

BURNSIDE OPERATIONS P/L
ANNUAL EXPLORATION REPORT

MCN 3705-3707, MLN 1103

WOOLWONGA GROUP
YEAR ENDING 25th APRIL 2004

Ban Ban (14/3-III) 1:50,000
Title Holder:- Territory Goldfields N.L.

Distribution:

DBIRD Darwin NT

Northern Gold NL Perth Office WA

Burnside Operations P/L Brocks Creek NT

Burnside Operations P/L Perth Office WA

Compiled by:

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April 2004

SUMMARY

The Woolwonga tenement group is centred on the open pit mine of that name, 130 km SE of Darwin, NT and 16km NE of the Brocks Creek treatment facility.

The Woolwonga open pit mine was operated by Dominion Mining Limited until 1995. Following extensive exploratory drilling and a feasibility study, the company estimated a recoverable mining reserve of 2.1Mt @ 2.78g Au/t with the ore treated at the Cosmo Howley mill. The tenements were acquired by Northern Gold NL. following completion of the mining phase and rehabilitation of the mine site,

Subsequently Northern Gold NL subsidiary, Territory Goldfields NL entered into a joint venture agreement with Buffalo Creek Mines P/L in April 2002, whereby the Woolwonga tenement group, along with a wider schedule of jointly held mining assets, was to be managed by Burnside Operations P/L

The mine is located on the 310 degree striking axial zone of the Woolwonga Anticline, formed within Lower Proterozoic clastic sediments and dolerite sills of the Mt Bonnie Formation. The axial zone is cut by mineralised 335 degree striking fracture sets. Combining this with the effects of axial planar foliation and hinge zone detachment structures, interacting with competency contrast planes between silt-mudstone and greywacke, a complex of stockwork style quartz-sulphide vein network and saddle reef style bodies has developed.

During 2003-2004 Burnside Operations P/L conducted a program of RC drilling on the Empire Target, a SE strike extension of the deposit within MLN1103. This work comprised 6 holes for an advance of 420m.

Significant gold intercepts were reported from SET004, including 10m @ 6.97g/t Au from 73m. Downhole surveys using 'Televiewer' were carried out on 3 holes.

Expenditure for the year totalled \$36,797.

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1. INTRODUCTION

The Woolwonga tenement group is centred on the open pit mine of that name, 130 km SE of Darwin, NT and 16km NE of the Brocks Creek treatment facility.

The Woolwonga open pit mine was operated by Dominion Gold Operations P/L until 1995 when the tenements were acquired by Northern Gold NL.

Subsequently Northern Gold NL subsidiary, Territory Goldfields NL entered into a joint venture agreement with Buffalo Creek Mines P/L in April 2002, whereby the Woolwonga tenement group, along with a wider schedule of jointly held mining assets, was to be managed by Burnside Operations P/L

This report discusses work carried out in the year ended 25th April 2004.

2. TENEMENT DETAILS

Prior to 1984 the project was owned by Australian Coal and Gold. Dominion Mining Limited and Geopeko entered into a JV agreement with AC and G and by 1988 Dominion had bought out the other parties.

MCN's 3705 to 3707 were granted on 17 October 1990 and expire on 5 August 2007. They total 114ha (34.2ha, 39.9ha, 39.9ha respectively)

MLN 1103 comprising the Woolwonga Development area, and amalgamating over 40 pre-existing titles, was granted to Dominion Mining Limited on 26th of February, 1991. It expires on 24 February 2016 and comprises 911.2ha.

The tenement group was transferred from Dominion to Territory Goldfields N.L. in May 1995.

3. LOCATION AND ACCESS

The group is situated on the Ban Ban (14/3-III) 1:50,000 sheet and lies between latitudes 13°23'S and 13°25'S and longitudes 131°31'45"E and 131°34' E The tenements are enclosed by Perpetual Pastoral Lease No. 1111, Ban Ban Springs, held by Ban Ban Springs Station Pty. Ltd..

Access to the area is via the Stuart Highway, the Mount Wells Road and Ban Ban Station tracks. From the Glencoe pits crossroads onwards, the old haul road comprises rapidly deteriorating bitumen. The tar seal terminates at the abandoned open pit complex that is now part back filled and flooded. The site has been rehabilitated.

MCN3705-3707 straddle the Margaret River and its floodplain.

The Darwin-Amadeus Basin gas pipeline crosses the south west portion of MLN1103. See Fig. 3.

4. GEOLOGY

4.1 Regional Geology

The Woolwonga tenement group is situated within the Pine Creek Geosyncline, a tightly folded sequence of fine to coarse grained clastic basinal sediments of Lower Proterozoic age.

In the report area the sequence has been regionally metamorphosed to greenschist facies and has been intruded by late syn-orogenic to post orogenic granitoid intrusions. These intrusions, either associated with the regional scale Cullen Batholith or as discrete plutons, imparted thermal contact metamorphic and metasomatic effects and contributed to the deposition of a range of economic minerals in structurally permissive sites.

There is a tendency for gold mineralisation to be focused in anticlines within strata of the South Alligator Group and lower parts of the Finnis River Group. This sequence evolved from initial low energy shallow basinal sedimentation to higher energy deeper water flysch facies. A water-lain tuffaceous component is present and the prospective sequence has been intruded by pre orogenic mafic sills.

Less deformed Middle Proterozoic sedimentary and volcanic sequences unconformably overlie the Lower Proterozoic. In the region, Cambro-Ordovician lavas and sediments of the Daly River Group, as well as Cretaceous strata, onlap the older sequences.

Cainozoic sediments, laterite and Recent alluvium that occupy river flats may obscure parts of the Pine Creek Geosyncline lithologies, but exposure of the more resistate units of the prospective sequence is generally good.

4.2 Local Geology

The Woolwonga deposit lies on the Woolwonga Anticline, a continuous north westerly trending structure identified over a strike length of 8km. The Gerowie Tuff, the overlying Mt Bonnie Formation and the Burrell Creek Formation all occur in the area. Pre orogenic sills of Zamu Dolerite have dilated part of the Mt Bonnie Formation. A major magnetic dyke of dolerite striking parallel to the anticlinal axes passes west of the original Main Ridge.. A suite of lamprophyre dykes cut the layered sequence.

A veneer of flat lying surficial Cambro-Ordovician limestones and sandstones cover much of the underlying Lower Proterozoic host rocks.

The Woolwonga area is underlain by a folded sequence of turbidites of the Mt Bonnie Formation, the uppermost member of the South Alligator Group.

Prior to mining, outcrop in the area was on two ridges that trended 310 degrees. The more easterly of the two, Main Ridge, followed the Woolwonga Anticline for

1.2km, while the Western Ridge followed a subsidiary anticline with parasitic folds more dominant on the eastern limb and was more subdued. The original Central Ridge comprised a complexly folded syncline. Pre mining, all ridges were flanked by Recent alluvium and colluvium.

Rock types exposed in the deposit area are interbedded siltstone, mudstone and greywacke. Many of the beds are graded, comprising medium grained greywacke grading progressively upward into fine grained greywacke, siltstone and at the top, carbonaceous mudstone. More massive greywacke, sandstone and mudstone beds are also present. A series of Zamu Dolerite sills up to 40m thick outcropped in the north western side of the pit. Some fifteen litho-stratigraphic units were recognised from mapping and drilling by Dominion.

The fold axis of the Woolwonga Anticline trends from 310 degrees in the SE to 290 degrees in the northern outcrops. The axial plane is vertical to SW dipping, the NE limb dipping more steeply than the SW limb. The average plunge is 30-35 degrees to the SE, though in places the crest undulates to steeper and flatter plunges. A well developed axial planar cleavage through alignment of micaceous minerals is present in the mudstone and siltstone.

The fold is cut by a series of en echelon fracture or shear zones trending 325-335 degrees across the axis. The fractures are preferentially developed within the mudstone-siltstone dominant units, and are important mineralisers. These zones are vertical to steeply dipping and are up to 30m wide.

4.3 Gold Mineralisation

Gold mineralisation at Woolwonga is associated with quartz-sulphide veins which fill fault and fracture sets in Mt Bonnie Formation sediments. Mineralisation and historic workings on vein outcrops occurred over the full length of the original ridge, and colluvial shedding from this extended for 500m SE of the ridge and was worked extensively by Chinese tributors from the late 1880s to early in the 20th century.

The gold is controlled by three main structural features:

The axial zone of the Woolwonga Anticline, with the SE plunge increasing from about 8 degrees in the NW to 34 degrees in the SE within a distance of 900m. The anticline is roughly symmetrical with the NE limb at 60 degrees, slightly steeper than the SW limb at 55 degrees. The axial plane and associated cleavage dips 80-85 degrees SW. A sheeted vein system occupies cleavage-parallel fractures and shears.

Subvertical to SE dipping fracture zones trending 325-335 degrees. Minor shearing with slickensides, is associated with sheeted quartz veins developed along

the above system. This carries the bulk of the mineralisation as quartz- pyrite- arsenopyrite stockworks and veins 1mm to 500m thick.

Competency contrast sites comprising bedding parallel veins between thin to medium bedded turbidites and carbonaceous mudstones, in the manner of saddle reefs, breccia veins and other detachment zone features. In addition mudstone units within the axial zone may host quartz stockworks. These were particularly noticeable in surface workings as saddle reefs up to 1.5m thick and make up to 30% of the ore.

A study of the overall gold distributions on longitudinal section, using Leapfrog software, shows a distinct stacking of the higher grade saddle reef style bodies that plunge SE parallel to the axial closure. There are at least 9 of these bodies: five relating to the southern Wilson Pit and four to the northern Reward Pit. Axial planar mineralisation tends to link the shoots in a sub vertical sense.

The **dominant sulphides** associated with gold at Woolwonga are pyrite and arsenopyrite. There are also minor amounts of sphalerite, galena and chalcopyrite, and trace amounts of native bismuth, pyrrhotite, covellite and chalcocite.

Pyrite occurs as masses, blebs and stringers in massive white quartz veins. It is generally coarsely crystalline but also replaces small garnets within mudstones in proximity to quartz veins. Arsenopyrite occurs as coarse euhedral crystals disseminated in the sediments flanking the quartz-pyrite veins, or as massive arsenopyrite on the vein margins, or in the quartz veins themselves.

5. PREVIOUS EXPLORATION

The Woolwonga gold mine was actively worked between **1889 and 1900** with a recorded production of 205kg (6604oz) of gold from 7,457t of ore. The mine was abandoned in 1901 owing to the lower recoveries and grades met in the primary mineralisation, and water inflow into the deeper levels.

From **1907-1908** a further 26kg (833oz) of gold was recovered from cyaniding 4,600t of tailings.

From **1970 to 1982** the property was evaluated by several companies for both basement and alluvial gold potential.

In **1982** Australian Coal and Gold Holdings Ltd commenced a mapping and bulk sampling program and the investigation indicated a potential near surface alluvial/eluvial reserve 305,000 cubic metres in the range 0.1 to 0.7g per cubic metre.

In **1984** the Golden Dyke Joint Venture comprising Geopeko and Anaconda optioned the property from AG&C and commenced mapping, costeaning and diamond drilling.

In **1985** Dominion Mining Limited replaced Anaconda as manager of the JV and commenced diamond drilling to evaluate the open pit resource potential. The combined data indicated a resource of 500,000t @ 3.0g Au/t.

Further mapping and costeaning in **1986 and 1987** indicated a potential to increase the tonnage significantly and during 1987 two major reverse circulation percussion drilling programs were completed. This delineated an in situ geological resource of 2.48Mt grading 2.48g Au/t, comprising an oxide component of 737,000t @ 2.98g Au/t and 1,741,000t of sulphide mineralisation at 3.5g Au/t. A feasibility study indicated a recoverable mining reserve of 2.1Mt @ 2.78g Au/t.

In **1989** further RC drilling indicated a global resource of 5Mt @ 3.0g Au/t.

During the 1989 field season work at Woolwonga was orientated towards pre-development activities with RAB drill sterilization and groundwater investigations being completed. Exploration over MLN 1103 was limited to core drilling for geotechnical information, metallurgical samples and assay verification of previously drilled RC percussion holes to enable a final pit design to be completed (Dominion, 1989).

The drilling results obtained by Dominion Gold Operations Pty. Ltd. indicated that large tonnage deposits were restricted to the Woolwonga Anticline, but smaller ore bodies occur on the Central and Western Ridges (Dominion, 1989).

Northern Gold NL through Territory Goldfields NL acquired the tenements in May 1995 on completion of Dominion's mining phase. Prior to formation of the Burnside JV work mainly comprised data reviews.

In **April 2002** Territory Goldfields NL entered into a joint venture (Burnside JV) with Buffalo Creek Mines P/L. The Woolwonga tenements were included in the merged assets. Exploration work is managed by Burnside Operations P/L.

In **2002-2003** the Burnside Joint Venture conducted a ranking study and a structural and resource review. The deposit was ranked as medium priority and its potential to host additional economic gold mineralisation was acknowledged.

A computerised study (Leapfrog Software) of gold distributions drew attention to south plunging bodies of higher grade that could form a focus for future exploration. It was concluded that there was scope for residual mineable tonnes at the project but the rehabilitation and pit backfilling had made a new evaluation more difficult and expensive.

6. EXPLORATION YE 25TH APRIL 2004

During the year the Burnside Joint Venture carried out target selection and commissioned an RC drilling program at the south-eastern end of the pit complex.

This program directed at the Empire prospect comprised 6 RC holes for an advance of 420m. (SET-001 to SET-006 inclusive)

The area selected for drilling comprised an interpreted upwarping of the Woolwonga Anticline axis in an area of previous promising drill results. Dominion drill hole W406 met with 18m @ 58.0g Au/t on section 11600mN and their scissor hole designed to follow up this result intersected a low grade portion of the lode. Further drilling in this vicinity was warranted to determine the continuity of high grade mineralisation and to explore for shallow mineralisation grid south of the Woolwonga pit.

A summary of the program may be seen in the following table and drill logs in the digital appendix of this report.

Table 1 Empire Prospect Woolwonga MLN1103 2003 RC drilling.

Hole ID	mE	mN	RL	Az	Dip	Depth (m)	From (m)	To (m)	Interval (m)	Grade (g/t)
SET001	9686	11600	1091	270	-69	72	-	-	-	-
SET002	9799	11550	1090	270	-66	66	38	40	2	2.26
SET003	9850	11550	1090	270	-66	66	-	-	-	
SET004	9750	11550	1090	270	66	84	41	43	2	1.00
							45	49	4	1.09
							60	61	1	4.53
							65	67	2	2.04
							73	83	10	6.97
SET005	9700	11550	1091	270	-66	66	32	34	2	1.59
SET006	9650	11550	1092	270	-66	66	42	44	2	1.06

(All grid references local Woolwonga grid. All 1m assays by Fire Assay).

The results showed that SET006 drilled 50m grid south of W406 met with only minor mineralisation. However hole SET004 drilled 100m to the east on the same section hit significant gold values including 10m @ 6.97gAu/t. Further drilling and interpretation is required to resolve this structurally complex environment.

A down-hole 'Televiewer' survey was conducted by Surtron Technologies on three holes SET001, SET002 and SET004, following the drilling program. The probe is designed to record continuous downhole images of the texture of the walls of the holes, thus allowing additional structural interpretation to be carried out. XL logs of SET002 and SET004 are in the Appendix 1.

7. EXPENDITURE STATEMENT YE APRIL 25TH 2004

Expenditure in the 2003-2004 year was primarily related to the performance of the above RC drilling program. Planning, execution and interpretation.

Equipment Hire	\$ 3,705
Salaries, wages	\$ 5,352
General consumables	\$ 1,380
RC Drilling	\$17,783
Assays	\$ 5,850
Televiewer Survey	\$ 2,727
TOTAL	\$36,797

8. PROPOSED EXPLORATION 2004-2005

Further RC drilling has been proposed for the Empire Prospect at the south eastern end of the Woolwonga pits. During 2004-2005 it is anticipated that exploration will be focused on the Zapopan and Cosmo Howley deposits to allow a commercial decision to be made regarding any renewal of mining and treatment activity at Brocks Creek. The timing of such a decision is to a degree dictated by the Australian gold price and predictions of its relative stability.

While the Woolwonga setting requires further evaluation through drilling, the scheduling of this work is dependent on the economic climate and ranking with other resources in the Burnside region. It is proposed that during the 2004-2005 year work will comprise technical review, reporting and interpretation with expenditure in the order of \$600.

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