ANNUAL MINE BASED EXPLORATION REPORT FOR UNION REEFS GOLD MINE MLN 1109

For the year ending 31 December 2000

CIRCULATION:

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Geology/Mining Department
URGM File
SUMMARY

This report summarises all mine based exploration activities within the Union Reefs tenement (MLN1109) for 2000. Drilling commenced on the 30th June and was completed by the 5th October 2000.

The aim of the 2000 drilling season was to test continuity of known oxide and primary mineralised zones and to upgrade the Union Reefs resource model. Seventy-six reverse circulation (RC) drillholes totalling 5528m were completed. There were no diamond holes drilled over this period.
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1.0 INTRODUCTION

MLN 1109 (Union Reefs) is located approximately 15km north of Pine Creek township in the Northern Territory (Figure 1). This report details all work carried out by Anglogold Australasia on this tenement for the 2000 period.

2.0 LOCATION AND ACCESS

Access to the Mining Lease is gained via the Stuart Highway to the north of the Township then east along Ping Ques Road.

3.0 REGIONAL GEOLOGY

The tenement area is located in the central portion of the Pine Creek Geosyncline. The geosyncline contains Early Proterozoic metasedimentary rocks overlying a gneissic and granitic Archaean basement. The metasediments represent a preserved basinal sequence up to 14km thick (Needham et al., 1980), which were tightly folded and metamorphosed to greenschist facies between 1890 to 1870 Ma (Ferguson, 1980).

The Pine Creek Geosyncline was intruded by syn- to post- orogenic I-type granitoids between 1870 and 1800 Ma (Needham et al., 1980). Weakly deformed Middle and Late Proterozoic, Cambro-Ordovician and Mesozoic platform cover unconformably overlie the Pine Creek Geosyncline metasediments (Spurway, 1997).

Economic gold mineralisation is located (Figure 2) within the inner zone of the thermal aureole spatially and temporally related to the Cullen Batholith (Klominsky, et al., 1996).

4.0 TENEMENT GEOLOGY

The Union Reefs Mining Lease (MLN 1109) is located within a corridor of Palaeoproterozoic metasediments which is flanked to the east and west by lodes of the Cullen Batholith (Figure 2). The north west trending corridor contains sediments (greywacke, interbedded greywacke-shale and shale) of the Burrell Creek Formation and is approximately 5km wide at the prospect (Donaldson, 1992). The Burrell Creek Formation is strongly deformed into upright to tight isoclinal folds with axial plane cleavage typically transposed onto the folded So (bedding) plane. A system of regional scale shears overprints the earlier folding event forming the Pine Creek Shear Zone (Hewson, 1997).
Gold mineralisation was believed to be hypothermal-mesothermal and involved a multi-staged (sedimentary preparation, metamorphic upgrading and hydrothermal mobilisation generated by heat of the batholith), long term process as represented by a number of quartz vein generations (Klominsky, et al., 1996).

5.0 WORK COMPLETED

5.1 DRILLING PROGRAMMES AND RESULTS

Mine based exploration drilling commenced on the 30th June 2000 and was completed by the 5th October 2000. Drilling programmes had targeted the following areas: Alta, Dam A, Crosscourse Pit, Ping Ques South and Crosscourse South.

Seventy-six RC holes were drilled on the Union Reefs (MLN1109) tenement totalling 5528m. Table 1.0 provides drilling statistics from each area.

<table>
<thead>
<tr>
<th>Location</th>
<th>No. of Holes</th>
<th>RC Metres</th>
<th>Average Depth (m)</th>
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<tbody>
<tr>
<td>Alta</td>
<td>28</td>
<td>840</td>
<td>30</td>
</tr>
<tr>
<td>Dam A</td>
<td>16</td>
<td>1782</td>
<td>111.4</td>
</tr>
<tr>
<td>Crosscourse Pit</td>
<td>2</td>
<td>199</td>
<td>99.5</td>
</tr>
<tr>
<td>Ping Ques South</td>
<td>24</td>
<td>2213</td>
<td>92.2</td>
</tr>
<tr>
<td>Crosscourse South</td>
<td>6</td>
<td>494</td>
<td>82.3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>76</strong></td>
<td><strong>5528</strong></td>
<td><strong>72.7</strong></td>
</tr>
</tbody>
</table>

Drill holes were designed to infill on drill patterns of the past and to target shallow oxide mineralised zones as defined by previous drilling programmes. All areas drilled in 2000 intersected significant Au grades (above 1g/t), with the highest grades encountered at Crosscourse South (See Section 5.1.5).

Location of drillholes are presented in Figures 3,4 at 1:10,000 scale. Plans 1 and 2 display drillholes with collar ids at 1:2,500 scale, and are located at the back of this report. Drill logs and assay results are presented on CD-ROM. Appendix 4 contains details for locating information on the CD-ROM. Drill collar ledger and significant assays are shown in Appendix 1 & 2, respectively.

The following is a summary of the objectives and results of each programme.
(Note: This report uses only Mine Grid coordinates. Deviation from Magnetic North to Local Mine Grid is –28.5°).
5.1.1 Alta Exploration

The Alta prospect is defined as the area between 8500N to 8900N and 4650E to 5000E. The programme was designed to targeted shallow oxide mineralisation above the 1150RL and to infill on previous years drilling to a nominal 10m x 12m grid.

Twenty-eight RC drillholes were completed for a total of 840m. Significant results received (Appendix 2) confirmed shallow mineralisation along strike from Union North with overall grades generally lower compared to previous programmes.

The lodes appear to ‘pinch and swell’ along their strike length with Au grades erratically distributed within them. Mineralisation consists mostly of stockwork zones of narrow (<50cm) quartz veins parallel and perpendicular to bedding / cleavage. A sericite – arsenopyrite alteration halo generally extends for up to 1m away from the stockwork zones, but rarely exceeds 1.0g/t Au (Payne, 1998).

Zones are structurally complicated and previous core drilling confirmed the presence of deformed and folded quartz-sulphides. Six main lodes were located within this complex zone, with surface outcrops striking NNE with a near vertical dip.

5.1.2 Dam A Exploration

Drilling proceeded over two stages, the first focussing on testing mineralisation at depth by infilling 1998 drillholes on a 25m x 25m grid between 8200mN & 8500mN and 5150mE & 5250mE. The second programme targeted shallow mineralisation outside the known resource area, beneath historical alluvial workings situated between 8000mN & 8150mN and 4950mE & 5050mE.

Drilling from stage one confirmed the existence of three strongly mineralised, 5 to 10m wide quartz-sericte-chlorite-arsenopyrite lodes (see appendix 2 for significant assays). These strike approximately NNE-SSW, dipping 70-80 degrees to the west. The mineralisation is bedding parallel and very similar to the style encountered at Alice Hills. The dominant lithology is greywacke with abundant thinly interbedded carbonaceous shales. Control of mineralisation is unknown though likely to be under the influence of a fold hinge line associated with the Lady Alice Antiform.

Over the next few years, the draining of Dam A will allow follow up drilling to the west of this zone to test for any potential lodes currently covered by water.

Stage-two drilling encountered several thin lodes that trend north/south between the Lady Alice North “Line of Lode” and the Union Lode system. These thin lodes display similar pinch and swell characteristics as seen throughout URGM. Significant grades were encountered however far too erratic to warrant follow up drilling.
5.1.3 Crosscourse Pit Exploration

The programme proposed to drill sixteen RC holes totalling 2450m, to test the mineable resource within the Crosscourse Pit area. The focus of this programme was to infill the existing irregular drill pattern, to improve lode definition and to facilitate an appropriate evaluation of any underground potential.

Unfortunately, due to daily mining constraints and blasting activities within the pit, only one drillhole was completed. The drillhole had deviated approximately 50m to the north and down plunge of E-Lens. Significant assay results were encountered (Appendix 2), though the overall grade appears lower when compared to E-Lens intersections from previous years.

A second drillhole (URP 65802) was abandoned at 9m due to poor access and ground conditions. In 2001, access should become available to re-drill this hole and complete the remaining holes of the programme.

The E-Lens system contains a large number of crosscutting sulphide rich veins within a greywacke unit, forming a series of stockworks. E-Lens mineralisation appears to be folded with the axis plunging 40° to 50° to the north, and described as containing minor to massive quartz veining, with chlorite, pyrite and lesser amounts of arsenopyrite.

5.1.4 Ping Ques South Exploration

Drilling targeted areas where insufficient drillhole data existed from previous programmes down to a 25m x 25m grid, covering an area between 6250mN to 5700mN and 4950mE to 5100mE. Completed were twenty-four RC holes, that defined and tested mineralisation at depth in preparation of a new resource model and subsequent reserve upgrade.

Between 6000mN & 6250mN, drilling confirmed the existence of “teardrop-shaped” ore bearing quartz lenses that contained poorly developed and erratic grades down dip and along strike. A structural dislocation at 6000mN (orientation unknown) truncates the overall strike extent of the Ping Ques South lenses. To the south of this fault, lens geometry and grade distribution improves substantially down dip and along strike in an area overlaid with historical workings and deep shafts.

5.1.5 Crosscourse South Exploration

The 2000 drilling programme was the final resource drill-out of the area within the $550 resource shell. The proposal infilled gaps left from the 1999 resource programme by bringing the drill spacing over the entire area down to a nominal 25m x 25m grid. Thus, enabling a thorough appraisal of both oxide and fresh rock ore zones for future mine planning.
LEGEND
MINE BASED EXPLORATION DRILLING
- 2000 RC DRILLHOLES
- NO DIAMOND DRILLHOLES DRILLED

AREAS COVERED IN 2000

2000 COLLAR LOCATION
CC PIT/SOUTHERN AREA

UNION REEFS GOLD MINE
DATE 30-Nov2000
2000 COLLAR LOCATION
DRAWN M. WOZGA
CC PIT/SOUTHERN AREA

FIGURE 3
UNION REEFS GOLD MINE
2000 COLLAR LOCATION
NORTHERN AREAS

FIGURE 4
DATE 01-Dec2000
DRAWN M.WOZGA
Six RC drillholes were completed between 5500mN & 5650mN and 4800mN & 4900mN for a total of 494m. Most holes intersected wide zones of quartz-sericite alteration in a low sulfide system characterised by sparse amounts of arsenopyrite and pyrite mineralisation in greywacke. The main central zone of mineralisation remains wide with consistently well developed mineralisation along its strike length and down dip, however mineralisation appears to break up at about 5500mN. Along section 5625mN, three drillholes intersected high-grade mineralisation, possibly associated with crosscutting veins or fault zones transecting the main lode. This high-grade shoot pinches and swells (4 to 7m) and contains an average grade of 9g/t, up as high as 67.8g/t and remains open at depth.

5.2 SAMPLING

5.2.1 Sampling Methodology

Samples were collected via riffle splitter from a cyclone fixed to the drilling rig. The two-tier riffle splitter contained 12 riffle compartments of 40mm width. Sieving of samples produced by the drill rig demonstrated that 85% of the sample was finer than 2mm. The port size on the bits used on RC47 hammers were approximately 25mm in diameter.

Re-sampling and check sampling was conducted on dry samples with a splitter, with 24 compartments of 25mm width. Wet samples due to water down hole or rain were spear sampled, producing a 4-6kg sample for analysis.

5.2.2 Drillhole Assay Data

Samples were analysed for gold using the 50-gram fire assay technique. 8-10 kg’s were collected via a riffle splitter. These samples were then ground to -2mm via Boyd Crusher at Amdel, Darwin, and then a 4kg sample was split from this sample for grinding to -75mm via a Mixermill 4000. The 50-gram fire assay charge was then measured from this pulp As, Ag, Cu, Pb, Zn were not analysed.

5.2.3 Assay Standard Results

Laboratory performance was monitored with the use of reliable standards of the same or similar matrix as samples derived from RC drilling. In 2000, Gannett Holding Pty Ltd supplied standards for analysis to Union Reefs.

On average two individual standards were included for each drillhole and dispatched to Amdel laboratories for analysis. Appendix 3 contains scatter (precision) plots for each standard used in 2000. Amdel consistently returned an acceptable standard result, which confirmed their efforts to maintain quality control. Some results outside the standard tolerance level were received though after a thorough review it was established that human error during the packaging and re-numbering stage was the likely cause.
5.3 DATA COMPILATION

5.3.1 Drillhole Geology Logs and Assay Data

The mine based exploration geologists collected geological information from drillholes via Pentium Laptops using Drillpad software.

Amdel (Darwin) reported gold assays digitally in a standard SIF format, via E-mail. These results were inturn merged into the main URGM Exploration database using Datashed software.

S.I.F files received for the 2000 season are available for viewing on the attached CD-Rom (See Appendix 4, for instructions and Appendix 5 for list of geological codes used during downhole geological logging).

5.3.2 Drillhole Surveying

RC coordinates from the 2000 drilling season were setout using EDM survey equipment along know Mine Grid points. Microsurvey Ltd provided the service. Most drillholes had final survey pick-ups (after drilling) gathered, except for holes located at Dam A. Final surveys for Dam A will be collected in early 2001.

Collar coordinates are presented in Appendix 1, and locations displayed graphically in Figures 3 & 4 and Plans 1 to 2.

6.0 ENVIRONMENTAL

Mine based exploration was conducted in a fashion that restricted environmental disturbance to a minimum. Drillholes were capped with PVC caps and rubbish removed upon completion of each drillhole. As part of the ongoing rehabilitation process, each drill site had sample bags removed.

7.0 EXPENDITURE - YEAR ENDING 31 DECEMBER 2000

For the 2000 season, mine based exploration expenditure at Union Reefs (MLN 1109) totalled $665,437.
8.0 REFERENCES


