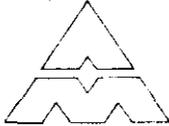


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AMDEX MINING LIMITED

TRIAKO MINES N.L., BUKA MINERALS N.L.,

GIPPSLAND MINERALS N.L., KIBUKA MINES PTY. LTD.

169 MILLER STREET, NORTH SYDNEY. AUSTRALIA 2060

TECHNICAL REPORT

AUTHORITY TO PROSPECT A.P. 4/80

GLADSTONE, TASMANIA

REPORT FOR THE SIX MONTHS
ENDING 24TH NOVEMBER, 1980.

OPEN FILE

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FIGURES

1. Location Map A.P. 4/80
Scale 1:250,000
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APPENDIX

Ringarooma Tin - Assessment of Exploration Potential
by E.A. Bowen, AMAX IRON ORE CORPORATION
September, 1980 = 81-1537

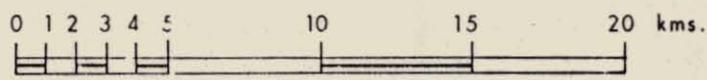
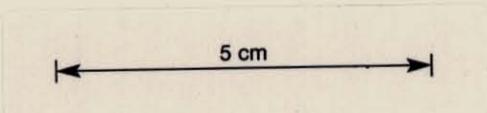
INTRODUCTION

1.1. Scope

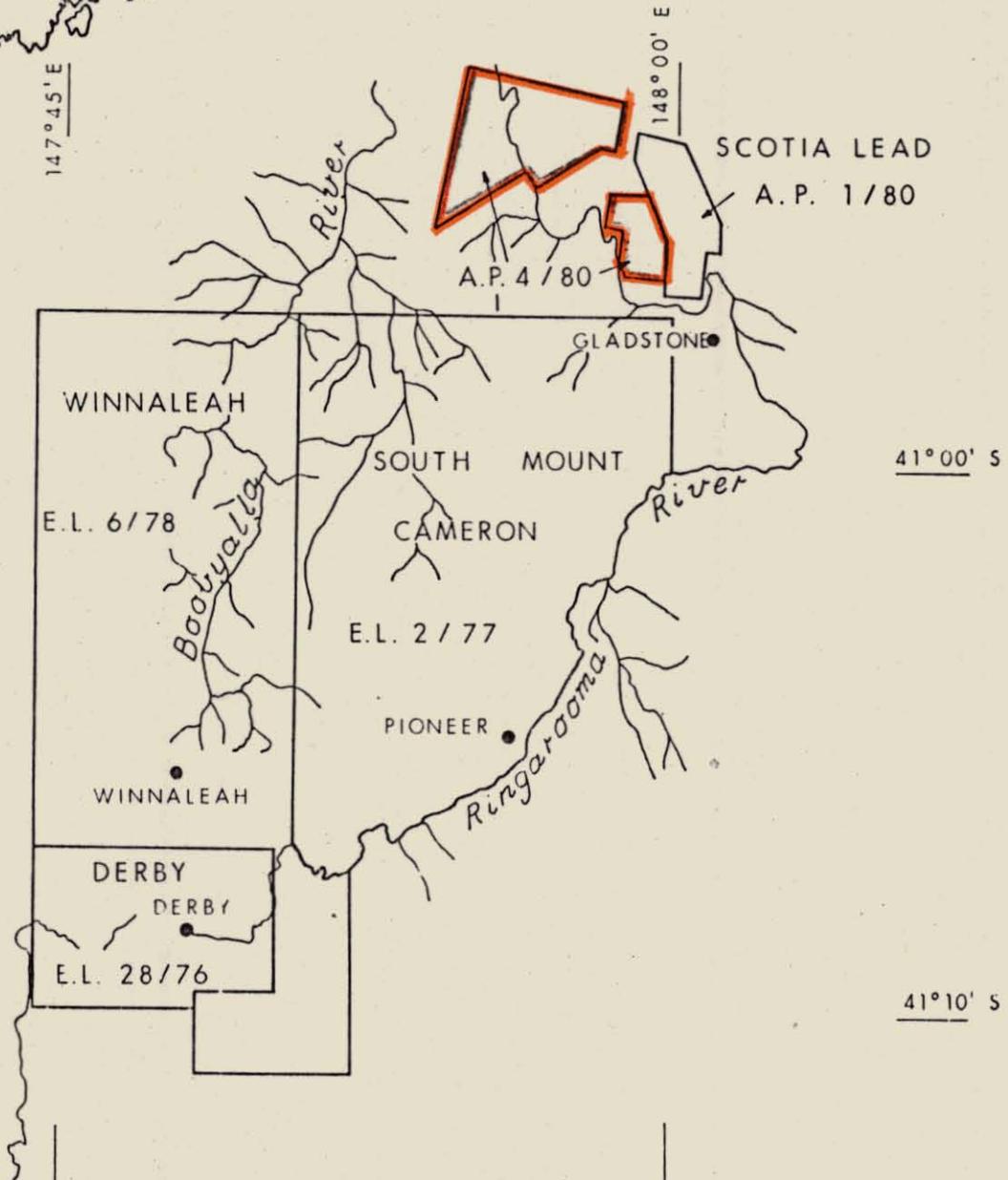
This report deals with all exploration conducted within the areas which constitute A.P.4/80, during the six month period from 25/5/80 to 15/11/80. In accordance with an agreement between AMAX Iron Ore Corporation and Amdex, the major component of this work is a compilation and analysis by AMAX of previous drilling on the Great Northern Plains. In addition to the AMAX report, the results of field prospecting and interpretations of some aspects of the Late Cainozoic geology of this area are presented.

1.2 Tenement Details

A.P.4/80 (Figure 1) involves a total area of 21 square kilometres, consisting of two blocks; S.R.1970/32 and S.R.1975/179 (Part 1). Authority to prospect was granted from the 25/5/80 and an application for a renewal of this authority for a second six month period has been submitted to the Director of Mines.



Scale 1 : 250 000



Amdex Mining Limited

NORTH - EASTERN TASMANIA LOCATION MAP

Author:	Date:	Dwg. No.:	Fig. 1
Drafting:	Report No.:	Base Plan:	

2. SUMMARY AND CONCLUSIONS

1. The area is simultaneously being considered in terms of both discrete deposits suitable for gravel pump mining and more extensive lower grade deposits suitable for dredging.
2. Alluvial placers exist in the area as both Tertiary deposits in long narrow sinuous gutters incised into bedrock, and a Tertiary and/or Quaternary terraces produced by ancestors of the present Ringarooma River. In both cases they represent the fluvial sediments which have avoided dispersal by Quaternary marine transgressions.
3. To date, one area, that is south of the Delta Mine, has been selected for drilling.
4. AMAX have decided not to proceed with a proposed joint venture which sought a large tonnage, low grade deposit.
5. A programme of evaluation and exploration for the following period is outlined.

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3. CURRENT EXPLORATION

3.1 Introduction

The area has been considered in terms of two different mining approaches. One option is to define discrete deposits of relatively high grade ground suitable for open cut gravel pump operations and the alternative is to consider more extensive deposits, at a lower average grade, and suitable for dredging. In the case of the first option, Amdex currently has the capabilities to explore and mine such deposits, however a dredging operation clearly requires a much larger investment and thus larger proven reserves are needed. As a result, Amdex negotiated an agreement with AMAX for the latter to undertake a compilation of previous drilling, as an initial step in assessing the potential for a joint venture dredging operation. Concurrent with this assessment, Amdex geologists have conducted a programme of field sampling and airphoto interpretation over areas considered relevant to the first option.

3.2 Investigations by Amdex

On the basis of airphoto interpretation and field observation, it is apparent that apart from extensions or replicas of the Scotia - Lochaber deep lead system, the main potential for deposits suited to gravel pump mining exists in remnants of the upper-most preserved terrace level of the present Ringarooma River. These remnants occur as topographic highs either side of the river, due to dissection and partial erosion of the terrace level by tributary drainage of the present river.

Several old workings exist along this terrace level and sediments exposed in the mine faces have been examined and sampled in an attempt to develop some ideas regarding the depositional controls over placer formation in the area.

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The sediments appear to be mainly fluvial gravels, sands and clays, with some bodies of marine? sand and extensive sheets of aeolian sand. Some gravel units appear to have been reworked and their present fabric indicates that the coarse clasts may have been dispersed and that sand may have been added to the matrix. Commonly, such gravels yield heavy mineral grades much lower than fluvial host sediments of similar composition, but different packing arrangement on terraces south of Mount Cameron. This is the case at the Delta Mine and a possible explanation is that the fluvial sediments have been reworked by transgressing marine waters during Quaternary interglacial stages. Some evidence exists to support this concept. Drilling by the Department of Mines (Braithwaite, 1967) in the Chimneys area produced carbonaceous material containing pollens which were dated as Quaternary. This material was recovered from clays which form a false bottom at around 22 metres below the surface and have been drilled down to 45 metres below the surface. On the basis of bottom contours, as reconstructed from the drilling, Braithwaite interpreted the tin-bearing sediments overlying this clay bottom as being deposited on a terrace. The drilling logs show the typical fining-upwards fluvial stratigraphy with both basal wash, and in some cases an additional "perched" wash horizon. Around the northern boundary of A.P.4/80 Preussag drilling (Wong, 1979) found detrital gold between 11 and 18 metres below the surface and in 6 drill holes, shells were recovered at depths ranging from 8 to 15 metres. If the presence of detrital gold can be used as an indication of sediment associated with the present Ringarooma River (this appears to be the case further upstream), then in the Chimneys area we have Quaternary sediment containing both shells (presumably marine) and heavy minerals carried in by the Ringarooma River.

The history of sea level fluctuations from the Early Miocene until the present in this area is not yet adequately explained, and the same is true for the relative importance of fluvial and marine processes in placer formation. The previous information however, infers that the sea has had a largely destructive and dispersing

effect on fluvial placers. Currently, samples from various sand bodies are being examined for the presence of fossils which could indicate marine sedimentation, and some sand grains have been forwarded to the University of Tasmania for surface texture examination by Scanning Electron Microscopy. In addition, samples of the heavy mineral assemblages and their host sediments have been collected from most of the old workings in the area by sponsored research student Mr. W. Yim.

The company is continuing a policy of trying to interest research personnel in problems associated with the Cainozoic geology of North East Tasmania. The recent C.E.C.S.E.A. 1980 symposium revealed that more than 40% of Australia's mineral and hydrocarbon sales are currently derived from deposits in Cainozoic sediments and that surprisingly little is known about the origin of many of these deposits. It is also apparent that old mine workings in North East Tasmania provide some of the best exposures of Late Tertiary geology in Australia. As a result of these facts Mr. Yim has arranged for a geomorphologist to examine exposures within A.P.4/80 during January 1981.

To date field prospecting has produced one drilling target, a body of terrace sediment south of the Delta Mine, on the left bank of the Ringarooma River. Although both Utah drilling and Amdex sampling at the Delta produced low tin values (ten pit trench samples produced grades ranging from 3 to 96g/m³), it is considered that a sample drilling programme is warranted further towards the south and this will be conducted during the following six month period.

Clearly, the area with greatest apparent potential is the ground drilled by Braithwaite (1967). An area of 45 hectares was sampled by 49 holes, 14 of which produced overall grades $> 100g$ SnO₂/m³. Total "possible reserves" were estimated at 6.16 million cubic metres containing 595 tonnes SnO₂, at an average grade of 136g/m³, in a sediment body ranging in thickness from 3.0 to 29.0 metres. Because these grades were calculated using the theoretical

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pipe volume rather than either recovered volume or some constant fraction (eg. 80%) of the theoretical volume, it is likely that the grades are undervalued. A reassessment of the Braithwaite data produced a 1,000 tonne SnO₂ deposit contained in 8 million cubic metres at an average grade of 135g/m³.

3.3 The AMAX Report

A copy of this report (Bowen, 1980) is included. AMAX conclude that insufficient reserves have been demonstrated to warrant a large scale undertaking and consequently they have notified Amdex of their intention not to proceed with the proposed joint venture. The AMAX compilation shows encouraging possible reserves in several areas and Amdex are optimistic that further drilling in the Chimneys area and in several areas between the two blocks comprising A.P.4/80 could prove reserves suitable for either a small dredging operation or at least one large gravel pump mine.

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4. FUTURE WORK

Work planned for the next six month period falls into the following categories.

1. Drilling of terraces south of the Delta Mine and any similar targets which may develop.
2. Face sampling in old workings east of the Ringarooma River.
3. Collection of additional information pertaining to the reconstruction of the sedimentation history in the area.
4. Continuing evaluation of specific potential targets as inferred by the AMAX compilation. This will complete Stage 1 as outlined in the initial proposal.
5. The potential for applying Landsat photography to the detection of buried channels on the Great Northern Plain will be investigated.

5. REFERENCES

- Bowen, E. A. 1980. Ringarooma Tin, Assessment of Exploration potential. AMAX Iron Ore Corporation report.
- Braithwaite, J. B. 1975. Great Northern Plain: a possible dredging area. Tasm. Dep. Mines. Tech. Rep. 20, 1:62-76
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