
DEPARTMENT OF SUPPLY AND SHIPPING.
MINERAL RESOURCES SURVEY.

REPORT No. 1947/2 .

ORE RESERVES AND DIAMOND DRILLING CAMPAIGN

KING ISLAND SCHEELITE MINE

by

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CANBERRA. 12th February, 1947.

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Mr. Bruhn, of King Island Scheelite N.L., has made a request for an estimation of the ore reserves indicated to date in the King Island Scheelite Mine, and has also requested that a drilling campaign be drawn up to prove a total of fifteen years' supply of ore at an annual rate of consumption of 200,000 tons. These two matters are dealt with below.

A. RESERVES.

At the end of 1943 ore reserves were calculated above sea level and within the limits of an open cut shown on the cross sections and extending as far west as 40 ft. west from the No. 6 line.

Since that date eleven drill holes have been put down and the boundaries of the open cut have been extended to take in some additional ore. Further, some 200,000 tons of ore have been mined.

It is considered that the ore reserve position at the present time is as below:

Ore proved to end of 1943	Top Orebody	Tons 415,619
	Bottom Orebody	1,388,814
	Dilution	<u>129,476</u>
		<u>1,933,909</u>

Additional Ore proved by drilling since 1943.

No. 6 line - 40 ft. west to 70 ft. east	17,000
No. 5 line - 70 ft. west to 70 ft. east	78,700
No. 3 line - 70 ft. west to 70 ft. east	nil (46,000 possibly too low grade)
No. 4 line - 70 ft. west to 65 ft. east	71,700
No. 8 line - 65 ft. west to 60 ft. east	<u>121,700</u>
	<u>289,100</u>
Depletion since December 1943	200,000 (approx)
Reserves at February 1947.	<u>2,023,000 tons.</u>

B. TARGET OF DRILLING PROGRAMME.

This 2,023,000 tons would, at the present rate of consumption

of 11,000 tons per month (or 132,000 tons per annum), provide 15.3. years' supply of ore. With an annual consumption of 200,000 tons, however, there would be sufficient supply for only 10 years. If 200,000 tons of ore are to be mined and treated per year it would be necessary to prove an additional five years' supply.

On every line of drill holes ore extends below sea level. It is considered that along a length of 1,200 feet there is about 10,000 tons of ore per vertical foot. Thus each 20 feet of depth below sea level would yield an additional year's supply of ore. The ore may be regarded as proved down to a depth of about 40 feet below sea level and would provide two years' supply. Probably the design of the open cut would enable excavation to be carried to this depth without any material alteration in plans.

Further ore could be proved at greater depth, and in the western extension and the northern extension. The western extension and northern extension could be tested by shallower drill holes and, moreover, working of ore in these directions could be accomplished more easily than at a depth greater than 40 feet below sea level. If the ore continues westerly beyond No. 6 line and maintains the dimensions proved on that line, each 140 feet of length would provide about 190,000 tons of ore. In order to prove an additional two years' supply it would be necessary to drill on two lines to the west of No. 6 with intervals of 140 feet between lines.

It is possible that a further 400,000 tons may be located in the northern extension.

Summarised the position is as follows:-

	<u>tons</u>
Ore indicated at February 1947	2,000,000
Ore likely to be indicated in northern extension on lines 3 to 6	400,000
Ore between sea-level and 40' below sea-level	400,000
Ore likely to be indicated in western extension as far west as 40 feet west of No. 15 line.	400,000
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	3,200,000
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At a consumption rate of 200,000 tons per annum this would be sufficient for 16 years.

C. DRILLING PROGRAMME.

(1) Northern Extension: C.L. Knight set out a scheme for drilling this area in report No. 1946/25, of which Mr. Bruhn has a copy.

The requirements of the campaign have been altered somewhat, with the emphasis now on the proving of more ore. The drilling layout has been amended to allow closer spacing of holes, and to prove ground south of No. 2 fault on lines 5 and 6. It is recommended that the company adopt the scheme set out below in preference to that set out in report No. 1946/25.

All holes are to be drilled vertically as they then will give much more reliable information on the structure and attitude of this part of the orebody.

	<u>Co-ordinates.</u>	<u>Depth (estm)</u>
Line 3	310E/446N x	130
Line 2	155E/355N x	150
	163E/430N x	170
	180E/500N x	130
Line 1	40E/525N x	200
	58E/615N x	150
Line 5	145W/285N x	40
	116W/442N x	150
	95W/540N	150
	75W/640N	100
Line 6	295W/225N x	50
	275W/355N	150
	245W/510N x	150
	230W/605N	150
	<u>210W/700N</u>	<u>100</u>
		1,970

The holes marked x should be drilled first and sites for the other holes may then need revision.

(2) Western Extension: Two lines - Nos. 14 and 15 have been selected, parallel to No. 6 lines and 140 and 230 feet respectively to the west.

Sites selected are:-

	<u>Co-ordinates</u>	<u>Depth (estm)</u>
Line 14	516W/158S	360
	494W/41S	250
	470W/84N	160
	449W/196N	120
Line 15	656W/150S	340
	634W/30S	250
	612W/87N	160
	<u>588W/208N</u>	<u>100</u>
		1,740

The total drilling involved is 3,710 feet. Time involved would probably be 270 machine shifts.

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Geologist.

CANBERRA,
12th February, 1947.