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RETENTION LICENCE 8714
SCAMANDER, N.E. TASMANIA
REPORT ON ACTIVITIES
FOR THE YEAR ENDED
8TH MARCH, 1989.

89-2914

MINES
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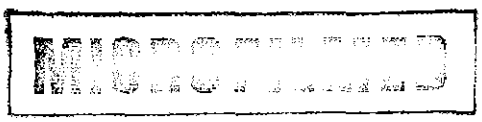

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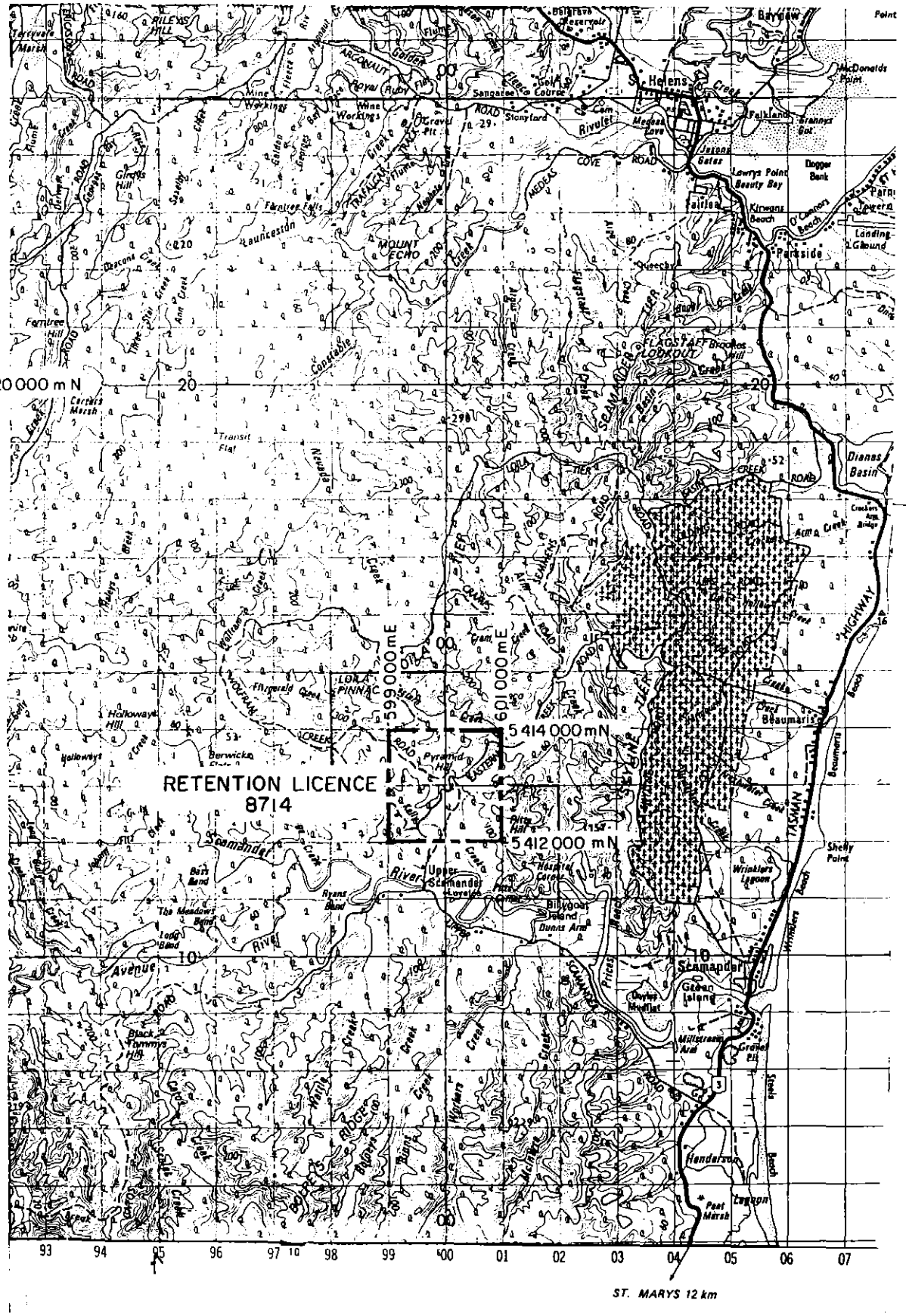

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This map is photo copied from GEORGES BAY 1:100000 topo. map.

Centre: Melbourne	THE BROKEN HILL PROPRIETARY CO. LTD.	Project No: T610
Date: Jan. 1989	RETENTION LICENCE 8714 - SCAMANDER, TAS. LOCATION MAP	Drawing No: A4-2463

1. INTRODUCTION

Retention Licence 8714 (Scamander) was granted to BHP in March, 1988 for a period of three years. The Licence covers an area of 4 square kilometres encompassing the Great Pyramid tin deposit near Scamander in northeast Tasmania (Fig 1.). The area of RL 8714 previously comprised part of Exploration Licence 10/80 which was granted to BHP in 1980 and subsequently (1983) incorporated into Exploration Licence 12/78 (granted to BHP in 1978).

Following initial exploration by BHP, the Great Pyramid-Scamander area was investigated under the terms of a joint venture with Billiton Australia from August, 1982 to June, 1986. Billiton acted as Manager of the JV during this period and carried out a resource estimate as a prelude to economic assessment of the deposit and to provide a comparison with previous estimates by Paringa/Aberfoyle in 1969-74 and BHP in 1981 (see Hall & Wright, 1984; Hall & Carter, 1986). The most recent estimate based on all available data is that of Hall & Wright (op.cit.) who calculated a "probable" in-situ geological resource of 3.13 million tonnes at a grade of 0.22% Sn. This was not considered sufficient for a viable mining operation in the economic circumstances prevailing in 1986 (Hall & Carter, op.cit.)

Following the withdrawal of Billiton from the joint venture in 1986, BHP made an application in August, 1987 for a Retention Licence covering the Great Pyramid deposit. This report outlines the work carried out since Retention Licence 8714 was granted in March, 1988.

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2. GEOLOGY AND MINERALIZATION

The following summary is taken largely from Hine & Goode (1980) which provides a useful synthesis of the geology of the Scamander area. The area of the Great Pyramid deposit is underlain by sandstones, siltstones and shales of the Siluro-Devonian Mathinna Beds. The sequence is folded about NW-SE axes and it is likely that the tin mineralization occupies the upright southwestern limb of an anticline. Detailed mapping on surface and in adits has led to the recognition of a major NW - striking fault with a steep northeasterly dip.

Mineralization is present as cassiterite which occurs in the form of disseminated grains and aggregates in a quartz vein system. The veins are planar, have an ENE trend and generally dip at 60-70° to the NW. The mineralized veins range up to about 5mm in width and variably contain sulfides, wolframite and fluorite in addition to quartz and cassiterite.

3. PREVIOUS EXPLORATION

Exploration by BHP and BHP-Billiton was continuous from 1978 to 1986 and involved an expenditure in excess of $1.5 million.

Initial geological, geophysical and geochemical investigations were followed by several drilling programs and, ultimately, by bulk sampling and metallurgical test work. This work has been summarized previously and will not be redescribed here; the reader is referred particularly to the reports by Hine & Goode (1980), Hall & Carter (1986) and references therein. The final work carried out on the property included a resource assessment by Hall & Carter (op.cit.) and this will be discussed further in following sections.

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4. RESOURCE ESTIMATES

The following table summarizes the estimates that have been made for the resource contained within the reasonably well drilled portion of the Great Pyramid mineralized zone:

Assessment by	In-Situ Reserves (indicated)	Method of Estimation
Paringa-Aberfoyle (1969-1974)	4mt @ 0.3% Sn	Based on cross-sections
BHP (1981)	4.1mt @ 0.22% Sn	Triangulation based on levels to level 90.
BHP (1981)	3.3mt @ 0.26% Sn	Rectangular, based on 170 level only with correction applied to all levels.
Billiton (1986)	3.1mt @ 0.22% Sn	Envelope (prismoidal)

The Billiton (1986) estimate is regarded as the most rigorous but it was emphasized by Hall & Carter (1986) that, although the tonnage is fairly well defined, the grade is known with only very low levels of confidence (cut-off grade used was 0.1% Sn). Additional resource estimates have been calculated using different cut-off grades and/or only some of the drillhole data. For example, Hall & Carter (1986) reported a high grade resource of 0.31mt @ 0.46% Sn in South Block (0.2% Sn cut-off grade) and Kaleta (1983) suggested a resource of 2.8mt @ 0.23% Sn based on only the Aberfoyle-Paringa 'H' Series percussion drillholes, using 0.1% Sn cut-off. The presently available total potential resource estimates (i.e. indicated plus inferred) are also highly variable, e.g. 8.3mt @ 0.19% Sn (BHP, 1981) as against 2.5mt at undefined grade in addition to the 3.1mt resource of Hall & Carter (1986).

5. PRESENT WORK

No fieldwork was carried out on the property in the current year. However, developments in the international tin market were carefully assessed and the Australian Dollar Price of tin was monitored closely.

The tin market has been subject to great uncertainty following the collapse of the International Tin Council price support system in 1985. Despite a short-lived recovery in 1986, the tin price has not regained any ground and is currently at a lower level than in early 1987.

Neglecting for the moment considerations of deposit size and mine infrastructure requirements (both reasonably favourable), our current assessment of the feasibility of a mining operation at Great Pyramid may be made on the basis of tin price and Sn grade of the deposit alone, i.e. independent of the capital cost of development.

The most direct way of assessing economic viability is to consider the relationship between tin price, Sn grade and the estimated operating cost associated with getting the tin into concentrate form (i.e. mining cost plus milling cost plus overhead costs). A mining operation of say 300,000 tpa (throught the mill) would be appropriate for the Great Pyramid deposit and, for a project of this size, operating costs would be close to $23 per tonne (assuming a stripping ratio of 0.8). At the current tin price of $10,600 per tonne, each tonne of Great Pyramid ore has a value of $19.35 at a grade of 0.22% and a recovery of 83% (see Foo, 1985). Therefore, it is clear that the deposit is uneconomic under current tin price and operating cost conditions. If the slightly higher (but probably less realistic) grade estimate of 0.26% Sn is used, the operating costs per tonne of "ore" are still in excess of the in-ground value of the ore. It is emphasized that these calculations have neglected capital cost;obviously, consideration of these factors would make a mining operation even more unviable.

It must be concluded that the Great Pyramid tin deposit does not represent an economically viable mining proposition under present conditions.

6. OUTLOOK

Most international tin market analysts forecasted that the global tin scene would approach 'normality' (i.e. supply-demand rules) by the end of 1988. It is still to early to say whether this has actually occurred because a period of price stability (e.g. one year or so) is needed before the true supply-demand situation emerges.

It is encouraging that the stock overhang diminished through 1987 and 1988, largely through a combination of decreased production and the introduction of export quotas. However, consumption has not increased as rapidly as might be expected from the unsustainably low price, and a complete reduction of the stock overhang will depend on several imponderables such as availability of very cheap Chinese tin and the Brazilian attitude to levels of production.
Together with reduction in stocks, the best hope for a stronger tin price lies in the growth potential of the tin-based-chemicals industry (Pitman, 1988). However, this positive effect is likely to be offset for some time by the absence of a floor price, lack of hedging facilities and excessive vulnerability to currency fluctuations. The consensus among market observers predicts a fairly flat year for tin in 1989 (McNaught, 1988).

This being the case, and bearing in mind the general air of uncertainty in the market, it is highly unlikely that the economic parameters for Great Pyramid will improve dramatically in the short term.

The weak condition of the overall market has been strongly felt in Australia. For example, the Ardlethan, Cleveland, Gibsonvale and Great Northern mines have closed since 1985 (these accounted for 30% of Australian production in that year, - see McNaught, 1988 and McKinnon & Seidel, 1988). As well, several advanced Sn exploration/development projects have been placed on a care and maintenance basis in the last two years or so. These are situated mainly in Queensland (e.g. Collingwood) and New South Wales (e.g. Gillian) but also included are some important Tasmanian projects (e.g. Mt Bischoff). It is emphasized that these operations have tonnages comparable with and grades up to 3-4 times greater than those of Great Pyramid, thereby underlining the non-viability of this deposit at present. The current pessimism among the operators of these projects undoubtedly reflects the fact that tin price in January, 1989 ($10,600) is more than 11% down on the corresponding period in 1988.

7. FUTURE PROGRAM

Given present operating costs and market conditions, we feel that any further development work on the Great Pyramid deposit would be ill-advised in the short term. However, it is our intention to continue to closely monitor the international tin business. It is hoped that improvements in market conditions will allow development of this resource in the near future. Expressions of interest in the property will be actively sought from other parties if the tin price and other circumstances favour such a course of action in the coming term.

REFERENCES*

Foo, K.A. (1985) — Great Pyramid Tin Deposit. Appendix in Hall, D.B. & Carter, D.N. (1986) Great Pyramid Tin Deposit, Northeast Tasmania: Resource Estimates.

Hall, D.B. & Wright,R. (1984) — Great Pyramid Tin Deposit, Northeast Tasmania: Resource Estimates.

Hall, D.B. &Carter,D.N. (1986) — Great Pyramid Tin Deposit, Northeast Tasmania: Resource Estimates.

Hine, R. & Goode, A.D.T.(1980) — Specifications for Exploration of the Great Pyramid Mine.

Kaleta, S. (1983) — Great Pyramid Prospect: Mining Study.

McKinnon, A. & Seidel,H. (1988) — Tin. In Register of Australian Mining, 1988/89, p. 197-204.

McNaught, I. (1988) — Tin: Through Turmoil to Tranquility? In Petroleum and Minerals Review Conference 1988, Extended Abstracts. BMR Record 1988/5 p 129-132.

Pitman, K. (1988) — Tin. In Mining Annual Review, 1988.

*Unless stated otherwise, all references are or form part of unpublished reports submitted to the Department of Mines, Tasmania.