GBS GOLD AUSTRALIA PTY LTD

ANNUAL EXPLORATION REPORT

MLN 1109, MLN 833 and AN398-402

UNION REEF GOLD MINE

Year Ending 31 December 2008

Pine Creek 1:100,000
Pine Creek 1:250,000

DISTRIBUTION:

DRDPIFR Darwin, NT
GBS Gold Australia Pty Ltd Perth
Brooks Creek, NT
Union Reefs Mine Site, NT

GBS Report No: PC/BJV/08-42

Zia U. Bajwah
January 2009
SUMMARY

The Union Reefs Group comprises 7 tenements (MLN 1109, MLN 833, ANs 398-402) and is located about 170 km SE of Darwin, NT and 12 km north of Pine Creek. Union Reefs Gold processing plant and related infrastructure is also located within MLN 1109. The site has been the main processing facility for GBS Gold Australia Pty Ltd since its inception. There are other tenements such as MLN 833 and AN398-402 of small size, which are also included in this project for the purpose of group reporting.

Production ceased on 27 July 2003 and following a period of negotiations, MLN1109, along with the mine infrastructure and satellite tenements, were purchased by Buffalo Creek Mines P/L and Territory Goldfields NL in August 2004. The entities formed the Burnside Joint Venture (2002) which is now wholly controlled by GBS Gold Australia Pty Ltd.

Geologically, the mining centre is situated within a 300m wide NW trending structural corridor (Pine Creek Shear Zone). The corridor comprises tightly folded and sheared pelitic to arenitic sediments of the Palaeoproterozoic Burrell Creek Formation and inliers of underlying Mt Bonnie Formation. Two sub parallel lines of historic gold workings comprise the focus for the array of open pits mined in recent years.

With the re-commissioning of Union Reef mill in September 2006, GBS Gold focused on the treatment of gold ore from several projects such as Brocks Creek mine, supplemented from Fountain Head, Rising Tide and Chinese South deposits. Plans were prepared to develop projects such as Maud Creek and Cosmo Howley for mining. Gold ore mined from these projects would have been treated at Union Reefs. Moreover, Union Reefs gold plant was also planned to go through expansion. That would lead to building a circuit based on GEOCOAT® technology, which would facilitate refractory ore treatment form Maud Creek.

However, on 15 September 2008, GBS Gold Australia came under voluntarily receiverships and all mining and processing operations were place under care and maintenance. Currently efforts are under way to restructure the company and/or find a new investor to re-commence the mining and processing operations again.
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1. INTRODUCTION

This report summarises and examines the status of the project as contained within MLN1109, MLN 833 and AN 398-402 for the Burnside Joint Venture and to report on activity in the year ended 31 December 2008.

The Union Reefs mining centre comprises open pits, waste dumps, tailings dams and process water dams in a 4.5km x 2km area. Access within this zone is limited to approved personals. There are over a dozen open pits, many now backfilled with waste, and the Crosscourse pit has been used to store tailings. AngloGold Ashanti rehabilitated the site prior to its sale to the Burnside JV.

In the past, mining at the Union Reefs Gold Mine was carried out under the management of Acacia Resources Ltd and AngloGold (Ashanti) Limited (Anglo) till 2003. During this phase, the total of ore milled was 20,225,360t @ 1.47g/t Au or the recovery of 957,523 fine oz gold.

The Burnside Joint Venture subsequently purchased the mill (design capacity 2.5Mt per annum CIL) and underlying tenements from Anglo in August 2004 thereby extending its commitment to bringing gold resources in the region into production. Mill was re-commissioned in September 2006 and feed stock was secured from Brocks Creek and other mines located about 60 km northwest of the project area. At present all mining and processing operations are under care and maintenance.

2. TENEMENT DETAILS

MLN1109 was granted on 16th December 1993 and expires on 31st December 2015. It is the principal tenements covering about 3,998 hectares and encloses wholly or partly other smaller tenements (MLN 833, AN 398-402) included in this project.

MLN 833 is located in an inaccessible position on the western wall of the open pit, and is within MLN 1109. Special dispensation for group reporting has been obtained in previous years from DPIFM, and so MLN 1109 and MLN 833 are reported together.

Smaller tenements enclosed by MLN 1109 include; AN 402 (haul road), AN 398 - AN 401 (tailings dams and other mining-related infrastructure). Details of these tenements are given in Table 1 and depicted in Figure 1.

Table 1: A list of tenements, Union Reefs

<table>
<thead>
<tr>
<th>Tenement No</th>
<th>Grant Date</th>
<th>Expiry Date</th>
<th>Area (Ha)</th>
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<tr>
<td>MLN 1109</td>
<td>16/12/1993</td>
<td>31/12/2015</td>
<td>3998</td>
</tr>
<tr>
<td>MLN 833</td>
<td>01/01/999</td>
<td>31/12/2018</td>
<td>1.12</td>
</tr>
</tbody>
</table>
3. LOCATION AND ACCESS

MLN1109 is situated 170km SE of Darwin and 12km north of Pine Creek in the Northern Territory.

Access may be attained eastwards from the Stuart Highway 13km north of Pine Creek, using the Ping Que access road for 5km. This crosses the railway and the headwaters of the McKinlay River that flows northwards just to the west of the mine. Alternative direct access may be achieved by using access tracks north from the Kakadu Highway, just NE of Pine Creek.

The newly refurbished Darwin-Adelaide Railway passes through the western extremities of the tenement, well to the west of the mine and mill infrastructure. The Palm Valley to Darwin-gas pipeline passes just east of the mine complex.

The Union Reefs mining centre comprises a concentration of open pits, waste dumps, tails dams and process water dams occupying an area of 4.5km by 2km (Figure 1). Access within this zone is limited to approved roads and tracks. There are over a dozen open pits, many now backfilled with waste and some, such as the main Crosscourse Pit have been used as a tailings repository. The area was rehabilitated by Anglo prior to sale.

4. GEOLOGICAL SETTING

4.1 Regional Geology

Regional geology of the project area is outlined in many publications, notably Ahmad *et al.* (1993) and Stuart-Smith *et al.* (1986, 1986). The tenements are within the Pine Creek Orogen, a folded sequence of Palaeoproterozoic pelitic and psammitic sediments, with interlayered cherty tuff units. Mafic sills of the Zamu Dolerite (~1.87Ga) intruded lower formations of the South Alligator Group.
Figure 1: Location of tenements, Union Reefs
Figure 2: Aerial view of the Union Reefs Gold Mine and related infrastructure
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 ~1.84-1.78Ga. These high temperature I-type intrusives induced strong contact metamorphic aureoles ranging up to (garnet) amphibolite facies, and created regionally extensive biotite and andalusite hornfels facies.

Less deformed Meso- and Neoproterozoic 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 (F3) 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. Some of the gold mineralisation appears to be related to the I-type members of Cullen Batholith, formed during the evolution of hydrothermal fluids as a result of fractionation and differentiation processes (Bajwah, 1994).

### 4.2 Local Geology

The geology of the Union Reefs mining centre is dominated by the NW striking Pine Creek Shear zone, a 300m wide corridor of folded and sheared metasediment package that largely comprises Burrell Creek Formation (Finniss River Group) and structurally generated inliers of Mt Bonnie Formation (South Alligator Group). Geology of the area is shown in Figure 3.

The host sequence including the Pine Creek Shear Zone is confined to the east (Allamber Springs Granite) and to the west by the Tabletop and McCarthys Granites (Figure 3). Rocks within this zone have been tightly folded and in high strain areas, subjected to fold limb failure. Axial planes and bedding tend to dip steep westerly. Spotted hornfels to garnet hornfels facies metamorphism is attributed to the influence of the Cullen intrusive event.
4.3 Gold Mineralisation

Gold bearing lodes of the Union Reefs District are confined to the Pine Creek Shear. Economic mineralisation is related to a tightly interbedded sequence of weakly carbonaceous shales and greywackes of the Burrell Creek Formation. Two lines of lode exist on which numerous historic workings are centred. The most productive structure is known as the ‘Union Line’ with a subordinate structure to the east, known as the ‘Lady Alice Line’. The lodes are typical of those characterised as ‘shear related’ but they locally host small saddle reefs.

The gold is associated with quartz-sulphide veining. The location and style of veining throughout the deposit is a complex interplay of structural and lithological controls. Three end member vein styles are recognised.

**Lode Style Veins**, are up to 4m thick, commonly discontinuous, pod-like and hosted by highly sheared, dominantly shale wall rocks. Lode style mineralisation displays the largest amount of grade variability at URGM and includes localised zones of high grade gold. The majority of the old workings at URGM are located on these systems.

**Stockwork vein systems**, are complex and largely restricted to greywacke-dominated horizons. Stockwork veining is typically of moderate gold grade.

**Sheeted vein systems**, are characterised by sub-parallel vein sets that typically occur in thinly interbedded sequences of shale and greywacke. Sheeted veining is typically of lower grade.

The Crosscourse Zone which hosted the majority of gold in the URGM field is dominated by the stockwork vein style with lode style veins concentrated in the Ping Ques and Western Lens system.

Coarse gold is a characteristic feature of the Union Reefs field and occurs as single grains and clusters up to 5mm across. Alluvial/eluvial deposits have remained an attractive feature of the area as a consequence. Some alluvials were put through the mill.

Geologists have carefully modeled 26 lodes in the area. These weakly sulphidic lenses range in width from 1m to 75m and in strike length from 30m to 200m. The down dip extension of the best lode (E lens) is undefined but in excess of 300m. Most other lenses have a plunge component, usually to the north, of 100m to 150m.

The lenses comprise quartz, carbonate, chlorite sericite and broken or brecciated wall rock. Most major veins are bedding-parallel but several linkage vein sets occur and some areas are characterised by sheeted vein sets and deformed stockwork veinlets. Boudins are common. Post mineral faulting has not had an adverse effect on ore block mineability, despite the deformation history being complex.
The local pathfinder mineral for gold is arsenopyrite, but pyrite, pyrrhotite, sphalerite, galena and sparse copper minerals are also present.

The principal styles of sulphide mineralisation include quartz-visible gold banded veining (rare), low sulphide auriferous pyritic veining (common), weakly banded auriferous arsenopyrite-pyrite veining (common), low grade disseminated arsenopyrite-bearing breccias or mylonitic shears (localised), and small semi massive base metal pods that are erratic.

The wider lodes have sharp, feather-edge contacts with wall rock, however many of the narrow structures show diffuse contacts. Visual control during mining is subtle in the stringy zones and in areas of ramifying veinlets. Conditional simulation techniques were used to smooth the composites data and create a mineable ore block mark-out during the grade control process.

The metasediment host rocks to the veins are variably stratified and generally dip steeply (85 degrees) towards the west. Stratification is well defined with strong continuity down dip. The greywacke units are generally 3m to 20m thick and the shale packages generally 1m to 30m thick. The units are interbedded and intercalated. The shales generally are poor quality rock due to chloritic and phyllitic developments, vertical foliations and laminations. The greywacke packages in contrast are fair quality competent rock.

5. PREVIOUS EXPLORATION

Gold was discovered at URGM in December 1873 by prospectors Adam Johns and Phil Saunders (Jones, 1987). Most of the claims were held by European and Chinese miners until 1892, but most had been purchased by Chinese miners by 1894.

Diamond drilling programs were completed at URGM between 1905 and 1964 (Brown, 1906; Jensen, 1915; Shields, White and Ivanac, 1967) and included two government-funded holes drilled in 1905–1906, believed to be the first exploration holes in the Northern Territory (Hellsten et al., 1994).

Drilling during the 1960s by the Bureau of Mineral Resources identified a resource at Crosscourse.

Between 1984 and 1988, 25 exploration holes were drilled by Enterprise Gold Mines NL at Ping Que and Crosscourse (Hellsten et al., 1994).

In 1988, Mineral Horizons drilled 68 percussion holes along the northern half of the Union and Lady Alice lines of mineralisation.

In 1991 The Shell Company of Australia Limited (Shell) carried out detailed soil sampling, geophysical surveys, rotary percussion and diamond drilling. Shell transferred
its mineral interests to Acacia Resources Limited (Acacia), which was then floated as a public company, in November 1994.

In February 2000, AngloGold acquired Acacia and operated the mine until closure in July 2003. Rehabilitation of the mine site was undertaken by Anglo.

In August 2004, the Burnside Joint Venture purchased the project tenements and infrastructure from AngloGold. At the same time the JV sold the Brocks Creek mill to Tanami Gold NL.

In November 2005, GBS Gold Australia P/L acquired Northern Gold NL (part of the Burnside JV) and have agreed to buy Harmony’s 50% share in the Burnside JV, giving GBS Gold sole ownership of Union Reefs mill and tenements. Since acquiring the Union Reefs Project, the Burnside Joint Venture has escalated its exploration drilling and technical review activities in the Burnside region and at Pine Creek. The main objective is to identify sufficient gold ores to justify re-opening the mill at Union Reefs.

Technical review of Prospect Claim (Makar, 2005) recognised underground potential of gold mineralisation in the project area. With further drilling zones of economic mineralisation can be established, which could supply additional feed stock to the mill.

During 2006-07 reporting period, a total of 6 RC holes for 591 metres were drilled at Bungo Prospect, located in the NW part of MLN1109 (Figure 3). During drilling, a total of 615 samples were retrieved and analysed for a suite of elements by Northern Australian Laboratories located at Pine Creek, Northern Territory. Of particular interest was gold concentrations, ranging from 0.01 ppm to 0.03 ppm. Arsenic varies form 50 to 910 ppm with an average of 58 which is also low as compared to arsenic values from gold-bearing horizons in the area. Copper is generally low (range: 0.5 to 292, average: 31 ppm) as compared to other elements assayed. In some samples lead concentration as high as 7260 has been observed but it averages at 93 ppm. Zinc varies from 0.5 to 8040 ppm with an average of 157 ppm. Overall this drilling campaign gave disappointing results except some high concentration of lead and zinc which appears to be related to the presence of galena and sphalerite.

6. EXPLORATION PROGRAM FOR YEAR ENDING 31 DECEMBER 2008

MLN 1109 along with other tenements constitute the Union Reefs project area where dual CIL gold plant with 2.5 tonnes annual processing capacity is located. The gold plant was re-commissioned in September 2006. Figure 2 shows the outlays of the project area.
**Processing**

Perhaps the significant milestone in 2006 was re-commissioning of the Union Reef Gold mill. GBS Gold Australia spent over $30 million to start the gold ore treatment operation in the project area. This has stimulated exploration and development activity on the tenements held by the company. In the coming years, the project area will see a major upgrade so the refractory ores form Maud Creek and Cosmo Howley projects can be treated in 2009 and 2010. For this purpose, the existing mill will be expanded by building a new circuit based on the GEOCOAT® technology. This expansion is expected to increase the gold production of the plant from 150,000 ounces per annum to 250,000 ounces per annum.

The refractory ore treatment processes are typically preceded by concentration (usually sulfide flotation). Oxidation of the sulphide minerals in the flotation concentrates is then required. Bio-oxidation involves the use of bacteria that promote oxidation reactions in an aqueous environment. All new facilities at Union Reefs associated with this upgrade will be constructed within the existing plant area and on an existing disturbed waste rock stockpile. No new areas will need to be disturbed. Tailings from processing the refractory ore will be disposed of in the existing tailings disposal facility, along with tailings from the existing oxide circuit. The additional facilities required for construction at URGM are a flotation plant, a heap bio-oxidation plant (GEOCOAT®) with neutralisation section, and an additional CIL plant (Figure 4).

The existing facilities such as the free gold circuit within the free milling circuit, the elution section and the gold room will be shared between the free milling and the refractory ore circuits. A revised MMP to reflect these changes was submitted to DPIFM in April 2007, and was approved in July 2007. However, on 15 September 2008, GBS Gold Australia was declared under voluntarily receivership, and since then, project area has been under care and maintenance.

**Exploration**

During the reporting period, much of the efforts were devoted in building the resource inventory base for the gold processing facility which led to focusing at the projects like Chinese South, Cosmo Deeps in addition to projects such as Toms Gully and Maud Creek. Toms Gully came online on 26 July 2008 whereas mining commenced at Chinese South in April 2008.

Exploration activities at the Union Reefs Group mainly included a peripheral review, ranking exercise, reconnaissance visits, tenement administration and report writing.
This activity costed $5521.00 and details are given in Table 2 below.

**Table 2: Tenement exploration expenditures for 2008**

<table>
<thead>
<tr>
<th>Tenement No</th>
<th>Exploration Expenditure ($)</th>
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<tr>
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<td>480.00</td>
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<tr>
<td>AN 402</td>
<td>430.00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5521.00</td>
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</tbody>
</table>
FORWARD PROGRAM 2009

MLN 1109 and other tenements in this group is designated site for processing the ore from nearby GBS Gold Australia’s P/L mining operations. All the operations have been placed under care and maintenance till such time company is restructured and/or a new investor comes on board.

To maintain the tenements in good standing, statutory reporting will be completed and other requirements have to be met. There is strong possibility that under the present circumstance where gold is holding well as compared to other commodities, an investor will come on board and operations of the company will re-commence again. An exploration program for year 2009 will include infill soil sampling and re-evaluation of the project area. If any encouraging result received, it will lead to RC/RAB drilling. A minimum budget of $8000.00 is proposed.

8. REFERENCES


