ANNUAL REPORT
FOR
EXPLORATION LICENCE 2818
NORTHERN TERRITORY

By
GREENEX
A Division of Greenbushes Tin Ltd

OPEN FILE

M. HATCHER
Senior Project Geologist

J. SCHAEFFER
Resident Geologist

March 1984
CONTENTS

INTRODUCTION 1

LEASING 1

PREVIOUS WORK 1

1983-84 PROGRAMME 2

1. STREAM SEDIMENT ANOMALIES

2. AIRPHOTOGRAPHIC SURVEY

1984 PROGRAMME 3

PLATES

1. LOCATION PLAN

2. GENERALISED GEOLOGY 1:50,000

3. STREAM GEOCHEMISTRY - TUNGSTEN 1:50,000

4. " " - TANTALITE 1:50,000

5. " " - TIN 1:50,000
INTRODUCTION

This Report is presented to the Northern Territory Department of Mines and Energy detailing work carried out on Exploration Licence 2818 during the period February 18, 1983 – February 17, 1984 by Greenbushes Tin Ltd.

The Licence area covers 286 sq kms and is located near the old Frances Creek Iron Ore Mine approximately 120 miles south-east of Darwin.

The climate is monsoonal with 3-5 month wet season with a rainfall of approximately 1000mm. Vegetation is mixed open forest with stunted trees and sandy soils.

During the third year of the exploration programme Greenbushes Tin Ltd carried out an evaluation of previous work, which included reploting previous geological and geochemical data and an air photographic survey to determine the potential for alluvial and eluvial accumulations.

LEASING

Exploration Licence 2818 is held by Greenbushes Tin Ltd in the Frances Creek/Pine Creek Area of the Northern Territory (Fig.1). The Licence was granted on the 17th February 1981.

The Licence Area is part of Greenbushes Tin Ltd mineral exploration activities in the Northern Territory investigating acid intrusives for cassiterite, tantalite and tungsten mineralization.

PREVIOUS WORK

A geological base map of EL.2818 was prepared from air photography scale 1:6032. Detailed field traverses carried out in conjunction with Bureau of Mineral Resources produced a geological base plan. The main emphasis of the exploration programme has been to examine the cassiterite, tantalite and tungsten potential of the various phases of the Cullen Granite Complex represented in the Exploration Licence. Exploration has been based on sampling channels draining the granite areas.
Ten litre samples were collected from pits dug in the banks of the alluvial channels. No attempt was made to test 'wash' material from these channels. Mechanical concentration with a rotating cone was used to upgrade the sample to a heavy mineral concentrate, at the Company's Berrimah Laboratory.

Gravity Concentrated samples were treated with hydrochloric acid in the presence of zinc metal. The heavy mineral concentrates were then examined for 'zinced' cassiterite grains, and if necessary analysed by X.R.F. for Sn, Ta, Nb, Fe, Ti, and W. It was clear that the Cullen Granite offered little potential for tantalum mineralization and subsequent rock chip sampling omitted all but Sn and W.

1983-84 PROGRAMME

1. STREAM SEDIMENT ANOMALIES:
   Worm diagrams were constructed from the geochemical data from EL.2818 (Fig.345). From these plans several anomalous Sn, Ta, and W areas can be identified.

   Streams anomalous in Sn, drain units Egca, Egck and Egch (Fig 2). Anomalous tantalum values occur in units Egca, Egck, Egcz and Egcd. Units Egca and Egck appear to be the source for the majority of Sn and Ta anomalies. Tungsten values are anomalous in streams draining units Egca, Egck and Egcz. They may be the result of "skarn type" mineralization.

   Samples anomalous in Sn and Ta occur in streams draining the sediments of units Bpm, kp and Bpw. These are possibly the result of contamination due to past mining operations upstream from the sample points.

   Weakly anomalous Sn values occur in streams draining an area of greissen stockwork. This area has been retained as EL.2818.

2. AIRPHOTOGRAPHIC SURVEY:
   This work failed to locate any potentially economic accumulations of alluvial material, although ground surveys will be required before completely writing off this potential.
1984 PROGRAMME

The Sn and W anomalous zones of the Cullen Granite outlined by stream sediment geochemistry will be evaluated on the ground by a field party and rock chip sampling and/or backhoe trenching in these areas will be carried out to assess the bedrock potential.

The potential of eluvial and alluvial accumulations will also be tested.