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MICROFILMED

SCOTIA DEEP LEAD
FINAL REPORT
ON
GRAVEL RESERVES

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Copied from B.M.I. Records,
South Mount Cameron.

Courtesy of Ian Williams,
13 August, 1974.

Memorandum to: A.A.C. Mason
from: J.K. Couper
Ref : Scotia Lead

I am forwarding details of blocks 5,6 referred to in
my last memo also revised data for block 3.

Enclosed is my final summary of the ore reserves.

Please note that the sheet showing some cross sections
of the lead is incomplete, I did not show the wash values.
Also I need to add sections of blocks 5 and 6. Please
return this sheet.

Regards

Jim Couper.

Storeys Creek Tin Mining Company N.L.

Dorset Tin Division.

SCOTIA DEEP LEAD

Final Report on Gravel Reserves

Ore reserves have been calculated for six blocks of ground defined in detail by the boring carried out by the Tasmanian Department of Mines.

The reserves are tabulated in the attached table; in summary, the gravel reserves are as follows:

	Cu/yard	Grades oz/cu yd Tin Oxide
ORE		
(6 blocks)	1,571,738	32.8
OVERBURDEN		
+ Side Batters	9,231,700	0
	10,803,438	4.8

The total quantity of tin oxide (70% concentrate) is 1,439 tons.

Overburden ratios (including batters) average between 4.5 to 1 and 11.3 to 1. The overall average for the six blocks is 5.9 to 1.

Average depth of overburden is 87 feet.

The total worth of tin metal contained in the six blocks, based on a value of \$28.00 per unit and tin content of 70% is, for 1,439 tons of tin oxide concentrates, approximately \$2,800,000.

The continuation of the deep lead between and away from the six blocks outlined is only partly defined. Between the blocks, where drilling is fairly dense, lower grades occur, downstream, away from the reserves insufficient data is available from which to make any inference as to what grade may occur. It is reasonable to say that overall lower grades would be probable. The small amount of drilling performed downstream, however does indicate that the lead gutter is generally deeper and in places exceeds 150 ft below ground level.

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Please refer to Interim Report dated 9/7/1966 and
report dated May 1966 for further details and discussion.

James K. Couper

Gladstone
20/7/1966.

SCOTIA LEAD ORE RESERVES

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Block	No. of Holes	Area (acres)	Ore Average depth	Ore Volume (cu yd)	Grade tin oxide oz/cu yd	Tin oxide 70% Conc. tons	Average depth Overburden (ft)	Overburden volume (cu yd)	Batter volume (60° batter) (cu yd)	Ratio o/b to Ore (vol)
1	28	2.680	17.8	76,917	27.0	58	71.4	306,000	114,500	5.5:1
2	101	8.337	10.7	143,578	66.2	265	91.0	1,202,000	415,500	11.3:1
3/4	59	15.154	22.3	545,813	38.25	582	84.8	2,073,000	888,000	6:1
3A	7	2.407	16.3	63,330	18.0	32	100.0	387,000	169,300	8.7:1
5	71	9.450	26.0	394,960	27.0	298	92.4	1,410,000	693,000	5.3:1
6	50	8.381	25.7	347,140	21.03	204	84.8	1,146,600	426,800	4.5:1
TOTALS	316	46.409		1,571,738	32.8	1,439		6,524,600	2,707,100	5.9:1

STOREY'S CREEK TIN MINING CO.N.L.DORSET TIN DIVISIONSCOTIA DEEP LEADInterim Report on Ore Reserves and
Mining Feasibility.

The results in this report are based on the data obtained by the Tasmanian Department of Mines from their boring campaign conducted between 1935 and 1944. (See T.D.M. Reports 1953/54).

The following records of the Mines Department are available and were used for this study :-

1. General Plan. Scale 1" = 5 chains.
2. Plans. Scale 1" = 1 chain. These are detailed sheets showing all bores, reduced levels of collar and bed-rocks and overall average values of each hole. Bottom contours have been plotted where drilling is sufficiently dense.
3. Plans. At scales of 30' = 1" and 1 chain = 1". Showing cross sections of many borelines, areas of tin bearing ground and their average value are indicated.

Drilling log sheets for many bores are available, however, some do not give details of the value of the tin bearing horizons, but give only overall values, in these cases, the information is usually available in cross section.

Results of check drilling carried out by Dorset Tin Division (see my report May 1966) are not used in this study.

The assessment of ore reserves is limited to those areas where the drilling is fairly dense. These areas are indicated on the Mines Department Map at a scale of 1" = 5 chains. The area is divided into six blocks but for this study blocks 3 and 4 are combined and blocks 5 and 6 are combined.

009, The concentration of tin occurs mainly in a narrow gutter, at the bottom of the section. Occasionally concentration of cassiterite occur in higher sections but are generally of small extent. For this study only that cassiterite concentrated in the bottom levels is regarded as accessible ore.

The tin bearing ground is reviewed in terms of a stripping operation, this would require a fairly regular surface dividing overburden and ore. Hence the cut-off grade and mining sections chosen are controlled to a great extent by the need to keep the ore limit to a fairly uniform surface.

No details are available as to the level of the water table throughout the lead. This will seriously effect the mining method. if the water table is high it may not be possible to strip the overburden down to the ore.

Ore would probably be mined by sluicing and if conditions for stripping are unsatisfactory some overburden may need to be removed in the same fashion.

Each cross section is treated individually and then in conjunction with adjacent sections, so that the upper level of the ore limit chosen is within five feet vertically of the limit in adjacent sections. This results in a somewhat undulating surface and the necessity to include ground which contains only traces or no metal values in the ore calculations.

The ore reserves calculations are set out on the accompanying table. Each hole is assigned an area of influence which may in part be defined by the trend of the lead, rather than be strictly related to the geometric layout of the bores. The areas affected by each bore are plotted on overlays which can be compared with the Mines Department maps Nos. 00, N1, S2, E1, E2 at a scale of 1 chain = 1 inch.

DISCUSSION

The ore reserves and overburden details are summarised in Table 5. Blocks 5 and 6 are not included at this stage due to insufficient information. Table 5 can be compared with Table 1 in my report of May 1966, which summarises the reserves calculated by the Mines Department.

The quantity of tin oxide available in Blocks 1 to 4 is 863 tons, Blocks 5 and 6 from the Mines Department calculations contains 350 tons. Total content of the Blocks might exceed 1,200 tons of tin oxide over a distance of some 150 chains.

Overburden ratios are very high being in the range of 5.5 : 1 up to 11.3 : 1 (this is by volume and includes batter volume).

In Blocks 1 and 2 the overburden in the main consists of puggy drift (puggy and clayey coarse to medium sand) and in places thick beds of heavy pug occur. It is not known what effect the puggy drift would have in a stripping operation but the pug would cause difficulties. However, the existence of this pug may reduce the amount of material to be removed for stable batters, as, and particularly where it occurs in the higher levels, the pug could provide some support for the more unconsolidated materials.

In Blocks 3 to 6 the section consists mainly of silt and sands, some thin layers of pug and puggy drift occur. Here stripping methods and costs would be altered.

Over most of the area a bank of cemented material of the order of two to five feet thick, occurs close to the surface, this should not be a problem, it would be possible to break this material by ripping.

The Scotia Lead might still be regarded as a borderline operation as the high overburden ratio and the probability of water difficulties due to a high water table could make stripping expensive as compared to the value of metal available.

J.K. COUPER
July 1966

(TABLE 5)

SCOTIA LEADORE RESERVES

Block No.	No. of Holes	Area (Acres)	Ore Average Depth(ft)	Ore Volume (cu.yds)	Grade Tin Oxide ozs/cu.yd	Tin Oxide 70% Concentrate Tons	Average Depth Overburden (ft)	Overburden Volume (cu.yds)	Water Volume (60° batter) (cu.yds)	Ratio Overburden to Ore (VOL)
1	28	2.68	17.8	76,917	27	58	71.4	306,000	114,500	5.5 : 1
2	101	8.337	10.7	143,578	66.2	265	91.0	1,202,000	415,500	11.3 : 1
3/4	60	13.166		(472,463)*	38.6*	503*	92.7	1,968,000	888,000	6 : 1
3A	7	2,407	16.3	63,330	18.0	32	100	387,000	169,300	8.7 : 1
5 x										
6 x										

* Incomplete, does not include 8 holes for which data lacking.

x Incomplete.

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