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ERL 89

1997/98 ANNUAL REPORT

19/09/97 to 18/09/98

Burnside (14/2-II) 1:50,000 scale map sheet

Title Holder:- Territory Goldfields N.L.
Managed by:- Northern Gold N.L.

October 1998
Author:- N. Mottram

NTDME
Northern Gold N.L., Adelaide River
Northern Gold N.L., Perth Office

CR98/660
SUMMARY

ERL 89 is located approximately 130 kilometres south south - east of Darwin, 40 kilometres south - east of Adelaide River and 5 kilometres north - west of the Cosmo Howley Gold Mine. The tenement is situated on the Batchelor (No. 5171) 1:100,000 scale map sheet and the Burnside (14/2-II) 1:50,000 scale map sheet, within the Pine Creek 1:250,000 sheet area (SD52/08).

Exploration Retention Licence 89 is centred on the Howley Anticline, a complex regional north - west trending structure which hosts a number of gold deposits, including the Chinese and Big Howley deposits, and the major Cosmo Howley deposit to the south.

Previous exploration by Northern Gold N.L. included the collection of 850 geochemical samples and a total of 65 RC drill holes for 4,858 metres. The work concentrated on the South Ridge Prospect, a 2 kilometre long mineralised zone coincident with the Howley Anticlinal axis. A geologically inferred resource of 204,000t at 2.4 g/t Au was calculated by Northern Gold N.L.

Northern Gold N.L. also completed work programs based on digital data acquisition and manipulation. Landsat Imagery, SPOT Imagery and AGSO mapping were obtained and used in conjunction with aerial mapping, aeromagnetics and digital terrain modeling to fully evaluate the region.

Dominion Gold Operations Pty. Ltd. exploration activities included gridding, soil and rock chip sampling, geophysical interpretation and RC drilling. Sporadic ore grade intercepts were returned.

ERL 89 was granted to Northern Gold N.L. on the 19th of September, 1989, for a period of five years. The licence, covering 324.8 hectares, was previously held by Northern Gold N.L. as part of EL 4226. Dominion Gold Operations Pty. Ltd. acquired the property as part of regional package purchased from Northern Gold N.L. on the 15th of February, 1991. The transfer was effective as of the 7th of May, 1991. Territory Goldfields N.L., which is managed by Northern Gold N.L., subsequently acquired the tenement in May, 1995. A renewal was granted on the 19th of October 1995, for a period ending on the 18th of September 1999.

A mineral lease application, covering the entire licence, has been submitted and a decision on this application is still pending.

Further work will include MMI geochemical soil sampling and RC drilling aimed at identifying extensions to the mineralised zone. On approval of MLN 1129A, resource drilling and further ore reserve estimations will be completed.

The covenant for the 1997/98 year of tenure was $6,000 and the expenditure totaled $4,145.
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1.0 INTRODUCTION

ERL 89 is located approximately 130 kilometres south south - east of Darwin, 40 kilometres south - east of Adelaide River and 5 kilometres north - west of the Cosmo Howley Gold Mine. The tenement is situated on the Batchelor (No. 5171) 1:100,000 scale map sheet and the Burnside (14/2-II) 1:50,000 scale map sheet, within the Pine Creek 1:250,000 sheet area (SD52/08). The licence, which is 324.8 hectares in area, lies between latitudes 13°29' south and 13°30' south and longitudes 131°20' east and 131°21' east (Figure 1). ERL 89 is situated within Pastoral Lease No. 903, Douglas, held by Owston Nominees No. 2 Pty. Ltd. and Tovehead Pty. Ltd.

Access is available via all weather dirt tracks from both the new and old Stuart Highways, and also from the Cosmo and Chinese Howley Mines.

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A mineral lease application, covering the entire licence, has been submitted and a decision on this application is still pending.

The covenant for the 1997/98 year of tenure was $6,000 and the expenditure totaled $4,145.
2.0 GEOLOGY

2.1 Regional Geology
ERL 89 is situated within the Pine Creek Geosyncline, a tight to isoclinaly folded sequence of mainly pelitic and psammitic Lower Proterozoic with interlayered tuff units. All rocks in the area have been metamorphosed to low, and in places medium grade, metamorphic assemblages. For the purposes of this report the prefix "meta" is implied, but omitted from the rock names and descriptions (Socic, 1997).

The sequence has been intruded by pre-orogenic sills of the Zamu Dolerite and a number of late syn-orogenic to post-orogenic Proterozoic granitoids. Largely undeformed Middle and Late Proterozoic, Palaeozoic and Mesozoic strata as well as Cainozoic sediments and laterite overlie the Pine Creek Geosyncline rocks (Socic, 1997).

2.2 Local Geology
ERL 89 is centred on the Howley Anticline, a complex regional north - west trending structure which hosts a number of gold deposits including the Chinese and Big Howley deposits, and the major Cosmo Howley deposit to the south (Figure 2).

The Howley Anticline dominates the geology of ERL 89 and provides the principal focus of exploration activities (Socic, 1996).

Within the licence area the north - west to south - east trending anticline shows a south - easterly plunge. The Howley Anticline is typically isoclinal and moderately overturned to the east with axial planar cleavage dipping steeply to the west. The lithologies present within the licence area include the Mount Bonnie Formation and the Burrell Creek Formation (Socic, 1996).
3.0 PREVIOUS EXPLORATION

Early exploration work in the area was carried out by Eupene Exploration Enterprises for Hunter Resources.

Former EL 4226 covered the area currently comprising ERL 89, MLN 1053 and other tenements in the Chinese Howley area. Hard rock exploration completed by Eupene Exploration included:

- Stream sediment sampling, 132 samples
- Rock chip/scree sampling, 142 samples
- Costeaming (details unavailable)

This work was sufficient to outline coincident Au, As and Cu anomalies to the west of Big Howley in the area now known as South Ridge.

During the late 1980’s, EL 4226 came under the control of Northern Gold N.L. Metana Minerals carried out alluvial exploration under tribute agreement with Northern Gold N.L. Hard rock exploration completed by Northern Gold N.L. on ERL 89 has been documented in reports by McKenzie (1988) and Partington and Stokes (1990). Below is a summary of the main activity undertaken.

Gridding

A total of 1.5 line kilometres of baseline was established at 50 metre intervals. A further 5.5 kilometres of cross - line gridding was emplaced to aid mapping and drill hole location. All gridding was completed by Qasco Northern Surveys.

Aerial Surveys

An airborne geophysical survey was carried out by Kevron Geophysics Pty. Ltd. as part of a more regional survey. The survey utilised total magnetic field intensity and radiometrics (total count, K, U and Th). Structure and stratigraphy can be interpreted through the use of marker magnetic high units, namely Zamu Dolerite sills and Koolpin Formation. Radiometrics clearly identify granitoids in the region.

Mapping

Mapping of old workings and pre-existing costeans on the western limb of the Howley Anticline was carried out at 1:5000 scale.

Soil Geochemistry

A total of 860 BLEG samples were collected on 5 traverse lines running east - west across the tenement. Samples were collected on a 400 metre by 10 metre grid spacing, and composited over 50 metre intervals.
Results reveal a strong north westerly trending anomalous zone to the north and west of the Big Howley deposit. A maximum value of 254.9 ppb gold was recorded in this zone.

A weaker less distinct anomalous zone occurs on the eastern margin of the tenement and trends almost due north-south. This zone recorded a maximum value of 135 ppb Au.

The main anomalous zone corresponds to the Howley Anticlinal axis in the area now known as South Ridge. The origin and significance of the less distinct zone to the east is not certain.

**RC Drilling**

A total of 65 RC holes have been drilled into the South Ridge anomalous zone on ERL 89 for 4,848 metres. Drill holes NGRC4 and NGRC6-29 were completed in March and April of 1988, the remaining 37 holes, NGRC36-72, were completed in June of 1990. Gaps in the hole number sequence were due to holes drilled on nearby Chinese Howley tenements. Best mineralised intercepts are listed in Table 1.

**Resource Calculation**

A resource calculation based on all RC drilling was carried out by Northern Gold N.L. in June 1990. Drill hole data over a 2,000 metre strike length was incorporated. Sectional spacing varies up to 120 metres and lateral strike continuity of ore zones between sections was assumed. Using a 1.5 g/t Au cut-off and an S.G. of 2.4 t/m³, an inferred resource figure of 204,000t @ 2.4g/t was calculated down to 40 metres vertical depth.
<table>
<thead>
<tr>
<th>Hole No.</th>
<th>Co-ordinates</th>
<th>Azimuth/Incl</th>
<th>Total Depth</th>
<th>Mineralisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGRC11</td>
<td>51127.1N</td>
<td>090/60°</td>
<td>91m</td>
<td>27-29m: 2m @ 3.06</td>
</tr>
<tr>
<td></td>
<td>44939.2E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGRC13</td>
<td>51499.9N</td>
<td>090/60°</td>
<td>100m</td>
<td>64-65m: 1m @ 40.41</td>
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<tr>
<td></td>
<td>44919.7E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGRC16</td>
<td>51500.5N</td>
<td>090/60°</td>
<td>102m</td>
<td>59-80m: 1m @ 17.79</td>
</tr>
<tr>
<td></td>
<td>45041.1E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGRC22</td>
<td>51702.3N</td>
<td>090/60°</td>
<td>100m</td>
<td>18-22m: 4m @ 4.54</td>
</tr>
<tr>
<td></td>
<td>44928.7E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGRC23</td>
<td>51123.2N</td>
<td>090/60°</td>
<td>100m</td>
<td>72-74m: 2m @ 8.74</td>
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<td>45038.9E</td>
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<td></td>
<td></td>
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<tr>
<td>NGRC24</td>
<td>51126.9N</td>
<td>090/60°</td>
<td>80m</td>
<td>21-24m: 3m @ 2.99</td>
</tr>
<tr>
<td></td>
<td>45061.4E</td>
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<td></td>
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<tr>
<td>NGRC38</td>
<td>51199.53N</td>
<td>090/45°</td>
<td>60m</td>
<td>5-8m: 3m @ 2.07</td>
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<td></td>
<td>45005.24E</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>NGRC39</td>
<td>51199.62N</td>
<td>090/45°</td>
<td>60m</td>
<td>38-39m: 1m @ 10.40</td>
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<td></td>
<td>44986.10E</td>
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<tr>
<td>NGRC41</td>
<td>51201.77N</td>
<td>090/45°</td>
<td>60m</td>
<td>27-28m: 1m @ 7.15</td>
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<td></td>
<td>44948.52E</td>
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<tr>
<td>NGRC53</td>
<td>51401.62N</td>
<td>090/45°</td>
<td>60m</td>
<td>49-53m: 4m @ 1.55</td>
</tr>
<tr>
<td></td>
<td>44924.89E</td>
<td></td>
<td></td>
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<tr>
<td>NGRC62</td>
<td>51799.84N</td>
<td>090/45°</td>
<td>60m</td>
<td>13-14m: 1m @ 22.8</td>
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<tr>
<td></td>
<td>44933.72E</td>
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</tr>
<tr>
<td>NGRC66</td>
<td>51802.41N</td>
<td>090/45°</td>
<td>60m</td>
<td>20-21m: 1m @ 6.59</td>
</tr>
<tr>
<td></td>
<td>45009.16E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGRC68</td>
<td>51901.92N</td>
<td>090/45°</td>
<td>60m</td>
<td>26-27m: 1m @ 5.00</td>
</tr>
<tr>
<td></td>
<td>44971.38E</td>
<td></td>
<td></td>
<td>30-32m: 2m @ 11.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>43-44m: 1m @ 11.0</td>
</tr>
</tbody>
</table>

**NOTE:** All results listed greater than 5.00 gram x metres
Grid Co-ordinates refer to Northern Gold N.L. Local Grid
In May 1991 the title was transferred from Northern Gold N.L. to Dominion Gold Operations Pty. Ltd. The following work was completed by Dominion Gold Operations Pty. Ltd. (Ruzicka et al., 1992; Fawcett, 1995):

**Gridding**

A total of 3.95 kilometres of gridding at 50 metre spacing was completed at South Ridge by contract surveyor Paul Dombusch. This gridding comprised a series of cross-lines off the Northern Gold N.L. baseline to fill gaps in the existing grid coverage to enable detailed geological mapping and infill soil geochemistry.

**Mapping**

Detailed mapping of the South Ridge zone was conducted at 1:500 and 1:100 scales.

**Rock Chip Sampling**

A total of 170 rock chip samples were collected from prospective outcrops. Twenty two samples returned results greater than 1g/t, with a maximum value of 49.1g/t from the ridge west of Big Howley.

The rock chip samples were submitted to Analabs in Darwin for gold and copper analysis. Copper analysis was only carried out on selected samples.

**RC drilling**

A total of 690 metres of RC drilling was carried out in 23 holes (BSEX 1-3, 7-11, 12-20, 24-30). Drilling was carried out by Gomex Drilling of Tennant Creek using a truck mounted RCD drilling rig.

Drill holes were targeted on zones of anomalous rock chips and/or to infill the previous Northern Gold N.L. RC drilling in the area.

The 3 metre composite analytical samples were submitted to Analabs in Darwin for gold and arsenic analysis.

The peak response was 3.27 ppm with very few results over 1 ppm. There were a number of ore grade RC drill intercepts reported that were sporadic.

Northern Gold N.L. completed a work program involving digital data acquisition and manipulation during the 1995/96 exploration season. Landsat Imagery, SPOT Imagery and AGSO mapping were obtained and used in conjunction with aerial mapping to fully evaluate the area (Socic, 1996).

GIS and satellite imagery were used to log soil types and also used to interpret the structural geology of the region (Socic, 1996).
During the 1996/97 exploration season, Northern Gold N.L. carried out work programs involving magnetic data acquisition and manipulation, and digital terrain modelling. The data was obtained and used in conjunction with aerial mapping, site visits and previous digital data interpretations (Socic, 1997).

Northern Gold N.L. purchased multiclient aerial geophysics from World Geoscience in November, 1996. The data covers areas not previously held by Northern Gold N.L. The results of the geophysics were used primarily as imaged processed data for regional interpretation of exploration concepts (Socic, 1997).

A contour map of the region was compiled, showing the slope vectors of the terrain, indicating possible dispersion directions of mobile elements (Socic, 1997).
4.0 1997/98 WORK PROGRAM

During the 1997/98 year of tenure, Northern Gold N.L. completed a comprehensive review of all exploration data to evaluate the area and determine the best methods of exploration to be used.

5.0 1997/98 EXPENDITURE

Expenditure over ERL 89, during the 1997/98 year of tenure, totaled $4,145. Details of this expenditure are listed below as Table 2.

<table>
<thead>
<tr>
<th>COSTS</th>
<th>AMOUNT</th>
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<tbody>
<tr>
<td>Report Compilation</td>
<td>280</td>
</tr>
<tr>
<td>Tenement Management</td>
<td>400</td>
</tr>
<tr>
<td>Data Review</td>
<td>470</td>
</tr>
<tr>
<td>Stationary and Office Expenses</td>
<td>25</td>
</tr>
<tr>
<td>Computing</td>
<td>30</td>
</tr>
<tr>
<td>Salaries and Wages</td>
<td>2,250</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>3,455</strong></td>
</tr>
<tr>
<td>Administration @ 20%</td>
<td>690</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$4,145</strong></td>
</tr>
</tbody>
</table>
6.0 1998/99 PROPOSED WORK PROGRAM

Exploration work proposed for the 1998/99 year of tenure will include MMI geochemical sampling, RC drilling, and assaying.

An estimation of the cost of these programs is given below in Table 3.

<table>
<thead>
<tr>
<th>COSTS</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMI Geochemical Sampling</td>
<td>500</td>
</tr>
<tr>
<td>RC Drilling</td>
<td>3,000</td>
</tr>
<tr>
<td>Assaying</td>
<td>1,500</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$5,000</strong></td>
</tr>
</tbody>
</table>

On approval of MLN 1129A, resource drilling and further ore reserve estimations will be completed.

7.0 REFERENCES


