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1990 Ore Resource Statement - ML 17M/1979

King Island Scheelite Limited*
Fudge, A.D.

17M/1979

KING ISLAND SCHEELITE

1990 ORE RESOURCE STATEMENT MINING LEASE 17M/1979

AUTHOR A.D. Fudge

DATE 14 August 1990

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1990 Ore Resource Statement - ML 17M/1979

King Island Scheelite Limited*
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KING ISLAND SCHEELITE

MEMORANDUM

Memorandum Nº: 79/90

Date: 14th August, 1990

To: Manager of Operations

From: Mining Superintendent

Subject: July 1, 1990 Ore Resource Statement

1. INTRODUCTION

The Ore Resource Statement for July 1, 1990 has been prepared by the excision of resource, calculated in the July 1989 Resource Statement, which has been:-

- a) Extracted by mining.
- b) Sterilised by mining (i.e., left as permanent pillars).
- c) Lower Wedge ore below the 260ml which cannot be extracted.

A Resource for July 1, 1990 was estimated (see Appendix 1) in which a 1.0% Cut-Off is proposed for the Upper C Lens whilst a 0.7% Cut-Off is proposed for the Lower C Lens. Dilution grades have been applied as in the 1989 Resource Statement.

2. ORE EXTRACTION 1989/90

A total of 130 000 tonnes of ore at 1.243% WO₃ was extracted in the previous year of which some 16 000 tonnes at 1.20% WO₃ was not included in the last Resource Statement (12% of annual production). This ex-resource material was extracted from Pgh orebodies and from the Mid Wedge footwall, and clearly the failure to include a Pgh resource in successive Resource Statements understates our Resource. (Also see Appendix IV 1989 Resource Statement).

3. RECONCILIATION

3a. Upper C Lens

As predicted in the 1989 Reserve Statement the Southern Swan Geological Resource was underestimated with an Extraction Indicated Resource grade of 1.696% compared to a Resource estimate of 1.36% WO₃.

Similarly Lower Wedge Geological Resource grades were underestimated with an Extraction Indicated Resource grade of 1.939% in the Lower Wedge 220ml stope compared to a Geological Resource of 1.52% WO₃, whilst the Extraction Indicated Resource in the Lower Wedge 260ml was 2.17% WO₃ compared to a Geological Resource of 1.49% WO₃.

In other areas the reconciliations were more realistic with the exception of the Lower Pit which appears to have been overestimated in the Geological Resource Statement of July 1990, however, the occurrence of considerable low grade dilution continues to make Lower Pit Reserve grades difficult to predict.

Figure 1

LOCATION	ACTUAL EXTRACTED GRADE	PREDICTED RESERVE GRADE	HIGH/ LOW
Upper Pit	1.206	1.13	- 6.3%
Lower Pit	0.897	1.34	+49.4%
Mid Wedge	1.503	1.37	-11.1%
Lower Wedge 220	1.763	1.50	-14.9%
Lower Wedge 260	1.974	1.43	-27.6%
Lower Central	0.997	1.04	+ 4.3%
Southern Swan	1.542	1.29	-16.3%

3b. Lower C Lens

To date the predictions for the Lower C Lens have proved an unreliable estimate for the planning of extracted grades as follows:-

Figure 2

LOCATION	ACTUAL EXTRACTED GRADE	PREDICTED RESERVE GRADE	HIGH/ LOW
Lower Pit	0.717	1.19	+66%
Mid Wedge	0.846	1.10	+30%
Lower Wedge 220	0.925	1.16	+25%
Lower Wedge 260	1.201	1.08	-10.1%
Pit Dag	0.9	1.10	+15.4%

With the exception of the Lower Wedge 260ml all grades appear to be overestimated by between 15 and 66%. The major reason being that a 1% cut-off is unrealistic as a tool for defining an extractable resource for the Lower C Lens due to the wide variations in grade within a small area which occur within the Lower C Lens, this in turn makes it impossible to give a realistic appraisal of potential dilution levels. The 0.7% WO3 Cut-Off Resource is a far more practical tool, for defining the Lower C Lens, as this cut-off envelopes a much higher proportion of the total resource which would have to be extracted in a practical mining operation.

4. DOLPHIN JULY 1, 1990 MINING RESERVE

Using the above cut-offs the Geological Resource and Mining Reserve has been defined for Dolphin Mine.

Figure 3

LOCATION	GEOLOGICAL RESOURCE			MINING RESERVE		
	TONNES	WO3	M.T.U's	TONNES	WO3	M.T.U's
Stoping Ore	1 226 000	1.32	1 618 320	888 460	1.21	1 075 037
Pillar Ore	303 100	1.35	409 185	261 424	1.24	324 166
TOTAL	1 529 100	1.33	2 027 505	1 149 884	1.22	1 399 203

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Pillar Ore - Ore in major pillars which may be extracted at a later date.

A detailed breakdown of Ore Reserves in individual orebodies at 10 metre vertical intervals as contained in Appendix I.

The following figures 3 & 4 represent Ore Resource/Reserve by Orebody and Lens (Upper C/Lower C) in both Stopping areas and Pillar areas.



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MINING SUPERINTENDENT

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KING ISLAND SCHEELITE

MEMORANDUM

Memorandum N^o: 118/90

Date: 19th October, 1990

To: Manager of Operations

From: Mining Superintendent

Subject: ORE RESOURCE

1. OPTIMISED ORE RESOURCE

The Resource statement at July 1990 was as follows:-

A. DOLPHIN MINE - ORE RESOURCES

	<u>COMBINED CUT OFF*</u>
Proven Reserves - tonnes	1 119 000
- tungstic oxide (%)	1.2
Probable Reserves - tonnes	31 000
- tungstic oxide (%)	1.5

(* - Utilising combined cut off of 0.7% for Lower C Lens and of 1% for the Upper C Lens)

B. DOLPHIN MINE - MINERAL RESOURCES

	<u>0.3% WO3 CUT OFF</u>
Measured Mineral Resources - tonnes	773 000
- tungstic oxide (%)	0.5
Indicated Mineral Resources - tonnes	575 000
- tungstic oxide (%)	0.9
Inferred Mineral Resources - tonnes	1 300 000

The Mineral Resources are additional to the Ore Reserves.

C. BOLD HEAD MINE - MINERAL RESOURCES

	<u>0.3% WO3 CUT OFF</u>
Measured Mineral Resources - tonnes	893 000
- tungstic oxide (%)	0.9
Indicated Mineral Resources - tonnes	500 000
- tungstic oxide (%)	0.8
Inferred Mineral Resources - tonnes	411 000

D. OTHER DOLPHIN MINERAL RESOURCES

Additional ore is known to exist in the Dolphin PGH Lens, Open Cut No. 1 Orebody and B Lens. Indicated Mineral Resources were previously calculated and quoted in 1983 as follow:-

		<u>0.3% WO3 CUT-OFF</u>
Dolphin No. 1 Orebody	- tonnes	615 900
	- tungstic oxide (%)	0.55
B - Lens (Current quotation	- tonnes	981 700
is only 163 000 @ 0.53)	- tungstic oxide (%)	0.64

(No ore has been extracted since the last Resource quotation for these areas)

The Pgh orebody which overlies the Upper C lens has no accurate quoted data due to the lack of information and erratic nature of the mineralisation, however, up to 10% of the annual ore extraction from Dolphin Mine comprises PGH "dilution". Of the 1989/90 Ore Extraction of 130 000 tonnes at 1.243% WO3 some 16 000 at 1.20% WO3 comprised ex-resource Pgh and Lower C lens ore.

2. EXPLORATION POTENTIAL

A number of areas of Exploration potential exist in the vicinity of the Dolphin and Bold Head Mines where structures similar to those of the main orebodies exist.

No data can be quoted, however, the Exploration Potential is defined in Internal Geopeko Report No. KI/82/3 - An Assessment of the Overall Tungsten Potential of King Island - October 1982, written at the time of the suspension of Exploration activities.

3. CUT-OFF GRADE

The Dolphin Mine Ore Reserve/Resource is very sensitive to Cut-Off grade factors used in the Resource estimation process. Due to recent economic factors high cut-offs of 0.7% and 1.0% have been used in Resource definition. A graph showing Cut-Off grade sensitivity produced for the 1988 Resource Statement follows.

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KING ISLAND SCHEELITE
DOLPHIN DEPOSIT
TONNAGE-GRADE PLOT
1988 MINERAL RESOURCES PLUS
IN-SITU ORE RESERVES

0.5 Cut-off grade (%WO₃)

* Break in Scale

Figure 3

