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TASMANIA MINES LTD
EXPLORATION LICENCE 39/89
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for

MCKEOWN MINING PTY LTD
RIDGLEY, TASMANIA

on behalf of

TASMANIA MINES LIMITED

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SUMMARY

Exploration Licence EL39/89, covering nine square kilometres, south of Upper Natone, has been in force for five years and the area of the Licence is now due to be halved in area. It is proposed that the Licence be divided into central and adjoining portions, with the central portion being retained.

The Licence covers part of the Devonian Housetop Granite and adjacent Ordovician sedimentary rocks. Tertiary basalt masks the older rocks in part.

The main exploration targets within the Licence are magnetite rich skarns formed by the metasomatism of calcareous sedimentary rocks by the intruding granite. These skarns are similar in origin to those at Kara No 1 at Hampshire.

In the past, the area of the Licence has been explored using geological mapping, stream and rock sampling, ground and aerial magnetics and percussion and diamond drilling. This work identified three separate and distinct skarn zones known as Kara No 2 Main, Kara No 2 East and Kara No 2 South.

During the currency of EL39/89, exploration has continued using geological mapping, surface rock sampling, detailed ground magnetics and percussion drilling.

In 1994, detailed investigation at Kara No 2 East was undertaken. Unfortunately, the magnetite orebody at Kara No 2 East is too small in aerial extent, and too shallow, to warrant further investigation.

Future exploration will concentrate on the evaluation of Kara No 2 Main Zone.

1 INTRODUCTION

Exploration Licence 39/89 was originally acquired on 23rd February 1990. The Licence covers an area of 9 square kilometres to the west of the Blythe River and lies about 30 kilometres south of Burnie: see Figure 1. Access to the area is principally by way of the Blythe Road from the Upper Natone Forestry Commission Reserve. There are several old forestry tracks which provide access throughout the Licence but access to most of the area is by foot.

Vegetation on the Licence is mainly buttongrass with eucalypt forest both in plantations and as regrowth.

The Licence lies to the east of the Kara mine site. Tasmania Mines (Tasmines) refers to the magnetite skarns at the Kara mine site as the Kara No 1 deposits, while those in the Blythe River area are the Kara No 2 deposits.

The occurrences of magnetite in the Upper Blythe River area have been known for many years e.g. Reid (1924). The surface limits of the magnetite skarns were outlined in the 1970s by McIntyre Mines (McIntyre) based on geological mapping, aeromagnetism and ground magnetism and were classified as three separate zones:

- Kara No 2 Main, formerly known as Pearson's: this zone can be divided into six smaller zones based on magnetic anomalies;
- Kara No 2 East, about one kilometre to the south-east of Kara No 2 Main;
- Kara No 2 South, just over one kilometre to the south west of Kara No 2 East.

Tasmines is continuing a programme of evaluation of these skarns with the aim of bringing the orebodies into production where it is economically feasible to do so. In 1992, a Mining Lease 20M/91 was granted over Kara No 2 South.

This report describes the work undertaken during 1994 and also describes which part of the Licence is to be retained.

2 TENURE

Exploration Licence EL39/89 was granted to Tasmines on the 23rd of February 1990 following application under ETA No 120. The location of the Licence is shown in Figure 1. The Licence falls entirely within the boundaries of an expired Exploration Licence, EL17/68, which was formerly held by Tasminex.

An application for the granting of a Mining Lease over the Kara No 2 South deposit was made in December 1991 and, on the 17th September 1992, Mining Lease 20M/91 was granted to Tasmines,

effective from the 1st of April 1992, for a term of 5 years. This Lease has an area of 38 hectares.

Five years having elapsed since the granting of EL39/89, the Licence is due to be halved in area. It is proposed that the Licence be divided into central and adjoining portions, with the central portion being retained.

3 GEOLOGY OF EL39/89

The geology of EL39/89 has been described in previous reports: see McKeown (1993).

4 WORK PRIOR TO TENANCY OF CURRENT LICENCE

EL39/89 includes the outcrops of three magnetite skarn zones. Prior to Tasmines taking up this Licence the skarns had been investigated by the Tasmania Department of Mines and later by Tasminex and McIntyre Mines during the currency of EL17/68. The Department of Mines had briefly visited the area in 1924 (Reid) and 1952 (Hughes). In 1963, Jack carried out a ground magnetics survey over what are now known as Kara No 2 Main Zone and Kara No 2 East Zone (Jack, 1964). In 1964, the magnetic survey was followed up by a short diamond drilling programme to test part of the Kara No 2 Main Zone (Jack, 1965).

The Main Zone had been covered by a Consolidated Mining Lease, 26M/64, until 1985. This Lease was taken up in the name of A. and D.D'O. Pearson and, consequently, the Kara No 2 Main Zone is referred to as 'Pearson's' in some older reports.

During the 1970s, Tasminex undertook an exploration programme within EL17/68. The programme included geological mapping and geochemical sampling of the creeks and rivers. McIntyre Mines, at the time a joint partner of Tasminex, carried out an aerial magnetic survey which led to the delineation of the third skarn, the Kara No 2 South Zone.

McIntyre was sufficiently encouraged by the results of the aerial magnetics to initiate detailed exploration of Kara No 2 Main Zone. This entailed geological mapping, a ground magnetic survey, trenching and sampling, percussion drilling and diamond drilling. The results of this programme were reported to the Department of Mines at the time.

5 EXPLORATION AIMS

The Kara No 2 Zones were first delineated during the existence of EL17/68. At that time, exploration was directed at finding tungsten mineralisation within magnetite skarns and greisenised granite. No scheelite bearing ore was found as a result of this work. However, the Kara No 2 Main Zone was identified as

a resource of near surface, high grade magnetite (Whitehead, 1991).

When EL39/89 was granted, the aims of the exploration effort were:

- to estimate the tonnage and grade of each of the Kara No 2 Zones,
- to determine the metallurgical characteristics of Kara No 2 Zones by treating bulk samples of the ores in the Kara No 1 mill,
- to determine whether, on a commercial basis, the Kara No 2 Zones could provide ore feed for the Kara No 1 mill.

The Kara No 1 skarn is not a typical tungsten skarn. The magnetite content of the skarn sets it apart from typical scheelite skarns e.g. those of the King Island type or those of the Cantung-Mactung type as described by Einaudi et al. (1981). The skarns are hybrid between the scheelite skarn model and the iron skarn model as described in Cox and Singer (1986).

The hybrid nature of the skarns raises the possibility of the occurrence of other metals within the skarns. Consequently, a more comprehensive exploration effort would involve the search for:

- magnetite, especially magnetite which meets commercial specifications for special applications,
- tungsten as scheelite,
- tin, although tin in skarns often occurs as metallurgically problematic tin silicates,
- gold.

6 EXPLORATION BY TASMANIA MINES

All the exploration effort during the currency of EL39/89 has been directed at the known magnetite skarns. The status of the investigation of each of the skarns is described here.

6.1 KARA NO 2 MAIN ZONE

Kara No 2 Main Zone is the largest and most complex of the three Kara No 2 Zones and has been the subject of exploration for many years.

During the first five years of the tenancy of EL39/89 exploration has been concentrated on the Kara No 2 South and East zones. Exploration in the next five years of the tenancy

of EL39/89 will be aimed at identifying commercially suitable parts of the Main Zone with a view to bringing them into production as soon as practicable.

6.2 KARA NO 2 EAST ZONE

Surface geological mapping and sampling of this deposit was carried out during 1991. A resource of high grade magnetite with low silica content was indicated. A shallow percussion drilling programme to test the zone was undertaken in early 1992.

Approval to extract a 100 tonne bulk sample for testing was granted on the 29th of November 1991 by the Tasmania Department of Mines. During 1994, blasting and trenching were carried out so that this bulk sample could be acquired. Unfortunately, the trenching suggested that Kara No 2 East is only a very shallow deposit and, therefore, a bulk sample was not taken.

The skarn, which originally consisted of more or less massive magnetite has been extensively weathered and oxidised. Samples taken from trenches vary in composition from oxidised magnetite, to specular haematite, to goethite with limonite: see Photographs 1 to 3.

6.3 KARA NO 2 SOUTH ZONE

Following a ground magnetics survey and shallow percussion drilling of this Zone in 1991, a narrow, but reasonably long, deposit of magnetite was identified (Whitehead, 1991).

Testing of the quality of the magnetite was carried out using samples taken from outcrop and percussion drill holes. Samples were tested for various purposes by BHP Raw Materials Supply Department, Port Kembla, the Tasmanian Electrometallurgical Company (TEMCO), Bell Bay and the Associated Pulp and Paper Manufacturers (APPM), Burnie.

A Mining Lease, 20M/91, was granted over this deposit in 1992.

Details of the work carried out on this deposit are given in McKeown (1993).

/OVER

7 DESCRIPTION OF AREA TO BE RETAINED

The area to be **retained** is shown in Figure 2 and described below:

Commencing at the south-east corner at grid coordinates
404 000 metres E 5 423 000 metres N thence grid west to
402 500 metres E 5 423 000 metres N thence grid north to
402 500 metres E 5 424 000 metres N thence grid ~~east~~ ^{west} to
402 000 metres E 5 424 000 metres N thence grid north to
402 000 metres E 5 426 000 metres N thence grid east to
403 000 metres E 5 426 000 metres N thence grid south to
403 000 metres E 5 425 000 metres N thence grid east to
404 000 metres E 5 425 000 metres N thence grid south to
the point of commencement.

8 FUTURE WORK

As mentioned above, future exploration will concentrate on Kara No 2 Main Zone.

Sampling and metallurgical testing of the deposit will be undertaken with a view to identifying those parts of the Zone which may be sources of commercially acceptable specialty iron ores. Detailed ground magnetics and surface sampling will be followed by percussion and diamond drilling where warranted.

In the next year, the magnetics surveys and surface sampling will commence. In addition, the coordinates of existing drill hole collars, in AMG coordinates, of the holes already drilled into Kara No 2 Main, will be determined.

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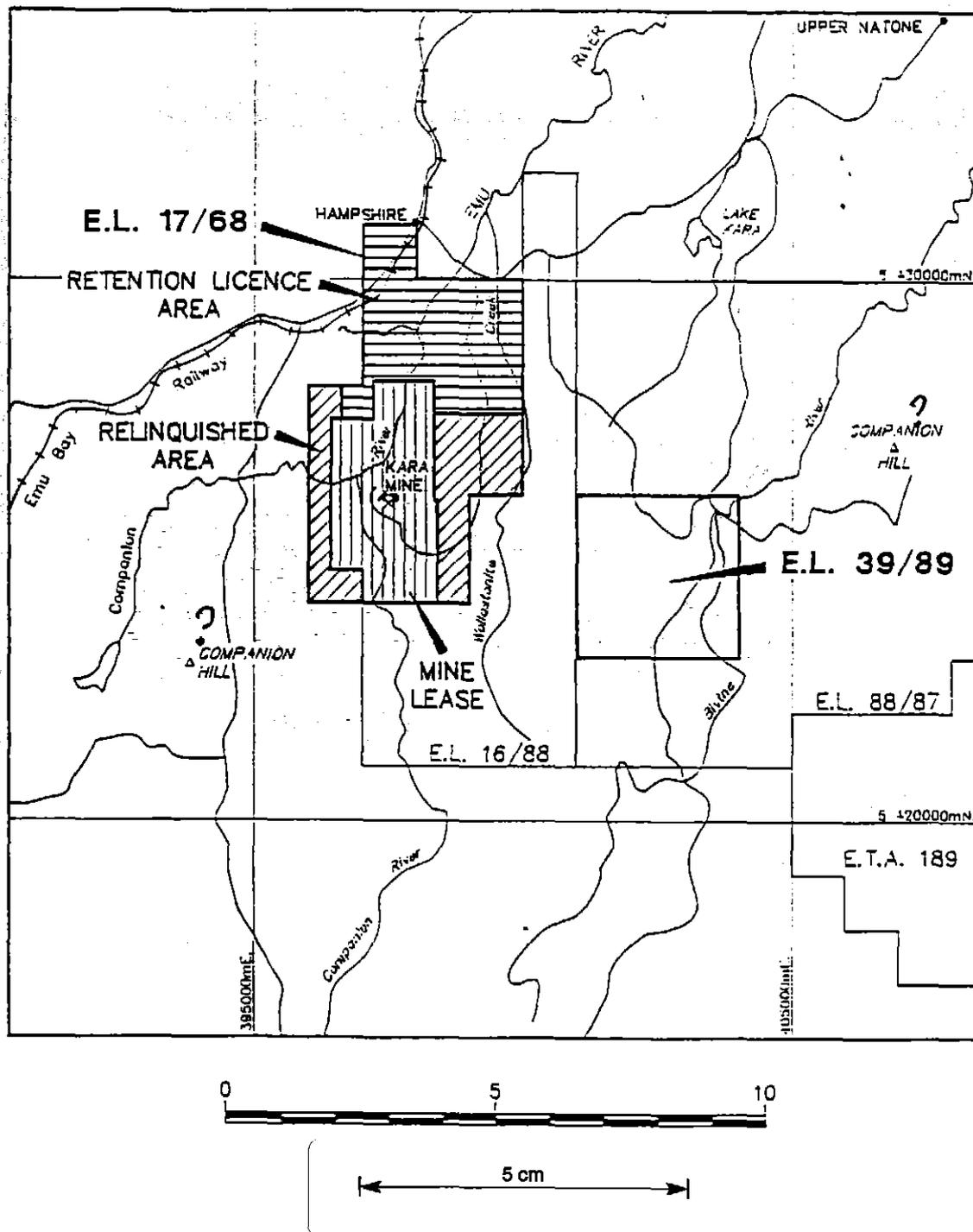


Figure 1. Location of EL 39/89

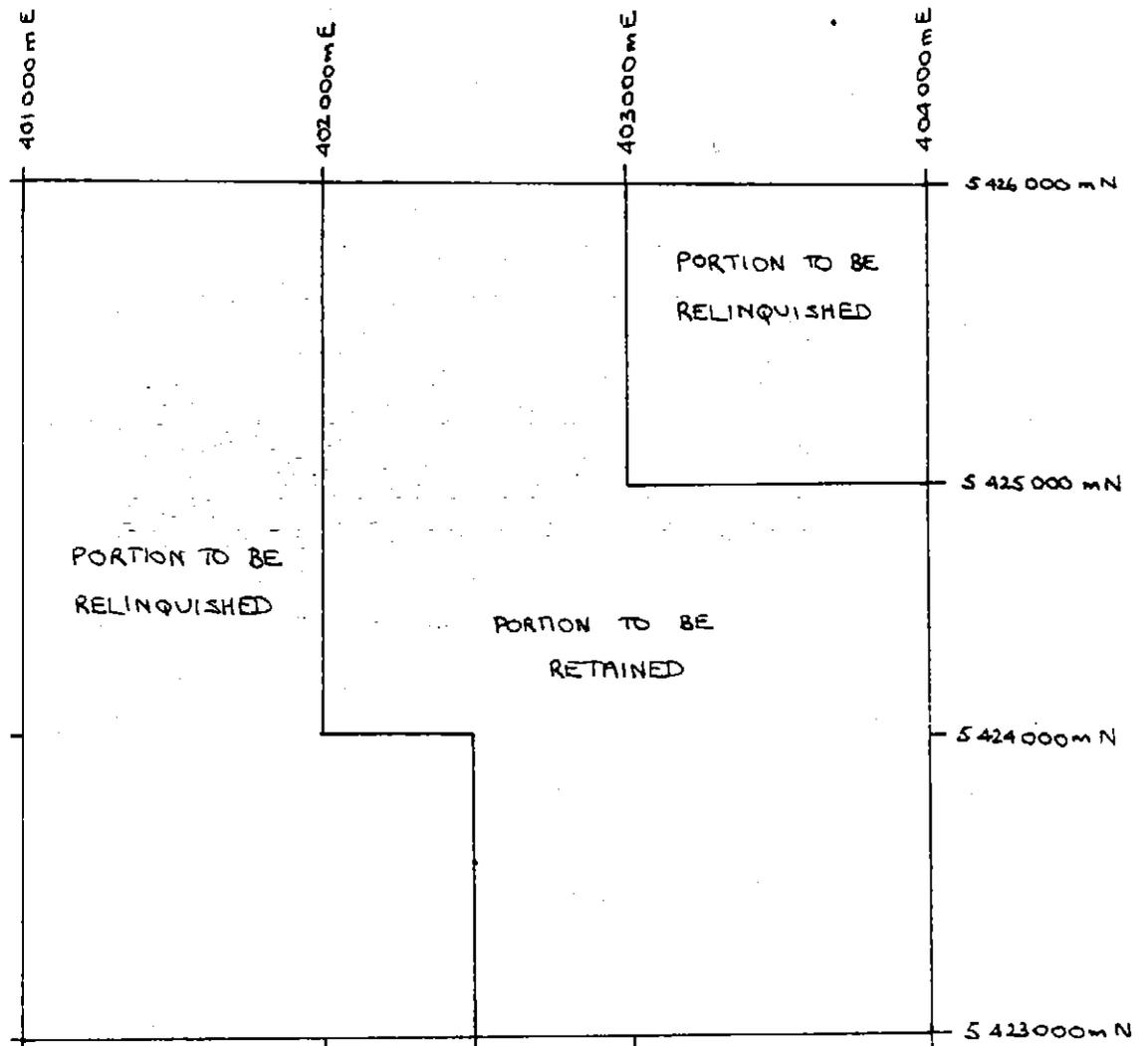


Figure 2. Portions of EL39/89 to be retained and relinquished
(AMG coordinates)



Photograph 1. Magnetite partially oxidised to specular
haematite



Photograph 2. Specular haematite



Photograph 3. Goethite with limonite
