1987 ANNUAL REPORT

EXPLORATION LICENCE 5118

COX PENINSULA N.T.

DISTRIBUTION:
Perth Office
Darwin Office
N.T. Department of Mines & Energy

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GREENEX

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1. **INTRODUCTION**

This report is submitted to the Northern Territory Department of Mines and Energy and details exploration carried out on EL 5118 during 1987.

Exploration Licence 5118 is located on the Cox Peninsula south west of Darwin (Figure 1). It is one of a number of licences held by the Bynoe Joint Venture in the region, for the exploration and development of cassiterite and tantalite pegmatite and alluvial deposits.

The Bynoe Joint Venture partners are Greenbushes Ltd and Barbara Mining Corporation a subsidiary of Bayer A.G. of West Germany. Greenex the exploration division of Greenbushes Ltd is the operator of the joint venture.

2. **LOCATION AND LEASING**

EL 5118 is located north of the Darwin-Mandorah Road approximately 18 kms SW of Darwin. The licence covers an area of approximately 8 square kms and 2 graticular blocks. It was granted on the 8th January 1987 to Greenbushes Ltd and Barbara Mining Corporation. An application for renewal of EL 5118 was made on the 9th November 1987. Included with this application was an outline of the work undertaken during the 1987 field season, and a cheque amounting to the rent for the forthcoming licence year.

3. **ACCESS, CLIMATE, TOPOGRAPHY AND VEGETATION**

The exploration licence is located 2.5 km north of the bitumen all-weather Mandorah Road. A track leading north from Observation Hill provides access to the exploration licence area only during the dry months.

The climate is tropical and monsoonal with a wet season extending from November to April and the dry from May to September. Average rainfall for the two seasons is 1608 mm and 50 mm respectively. In 1987, late rains also occurred during the first two weeks of May.
Within the licence area the topography is flat, the main feature being an extensive, lateritized peneplain (upland plain). Alluvial flats occupy broad, shallow depressions between the segmented upland plains. These flats are impassable in the 'wet' season.

Vegetation over the upland plains consists of scattered to medium density eucalypt forest with a sparse to medium understory. Spear grass grows abundantly on the alluvial flats and over the upland plains. On the coast dense mangrove swamps cover the tidal zone.

4. REGIONAL GEOLOGY

EL 5118 is on the northern extremity of swarm of complex zoned rare element (Li, Ta, Nb, Sn) pegmatites which intrude the 60 km long and 10 km wide West Arm - Mt Finiss Belt. The main pegmatites in this belt, eg. Mt Finiss, Picketts, Hang Gong, Bells Mona and Grants are up to 300 m long and 20 - 25 m wide. The pegmatites are commonly steeply dipping dykes or flat plunging sills.

The pegmatites have intruded (early Carpentarian) shales, siltstones and schists of the Burrell Creek Formation on the north-west margin of the Pine Creek Geosyncline. To the south and west are granitoid plutons and 'pegmatitic' granite stocks of the Litchfield Complex. Unconformably overlying the Burrell Creek Formation are outliers of flat lying Cretaceous sandstone, siltstone and basal conglomerate. The Kings Table mesa is an example.

Tantalite and cassiterite mineralisation occurs in the West-Arm - Mt Finiss Belt within pegmatites as primary deposits and reportedly within Cretaceous and recent sediments as secondary occurrences.
5. **HISTORY OF MINING AND EXPLORATION**

No mining activity has been conducted in EL 5118. At the turn of the century areas to the north were actively explored and mined. Workings involved several shallow shafts and a small tonnages of ore were processed. Pegmatite workings were confined to the contacts of the pegmatite and shale. Pegmatites were also worked for eluvial ore. Similarly areas to the south of the exploration licence have been worked. West Arm Landing within EL 5118 was an important transhipment point with processed ore from surrounding mines being loaded at this point and then shipped elsewhere for further treatment.

During 1987 the Bynoe Joint Venture undertook a trenching programme on two of the major drainage systems which pass through the area. Trenches were dug up to 6 m, channel sampled and backfilled. Areas east and west of West Arm Landing were traversed and the margins of all drainages actively explored. A number of apparently barren quartz dykes were located, and an area of pebble quartz scree to the north-west of West Arm Landing may be worth following up.

6. **1987 RESULTS**

6.1 **Alluvial Trenching Results**

The Johnstones and Mammoth drainages were explored during the year with deep trenching (Figures 2-3 and 4-5). The results of this work was disappointing with grades decreasing to the north.

There has been rejuvenation of these two drainages and alluvial potential now appears to be associated with elevated terraces on either side of the drainages. A number of terraces have been identified by ground reconnaissance for further work in the Johnstones Drainage.

6.2 **Pegmatite Evaluation**

EL 5118 lies between a swarm of pegmatites to the North ie. Jewellers, Jewellers Extended, Perserverance and Vicki's and the Hang Gong, Hills, Roses, BP 2 etc. pegmatites to the south of EL 5118 was extensively traversed during the 1987 field season, particularly in the east looking for quartz scree with associated muscovite as a guide to the existance of pegmatites.
This work uncovered a number of milky quartz veins, but no sub-outcrop of pegmatites was discovered. In view of the laterite cover in this area consideration has been given to carrying out a laterite geochemical sampling programme, in the hope of detecting residual cassiterite and tantalite.

### 1967 EXPENDITURE ESTIMATE

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**TOTAL** $12,890