ANNUAL EXPLORATION REPORT
MLN 766 and MLN 1060
BRIDGE CREEK PROJECT
YEAR ENDING 1st DECEMBER 2003

Burnside (14/2-II) 1:50,000 Sheet

Title Holder:- Northern Gold N.L.

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Northern Gold NL Perth Office
Burnside Operations P/L Brocks Creek
Burnside Operations P/L Perth

Compiled by:-
John Shaw
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SUMMARY

The Bridge Creek Project comprises MLN 766 and MLN 1060 at Bridge Creek, approximately 125 km SSE of Darwin and 35 km southeast of Adelaide River.

The tenements cover a sector of the Howley Anticline, approximately 12 km along strike north from the Cosmopolitan Howley Gold Mine.

Intensive gold exploration including reverse circulation drilling, diamond drilling, resource modelling and metallurgical test work has been previously carried out on the Bridge Creek primary resource that lies within the tenements.

Burnside Operations P/L (Burnside) is manager of the tenements following finalisation of a joint venture agreement between Territory Goldfields NL and Buffalo Creek Mines NL in April 2002. The JV merged certain mining assets of the parties including the Brocks Creek gold treatment plant.

Since the JV was formed Burnside has carried out computer block modelling and mine optimisation studies on the resource with the objective of locating mineable gold resources within haul distance of Brocks Creek. The study also helped rank the Bridge Creek resource with other gold resources the JV holds in the region.

During the 2003 year no additional field work was carried out on the Bridge Creek tenements. The gold resource as defined to date appears sub economic at this year’s average gold price and is ranked lower than many other deposits in the area. The deposit will be kept under continuous review to determine if its value can be elevated by changing prices.
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1.0 INTRODUCTION

MLN 766 and MLN 1060 are located approximately 125km SSE of Darwin and 35km SE of Adelaide River, on the Burnside (14/2-II) 1:50,000 sheet. The area was historically associated with alluvial/eluvial gold mining which periodically became active with increases in the gold price.

Intensive exploration drilling programs over several field seasons were completed testing the Bridge Creek primary gold resource. Resource estimation and modelling demonstrated that the primary mineralisation is extensive but diffuse and low grade.

This report covers exploration activity during the year ended 1st December 2003.

2.0 TENURE DETAILS

MLN 766 of 8.09 ha was granted to W. J. Fisher on the 2nd of December 1974, expiring on the 31st of December 1994. The mineral lease was transferred to Northern Gold N.L. on the 18th of January, 1988. A renewal was granted on the 28th of December 1994 that was to due to expire on the 31st of December 2002. An application for renewal of a further term was lodged.

MLN 1060 of 324.5 ha was granted to Northern Gold N.L. on the 22nd of October 1993 and expires on the 31st of December 2002. An application for renewal of the tenements for a further term has been lodged. This tenement encloses MLN 766.

The area was briefly subject to an alluvial treatment agreement with Mr R. J. Edwards. Following rehabilitation programs Northern Gold N.L. withdrew from the agreement in early 2000.

A joint venture agreement was finalised between Territory Goldfields NL and Buffalo Creek Mines P/L in April 2002 that merged certain tenement assets and the Brocks Creek treatment plant under one management entity. This entity is Burnside Operations P/L. The Bridge Creek tenements are included in the schedule of this agreement.

The tenements, which total 332.09ha, lie between latitudes 13°26’ south and 13°27’ south and longitudes 131°18’ east and 131°20’ east (Figure 1). MLN 766 and MLN 1060 are situated within Pastoral Lease No. 903, Douglas, held by Tovehead Pty. Ltd.

The Stuart Highway passes through the tenements providing excellent access to a track that links northward to a crossing on the Darwin-Adelaide Railway, connecting through to Burnside Operations’ northern prospects.
3.0 GEOLOGICAL SETTING

3.1 Regional Geology

MLN 766 and MLN 1060 are situated within the Pine Creek Geosyncline, a tightly folded sequence of Lower Proterozoic rocks dominated by pelitic and psammitic (continental shelf shallow marine) sediments with minor inter-layered tuff units. Pre-orogenic mafic sills intruded the lower formations of the South Alligator Group.

The sequence is pervasively altered with metamorphic grade ranging from lower amphibolite facies adjacent to granitic batholiths and within shear zones, to greenschist facies more distal from the influence of the intrusives. Less deformed Middle and Late Proterozoic clastic rocks and volcanics have an unconformable relationship to the older sequences. Flat lying Palaeozoic and Mesozoic strata along with Cainozoic sediments and laterite overlie parts of the Pine Creek Geosyncline lithologies. Recent scree deposits occupy the lower hill slopes while fluvialite sands, gravels and black soil deposits mask the river/creek flats areas.

3.2 Local Geology

MLN 766 and MLN 1060 cover a sector of the axis of the Howley Anticline, approximately 12km along strike north from the Cosmopolitan Howley Gold Mine (Cosmo Howley).

The lithologies in the tenement area are similar those found at Cosmo Howley and comprise units of the South Alligator and the Finniss River Group sedimentary sequences interlayered with sills of Zamu Dolerite.

Exploratory drilling at Bridge Creek intersected lower to middle units of the South Alligator Group. These are represented by foliated, sulphidic and carbonaceous black mudstones and wackes of the Koolpin Formation, which is overlain by foliated epiclastic and volcanoclastic tuffaceous rocks of the Gerowie Tuff Formation. These lithologies lie between sub-vertical limbs of semi concordant Zamu Dolerite that allows clear definition of the axis of the Howley Anticline.

The contact zone between the Zamu Dolerite and the Gerowie Tuff is strongly deformed with some apparent tectonic interleaving of lithologies. Cross cutting sulphide rich, quartz porphyries were also intersected in a number of holes. Generally these are massive to weakly deformed and
appear to be near-vertical, dyke like bodies, which, in some instances, can also be bedding parallel.

The structural geology of the Howley area is dominated by two macroscopic structures, the Howley Anticline and a series of anastomosing brittle-ductile shear zones with associated quartz veining, sub-parallel to the axial plane.

The Howley Anticline is a macroscopic fold structure, which has been traced from the Cosmo Howley Gold Mine in the south to Mount Paqualin in the north. The fold is a doubly plunging, upright, asymmetric, tight, non-cylindrical fold, that plunges north in the vicinity of the Cosmo Howley mine and to the south (approximately $12^\circ$) in the Bridge Creek area.

3.3 Gold Mineralisation

At Bridge Creek primary gold occurs as three different styles, which post-date the $F_1$-$F_3$ regional folding events.

- In quartz-sulphide stockwork zones and associated alteration haloes within the pyritic and carbonaceous black shales of the Upper Koolpin Formation (the dominant style).

- In quartz-sulphide impregnated shear zones at the contact between the Gerowie Tuff and the Zamu Dolerite.

- In quartz-sulphide veins within the Zamu Dolerite. The veins appear to be arranged as a fracture cleavage set around the hinge zone of the Howley Anticline. Veins on the east side of the anticline appear to dip west, those on the west side appear to dip east.

4.0 PREVIOUS EXPLORATION

Historic activity

Small deposits of alluvial gold were first worked near the Metropolitan Howley mine in 1883, following the discovery of primary gold there in 1873. Further primary deposits were located at Metropolitan and Chinese Howley. Alluvial mining quickly spread to Chinese Howley, Bridge Creek and Mount Paqualin. Alluvial mining by Chinese indentured labour continued until about 1896, when the lease arrangements with the Mandarins expired and were not renewed. The alluvial deposits were then only intermittently mined, on a small scale until Metana Minerals N.L’s Bridge Creek operation in 1986 and later by Mr R.J. Edwards in 1996-1997.

Modern Exploration
In 1976 a BHP/Homestake joint venture carried out an extensive exploration program in the area around Cosmopolitan Howley. Their work included testing of the alluvial deposits. Estimates of less than 300,000cu/m of gravel grading 0.5 to 1.0 g/cubic metre were reported.

In 1984 some highly anomalous gold values were obtained from stream sediment samples and in 1984, a joint venture between Hunter Resources N.L. and Northern Gold N.L. carried out further stream sediment and alluvial testing. This was focused in the Cosmopolitan and Chinese Howley area, to the west of the present Stuart Highway. A total of 73 channel samples were collected from costeans and analysed in the laboratory for gold. The program outlined about 900,000 cubic m of gold bearing gravels beneath a similar volume of overburden (about a 1:1 stripping ratio). Gravel thickness was variable but an average of 1.3m was obtained. In terms of grade, the assay results were inconclusive but most samples returned values of less than 0.3 grams per cubic m.

During 1996 reverse circulation drilling was conducted over MLNs 766 and 1060 to test the bedrock gold resources in the central and northern sector of the prospect. This comprised 50 holes for a total of 3,641m. Five diamond core holes were also drilled.

A computer resource block model was created for the Bridge Creek prospect using a 3 dimensional geological solid to constrain the model and inverse distance squared interpolation. Each block was a 2.5m cube. A top cut of 15.0g Au/t was used in the assay averages.

Estimates were made of resource size in the measured, indicated and inferred categories.

Measured had a strike of 20m, 3m across strike and 20m down dip.
Indicated had a strike of 40m, 6m across strike and 40m down dip.
Inferred had a strike of 60m, 8m across strike and 60m down dip.

Bulk densities from diamond core used for the calculations comprised 2.05g/cu cm down to 75RL ranging up to 2.8g/cu cm below 20RL.

A global resource of 1,569,240 tonnes at 1.58 g Au/t was estimated.

Waste rock characterisation studies were carried out using RC chips along with some diamond core. The samples were sent to Assaycorp in Pine Creek for whole rock analysis and acid generating properties.

During 1996-97 Mr R. J. Edwards treated alluvial tailings and tailings oversize at a small screening plant, located on the old Metana Minerals plant site within MLN 1060, under an agreement with Northern Gold N.L.
The plant consisted of a trommel, feed bin and conveyor, generator set, water supply pump and gold concentrator. The plant capacity was 30 loose cubic m/hr. Mining was by face-digging the existing oversize tailings dumps with a front end loader. A sized gravel product was created with (10%) –3mm material returned to the tailings area.

In March 1997 a Public Environmental Report (PER) was prepared by AGC Woodward - Clyde Pty. Ltd., for Northern Gold N.L. The report was written to cover mining operations at Kazi, Western Arm and Bridge Creek, in response to guidelines provided by the Northern Territory Department of Mines and Energy. The PER was structured to generally follow these guidelines.

During 1998-99, rehabilitation programs were carried out over the mineral leases in compliance with the conditions of the Mining Act and the Mine Management Act.

During 2000 no field work was carried out on the tenements. The alluvial agreement with Mr Edwards was terminated early in 2000.

During 2001 database validation and multiple indicator kriging estimates of the resource within a strike length of 1.5km were carried out by R. Hague.

In April 2002 a joint venture agreement was finalised between Northern Gold NL and Buffalo Creek Mines Pty Ltd. This agreement merged certain mining tenements and capital assets of the two companies with the objective of mining gold resources and treating ore at the Brocks Creek Mill. This joint venture operates under the management of Burnside Operations Pty Ltd and includes the Bridge Creek tenements.

A reinterpretation of the total Bridge Creek project was undertaken during June 2002 (Gillman A. 2002). The project involved the review of 300 RC drill holes and 5 diamond core holes some of which extend onto the Bridge Creek North tenements.

Gillman produced a block model following a grade sectional interpretation that used a 0.7g Au/t lower cutoff and a top cut of 10.0g Au/t. A steep structural control was interpreted in line with most previous workers.

Hague’s interpretation favoured saddle reef style bodies above and within the dolerite sill, and steep dipping bodies within the core and limbs of the fold.

The model was taken to –70RL from a maximum surface RL of 90. The global resource captured by the model was 667,727t @ 1.97g Au/t (42,297oz gold)
This resource model was first-pass optimised (Skelton 2002).

Between January 1\textsuperscript{st} 1996 and July 30\textsuperscript{th} 2002 a total of $456,275 had been spent on exploration activities within MLN1060 and MLN766.

During the year ended December 1\textsuperscript{st} 2002 the review and resource modelling incurred a total expenditure of $2,300.

5.0 EXPLORATION FOR PERIOD ENDING 1\textsuperscript{ST} DEC. 2003

No significant exploration activity was carried out on the tenements during the year ended 1\textsuperscript{st} December 2003. The previous year’s modelling had demonstrated that the gold resource was sub economic at average gold prices for 2003, and as a consequence the Bridge Creek resource was ranked lower than other deposits in the Burnside region.

During 2002 and 2003 the joint venture focused on developing underground ore from the Zapopan gold mine and access to the deposit by decline was achieved in mid 2003. Underground and surface diamond drilling programs in 2003 are still extending the high grade resource down plunge.

Expenditure on reporting was $250.00.

6.0 FORWARD PROGRAM 2004

The Bridge Creek deposit will be further reviewed in light of the proximal treatment facility and the relative availability and value of ore from other sources such as Zapopan.

Ongoing reviews of the Bridge Creek deposit will continue in 2004 but at a low key level. Expenditure is predicted to be $300.00.
8.0 REFERENCES


