 6/33

DKSG

AMDEX MINING LIMITED

TRIAKO MINES N.L., BUKA MINERALS N.L.,
GIPPSLAND MINERALS N.L., KIBUKA MINES PTY LTD.
169 Miller Street, North Sydney N.S.W. 2060

TECHNICAL REPORT

79-1321.

FINAL REPORT

EXPLORATION LICENCE 9/69

KING ISLAND, TASMANIA

Author S. Davis

Investigations Conducted by Kibuka Mines Pty. Limited

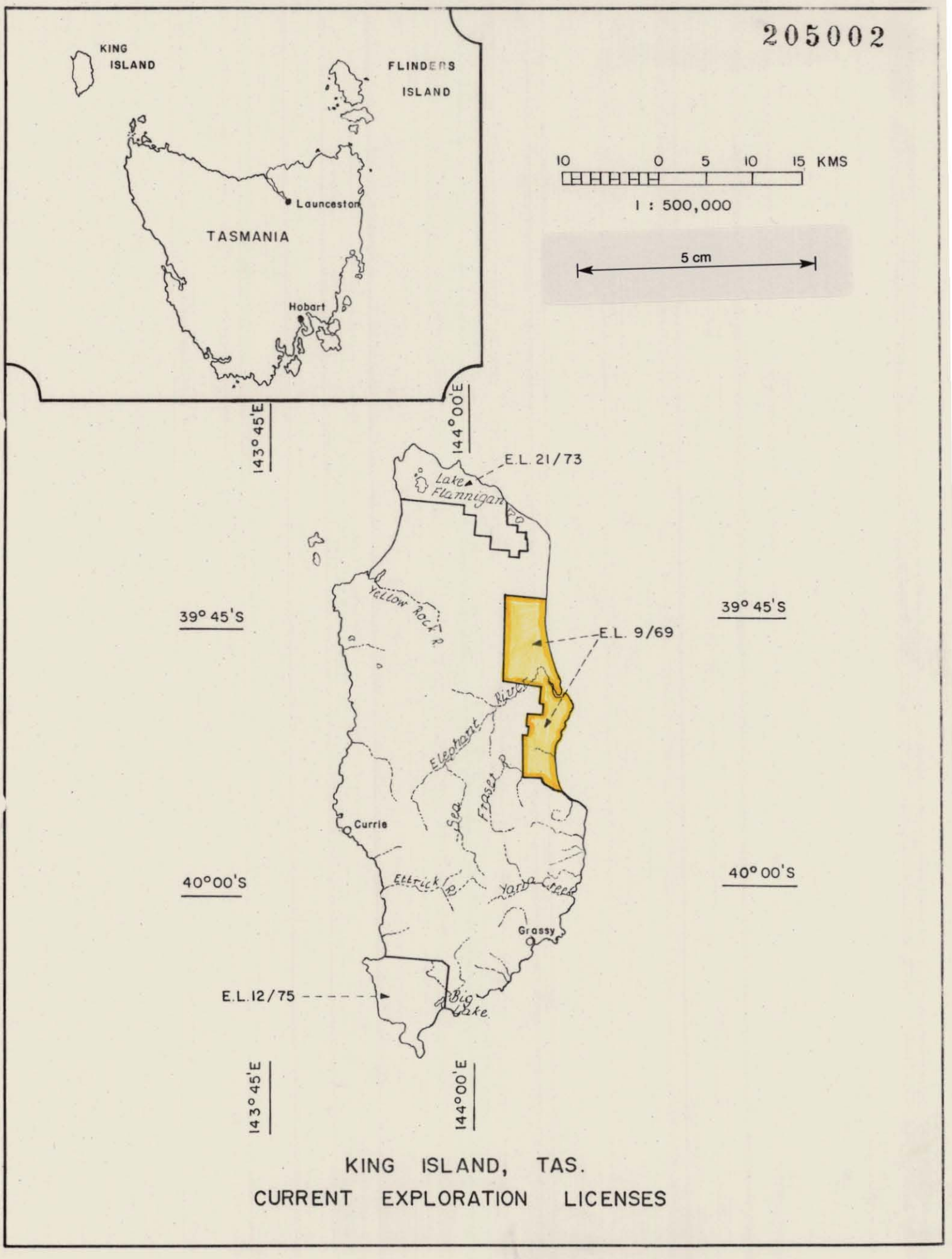
Typed by R. McNicol

Date 2 January 1979

Distribution: Department of Mines, Hobart, Tas.
Amdex Mining Limited, Sydney, N.S.W.

PROJECT : D 37 King Island

1" 250,000 Sheet Index No : SK 55-1



KING ISLAND, TAS.

CURRENT EXPLORATION LICENSES

CONTENTS

205004

1. INTRODUCTION

Exploration Licence 9/69, Cowper Point, King Island, was granted to Kibuka Mines Pty. Limited on 21 May, 1969 for a period of six months. It covers an area of 69 sq. km. and was renewed six monthly until 21 November, 1978.

Following an extensive exploration programme, it was found that although large deposits of heavy minerals existed in the area, these were too low in grade to be considered economic, particularly with the current depressed mineral market prices.

This following Final Report on E.L. 9/69 is therefore submitted by Kibuka Mines Pty. Limited to the Department of Mines, Tasmania.

2. SUMMARY OF WORK CARRIED OUT OVER EXPLORATION LICENCE 9/69

A. Review by Kenneth McMahon and Partners, 1970

A report was compiled by Kenneth McMahon and Partners, summarising all work done on the area previously. Information was obtained from three sources - Naracoopa Rutile Limited's Exploration Programme, Wright's Soil Survey of King Island and Literature on the Geomorphology of King Island.

In summary, it was recommended that following a limited drilling programme in the Naracoopa area, grid lines be drilled in order to determine more fully the exact extent of the beach sand deposits. There was found to be a steady drop in values from south to north in this area.

Exploration Licence 9/69 is composed of a comparatively narrow coastal belt of dunes backed by Pre-Cambrian rocks and intercepted by a few isolated outcrops of Tertiary limestone.

As part of his thesis work, Wright undertook a soil survey of King Island. His samples taken within the Licence area at half mile spacings along lines one mile apart, were tested for percentage H.M. As a result, small areas of interest were delineated for further testing by spot holes.

A survey of the literature on the geomorphology of King Island led to a better understanding of the time and mode of formation of the sand dunes here.

B. Work Carried Out on E.L. 9/69 Since 1969

From 1967 to 1970 test drilling and check drilling was conducted by McMahon over an area from Naracoopa in the south to Cowper Point in the north. The major part of this programme was concentrated at Naracoopa where an area of approximately 4,000 feet N.S. by 2,000 feet E.W. was covered. The holes were drilled at 100 feet intervals along lines 400 feet apart and running at right angles to the beach line. The reserves and the feasibility of mining Lanherne Beach were based on the results obtained from this drilling programme.

At the northern end of the Sea Elephant Bay where good values had been found behind Cowper Point, test drilling was conducted on a widely spaced grid with lines at 1,000 feet intervals, and holes drilled at intervals of 100 feet to 200 feet along them. This grid also ran at right angles to the beach. Drilling results indicated a low grade dune deposit and a higher grade strand line deposit.

The line spacing in the area between Naracoopa and Cowper Point was increased to 1,600 feet with holes at 100 feet intervals along them. The results were not encouraging and no significant heavy mineral deposits were indicated in the area.

By late 1970, the reserves of Sea and Milford Beaches were almost exhausted and mining of Lanherne Beach was commenced. In February 1972 Naracoopa Rutile Limited went into receivership, and in May 1972 the operations were taken over by Buka Minerals N.L. and a subsidiary company, Kibuka Mines Pty. Ltd. was formed to manage the operations at Naracoopa.

In the period to mid 1973, McSweeney and Partners were consulting managers to Kibuka. During this time little exploratory drilling was done as nearly all the drilling was for mining control purposes.

The work carried out by Kibuka between mid 1973 and mid 1975 was directed towards establishing tonnages and grades of areas indicated by previous exploration and towards continuing exploration in other areas. The Lanherne Beach and Back Beach deposits were completely outlined using a 50 x 25 metre grid and the ore reserves calculated. The results of check drilling carried out in the dune system at Cowper Point compared favourably with those obtained by McMahon. Scout drilling in the intermediate area between Naracoopa and Cowper Point did not indicate any significant mineralisation.

A detailed "Evaluation of the Kibuka Mines Pty. Ltd. Properties - King Island, Tasmania" was made to April, 1975 by Ian J. Salway and Associates Pty. Ltd. (Mining Engineers and Geologists).

A copy of this report was forwarded to the Department of Mines at the time it was received by Kibuka.

Conclusions drawn in this report have since altered of course, due to the changes in the market conditions in the beach sands industry.

C. Geophysics

Experimental work with a scintillometer indicated that this type of instrument could be used to locate surface heavy mineral deposits.

Scout traversing north of the Lanherne Beach Deposit and adjacent to the Frazer River indicated a small anomaly. The anomaly readings were approximately twice the background value. (Follow-up drilling indicated heavy mineral grades of 2.5% HM in the anomaly area and a background of less than 1% HM).

An M.I.P. Survey of the beach sands was conducted over the Exploration Licence by Scintrex. The profiles compare well with the drill hole

results, i.e. positive anomalies over areas of a high heavy mineral concentration and negative anomalies over areas of a low heavy mineral concentration.

No direct correlation with grade is apparent, however.

D. Drilling

A number of drilling programmes were undertaken on the Licence area by Kibuka Mines.

Detailed drilling of Sea Beach at Naracoopa was carried out to expedite a proven ore calculation. A total of 2,826 feet were drilled on this deposit during May 1975.

In October 1975, 33 test holes were drilled on Sea Beach to indicate the seasonal movement of sand. Results compared well with the earlier detailed drilling of Sea Beach. Considerable variation in the depth of sand was noticed. A loss of up to 2 feet of sand was not unusual, but this loss during winter was generally replaced during the summer months.

An intensive drilling programme was undertaken during the latter part of 1976 in the Cowper Point area of the Exploration Licence.

A detailed report by D. Johnson of this work was forwarded to the Department of Mines early in 1977.

The aim of the programme was to test the reliability of ore reserve estimates in the Cowper Point area, particularly in the High Dune Deposit. The area chosen for the drilling was shown by both the 1967 McMahon and Partners, and 1975 Kibuka drilling to be typical of the deposit. The Kibuka grid was used, holes being drilled on a 50 x 100

metre pattern between lines drilling in 1975. The samples obtained were assayed for heavy mineral content and selected samples were grain counted for rutile concentration. Size analyses were carried out on check samples and compared with primary plant head feed samples from the Naracoopa deposit.

Care was taken to minimize the sample dilution that occurs when holes are not cased while using the Gemco auger drill.

Hand augering by Kibuka in 1975 was shown to be an unreliable indicator of real heavy mineral grade, although trends in grade distribution could be identified. McMahon and Partners drilling results compared favourably with the recent Gemco survey.

In conclusion, it was found that the possibility of large reserves of tin in the Cowper Point deposit is small, from the evidence of

i) the low heavy mineral content of the overall deposit;

ii) the low tin content of the highest heavy mineral bearing samples; and

iii) the low values obtained from assays of tin from the Back Beach deposit - the apparent source of the mineral bearing sands in the High Dune Deposit.

The drill programme verified the reliability of the results obtained by McMahon in their work of 1967. They are of a much higher degree of accuracy than the Kibuka programme of 1975. However, Gibson 1973 indicated that the reserves estimated by McMahon "appear to have been dictated by a need to impress by quantity at the expense of quality (grade)". This is illustrated by a cut-off grade of 1.5% HM which allows inclusion of the steep low grade dunes on the eastern side of the deposit and shallow low grade deposits in the flats to the west. Gibson in his study of McMahon's results in 1973 used a higher cut-off (2.5% HM) which correspondingly reduced the reserves of the deposit.

He recommended "deeper drilling which could possibly alter the (reserve) estimates upwards in volume and grade". The 1976 drilling by Kibuka showed this not to be the case.

For detailed assay results, size analyses, grain counts, and reserve and grade estimates refer to "Assessment of Drilling at Cowper Point" by D. Johnson, Kibuka Mines Pty. Limited, December 1976.

Since 1976, the market for beach sands has become very depressed, so although the estimated reserves at Cowper Point remain the same, under current prices, operating costs and transport conditions, the heavy mineral concentrations in this area prove at the moment to be sub-economic.

3. CONCLUSIONS

In mid 1977 it was decided to suspend mining operations and exploration activities due to the general depressed market conditions of the beach sands industry.

Due to the current low heavy mineral prices, a considerable part of the reserves proven by past exploration work must be considered as being submarginal.

Although investigations were made with regard to a suitable economic mining system which would accommodate the low grade deposit delineated in the area when the mineral sands marketing situation stabilises again at a more attractive level, it is felt that at this stage no further exploration or mining activities are warranted in Exploration Licence 9/69.

Adrian Fleming

KIBUKA MINES PTY. LIMITED.

2 January, 1979

BIBLIOGRAPHY

Report on E.L. 9/69; Naracoopa Rutile Limited. Kenneth McMahon and Partners, February 1970.

The Naracoopa Deposits/Application to Reassess; J.V. McSweeney, August 1972.

Examination of E.L. 9/69, King Island; K.J. Callen, Kibuka Mines Pty. Limited, September 1972.

Kibuka Mines Pty. Limited - An Evaluation; D.W. Muller, December 1974.

An Evaluation of the Kibuka Mines Pty. Limited Properties - King Island, Tasmania; April 1975.

Amdex Mining Limited - An Evaluation of Naracoopa Rutile Limited; I. Salway & Associates, 1975.

Heavy Mineral Beach Sands Test Survey Advanced Profiles for Presentation to People's Republic of China Officials; March 1976.

Assessment of Drilling at Cowper Point; D. Johnson, Kibuka Mines Pty. Limited, December 1976.

Kibuka Mines Pty. Limited - Tin Areas of N.E. Tasmania; C.R. Gibson and K. Piggott, Kibuka Mines Pty. Limited, March 1977.

M.I.P. Tests Over Heavy Mineral Deposits at Kibuka, King Island for Amdex Mining Limited; A.W. Howland-Rose, Scintrex Pty. Limited, May 1977.