



**GBS Gold Australia Pty Ltd**

**ANNUAL EXPLORATION REPORT**  
***MOUNT BONNIE GROUP***

**MLN's 342, 346, 405, 459, 811, 1033, 1039**  
**MCN's 504, 505, 3161**

**FOR PERIOD ENDING 31 December 2006**

**Pine Creek 1:100 000**

**PINE CREEK 1:250 000**

**Titleholder: Territory Goldfields NL**

**Distribution:**

**DPIFM Darwin NT**

**Burnside Operations P/L Brocks Creek NT**

**GBS Gold Australia P/L Perth WA**

**Union Reefs Mine Pine Creek NT**

**Zia U. Bajwah**

**April 2007**

## **SUMMARY**

The Mt Bonnie Project is located 145km SE of Darwin NT and 11km ENE of the Hayes Creek road house. Probably, it was discovered during 1870s as part of the gold rush. First mining activity was recorded between 1913 and 1916 but no stoping was carried out. Intermittent mining activity took place from time to time and perhaps the most notable is in 1983, when a total of 110 000 t of ore @7g/t Au and 230 g/t Ag was mined and processed.

The tenement group comprises 108.75 hectares and is situated within Pastoral Lease No. 903, Douglas, held by Tovehead Pty. Ltd. The titles were originally granted to Zapopan N.L. and subsequently transferred to Dominion Gold Operations Pty. Ltd. The ground is now held by Territory Goldfields N.L, which is wholly owned subsidiary of GBS Gold Australia Pty Ltd.

The deposit is hosted by Mt Bonnie Formation that lies within the upper part of the South Alligator Group. Rock types associated with the mine sequence are interbedded shale, siltstone, greywacke, dolomite and minor pebble breccia. A major stratigraphically concordant sill of the Zamu Dolerite underlies the mine sequence. The Mt. Bonnie lode system dips 40 degrees west and is up to 15m thick. Originally a surface gossan could be traced discontinuously for 100m.

During the reporting year, a technical review of the base metal mineralisation present in the Mount Bonnie project was undertaken along with data integration into DataShed, which has been on-going on a regional basis. This review identified the potential of further base metal mineralisation in the area which could provide sufficient tonnage along with Iron Blow and other prospects, to sustain a viable economic operation.

In the year 2007, all the data from Mount Bonnie, Iron Blow and other prospects will be assessed for a viable operation. A minimum expenditure for Mount Bonnie group of tenements is set at \$15000.00 which could rise significantly if RC drilling is conducted on the identified targets.

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## **1.0 INTRODUCTION**

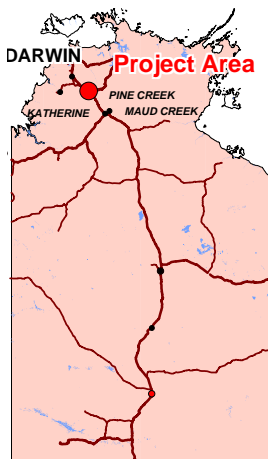
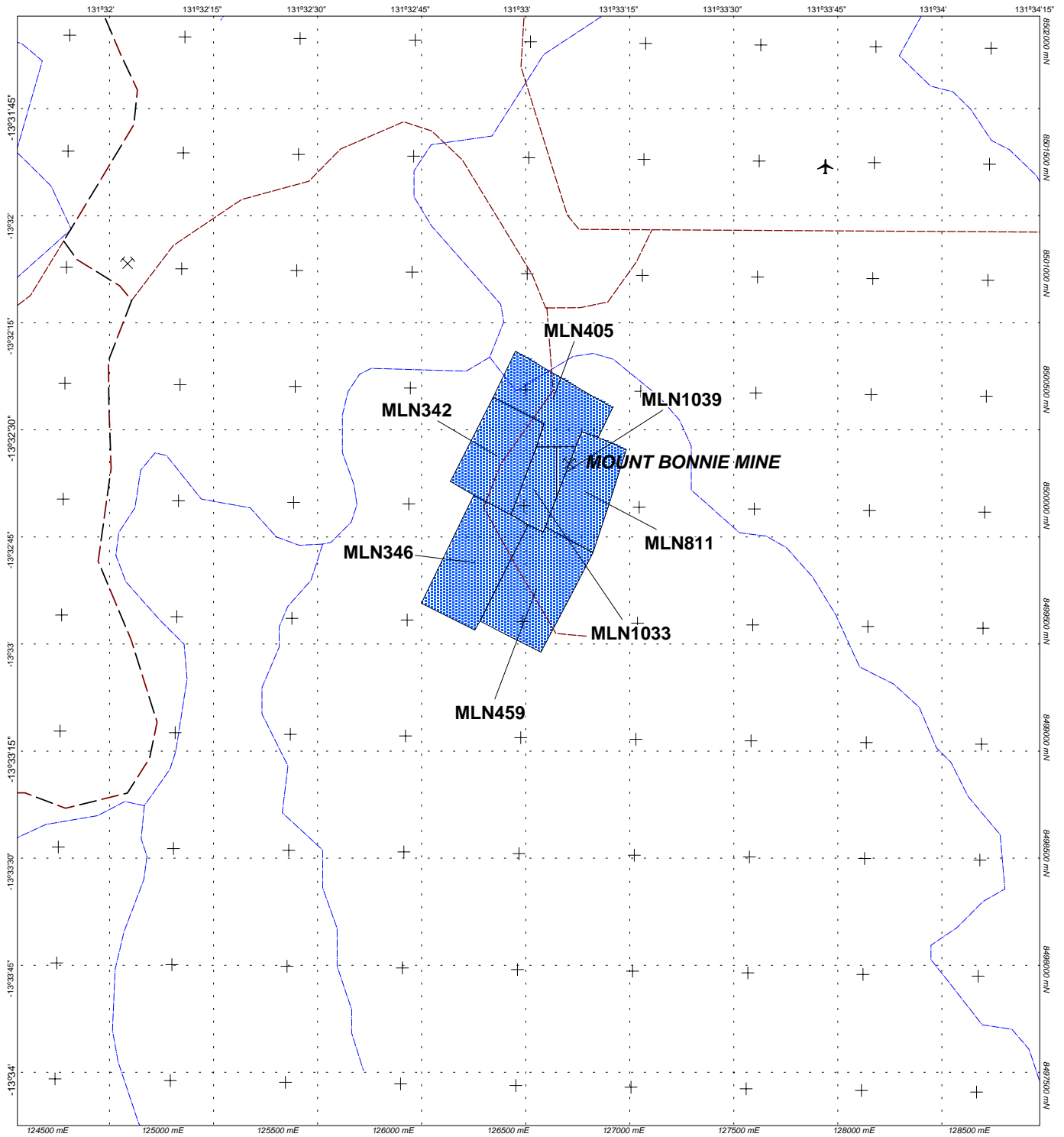
The Mount Bonnie deposit was probably discovered during the 1870s as part of the gold rush. The outcropping gossan attracted little attention while much of the efforts were diverted to find gold-bearing quartz reefs. First mining activity was recorded between 1913 and 1916 but no stoping was carried out. Intermittent mining activity took place from time to time and perhaps the most notable is in 1983, when a total of 110 000 t of ore @7g/t Au and 230 g/t Ag was mined and processed.


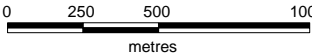
## **2.0 LOCATION AND ACCESS**

The Mt Bonnie Project is located 145km SE of Darwin NT and 11km ENE of the Hayes Creek road house. Access is via the Stuart Highway, past Hayes Creek and then northwards along the Grove Hill road, turning off right onto the Mt Bonnie Mine Road (Figure 1). The topography of the area comprises a series of low hills with subcrop present on the flanks and ridges. Incised seasonal creek systems form the headwaters of the Margaret River.

## **3.0 TENEMENT STATUS AND OWNERSHIP**

The tenement group totals 108.75 hectares and is located between latitudes 13°32' south and 13°33'30" south and longitudes 131°32'30" east and 131°34' east, on the Burrundie 1:50,000 sheet. The titles are situated within Pastoral Lease No. 903, Douglas, held by Tovehead Pty. Ltd. The titles were originally granted to Zapopan N.L. and subsequently transferred to Dominion Gold Operations Pty. Ltd. The ground is now held by Territory Goldfields N.L. and managed by Northern Gold N.L, which is wholly owned subsidiary of GBS Gold Australia Pty Ltd. Details of all mineral titles are given in Table 1.



 <b>GBS GOLD AUSTRALIA PTY LTD</b>		
Project: Burnside		Prospect: Mt Bonnie
Tenement: MLN342, 346, 405, 459, 811, 1033, 1039 <b>Tenement Location Map</b>		
Author: B. Smith	Date: 15/3/2006	Report: PC/BJV/? Figure: 1
Scale: 1:25000	Projection: Longitude / Latitude (WGS 84) MGA (GDA94 Zone 53)	Plan No: BJV001
		

**Table 1: Mount Bonnie Group Tenement Details**

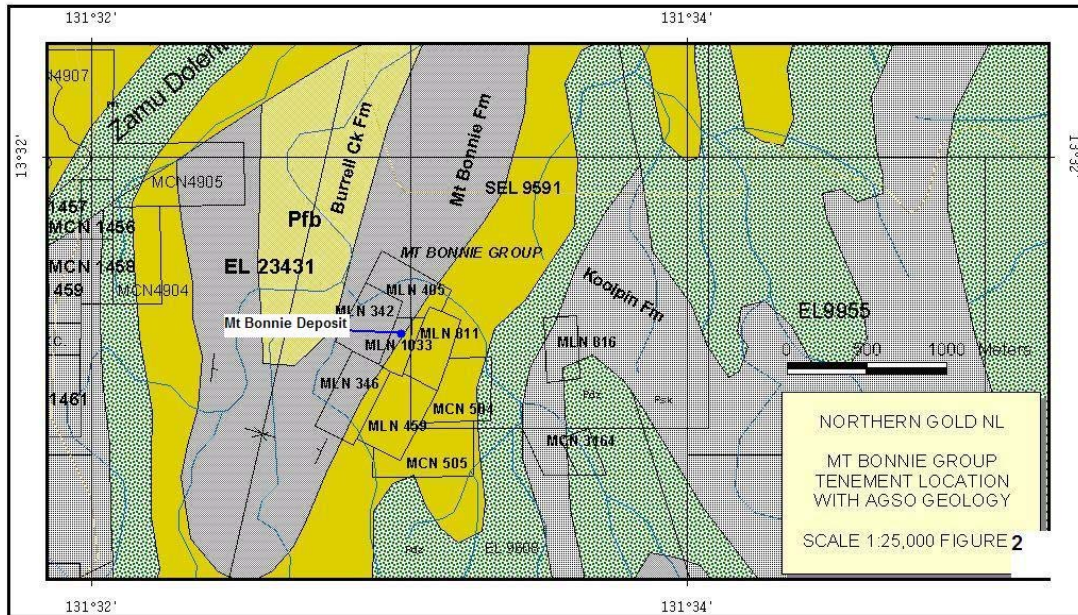
Tenement	Grant Date	Expiry Date	Area (ha)
MLN 342	07/06/76	31/12/16	13.75
MLN 346	02/11/76	31/12/16	16.00
MLN 405	01/12/77	31/12/07	12.00
MLN 459	27/02/79	31/12/20	15.00
MLN 811	14/10/75	31/12/15	8.09
MLN 1033	26/08/87	31/12/11	4.75
MLN 1039	26/08/87	31/12/11	1.23
MCN 504	19/03/84	18/03/09	13.06
MCN 505	19/03/84	18/03/09	18.49
MCN 3161	06/12/89	05/12/14	6.38
Total			108.75

#### 4.0 GEOLOGICAL SETTING

Regional geology is outlined in many publications, notably Ahmad *et al.* (1994), and Needham and Stuart-Smith (1984), and Stuart-Smith *et al.* (1987). The tenements are within the Pine Creek Geosyncline, a folded sequence of Lower Proterozoic 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.

Geological setting of the Mt Bonnie base metal and gold mine is shown in Figure 2. The Mt Bonnie base metal and gold mine is situated on the eastern limb of the Margaret Syncline. This is at a similar stratigraphic level to the analogous Iron Blow deposit some 3km to the north. The deposit is hosted by the Mount Bonnie Formation that lies within the upper part of the South Alligator Group. Rock types associated with the mine sequence are interbedded shale, siltstone, greywacke, dolomite and minor pebble breccia.

**Figure 2:** Geological setting of the Mount Bonnie deposit.



A major stratigraphically concordant sill of the Zamu Dolerite underlies the mine sequence.

At the mine, fold axes trend north-south and are tight. There has been significant hornfelsing of the sequence due to regional and contact metamorphism of the Cullen intrusive event. The Mt. Bonnie lode system dips 40 degrees west and is up to 15m thick. Originally a surface gossan could be traced discontinuously for 100m and comprised limonite, haematite, clay and minor mimetite, duftite, cerussite, coinchalite, malachite, plumbojarosite and scorodite. The upper 70m of the deposit was enriched in gold, silver, lead, bismuth, arsenic, antimony, mercury and tin with a chalcocite-rich zone near the base of oxidation. (Rich 1984) Open pit mining showed that the gossanous lode was the product of two stacked stratabound sulphide lenses. These comprise lenticular pods of massive sulphide with dominant pyrrhotite-sphalerite and subordinate pyrite, galena, chalcopyrite, arsenopyrite and tetrahedrite. The gangue minerals are dominated by chlorite, talc, actinolite and quartz. The principal explorers in the area concluded that Mt.

Bonnie and Iron Blow, 3km to the north, are metamorphosed syn-sedimentary sulphide deposits of volcanic exhalative origin.

#### **4.1 MINING HISTORY AND ECONOMIC GEOLOGY**

The Mount Bonnie deposit has been mined once seriously in its 135 year history. Development of the deposit began with the establishment of 3 levels between 1913 and 1916 but no stoping was carried out and the mine passed through a succession of owners and operators. In 1972 an option agreement on GML 127B (Later MLNs 1033 and 1039) between the owners WJ Lester and joint venture of Horizon Ventures NL (a wholly owned subsidiary of Horizon Exploration Ltd) and Jingellic Minerals NL together other partners led to the exploration of the Mount Bonnie deposit. The Horizon/ Jingellic joint venture drilled 6 diamond holes into the sulphide zone. As part of this operation a small tonnage was mined from surface outcrops and trucked to the Mount Wells Battery for treatment.

A Peko Wallsend/BP Minerals joint venture completed more sulphide zone drilling in the mid 1970s on GML 163B (later MLN 811). In 1979/80 the Peko/BP joint venture re-sampled the accessible working and later drilled 20 shallow diamond drillhole into the oxide zone. During this period further oxide ore was mined by Jingellic Minerals and was transported to Mount Wells Battery

In 1983 Mount Bonnie Trust commenced mining operation which was aimed at exploiting the gold and silver rich cap in the oxide zone. This operation mined about 110 000 t of ore @ 7g/t Au and 230 g/t Ag, leaving behind only sulphide zone intact. The sulphide zone has a possible resource of 480 000 t grading 7.67% Zn, 1.5% Pb, 0.4% Cu, 186 g/t Ag and 1.5 g/t Au.

As a base metal deposit, The Mount Bonnie deposit is too small to be stand alone operation. Therefore, it should be considered part of the “bigger picture”, including Iron Blow and any other base metal deposit which can be found on the GBS tenements. At present, these two deposits are the only examples of the submarine volcanogenic exhalative type in the area, which indicate the possibility of find more of the same type. It



requires dedicated exploration efforts which can be rewarded with further find of sizeable base metal deposit, augmenting the tonnage of base metal ore.

## **5.0 PREVIOUS EXPLORATION**

Shaw (2005) has outlined previous exploration at the Mt Bonnie tenements, and this is reported here. Exploration and mining of the Mt. Bonnie area has been conducted sporadically since the 19th century as a lead-zinc-silver prospect. It was first worked in **1902**, when Northern Territory Goldfields of Australia sank a 15m shaft, which penetrated oxide lead mineralisation. Further work was conducted between **1912** and **1917** when the lode developed as an underground mine with several vertical and inclined shafts and a 92m adit. No ore was produced in this period. The Northern Territory Geological Survey drilled three diamond holes between **1916** and **1918**, two of which met with lode material. The results are not available. Modern exploration commenced in 1973 when Horizon Explorations Limited and Jingellic Minerals P/L completed programs including geological mapping, magnetic surveys, electromagnetic surveys, dewatering and sampling of the old workings and diamond drilling. This work outlined a possible resource of 480,000t grading 7.67% zinc, 0.4% copper, 1.8% lead, 186.0g Ag/t and 1.5g Au/t. (Ivanac 1974) In **1975-1978** Geopeko Ltd and BP Minerals Ltd carried out a considerable amount of drilling on the sulphide deposits as part of a wider evaluation of the Grove Hill region. From **1979-80** the gold potential of the Mt Bonnie field was investigated during a period of higher gold prices. Some 20 core holes and old workings were sampled for gold in the oxide zone. A reserve of 100,000t @ 8.0g Au/t and 230g Ag/t was reported (Rich 1984)

In **1983** the right to mine oxide ores was obtained by Henry and Walker Group Ltd who commenced open pit mining. Production of 110,000t of oxide was reported averaging 7.0g Au/t and 230g Ag/t up to 1985. (Nicholson and Eupene, 1990) In **1987** Zapopan NL commissioned an aeromagnetic survey over the Pine Creek Inlier region. Intense magnetic anomalies were outlined for Mt. Bonnie and Iron Blow and several other highs were reported in the area. In **1988** Dundas Gold NL completed a stream sediment program focusing on gold using bulk cyanide leach (BCL) sampling methods. A number

of anomalous values were recorded in drainages from Mt. Bonnie and Iron Blow. Other elevated values were recorded in drainages flowing NNE.

In **1993** Zapopan NL carried out a geological mapping programme throughout the area. Following acquisition of the tenements in **1995** from Dominion Mining NL, Northern Gold NL conducted literature reviews to assess the value of the property and rank it with its other prospects in the region. The data included geological, geochemical and geophysical reports. During the mid to late nineties the base metal markets were depressed and consequently the property was ranked lower than gold properties held by the company.

Rehabilitation was completed over MLN 459 in compliance with the conditions of the Mining Act and the Mine Management Act. From April 2002 the Burnside JV has been managing exploration of the Mt Bonnie tenements. The Burnside JV has focused on resource definition of nearby gold resources in the past 3 years. GBS are taking 100% control of the Burnside JV during 2006.

## **6.0 EXPLORATION FOR YEAR ENDING 31 DECEMBER 2006**

During the year, a technical review of the base metal mineralisation present in the Mount Bonnie project was undertaken along with data integration into DataShed, which has been on-going on a regional basis.

This review identified the potential of further base metal mineralisation in the area which could provide sufficient tonnage along with Iron Blow and other prospects, to sustain a viable economic operation. During the reporting period, exploration program consisted of:

- Technical review
- Data integration and validation
- Report preparation
- Planning for the following year

During the reporting period, exploration activity costed \$11691.00 and details are given in Table 2.

**Table 2:** Expenditure details on the Mount Bonnie Project.

<b>Tenement</b>	<b>Expenditure (\$)</b>
MLN 342	1518.00
MLN 346	1912.00
MLN 405	493.00
MLN 459	3071.00
MLN 811	2792.00
MLN 1033	423.00
MLN 1039	293.00
MCN 504	373.00
MCN 505	373.00
MCN 3161	443.00
<b>Total</b>	<b>11691.00</b>

## **7.0 FORWARD PROGRAMME 2007**

GBS Gold Australia Pty Ltd regards the Mount Bonnie and Iron Blow group of tenements significant assets which have potential for base metals and gold resources. It can provide significant leverage in diversifying the company's interest. In year 2007, all the data from Mount Bonnie, Iron Blow and other prospects will be assessed for a viable operation. This will involve appraisal of digital data and modelling of all drilling data which may help to identify new targets which could be tested with RC drilling. A minimum expenditure for Mount Bonnie group of tenements is set at \$15000.00 which could rise significantly if RC drilling is conducted on the identified targets.

## 8.0 REFERENCES

- AHMAD, M., WYGRALAK, A.S., FERENCZI, P.A., AND BAJWAH, Z.U. 1993. PINE CREEK, Explanatory Notes and Mineral Deposit Data Sheets. 1:250,000 Metallogenic Map Series, Department of Mines and Energy, Northern Territory Geological Survey.
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