BURNSIDE OPERATIONS P/L

ANNUAL EXPLORATION REPORT
EL23431

“MT BONNIE WEST”

YEAR ENDING 19th December 2005

BURRUNDIE 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:
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SUMMARY

EL23431 is centred 140km SE of Darwin, NT and 14km SE of Brocks Creek. It is part of 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. An agreement was signed in September 2005 that saw Harmony sell all its interest in the joint venture to Northern Gold NL. Subsequently Northern Gold NL has been taken over by GBS Gold of Canada.

This is the third year of the licence following grant and the annual expenditure was set at $1,200.00. for the four block group.

The tenement encompasses a suite of metasedimentary rocks belonging to the Lower Proterozoic South Alligator Group. The Group is part of the Pine Creek Geosyncline sequence and is contiguous with the base metal and gold mineralised localities of Mt Bonnie and Golden Dyke. The Hayes Creek Fault strikes north east through the centre of the prospect and is important in the localisation of gold mineralisation.

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-North Point, Mottrams, Chinese South Extension, and Woolwonga. Underground resources have been developed at the Zapopan Mine and Cosmopolitan Howley through diamond drilling and computer modelling. At the latter, drilling has outlined one million ounces of gold resources.

During 2004 the joint venture purchased the Union Reefs mill and tenement package, at the same time selling the Brocks Creek mill to Tanami Gold NL. With the consolidation of tenement ownership in the region and with a continued favourable Australian gold price the opportunity to re open the Union Reefs milling operation is enhanced.

Work on EL23431 has been subordinate to activity on other JV tenements as the emphasis has been on establishing gold resources at established mineralised prospects. It is anticipated that the new ownership will need to undertake a thorough review of its gold assets in the region and rank them in line with their ability to yield gold resources.

Work during the year comprised an updated structural interpretation. Together with reporting and work on the historical database, the expenditure amounted to $1,250.00. This barely exceeds the covenant for the year, however it is anticipated that in the event of a start-up of the Union Reefs mill overall exploration activity by the JV will escalate in 2006. The anticipated first pass GBS Gold review of the ground is estimated to cost $1,500.00.
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1. INTRODUCTION

The Mt Bonnie West EL23431 was applied for to cover a vacant, potentially mineralised setting west of Mt Bonnie and straddling the Hayes Creek Fault. The tenement has completed its third anniversary since grant.

The Burnside Joint Venturers comprising Buffalo Creek Mines NL and Territory Goldfields NL have other mineral assets in the immediate area: at Mt Bonnie to the east and along the Hayes Creek Fault trend that passes through the centre of the EL. Since April 2002 the joint venture has carried out resource evaluation drilling programs at the adjacent Yam Creek (Princess Louise) and North Point prospects. In addition the JV developed the Zapopan underground mine to 980RL and conducted diamond core drilling to evaluate the Cosmopolitan Howley ‘deeps’. The Union Reefs mill was purchased by the JV during 2004 concurrent with the sale of the Brocks Creek mill.

This report deals with exploration activity carried out during the year ending 19th December 2005.

2. TENURE DETAILS

EL23431 was granted on 20th December 2002 and expires on 19th December 2008. It comprises four blocks that cover approximately 13.22sq. km. Several pre-existing tenements along the Sandy Creek trend and at Mt Bonnie reduce the effective area of the EL. Some are owned by the joint venture and others are held by unrelated parties. See Fig. 2.

The EL is registered in the names of Territory Goldfields NL and Buffalo Creek Mines P/L in equal shares. A dealing in September 2005 saw Buffalo Creek Mines P/L sell its 50% equity to Northern Gold NL. In turn Northern Gold has been subject to takeover by GBS Gold of Canada. If final approvals are given, this constitutes a consolidation of titles in the Burnside region under one owner.

The expenditure covenant set for this year was $1,200.00. A waiver from 50% reduction was applied for.

3. LOCATION AND ACCESS

EL23431 is situated 140km SSE of Darwin NT and 14km SE of Brocks Creek siding on the Darwin-Alice Springs railway. Brocks Creek is also the location of a gold treatment plant recently sold by the Burnside Joint Venture and is close to the Zapopan underground mine development.

Access to the tenement is via the Stuart Highway, thence north via the Grove Hill and Mt Bonnie unsealed road that passes through the tenement. The main resource locations owned by the joint venture, and where most work has been conducted, may be seen on Fig. 1.
The tenement falls on the Pine Creek 1:250,000 sheet and on the Burrundie 1:50,000 sheet. The tenement also is within the Douglas Pastoral Lease.

Outcrop of Pine Creek Geosynclinal sediments occur through much of the tenement and this area comprises undulating hills and ridges of low to moderate relief. Ephemeral creek systems have aggressively dissected the softer units, locally making access complex and difficult except on established tracks. In the north west of the tenement alluvial flats and lower rises dominate.

4. GEOLOGICAL SETTING

4.1 Regional Geology

EL23431 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 Archaen basement during the interval ~2.2-1.87Ga. The sequence is dominated by pelitic and psammitic (continental shelf shallow marine) sediments with minor inter-layered tuff units. Pre-orogenic mafic sills of the Zamu Dolerite event (~1.87Ga) intruded the lower formations of the South Alligator Group and part of the Mt Partridge Group.

During the Top End Orogeny (Nimbuwah Event ~1.87-1.85Ga) the sequence was tightly folded and pervasively altered. Metamorphic grade averaging greenschist facies to phyllite. 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 more extensive biotite and cordierite-andalusite hornfels facies.

Open-folded Middle and Late Proterozoic clastic rocks and volcanics have an unconformable relationship to the older sequences. Flat lying Cambro-Ordovician sandstone and limestone of the Daly River Basin along with hill-cappings of Mesozoic arenites overlie the folded basement.

Cainozoic sediments and proto-laterite overlie parts of the Pine Creek Geosyncline lithologies. Recent scree deposits occupy the lower hill slopes while fluviatile sands, gravels and red and black soil deposits mask the river flood plain areas.
4.2 Local Geology

EL23431 straddles the Hayes Creek Fault, a major north east striking feature that has dislocated rocks of the South Alligator and Finniss River Groups. The fault also has a spatial association with gold deposits.

The Hayes Creek Fault separates domains of older units to the south east and slightly younger units to the north west. This implies the SE domain has been upthrown relative to the NW domain and may be a reverse fault related to late stage Shoobridge Event stresses.

The south eastern domain comprises an open folded sequence of Koolpin Formation mudstones, siltstones and cherty ironstones; Gerowie Tuff comprising alternations of cherty tuffite and silt-greywacke, and Mt Bonnie Formation siltstone, mudstone, greywacke and chert horizons. All three formations have been invaded by the Zamu Dolerite event, usually as concordant sills of variable thickness and frequency. The domain is characterised by a dome and basin fold style and is reasonably well exposed. Fold limbs adjacent to the Hayes Creek Fault have been aligned with it. This suggests that the fault represents a failed anticline with south east side up in the manner of a reverse fault. The metamorphic grade of the sequence is biotite (garnet) hornfels superimposed on greenschist facies. Within the Koolpin Formation horizons of tourmalinite have been described. Other units have been converted to calc-silicate amphibole horizons.

The north western domain includes Gerowie Tuff, Mt Bonnie Formation plus the conformably overlying Burrell Creek Formation of the Finniss River Group. The latter is dominated by lithic greywacke and siltstone packages and does not seem to have been included in the Zamu Dolerite intrusive event. The formations are aligned north-easterly, parallel to the Hayes Creek Fault, with the oldest units outcropping adjacent to it. The interpretation of this domain differs somewhat from the AGSO mapping and ground traverses are required to resolve any differences. Exposure is of lesser quality in the NW domain. This domain also shows an absence of basin and dome fold patterns when compared with the SE domain.

The interpretation (Fig. 3) shows a set of late NW-SE fractures cutting both domains and the Hayes Creek Fault. These NW fracture swarms often coincide with or pass close to gold prospects where favourable lithologies are present.

4.3 Gold Mineralisation

Recent studies (Sener 2003) show that the Pine Creek-Burnside gold mineralising event was superimposed post folding and post granitoid at around 1740Ga and is
related to plate-cratonising and subduction events that affected southern Australia at that time.

Sener demonstrated that gold mineralisation in the Burnside and Pine Creek region was best developed in the biotite hornfels metamorphic aureole of the Cullen suite. The association is thought to be due to optimal rock qualities acquired from Cullen contact thermal influence.

In view of the post orogenic and post granite age of the Burnside gold event, the well documented association of gold with anticlinal structures in the region is likely to be due to the presence of more favourable structural preparation criteria. The coincidence of older brittle quartz veins, reverse and radial faults and solution-ponding effects focused in anticlines would contribute. The late orogenic Shoobridge fold event probably played a part by inducing axial plunge reversals on to the earlier Nimbuwah Event and creating the basin and dome effect.

Gold is well known in a variety of settings in the vicinity of EL23431. Koolpin Fm. occurrences at Golden Dyke Dome are similar to those at Cosmo Howley and have been considered syngenetic in style or at least strata-bound. Sener’s work and other observations show that an epigenetic origin is most likely with rock chemistry, metamorphic state and rheidity setting more likely to have played a dominant part.

At Sandy Creek in the centre of the EL (excised) an area of alluvial workings have exploited gold shed from auriferous cross fractures in Zamu Dolerite and Mt Bonnie Fm.

To the north of the tenement the Joint Venture has established a gold resource at Princess Louise (Yam Creek Centre) where greywacke-dominant packages in anticlinal settings within Mt Bonnie Fm have been preferentially cross fractured and gold mineralised.

To the east, the Mt Bonnie Mine tenements (Au. Pb, Zn, Cu Ag) are contiguous with the eastern boundary of the licence. The base metal deposit appears to occur as strata bound lenses of massive sulphides within the lowermost members of the Mt Bonnie Formation. These dip 40 degrees west at the deposit. The original gossanous oxide portion of the deposit was enriched in gold and silver and was mined out in 1983 by Henry and Walker Ltd. A reported 110,000t @ 7.0g/t Au and 286g/t Ag was treated.

It is possible that down plunge, and NW of the Mt Bonnie Mine lenses of massive sulphide may occur over the boundary, within the EL. The magnetic anomaly caused by the known deposit does not appear to be repeated elsewhere within the tenement, however, though magnetic signatures are not a pre requisite for this style of deposit.
5. **PREVIOUS EXPLORATION**

There appears to have been little work of a geochemical nature specific to EL23431. The southern sector of the SE domain has been subjected to reconnaissance soil sampling without significant result. Elsewhere within EL23431 it would be expected that regional stream sediment sampling for gold and base metals, plus geological mapping would have been carried out in the 1980s or 1990s. It is likely that relevant data exists in the mass of technical information inherited from Dominion Mining NL located at the Brocks Creek office library. Sorting and cataloguing this hard copy material progressed during the year.

There is considerable detail of work carried out in tenements adjacent to the EL and this has been described in other Burnside JV annual reports. (Mt Bonnie, Iron Blow, Golden Dyke, Sandy Creek Davies No.1 etc.) Apart from Mt Bonnie, the bulk of gold production in the vicinity of the tenement appears to have been alluvial in style, concentrated from dispersed faults and fractures in the bedrock.

The Golden Dyke/Sandy Creek data has relevance to EL23431 and was reproduced in full in the 2003 annual report.

The **Sandy Creek** area, central to and excised from the EL, was explored by Geopeko in **1985**. This region was seen to contain some of the most concentrated and extensive alluvial diggings in the Pine Creek Geosyncline.

Initial bulldozer costeanning was completed over old basement workings for 700 m, in the Sandy Creek area. The costeans were mapped, and approximately 170 rock chip samples were collected. The results indicated spotty gold distribution in quartz veins as values ranged from 60 grams of coarse gold, dollyied from less than 20kg of quartz, to less than 1 g/t Au in the same vein (Nicholson, 1986a).

Further work at Sandy Creek consisted of an area, approximately 30m by 130m, being stripped to bedrock. The quartz veins were mapped and 23 samples were collected. No significant assays were returned. Several additional areas were scraped back to bedrock, approximately 0.3m in depth, identifying a zone 125 m long by 10m wide, with quartz veins assaying to 6.0 g/t Au.

During March **1987**, Dominion Gold Operations Pty. Ltd. collected 15 aggregate rock chip samples from the northern part of Sandy Creek (MCN 632).

Samples were collected from discontinuous, poorly exposed and brecciated, quartz veins, 50cm to 2m in width, around the pits. The peak assays returned ranged from 2.1 to 6.4 g/t Au. The samples of gossanous, BIF reefs, on the ridge further south returned values of 0.04 to 0.45 g/t Au (Shepherd, 1987).
EL23431 is considered to be a lower priority target area compared to other resource rich locations within the Burnside region. In the context of longer term gold potential the tenement is of strategic exploration importance as it lies adjacent to significant base metal and gold occurrences.

During the period a continued strong financial commitment to the area was demonstrated. Extensive programs of diamond core drilling were completed at the Cosmo Howley mine testing deeper extensions to the deposit. So far, a million ounces of gold is now estimated to lie within the resource drill pattern. Other work was directed at the Fountain Head and Pine Creek deposits.

Within EL23431 work during the 2005 year comprised an updated structural interpretation using SPOT imagery plus reporting and database work.

### 6.1 Structural Interpretation

EL23431 straddles the Hayes Creek Fault, a major north east striking feature that has dislocated rocks of the South Alligator and Finniss River Groups. The fault also has a spatial association with gold deposits.

The structural analysis (Fig 3) correlated to AGSO mapping shows that the fault separates domains of older units to the south east and slightly younger units to the north west.

**The north western domain** includes Gerowie Tuff, Mt Bonnie Formation plus the conformably overlying Burrell Creek Formation of the Finniss River Group. The latter is dominated by lithic greywacke and siltstone packages and does not seem to have been included in the Zamu Dolerite intrusive event. The formations are aligned north-easterly, parallel to the Hayes Creek Fault, with the oldest units outcropping adjacent to it. The interpretation of this domain differs somewhat from the AGSO mapping and ground traverses are required to resolve any differences. Exposure is of lesser quality in the NW domain, but historical gold occurrences within Burrell Creek Formation are infrequent less robust and in this area.

**The south eastern domain** comprises an open-folded sequence of Koolpin Formation mudstones, siltstones and cherty ironstones; Gerowie Tuff comprising alternations of cherty tuffite and silt-greywacke, and Mt Bonnie Formation siltstone, mudstone, greywacke and chert horizons. All three formations have been invaded by the Zamu Dolerite event, usually as concordant sills of variable thickness and frequency. The domain is characterised by a dome and basin fold style and is reasonably well exposed. Fold limbs adjacent to the Hayes Creek Fault have been aligned with it.
This suggests that the fault represents a failed anticline with south east side up in the manner of a reverse fault. The geometry of the warping of the fold structures in the vicinity of the Hayes Creek Fault is suggestive of dominantly dextral-lateral movement in combination with the compression of reverse faulting.

The metamorphic grade of the sequence is biotite (garnet) hornfels superimposed on greenschist facies. Within the Koolpin Formation horizons of tourmalinite have been described. Other units have been converted to calc-silicate amphibole horizons.

In terms of gold and base metal potential the SE domain has to be preferred. The interpretation shows a set of late NW-SE fractures cutting all lithologies and the Hayes Creek Fault. These interpreted NW fractures are the more visible members of parallel swarms. They frequently coincide with gold prospects where favourable lithologies are present.

There is also a set of WNW trending fractures that pass close to the main pit at Mt Bonnie. These could have relevance in the context of mineralising controls. The syngenetic or epigenetic character of Mt Bonnie has not been conclusively determined. It has many of the characteristics of near sea floor emission deposits of polymetallic style. If it is syn-sedimentary in type then there may be either a half-graben or graben style structure confining it. In that case there could be blind repetitions in the area and these could extend into EL23431.

Combined with reporting, expenditure for the year totalled $1,250.00.

7. FORWARD EXPLORATION PROGRAM 2006

Previous interpretation and review has indicated that EL23431 has had some reconnaissance style geochemical work applied to it. This work did not complete the required coverage, though in the SE domain the percentage of outcrop is relatively high, and amenable to conventional prospecting and rock sampling. The south eastern domain is more likely to host mineralisation than the north west domain. The former includes any down plunge extensions of the Mt Bonnie base metal deposit.

The area requires a thorough investigation into previous exploration carried out and installation of relevant data onto a computer database. In addition, though the immediate area is considered to be only moderately prospective for basement gold deposits, it requires a program of field reconnaissance, rock chip sampling and soil sampling work to define the better areas for focused activity. Areas in the vicinity of the stronger components of the NW fracture swarms need special attention.
In 2006 the new owners of the Burnside tenements and Union Reefs mill (GBS Gold) are expected to address their assets in terms of their relative merits and holding costs. As a low-rank tenement EL23431 is initially unlikely to attract strong exploration interest compared to other gold assets in the region. Nevertheless it remains part of the regional tenement asset base subject to later corporate decisions. Work on a 2006 technical review and field inspection by GBS Gold is costed at $1,500.
8. LIST OF REFERENCES


