BP MINERALS AUSTRALIA
E.L. 4943 – ADELAIDE RIVER
PARTIAL RELINQUISHMENT REPORT

OPEN FILE

L. Cook
Principal Geologist
**SUMMARY**

Exploration within the relinquished part of EL 4943 - Adelaide River comprised bulk leach extractable gold (BLEG) and silt stream sediment sampling, selected rock chip sampling and reconnaissance geological mapping.

Two BLEG gold anomalies were recorded in the western relinquished area. No silt sample anomalies were recorded.

Selected rock chip sampling was concentrated on the Middle Koolpin Formation particularly the iron formation members.

A small number of samples recorded anomalous levels of arsenic and elevated levels of silver, copper, zinc and uranium.

Reconnaissance geological mapping confirmed the published Government geology. Early Proterozoic mudstones, siltstones and arenites are interbedded with siliceous iron rich tuffaceous metasediments, cherts and iron formation. Dolerites intrude the sequence.

The sequence is extensively deformed and locally fractured.

Estimated expenditure on exploration for the relinquished area during years one (1) and two (2) is $22,713.98.
1. INTRODUCTION

EL 4943 – Adelaide River originally consisting 39 sub-blocks was granted to Kennecott Explorations (Australia) Limited on 1st October, 1986 for a period of six (6) years. In accordance with the Mining Act, the E.L. was reduced by 31% to 27 sub-blocks at the end of year two (2). (Figure 1 and Appendix 1).

A small area is excised from the extreme northwest of the exploration licence. This is Aboriginal Freehold Land.

The licence area is located approximately 65km south of Darwin (Figure 1). Access is via a number of well formed gravel roads which leave the Stuart Highway located in the south western part of the E.L.

The exploration programs previously conducted by Kennecott Explorations (Australia) are now under the control of BP Minerals Australia. This report is submitted by BP Minerals Australia and cover exploration of the area relinquished from EL 4943 on 30th September, 1988.

2. EXPLORATION

Exploration within the relinquished area comprised high density drainage sampling, rock chip sampling and reconnaissance geological mapping.

2.1 Drainage Sampling

Bulk leach extractable gold (BLEG), pan concentrate and silt samples were collected (Figure 4).

Twenty-five (25) BLEG samples were collected within the relinquished area (Figures 4,5). Two returned anomalous gold values; Sample 75057 located in the eastern relinquished area returned 1.40 ppb whilst sample 75145 also in the western relinquished area returned 1.09 ppb.
Two pan concentrate samples were collected. Sample 60017 recorded 0.19 ppm from 76 gm of concentrate and sample 60020 recorded 0.03 ppm from 106 gm of concentrate.

Six (6) -80# silt samples were collected, all from the western relinquished area and submitted for As, Cu, Pb, Zn determination by A.A.S. (Figures 4, 6). No anomalies were recorded.

2.2 Rock Chip Sampling

Five (5) selected rock chip samples were collected (Figures 4,5,6,7). Sampling was centered on exposures of Koolpin Formation particularly iron formation belonging to the middle member. Samples were submitted for Au determination by fire assay and As, Cu, Pb, Zn, Ag, Sb, Bi, Ba and U determination.

Four rock chips returned anomalous arsenic values. Sample 60030 recorded 333 ppm; sample 60029, 379 ppm; sample 60032, 781 ppm, and sample 60033 recorded 823 ppm.

Four rock chips returned anomalous silver values. Sample 60030 recorded 0.32 g/t, sample 60029, 0.64 g/t, sample 60032, 0.28 g/t and sample 60030 recorded 0.50 g/t.

Anomalous zinc was recorded in samples 60032 (991 ppm) and 60033 (1260 ppm).

One anomalous copper value was recorded. Sample 60024 recorded 758 ppm.

Two samples recorded anomalous uranium values. Sample 60030 recorded 90 ppm and sample 60029 recorded 106 ppm.
2.3 Reconnaissance Geological Mapping

The formations present within the exploration licence area are predominantly those of the South Alligator Group and the Wildman Siltstone of the Mount Partridge Group. These are intruded by pre-tectonic dolerite sills belonging to the Zamu Dolerite. These units have all been previously described in detail (Nicholson and Eupene, 1984.)

Lithologies consist of a sequence of interbedded mudstone, siltstones, arenites, siliceous iron rich and tuffaceous sediments, cherts and iron formation. Tectonic breccias have been observed mainly within the ironstone units. Quartz diorites?/andesites? and dolerites intrude the sequence as sills and dykes.

The focus of exploration has been the Middle Koolpin Formation. Disseminated and sulphide veinlets (dominantly pyrite) have been observed within the sequence.

Within the licence area the stratigraphic trend is north-easterly to south-westerly, the Early Proterozoic strata are in places tightly to isoclinally folded about north to south trending fold axes which mostly plunge to the south. Metamorphic grade within the licence area is lower greenschist facies.

The lithologies, particularly the Middle Koolpin Formation are in part moderately to extensively fractured and broken and from observations of quartz veining within the iron formations it is evident there has been several stages of deformation. Quartz veins, veinlets and limonite/hematite veinlets and stockworks were observed crosscutting the iron formation members. Trace manganese oxide in veinlets was also observed.

The presence of the above indicates remobilisation of quartz sulphide material (hydrothermal) with subsequent infilling of fractures and voids.
3. CONCLUSION

Drainage and rock chip sampling returned isolated anomalous values. Two isolated gold anomalous BLEG samples were collected from small drainages and considered insignificant.

Elevated arsenic values in selected rock chips appear to be common within certain iron formation members of the Koolpin Formation. Several rock chips were variably anomalous in silver, zinc, copper and uranium but not considered significant.

The relinquished area possesses less potential for economic gold mineralisation than the area retained and was therefore surrendered.
4. REFERENCES

100,000 Geological Special-Geology of the Rum Jungle Field.

Needham, R.S., Crick, I.M. and Stuart-Smith, P.G., 1980.


E.L. 4943-Adelaide River Annual Report to the Mines Department for the period ending 30th September, 1988. 3 volumes. unpubl.
# APPENDIX 1

## LIST OF SUB-BLOCKS RELINQUISHED FROM

E.L. 4943 – ADELAIDE RIVER

<table>
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| BLOCKS             | 64/24, 65/24            |

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| TOTAL              | 12 BLOCKS                 |
Stratigraphic Distribution of Mineralisation

Fig. 3