EXPLORATION LICENCE 6644, COPPERFIELD CREEK N.T.

REPORT ON THREE RELINQUISHED BLOCKS

Rosequartz Mining NL
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1. Introduction

Exploration Licence 6644 is situated immediately southwest of the Stuart Highway, ten kilometres south of Pine Creek township (Figure 1). It consists of seven graticular blocks, with a total area of 23 square kilometres, and lies in the Pine Creek 1:50,000 sheet area; it is part of the Bonrook Pastoral Lease (Figures 2 & 3).

The Licence was granted to Rosequartz Mining NL for a three year term commencing 7th January, 1990.

Topographically the area consists mainly of gently undulating country, interspersed with fairly extensive alluvial flats along the drainages, and with occasional low hills. Vegetation is open monsoonal woodlands typical of the region. The entire area is accessible by four wheel drive vehicles in the dry season.

This report describes exploration work carried out during the first year of the licence.
2. Regional and Local Geology and Mineralisation

The area is in the Cullen Mineral Field, towards the southwestern margin of the Early Proterozoic Pine Creek Geosyncline (Stuart-Smith and Needham 1984). More specifically it lies at the southern extremity of; the so-called "Pine Creek Embayment", a complex roof pendant of metasediments enclosed by various facies of the Cullen Granite Batholith. The general geology is shown in Figure 4, which reproduces part of the published 1:500,000 Geology of the Pine Creek Geosyncline (RMR 1984).

Bed-rock throughout the licence area is presumed to be Burrell Creek Formation, a turbidite sequence at the top of the local Early Proterozoic succession. Exposure is generally very poor and is restricted to scattered low outcrops on the crests of low rises, and along the creek beds, with occasional prominent outcrops of more resistant silicified and/or quartz veined material marking fault zones and areas of stronger quartz injection. Lithologies observed include highly cleaved slates, and less cleaved metasiltstones, metagreywackes and quartz grits. Minor to major fracturing, alteration and quartz veining are almost ubiquitous. Superficial deposits include very widespread eluvial to colluvial gravels which form a shallow mantle over the undulating country, and spreads of black clay soils and alluvium, from 100 metres to 300 metres wide, along the seasonally flooded drainage courses.

The metasediments are folded into a series of northwest to north-northwest trending moderately tight folds which mainly plunge at low to moderate angles to the northwest. These folds are dislocated by a younger series of faults trending between north and north-northwest (Figure 7).

The Pine Creek Embayment is strongly mineralised, and contains a wide variety of hydrothermal deposits of tin, gold, copper and silver/lead/zinc. However, the only known deposits to be of significant present or potential economic value are gold at Pine Creek and Union Reefs, and tin at Mount Wells. The present area of interest contains a number of apparently sub-economic mineral occurrences, including copper localised by the late fault zones, lead on the "Ironwood North" anticline, and gold on the "Woollybutt" anticline (Figure 5). It is part of the Copperfield Creek belt of small copper shows.
3. Previous Exploration Work

Between 1986 and 1989 the area was explored for gold by Renison Ltd under Exploration Licence 4725. Work completed included geological mapping, rock chip sampling, trenching and RAB, percussion and diamond drilling. This work delineated bodies of low grade gold mineralisation associated with quartz/pyrite arsenopyrite mineralisation along the hinge line of the "Woollybutt" anticline, but no commercial deposits were discovered.

Geological mapping of the Exploration Licence as a whole amounted to little more than confirmation of the 1:100,000 BMR map. Three main anticlinal trends were identified, and from the northeast designated the Bloodwood, Ironwood/Woollybutt and Paperbark anticlines (Figure 5). Nine rock chip samples were collected from the Bloodwood anticline, sixty three from the Ironwood anticline, and none from the Paperbark structure because of poor outcrop. Previous sampling had already shown the Woollybutt anticline to be significantly mineralised (Vann, 1987). Apparently little or no sampling was done away from the identified anticlinal trends.

Detailed follow-up work was confined to the Woollybutt trend and covered approximately 1,300 metres length of the structure. Detailed mapping trenching at average intervals of 100 metres, and shallow RAB drilling on 50 metres spaced cross sections in the southeast part of the zone, were used to define targets for deeper test drilling. The deep drilling comprised 313 metres of percussion drilling (Crawl-Air CM 351 machine) in eleven holes, and 829 metres of diamond drilling in ten holes.

The deep drilling was carried out on two targets. In the northwest, mineralisation at zone 6C was found to be limited to a 5 metre thick section of strata on the western fold limb; the best intersection was 6 metres at 0.62 g/t Au. In the southeast, mineralisation at zone 2B occurred over a length of some +100 metres across the fold axis, plunging gently northwest. Drill cross sections were spaced at average intervals of about 20 metres along strike. The best intersections were 12 metres at 1.45 and 10 metres at 1.06 g/t Au.

During the first year of the Licence, work carried out included a detailed review and collation of the results of previous exploration, preparation of a new photogeological interpretive map, and a field reconnaissance and check of air photo features.

A summary of previous exploration is compiled in Figure 6, and the photogeological map is shown in Figure 7.

The photogeological study confirmed the presence of a major northwest trending fold structure corresponding to the
3. Previous Exploration Work (Cont)

Ironwood/Woollybutt anticline identified by previous workers. However, the supposed Bloodwood and Paperbark anticlines of Goldfields Exploration are not evident on the aerial photography, and indeed it appears more likely that synclinal folds occur in these positions.

Furthermore, the supposed "fault A" does not appear on the photography although a number of previously unidentified faults or major fractures are evident.
4. References


TENEMENT MAP

scale 1 : 50,000

Figure 2.
TOPOGRAPHIC MAP

scale 1 : 50,000

Figure 3.
CAINozoic  Cz  soils & alluvium.

MEZoZOIC  K  Petrel Formation.

LOWER  Clj  Jindare Formation.
PALAEOZOIC  Co  Jinduckin Formation.

LATE  Pts  Stray Creek Sandstone.
PROTEROZOIC  Ptd  Depot Creek Sandstone.

EARLY  Pgc  Cullen Granite.
PROTEROZOIC  Pep  Plum Tree Volcanics.
Pdz  Zamu Dolerite.
Pfb  Burrell Creek Formation.
Pso  Mount Bonnie Formation.
Psg  Gerowie Tuff.
Psk  Koolpin Formation.

REGIONAL GEOLOGY

scale  1 : 500,000

Figure 4.
GEOLOGICAL MAP
(after Goldfields Exploration 1987)

scale 1 : 25,000

Figure 5.
trench  

area covered by RAB drilling

• diamond or deep percussion drillhole

WOOLLYBUTT ANTICLINE PREVIOUS EXPLORATION
(after Goldfields Exploration 1987-89)

scale 1 : 5,000

Figure 6.
PHOTOGEOLICAL MAP

scale 1 : 25,000

Figure 7.
Qa  alluvium & black clay soils.
Cz  soils, eluvium & colluvium.
Pfb  Burrell Creek Formation.

---  creek.
-----  track.
<<  trench.
○  excavation.

......  air photo bedding trends.
------  linear air photo trends indicating faults, major fractures & zones of silicification & brecciation.

geological boundary.