Q.10 No 2

35-065

REPORT ON KING IS SCHEELITE
DEVELOPMENT CO.
NO LIABILITY

Copy 1 of 2

King Island Scheelite Mine, Grassy.
by
W. E. Hitchcock 22-2-35.

SHEELITE MINE
GRASSY, KING ISLAND
TASMANIA

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KING ISLAND SCHEELITE DEVELOPMENT COMPANY NO LIABILITY.

SCHEELITE MINE, GRASSY, KING ISLAND, TASMANIA.

This property is held by the above Company under Mineral Lease No. 219P/M, 53 acres, and No. 220P/M of 218 acres, at a rental of 5/- per acre. It is located on freehold land owned by Mrs Eliza Cummins, from whom an option of purchase has been obtained under an agreement dated 3rd May, 1934, for a period of 12 months in consideration of the sum of £100., with a right of extension for a further 12 months upon the payment of an additional £100. The terms of the agreement also provide that in the event of the option being eventually exercised, the purchase price of the property shall be £8 per acre, and the amount or amounts paid for the option shall be considered as being in part payment of the total consideration. Attached to the above leases is a water right of 5 sluice heads from the Grassy River, which flows adjacent to the leases. The property is situated on the sea-coast on the south-east corner of King Island. It is reached by road of length 16 miles from Currie. The climate is mild and the living conditions good.

The Mine was operated by the King Island Shceelite Company from July 1917 to August 1920, when operations ceased owing to the fall in price of Tungstic Acid to 13/- and 14/- per unit. During the period of operations, 67,352 tons of crude ore were mined, from which 612 tons of Scheelite Concentrates of value £102,000 were obtained.

After cessation of operations, the plant and buildings were removed. The Mine has been idle until consequent upon the rise in value of wolfram and scheelite, investigations were started by the writer in May, 1934. In these investigations, information was available from "Mineral Resources No. 1" L. L. Waterhouse, Tas. Geologist; "Notes on Tungsten with reference to King Island Scheelite" Herbert Lavers Proc. Aust. Inst. M. & M.; Report by P. B. Nye, Government Geologist, Tas. Govt. G. S.; Report by Hartwell Conder, Tasmania, from reports and plans by Venn Brown, Manager of the former Company, from Diamond Drilling and inspection of workings under the supervision of the writer. The results of these investigations are as follows:-

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That the estimates of the former operating company, of some 50,000 tons of proved ore, are borne out and that this figure has been largely added to as a result of the recent work in probable reserves, in lateral extension and greater depth.

Whilst, without extensive exploration in the way of intensive drilling and/or shaft sinking and driving, definite tonnage figures are not available, there is ample evidence of the existence of a large tonnage of ore. Taking the results of the former operations of the former company as indicative of those of the future, (and in this connection the sampling results have been of rather better tenor) these work out as follows:-

Recovery contents	--	.6356% WO3 *
Value per ton of crude ore at 40/- per unit WO3		£1.2712

Unit value based on 40/- per unit being 38/6 per unit, less freights, etc., plus 25% exchange.

The matter of realisation has been taken into consideration in the unit price.

It is considered by Mr. Conder, and confirmed by the writer, that a minimum tonnage of 300 tons weekly may be looked for, and thus -

300 tons at value £1.2712	=	£381.36
300 " estimated cost at 17/-	=	255.00
Estimated working profit per week		£126.36

In arriving at the working costs, the figures of the previous operators have been taken as . . . . . £0:14:1.28 per ton.
Add say, 20% for Mine Overheads & Administration 2:10 " "
Say . . . . . £0:17:0 " "

As the proposition now stands, 50,000 tons may be said to exist, and a similar quantity to be in quite reasonable expectation, with still further potentialities. It may be viewed from two angles, of which -

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* Addendum to page No. 2.

This figure (.6356%) represents average recovery contents for the full period of previous operations. The corresponding figure for the six months prior to cessation of operations was 0.67% WO3.

First, the installation of a treatment plant of weekly capacity of 500 tons, with a treatment tonnage of 300 tons at the start.

Second, the installation of a plant of capacity of 1,000 tons weekly. Apart from the matter of proving a sufficient amount of ore to justify a plant of this capacity, there is that of the ability to break and deliver to the mine sufficient ore to keep it fully employed. In this connection, there has to be considered, not only the size of the mine, but also the other facilities required to handle such larger tonnage, which, in general, would not show a saving in costs if only working part time compared with a smaller outfit working full time. Thus, before such a plant could be justified, it would be necessary to carry out extensive development, not only to prove the existence of the ore, but to provide facilities for attacking it on that scale. Such development would consist of driving a low level adit, with cross drives in various directions, and this would occupy one to two years time.

In the event of this being done, and the operations not disclosing sufficient reserves for a 1,000 ton weekly output, it would still be open to revert to No. 1 scheme. On the other hand, if the smaller scheme was decided upon, and a vigorous developmental policy adopted beyond the requirements of providing 500 tons weekly, and again, of arranging the layout of the plant as of two 500 ton units with one to start with, the then productive operations may be started at a much earlier date than under Scheme No. 2.

This appears to be the most suitable. As to the operations of the first unit, ore breaking would be essentially by open cut, much on the same lines as former operations, except that instead of conveying the ore to the mill by means of ore passes, and trucking from adits below the open cuts, it would probably be much better to use moderate sized power shovels and convey the ore by tip lorries.

The handling of the overburden would apparently be better done by sluicing, either by bringing in water from the Grassy River, or pumping from the sea. The dilution of the ore by spillage of overburden would be much lessened by this method.

The lines adopted by the former operators would be largely followed, with some modifications. In general, the treatment would

consist of -

1. Coarse crushing.
2. Fine crushing.
3. Concentration to a garnet scheelite concentrate.
4. Magnetic separation.
5. Dressing of scheelite product.
6. Possible treatment of tailings by flotation.
7. Power.

For these requirements, a round sum of £10,000 may be estimated.

Provision for -

Sluicing of overburden.

Air compressor and rock drill plant.

Water supply.

Power shovels.

Housing and general facilities.

is estimated at another £10,000, and for land purchase £2,058, making a total capital expenditure of £22,058, all of which would require to be largely available at an early stage of the operations. For power, crude oil engines are indicated.

In conclusion, it may be said that there is a large ore-body of contact type, and that whilst the results of the former Company's operations have been largely used in compiling this data, and whilst it is admitted that such were, in general, well carried out, some improvements in dealing with the overburden and transport of the ore to the mill, can be looked for, with some consequent saving, and what is important, a lesser dilution of ore.

(Signed) Wm. E. HITCHCOCK,

M. Aust. I. M. M.

22nd February, 1935.