#### **BURNSIDE OPERATIONS P/L**

## ANNUAL EXPLORATION REPORT EL24051

### "MARGARET RIVER"

# YEAR ENDING 9<sup>th</sup> August 2005

Territory Goldfields NL, Buffalo Creek Mines P/L

Ban Ban 1:50,000

#### **Distribution:-**

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

Compiled by: John Shaw August 2005

#### **SUMMARY**

EL24051 is located 140km SE of Darwin, NT and 22km NE of Brocks Creek Exploration Office on the Ban Ban 1:50,000 map sheet. The Margaret River flows northwards through the centre of the tenement.

The EL 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 encompasses a suite of metasedimentary rocks that are part of the Pine Creek Geosyncline sequence and it lies north and east of the Woolwonga gold open pit.

This is the first year following grant of the licence and the annual expenditure covenant was set at \$10,000.

The Burnside Joint Venture has been actively exploring the Burnside region since its formation on 4th April 2002. Prior to that date, Northern Gold NL conducted extensive exploration in the region.

Expenditure by the joint venture has been focused on establishing open pit resources through RC drilling at Yam Creek, North Point Mottrams, Chinese South Extension, Fountain Head, Woolwonga and Pine Creek. Underground development and diamond drilling was carried out at the Zapopan Mine in 2003. At Cosmo Howley, programs of diamond drilling have established a gold resource containing an *in situ* 1 million ounces.

During the year a program of exploratory RAB drilling was extended into EL24051 as part of a larger program testing the SE strike extensions of the Woolwonga structural trend. Within EL24051 this work comprised 28 holes for a total of 359m. The program did not locate anomalous gold values.

In August 2004 the joint venture purchased the gold treatment plant and tenements at Union Reefs. At the same time it sold its smaller plant at Brocks Creek to Tanami Gold NL. It is hoped that with this acquisition gold resources under the group management will commence development in 2005.

Expenditure on EL24051 during 2004-2005 comprised RAB drilling and remote sensing interpretation. Along with reporting costs, expenditure in the year amounted to \$10,863.

A forward program of reconnaissance mapping and geochemistry along the NE limit of the Pine Creek Tectonic Zone is recommended at a cost of \$3,500.00.

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#### 1.0 INTRODUCTION

EL24051 (Margaret River) was applied for to extend coverage of vacant ground north and east of the tenements containing the Woolwonga open pits. The tenement has just completed its first anniversary since grant.

Since 4<sup>th</sup> April 2002 the Burnside Joint Venturers comprising Buffalo Creek Mines NL and Territory Goldfields NL have explored other mineral assets in the immediate area including Woolwonga, Yam Creek and Fountain Head. In addition the JV developed the Zapopan underground mine in 2003 and diamond drilled the Cosmo Howley "Deeps" resource between 2003-2005.

This report deals with exploration activity carried out during the year ending 9<sup>th</sup> August 2005.

#### 2.0 TENURE DETAILS

EL24051 was applied for on 9<sup>th</sup> October 2003 and was granted on 10<sup>th</sup> August 2004. It expires on 9<sup>th</sup> August 2010 and comprises 26 blocks that cover approximately 8,658ha.

It is adjacent to the Woolwonga project tenements on the north east side. It is registered in the names of Territory Goldfields NL and Buffalo Creek Mines NL in equal shares and is unencumbered by third party tenements.

The expenditure covenant set for this, the first year, was \$10,000.00.

#### 3.0 LOCATION AND ACCESS

EL24051 is situated 140km SE of Darwin NT and 22km NE of Brocks Creek Mine Office on the Darwin-Alice Springs railway.

Access to the tenement is via the Stuart Highway, thence north via the Fountain Head/Ban Ban Springs sealed road that comprised the haul road for Woolwonga in the mid 1990s. The access deteriorates beyond Woolwonga but reasonable dry season access can be gained using bush tracks that service the Ban Ban Springs pastoral area. Details may be seen on Figs. 1, 2, and 3. The Margaret River and tributaries meander northward through the tenement.

The tenement falls on the Pine Creek 1:250,000 sheet, the McKinlay River 1:100,000 and on the Ban Ban 1:50,000 sheet. The tenement also is within the Ban Ban Springs pastoral lease.

#### 4.0 GEOLOGICAL SETTING

#### 4.1 Regional Geology

EL24051 is situated within the Pine Creek Geosyncline, a tightly folded sequence of Lower Proterozoic rocks, 10km to 14km in thickness, laid down on a rifted granitic Archaean basement during the interval ~2.2-1.87Ga. The sequence is dominated by pelitic and psammitic (continental shelf shallow marine) sediments with locally significant inter-layered cherty tuff units. Pre-orogenic mafic sills of the Zamu Dolerite event (~1.87Ga) intruded the lower formations of the South Alligator Group.

During the Top End Orogeny (Nimbuwah Event ~1.87-1.85Ga) the sequence was tightly folded, faulted and pervasively altered with metamorphic grade averaging greenschist facies with phyllite in sheared zones

The Cullen intrusive event introduced a suite of fractionated calc-alkaline granitic batholiths into the sequence in the period ~1.84-1.80Ga. These high temperature I-type intrusives induced strong contact metamorphic aureoles ranging up to (garnet) amphibolite facies, and created regionally extensive biotite and and allusite hornfels facies.

Less deformed Middle and Late Proterozoic clastic rocks and volcanics have an unconformable relationship to the older sequences. Flat lying Palaeozoic and Mesozoic strata along with Cainozoic sediments and proto-laterite cementation overlie parts of the Pine Creek Geosyncline lithologies. Recent scree deposits sometimes with proto-laterite cement occupy the lower hill slopes while fluviatile sands, gravels and black soil deposits mask the river/creek flats areas.

There is a tendency for gold mineralisation to be focused in anticlinal settings within strata of the South Alligator Group and lower parts of the Finniss River Group. This sequence evolved from initial low energy shallow basinal sedimentation to higher energy deeper water flysch facies. Dated at ~1740Ga (Sener 2004) the gold events post dated the Pine Creek Orogeny and Cullen intrusive events and has favoured suitable lithostructural sites in the biotite-hornfels contact facies.

#### 4.2 Local Geology

The tenement encloses a sequence of Finniss River Group clastic sediments that are folded and faulted on north west axial trends in parallel with the Pine Creek Tectonic Zone, a ductile high strain regional feature that is some 3km wide. The Tectonic Zone occupies the south western sector of the exploration licence. The "Great Dyke", a regionally persistent, thin, magnetic late stage dolerite, follows the Tectonic Zone

through the Union Reefs area and passes close to Woolwonga Pit. The dyke appears to lie just outside (SW of the Zone) in the Woolwonga region. Fig. 5.

A regional scale NE linear corridor also passes between the Burnside and the Prices Spring Granites. The intersection of these two major features occurs within the tenement and may have significance in terms of local crustal geometry and hydrothermal fluid flow. The north easterly alignment can best be seen on regional scale geological plans.

The tenement occupies the country between the Margaret Granite contact and the Prices Spring Granite. In this area the Finniss River Group is represented by sparse low outcrops of Burrell Creek Formation which is typically a cyclic greywacke-dominated assemblage with subordinate dark siltstone and mudstone packages. Black soil and other alluvial deposits relating to the Margaret River and its tributaries mask large areas of the tenement. Several lineament sets cross the tenements (Fig 5) and most appear to be related to the Pine Creek Tectonic Zone.

#### 4.3 Mineralisation and Prospectivity

The structural setting is attractive, however relatively less prospecting and exploration has occurred here and no mines or prospects are known. The tectonic zone hosts the Union Reefs gold mining centre further to the south, though the thermal and tectonic metamorphic imprint may not be sufficiently intense or focused in EL24051.

The historic exploration data base shows several anomalous stream sediment samples aligning NW-SE, coinciding with the NE margin of the Pine Creek Tectonic Zone. In addition there is a large topographic anomaly at and to the north of 780000mE 8520000mN. Both target zones warrant ground investigation.

The tenement is a grass roots exploration prospect that will require mapping, rock chip sampling and geochemical surveys. The flood plain of the Margaret River presents more difficult and expensive exploration terrain with bedrock drilling required in structurally permissive areas. A program of RAB drilling in 2004, in the south of the tenement, did not meet with anomalous values.

#### 5.0 PREVIOUS EXPLORATION

The area has been subjected to reconnaissance stream sediment sampling. Soil and rock chip programs have been carried out in the southernmost sector of the tenement near the contact with the Prices Springs Granite where anomalous gold values were reported.

Several (6) anomalous stream values in the range 40-200 ppb Au appear to align NW-SE close to the interpreted north eastern boundary of the Pine Creek Tectonic Zone (Fig.5)

Also in the south westernmost block, that lies on the SE strike extrapolation of the Woolwonga structural trend, RAB and soil anomalism (40-150ppb) was reported from previous work. This lies near to the 2004 RAB drilling coverage and close to the Palm Springs-Darwin gas pipeline.

## 6.0 EXPLORATION YEAR ENDING AUG 9<sup>TH</sup> 2005

During the year the Burnside Joint Venture carried out an angled RAB drilling program on lines across the SE trend of the Woolwonga mineralisation. This work extended across the Margaret River onto EL24051.

The rationale behind the work was the recognition of a regular periodicity in cross folds along the Woolwonga trend. At intervals the prospective stratigraphy was thought to emerge due to fold plunge reversals. The drilling in EL24051 was directed at one of these interpreted emergences.

Holes were drilled on lines on local grid east-west. (45 degrees magnetic). They were all drilled vertically to an average of 13m depth. The program totalled 28 holes for 396m. See Fig.4. The program was unsuccessful in locating anomalous gold values. Metasedimentary rocks of greywacke-siltstone facies were met with in the drilling.

Assays were by single metre fire assay with 50g catchweight and detection limit of 0.01ppm. Analysis was carried out at Pine Creek at NAL.

The following table summarises the 2004 drilling program by tenement.

**Table of Drilling Locations by Tenement.** 

<b>Tenement Drilled</b>	Number of Holes Drilled	Total metres Drilled
MLN1103	30 (SWB001-0030)	568
SEL24352	9 (SWB33-40, 51)	147
EL24051	28 (SWB31-32, 41-50, 52-67)	369
Total	67	1084

Details of the drilling results within EL24051 are set out in the digital Appendix.

#### 7.0 EXPENDITURE STATEMENT 2004-2005

Salaries and Wages	\$ 960.00
Geological Reporting, Interp.	\$1,050.00
Assay costs	\$3,826.00
Drilling RAB	\$4,797.00

### 8.0 FORWARD PROGRAM TO AUG. 9TH-2006

EL24051 has a subordinate ranking compared to its more advanced gold resource targets in the region, however there is structural merit in the geological setting and sufficient evidence of gold anomalism to warrant further grass roots exploration.

With the acquisition of the Union Reef gold treatment facility all the advanced stage resources in the Burnside Region are being prepared for potential start up and economic review.

To advance the status and ranking of EL24051 a grass roots program of reconnaissance geological mapping, rock chip and soil sampling is necessary. This should focus initially in the areas of anomalous stream sampling, along the NE boundary of the Pine Creek Tectonic Zone. The topographic anomaly around and north of 780000mE 8520000mN warrants investigation.

This program would require an expenditure of \$3,500.00.

## 9.0 REFERENCES

BMR Geological Map, McKinlay River 1:100,000. Pub.1985.

Shaw J. (2003) Annual Exploration Report EL23270, Year ending 19<sup>th</sup> March 2004. For DBIRD and Burnside JV.

Shaw J.(2004) Annual Exploration Report, MLN1103, MCN3705-3707, Woolwonga Group, Year ending 25<sup>th</sup> April 2005.