastic basinal sediments of Lower Proterozoic age.

The sequence has been regionally metamorphosed to greenschist facies and has been intruded by late syn-orogenic to post orogenic granitoid intrusions. These intrusions imparted thermal contact metamorphic and metasomatic effects and contributed to the deposition of a range of economic minerals in structurally permissive sites.

Within the region there is a tendency for gold mineralisation to be focused in anticlines within strata of the South Alligator Group and lower parts of the Finniss River Group. This sequence evolved from initial low energy shallow euxinic basinal sedimentation to higher energy deeper water flysch facies. A water-lain tuffaceous component is present and the prospective sequence has been intruded by concordant pre orogenic mafic sills.

Less deformed Middle Proterozoic sedimentary and volcanic sequences unconformably overlie the Lower Proterozoic. Adjacent to the Daly River Basin, Cambo-Ordovician lavas and sediments onlap the older sequences. Cretaceous arenaceous strata are locally preserved as tabletop hill cappings.

Cainozoic to Recent erosion of the cratonised basement has resulted in the formation of hills and ridges alternating with talus and clay-sand alluvial deposits occupying river flats and flood plains.

4.2 Local Geology

The tenement encloses a sequence of Lower Proterozoic metasediments ranging from South Alligator Group to Finniss River Group with the latter predominating and represented by Burrell Creek Formation greywackes and arenites.

The area bounded by the tenement has been folded along axes trending north westerly and with the north eastern anticlinal limbs steep to overturned and locally sheared out by SW dipping reverse faulting.

Towards the eastern domain of the tenement near Mt Osborne and Yam Creek-North Point the sequence as well as fold axes undergo an arcuate strike swing to northerly and then north north easterly. This NNE trend sub parallels the domain of the Hayes Creek Fault system.

Secondary fractures striking NE cross the fold axes and are thought to be important gold mineralisers. Other fractures striking NW cut the eastern domain fabric and are again thought to be mineralisers.

4.3 Mineralisation and Prospectivity

EL23536 is well positioned to host favourable sets of fold and cross fracture settings. The optimal conjunction of South Alligator Group sequences and north east or north west fracture sets may be less common in the south due to the prevalence of Burrell Creek Formation coarse clastics. Nevertheless it is possible that fold crests and reverse faults could bring Mt Bonnie Formation units, or older, to the surface under cover particularly in the far eastern and northern sectors.

A study of the magnetic image shows one area 3km north west of Fountain Head to be very well placed, while areas south and SW of Faded Lily and north west of Yam Creek are also promising.

5.0 PREVIOUS EXPLORATION

The area is peripheral and contiguous to the highly prospective Brocks Creek, Fountain Head and Yam Creek gold mining centres. As such, parts of EL23536 would likely have been included in geological mapping, prospecting, stream sediment, rock chip, and soil sampling by previous explorers including Solomon Pacific, Acacia Resources and Zapopan NL.

Regional airborne magnetic and radiometric coverage of large parts of the area have been carried out.

Further research is needed at Brocks Creek where the library may contain further details of work done in the area.

6.0 EXPLORATION Year Ending 28th July 2004

During the period exploration work by the Burnside Joint Venture was focused in the vicinity of the Zapopan mine, at Cosmo Howley, Fountain Head and Woolwonga. In those areas gold deposits with the scope for development were being drill evaluated to increase the inventory of known resources. An underground decline development was installed at Zapopan to 980m RL in mid 2003 and a 10,000t parcel of development ore was treated at the Union Reef mill. The mill and tenement package was subsequently purchased by the Joint Venture in August 2004.

6.1 Remote Sensing Study

During the year work on **EL23536** comprised a remote sensing study and report writing. The plans supporting this study are Figs. 2, 3, 4 and 5. Figure 2 gives an overview of the project tenements and the location of deposits and open pits actual and proposed.

The **SPOT image** (fig 3) shows the region to be undulating and poorly exposed, drained by seasonal creek systems. More elevated ground exists in the south of the tenement on the flanks of Mt Osborne and its foothills.

The WNW-ESE trending zone of shearing and gold deposits (Brocks Creek-Zapopan Shear Zone) can be clearly seen within MLN1139 south of the railway.

Combined with the **airborne magnetic image** Fig. 4, it can be seen that the north west striking fold axes have been truncated by probable reverse faults sub parallel to the axial zones. In addition there are swarms of NE cross fractures cutting the axes. These are believed to link sites of gold mineralisation where favourable host lithologies are present, such as Mt Bonnie Formation.

The **AGSO geological image** in Fig 5 shows a preponderance of Burrell Creek Formation rocks in the southern sectors of the tenement. This area has to be less prospective, though it is possible that folding and reverse faulting could have elevated slices of Mt Bonnie Fm to surface.

More favourable South Alligator Group lithologies are present in the eastern most blocks of the tenement, near to the Yam Creek-North Point mining centre where strikes are north westerly, parallel to the Fountain Head mineralised axial trend. To the west of Fountain Head several lineaments within EL23536 intersect poorly outcropping Mt Bonnie Formation, and this area is considered a priority target.

7.0 FORWARD PROGRAM 2004-2005

With the acquisition of the Union Reef mill and tenements it is expected that exploratory work at Brocks Creek will escalate in line with the progression of advanced stage resources towards production. It is proposed that the tenement be subjected to ground reconnaissance, rock chip sampling and air photo interpretation focusing on targets already flagged for follow up in the north and east. The historic data held at the Brocks Creek office is to be further investigated with a view to establishing the totality of previous work and designing the next phase of exploration. This work is costed at $950.00.

8.0 REFERENCES

BMR Geological Maps, Batchelor, McKinlay River and Pine Creek 1:100,000.1985.

SPOT and Magnetic images, Northern Gold NL 1996.