EXPLORATION LICENCE 6608 BURRELL CREEK N.T.

REPORT FOR THE YEAR ENDING 17TH NOVEMBER 1991 AND FINAL REPORT.

Prepared for Mr G J Fanning,

by

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FIGURE 1. Locality Map.
FIGURE 2. Tenement Map. 1: 250,000.
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FIGURE 4. Generalised Geology. 1: 50,000.
1. INTRODUCTION.

Exploration Licence 6608 was granted to Mr. G.J. Fanning for a four year term commencing 17th November 1989.

The Licence includes eleven graticular blocks with a total area of 35 square kilometres. It is situated in the Burrell Creek 1 : 50,000 sheet area, some 25 kilometres south of Adelaide River township. Access can be gained from the old Stuart Highway and from the Daly River Road (Figures 1, 2 & 3).

The northeastern part of the area is rugged hill country accessible only on foot. The remainder consists of relatively low undulating hills and escarpments, with incised drainages, and is potentially accessible to four wheel drive vehicles. The entire area is occupied by monsoonal savannah woodlands.

The area was originally taken up because of reported occurrences of iron ores, being part of a regional iron ore play (potentially including Mt Bundey and Frances Creek), directed towards small Asian markets not presently served by the major west coast producers.

Literature research and field inspections demonstrated that the iron ore resources described by previous explorers had been substantially overestimated, and the area had no potential for commercial deposits of iron. Some reconnaissance prospecting was carried out in parts of the area underlain by Proterozoic Burrell Creek Formation, which were considered to have possibilities for gold mineralisation; results were discouraging.

The Licence was surrendered in February 1992.
FULL LATITUDE AND LONGITUDE VALUES ARE SHOWN AT THE SHEET CORNERS, WITH EVERY 5° VALUE BEING LABELLED AROUND THE NEATLINE. 10 000 METRE INTERVALS OF THE UNIVERSAL TRANSVERSE MERCATOR GRID, ZONE 52 (AUSTRALIAN MAP GRID) ARE ALSO SHOWN EXTERNALLY. CONTOUR INTERVAL 20 METRES.

FIGURE 3.
2. GEOLOGY OF THE AREA.

The main features of the geology are illustrated in Figure 4, which is adapted from the published BMR 1:100,000 map "Geology of the Bachelor/Hayes Creek Region".

The Licence area is situated near the western edge of the Early Proterozoic Pine Creek Geosyncline, where it passes beneath Lower Palaeozoic rocks of the Daly River Basin.

The oldest rocks are phyllites and metagreywackes belonging to the Burrell Creek Formation at the top of the local Early Proterozoic sequence. This Formation is steeply dipping, and is folded into a series of NNW - plunging anticlines and synclines. It occupies some five square kilometres in the northeastern parts of the Licence area.

Unconformably overlying the Early Proterozoic basement are a series of gently west - dipping quartz sandstones belonging to the mid-Proterozoic Tolmer Group, including the Depot Creek Sandstone at the base and the overlying Stray Creek Sandstone. These strata occur in the central part of the area.

In the southwest corner are sub - horizontal carbonate strata, of Lower to Middle Cambrian age, belonging to the Daly River Group. They form low outcrops in the alluvial flood plains of the Adelaide River.

The youngest consolidated rocks in the area are horizontal sandstones and claystones belonging to the Mezozoic Petrel Formation, which forms extensive mesas capping the older formations. The petrel formation, and to a lesser extent the older rocks, have been extensively lateritised. The so called "iron ores" are more or less lateritised ferruginous sandstones in the lower part of the Mezozoic sequence.
CAINozoic
Qa  Alluvium.
Qs  Colluvium.
Czs  Soils.

MEZozoic
Kp  Petrel Formation.

PALAEOzoic
Eml  Tindal Limestone/Jinduckin Formation.

MIDDLE PROTEROzoic
Pt  Depot Creek/Stray Creek Sandstones.

EARLY PROTEROzoic
Pfb  Burrell Creek Formation.

GENERALISED GEOLOGY.

Scale 1 : 50,000

FIGURE 4.
3. PREVIOUS EXPLORATION WORK.

Iron ores in the area were first explored by Wanderoo Mining in 1966/67 under their Authority to Prospect 1703 (Kenneth McMahon & Partners 1968). Ten percussion holes were drilled and samples analysed for iron and phosphorus. Possible benification of the material was tested by screening and magnetic separation. Resources were estimated to be 126,846,720 tons at an average grade of 23.51% iron. Phosphorus was generally less than 0.1%. Benification produced only marginal increase in grade with poor recoveries.

The area was tested again by Kratos in 1970, under their A's to P 2256 & 2648 (Kratos Uranium NL 1970). Their work included gridding, plane table mapping, percussion and diamond drilling. In total 225 metres were drilled in 15 holes. Drill samples were assayed for soluble iron, and in some cases for total iron, phosphorus, silica and alumina. It was concluded that the iron ore resource was less than one million tonnes of low grade (about 50% Fe) material. The drastic reduction in resource estimates compared with previous work was due to the demonstration that extensive areas of ironstone rubble represented only erosional relics of ironstone lenses now largely removed. It was concluded that the survey showed that commercial tonnages of iron ore did not exist in the area.
4. WORK CARRIED OUT.

Exploration work completed during the term of the Licence consisted of a study of open files available at the Department of Mines & Energy, and a field reconnaissance of the northeastern part of the area underlain by Burrell Creek Formation.

The open file study quickly demonstrated that there was no significant potential for commercial iron ores. Interest then switched to the northeast and possible gold potential.

Field observations confirmed that the Burrell Creek Formation in this area included some massive greywacke beds with anticlinal folding, thus providing a favourable setting for gold mineralisation. Quartz stockworking was observed in both greywackes and phyllites, but no extensive zones of veining were noted, and it was concluded that the possibilities for economic gold mineralisation were remote.

Expenditures during the two years of the licence are estimated at $4,000.
5. CONCLUSIONS AND RECOMMENDATIONS.

1. Potential for commercial iron ores in EL6608 is insignificant and does not warrant any further investigation.

2. The Burrell Creek Formation in the northeast shows structural and stratigraphic features which have proved favourable for gold mineralisation elsewhere in the Pine Creek Geosyncline. However there is a lack of substantial quartz veining or other evidence of mineralisation, and the potential for significant gold concentrations is poor.

3. No further exploration work is recommended.
6. REFERENCES.
