BURNSIDE OPERATIONS P/L

ANNUAL EXPLORATION REPORT

MCN 3705-3707, MLN 1103

WOOLWONGA GROUP
YEAR ENDING 25th APRIL 2003

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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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 greywackes 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, a complex of stockwork style quartz-sulphide vein network and saddle reef style bodies has developed.

The Burnside Joint Venture conducted a technical review of the historic exploration and grade control drilling data using computerised imaging. This shows that higher grade gold concentrations occur as at least 9 stacked SE plunging saddle reef style shoots relating to favourable litho-contacts along the fold hinge. It was concluded that these shoots would form the focus of any future exploratory drilling program to test residual resources, though the back-filling of the Southern Pit has compromised future mining economics and exploratory drilling.

Exploration expenditure during the year amounted to $11,100.00

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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 first year of the joint venture ending 25/5/03.

2. TENEMENT DETAILS

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 was granted 26th of February, 1991, and expires on 24 February 2016. It comprises 911.2ha.

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

They are situated on the Ban Ban (14/3-III) 1:50,000 sheet and lie 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. (See Fig. 1).

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

3. GEOLOGY

3.1. 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 Finniss 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 may obscure parts of the Pine Creek Geosyncline lithologies, but exposure of the more resistate units of the prospective sequence is generally good.

3.2. Local Geology

The Woolwonga deposit lies on the Woolwonga Anticline, a continuous structure 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.

Flat lying surficial Cambro-Ordovician limestones and sandstones cover much of the underlying Lower Proterozoic host rocks, preventing a regional study of the Woolwonga Anticline.

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 followed the Woolwonga Anticline for 1.2km, while the western ridge followed a subsidiary anticline and was more subdued. The ridges are 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.

3.3. 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 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.

Pyrite occurs as masses and 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.

4. 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 refractory nature and lower grades of 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 AGC 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 pittable 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. Since then work has been focused on data reviews.

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

5. EXPLORATION YEAR ENDED 25TH APRIL 2003.

Introduction

During the first joint venture year the Burnside Joint Venture conducted a field visit to the Woolwonga mine and carried out a desk top database review of the open pit environment. Grade control and exploratory drilling data were validated and used to re create three-dimensional representations of gold mineralisation.

The study had the primary objective of assessing the gold potential at Woolwonga, left after the mining operation.

Structural and Resource Review Woolwonga

An emphasis was placed on locating above average grade gold mineralisation (+3.0g Au/t) potential and in particular mineralisation amenable to potential underground mining. S. Plunkett conducted the review under the supervision of A.Gillman.

Records show Dominion's production came from two connected open pits and that the larger, Reward Pit (North Pit) produced 2,354,706t @ 2.27g Au/t and the smaller, Wilson Pit, (South Pit) produced 592,361t @ 2.5g Au/t. The Wilson Pit has now been partially backfilled with waste from the Reward Pit. The extent of this waste is not known. Dominion's reconciliation of reserves against production showed a problem with maintaining scheduled average grade to the mill. Only 85% of the planned grade was achieved suggesting mining dilution and problems defining in-pit ore blocks.

Detailed geological data for the review was limited to early exploration geological sections for the Wilson Pit and surface mapping. At the time of the study no pit mapping was available, nor were cross sections of the Reward Pit. Further hard copy data exists at the Brocks Creek library site.

The database includes assays for grade control drilling with 2.5m sample intervals, and exploration RC holes with 1m sample intervals. Lithologies and quartz abundances were available for exploration data only. It was assumed that the data sets were complete.

Through SRK Consulting, Leapfrog software was used to assist in illustrating subtle controls on gold mineralisation. All assay data was composited to 2.5m sample lengths and processed to produce wireframed grade shells at 0.5, 1.0, 1.5, 3.0 and 4.0g Au/t cutoffs. Using the total drilling data, this for the first time displayed a strong set of multiple, linear fold hinge parallel, SE plunging shoots containing the better grade gold concentrations. See Appendix for Powerpoint representations of the shoots.

Despite Dominion's problems with dilution, the project still produced above the predicted level of contained ounces, which is promising.

Initial attempts by Plunkett to conduct a manual interpretation were not successful due to inherent complexity and variability of gold distributions.

The Leapfrog data managed to achieve what manual interpretations could not. It showed the predominance, at least in terms of grade, of 9 shallow (20 degree SE) plunging saddle reef style concentrations (W1-W9) plus the steeper dipping SE shoots, over the whole pit area. Plunkett recognised

that these features were very difficult to model in cross section, however they loosely do constrain nearly all of the +4g Au/t mineralisation. This being the case they comprise a prime target for any exploration drilling, as opposed to the previous emphasis on steep, linear axial planar structures.

Plunkett noted a difference in gold geometry distributions in the Wilson Pit versus the Reward Pit. Wilson Pit lodes (W5-W9) in cross section appear as stacked sub horizontal sills, closely constrained within the fold nose, with lesser mineralisation on the limbs and axial plane. This tighter constraint may reflect the higher average grade in Wilson Pit.

On the other hand the Reward Pit saddle reef lodes (W1-W4) have a more arched sectional shape with mineralisation extending into the limbs, especially the east limb, and considerable diffuse mineralisation in the axial plane. Because of this emphasis the Reward resource contained significantly more tonnes and contained ounces. In fact the two lodes were difficult to separate due to linking by axial planar material.

Plunkett concluded that the combined potential for the resource extensions at Woolwonga, for all lodes is of the order of 765,000t @ up to 3.6g Au/t.

Due to the complexity of mineralisation controls at Woolwonga and relatively low grade, it is likely that the most appropriate mining method would involve a deepening of the open pits. The higher grade pods identified would be difficult to justify as underground mining propositions. The backfilling of the Wilson Pit has downgraded the southern mineralisation as it limits the scope for exploratory drilling and adds to the costs of mining.

6. EXPENDITURE STATEMENT YEAR ENDED APRIL 25TH 2003

Expenditure in the 2002-2003 year related to visiting the Woolwonga site, gathering data hard copy, validating the digital data and conducting the computerised technical review described above.

Geological consultants	$7,450.00
Tenement management	$1,055.00
Computer consultants	$1,935.00
Salaries, wages	$ 180.00
General consumables	$ 230.00
Travel	$ 250.00
TOTAL	**$11,100.00**

7. PROPOSED EXPLORATION 2003-2004

With Burnside Operations P/L having completed the first pass technical evaluation of the Woolwonga deposit, further evaluation work needs to be done, particularly in the area of the Reward Pit and of the strike extensions to the deposit. The depression of the Australian gold price has led to a deferment of planned mining operations in the Brocks Creek and Cosmo Howley area, so preparatory work remains to be done in the event of an economic improvement.

Much hard copy and report data exists at the Brocks Creek site office covering these aspects of the deposit.

It is planned that a geologist will access this data, sort and integrate it with the intention of completing the economic study.

The cost of this work including travel and accommodation is estimated to be $1,200.00

8. REFERENCES

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APPENDIX ONE

LEAPFROG IMAGES OF
WOOLWONGA PIT
TOTAL DRILL ASSAYS

APPENDIX TWO

DIGITAL RECORD OF
THIS REPORT
YEAR TO APRIL 25TH 2003