BURNSIDE OPERATIONS P/L

ANNUAL EXPLORATION REPORT

EL23432

“HAYES CREEK NORTH”

YEAR ENDING 8th May 2004

FENTON 1:50,000 SHEET

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
May 2004
SUMMARY

EL23432 is located 140km SE of Darwin, NT and 3km north of Hayes Creek on the Stuart Highway.

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 is centred on a topographically elevated area mainly comprising Burrell Creek Formation metasediments. The latter are part of the Lower Proterozoic Pine Creek Geosyncline. Older, more prospective rocks of the Koolpin Formation and Mt Bonnie Formation, underlie the westernmost block of the licence.

This is the first year following grant of the licence and the annual expenditure was set at $6,000.00.

The joint venture has been actively exploring the Burnside region since its formation in April 2002. Work to date has been focused on establishing open pit resources through RC drilling at Yam Creek, Mottrams, Chinese South, and Woolwonga. Underground development and diamond drilling has been carried out at the Zapopan Mine and diamond drilling at the Cosmo Howley Mine.

Work on EL23432 has been subordinate to activity on other JV tenements as the emphasis has been on establishing gold resources at established mineralised prospects. Expenditure during 2003-04 was related to a remote sensing study and reporting. This amounted to $650.00.

A large volume of unsorted historic exploration data exists at the Brocks Creek library. Sorting and collation of this data in 2004-05 will advance the state of understanding of the tenement’s prospectivity. This work is costed at $700.00.
LIST OF CONTENTS

SUMMARY PAGE 2

1. INTRODUCTION PAGE 4
2. TENURE DETAILS PAGE 4
3. LOCATION AND ACCESS PAGE 4
4. GEOLOGICAL SETTING PAGE 5
   4.1 Regional Geology
   4.2 Local Geology
   4.3 Mineralisation and Prospectivity PAGE 6
5. PREVIOUS EXPLORATION PAGE 6
6. EXPLORATION DURING 2003-04 PAGE 6
   6.1 Remote Sensing Study
7. FORWARD EXPLORATION 2004-05 PAGE 7
8. LIST OF REFERENCES PAGE 8

LIST OF FIGURES

FIGURE 1 Location Plan EL23432 A4 1:250,000
FIGURE 2 EL23432 with TMI Magnetics, linears A4 1:50,000
FIGURE 3 EL23432 with SPOT Image, A3 1:25,000
FIGURE 4 EL23432 with AGSO Geology A4 1:50,000
FIGURE 5 EL23432 with TMI and Thorium drape A4 1:50,000

LIST OF APPENDICES

APPENDIX ONE Digital copy of this report and Figures.
1.0 INTRODUCTION

EL23432 (Hayes Creek North) was applied for to cover vacant ground south east of the Cosmo Howley gold mineralised trend. 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.

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 EL23432 during the year ending 8th May 2004.

2.0 TENURE DETAILS

EL23432 was granted on 9th May 2003 and expires on 8th May 2009. It comprises 6 blocks that cover approximately 19.32sq.km.

It is registered in the names of Territory Goldfields NL and Buffalo Creek Mines NL in equal shares. It is unencumbered by third party tenements and is transected by the Stuart Highway.

In the late 1990’s part of the licence was held by Acacia Resources Ltd as EL9428. Prior to Acacia, that area was owned by Solomon Pacific Resources.

The expenditure covenant set for this, the first year, was $6,000.

3.0 LOCATION AND ACCESS

EL23432 is situated 140km SE of Darwin NT and 3km north of Hayes Creek Roadhouse on the Stuart Highway. Brocks Creek lies 9km to the north, and is the location of a gold treatment plant owned by the Burnside Joint Venture.

The Stuart Highway crosses the south western block of the tenement and this sector is thus easily accessible. Further east and north east extensive elevated outcrops and ridges of Burrell Creek Formation have been dissected by a network of creeks. This less prospective area is also the least accessible. The location may be seen on Figs. 1, 2, and 3. The tenement falls on the Pine Creek 1:250,000 sheet and on the Fenton 1:50,000 sheet. It falls within Douglas pastoral lease.

4.0 GEOLOGICAL SETTING

4.1 Regional Geology

EL23432 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 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 South Alligator Group sediments that lie on the eastern limb of the Howley Anticline, a regional upright arcuate fold with the eastern limb generally steeper than the western. The domain is bounded to the east by the Hayes Creek Fault, a major north east striking fracture system.

Within the tenement South Alligator Group sediments occupy the westernmost block. These include NW striking, east dipping dark mudstones and siltstones of the Koolpin Formation, cherty tuffite and siltstone of the Gerowie Tuff, and siltstone-greywacke of the Mt Bonnie Formation. Semi-concordant Zamu Dolerite sills are present in much of the South Alligator Group and appear to intrude Wildman Siltstone in this area.

The bulk of the remainder of the tenement is underlain by elevated outcrops of younger Burrell Creek Formation greywackes that extend north eastward to culminate in Mt Osborne. (AGSO plan Fig. 4)

The magnetic image, Fig.2, shows that several sets of faults and fractures cross the tenement. One set of interpreted reverse faults strike NW while a hinge fault strikes 66 degrees magnetic.
4.3 Mineralisation and Prospectivity

The author is not aware of gold-mineralised occurrences within EL23432. It is to be expected that exposures of South Alligator sediments in the western sector near the Stuart Highway, comprise the more prospective ground in the tenement. Typically in the region, gold is focused on anticlines and reverse faults associated with asymmetric fold crests within South Alligator Group rocks. Such settings are not known to occur in EL23432, however on the basis of present knowledge, mapping, sampling and other exploration appears to have been fairly diffuse within the tenement.

5.0 PREVIOUS EXPLORATION

Part of the area comprising EL23432 was held in the early 1990’s by R.Biddlecombe and subsequently by Solomon Pacific as the result of an agreement. The same ground, EL9428, was acquired by Acacia Resources Ltd when it became owner of Solpac around 1996. They named the tenement “Thorium” due to a radiometric high in that band.

There is no information to hand regarding any detailed geological mapping or soil/rock chip sampling in the parts of the tenement now held. There is remote sensing data available and Acacia was planning a detailed airborne magnetic survey in 1998-1999. It is to be expected that the elevated Burrell Creek Formation terrain in the centre and east of the tenement would not have attracted much attention in the past.

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

6.0 EXPLORATION DURING 2003-2004

During 2003, the first year of grant of the tenement, exploration work by the Burnside Joint Venture was focused in the vicinity of the Zapopan mine and at Cosmo Howley. In those areas gold deposits with the scope for development are being drill evaluated to increase the known resource base to feed a central treatment plant. An underground decline development was installed at Zapopan to −100m RL in mid 2003 and a 10,000t parcel of development ore was treated at the Union Reefs mill.

6.1 Remote Sensing Study

During the year work on EL23432 comprised a remote sensing study and report writing. The plans supporting this study are Figs. 2, 3, and 4.

The SPOT image (Fig.3) shows the elevated terrain drained by Recovery Creek and its tributaries, and underlain largely by Burrell Creek Formation greywackes. Bedding trends at the eastern end strike north to north easterly (20 degrees magnetic) and dip westerly.
The overall structure appears to be a distorted and faulted syncline. The magnetic image (Fig.2) shows a distinct hinge fault striking 66 degrees magnetic that transects the northernmost block of the tenement and marks a change in bedding strike between a northern and southern domain. Most of the tenement lies within the southern domain.

Faults that strike north westerly (310 degrees magnetic) cut the bedding trends at a high angle in the southern domain as shown on the magnetic image. Extrapolation of structural setting in the vicinity of the Cosmo Howley mine suggests that these fault sets are reverse faults dipping steep south westerly. This set is commonly associated with gold mineralisation, particularly where they intersect the 66 degree set; for example at Zapopan and other deposits along the Brocks Creek-Zapopan Shear Zone.

It is recommended that sites of comparable fault intersections be given priority, though unfavourable lithologies may downgrade the settings in EL23432.

The AGSO geological image in Fig 4 shows favourable South Alligator Group lithologies are present in the western most block of the tenement, near to the Stuart Highway and Long Airstrip. This sequence dips east into the tenement away from the Fenton Dome. These warrant priority attention, though again, favourable structures are a pre requisite for mineralisation.

Figure 5 shows the magnetic image with east illumination, draped with thorium radiometric response. The image suggests that the Burrell Creek Formation outcrop is generally higher in thorium than surrounding units and alluvium. The thorium high in the NW centre of the tenement coincides with a darker tone on the SPOT image. Subject to field inspection it is possibly of lateritic origin.

The cost of this study was $650.00.

7.0 FORWARD PROGRAM 2004-2005

It is desirable to identify details of previous exploration work in the tenement before embarking on significant new field work. The Brocks Creek technical library is thought to contain the relevant information, particularly that collected by Dominion Mining and Northern Gold NL.

It is planned to access this data and compile any geochemical, geological or drilling information. Geological traverses and rock chips are also recommended. The cost of this work is expected to be $700.00.
8.0 REFERENCES
