

ABERFOYLE LIMITED  
STOREYS CREEK TIN MINING COMPANY N.L.

CUT OFF GRADES FOR ORE RESERVES 1970-71

ASSUMPTIONS

1. Tin Price = \$30.20 per L.T.U.
2. Wolfram Price = \$48.00 to \$54.00 per L.T.U.
3. Total cost per ton of ore milled = \$17.00 (Both Mines)
4. Factor to convert volumetric tons (mined) to long tons (milled):  
1.11 (S.C.)  
1.01 (A.L.)
5. Mill recovery = 75%

METHOD OF CALCULATION

1. Recovered units of metal required per ton of ore milled  
=  $\frac{\text{total cost per ton}}{\text{price obtained per unit}}$   
= Mill cut off grade (recovered)
2. To convert to mine cut off grade (recovered) multiply by factor in assumption 4 (above).
3. To convert recovered to head grade, divide by mill recovery.

SUMMARY OF CUT OFF GRADES

1. Using prices of Tin: \$30.20 per L.T.U.  
Wolfram: \$48.00 per L.T.U.

(See Table)

		Mill Recovered Grade %	Mine Recovered Grade %	Mine Head Grade %
Storeys Creek	TIN	0.56	0.62	0.83
	WOLFRAM	0.35	0.39	0.52
	Sn: WO <sub>3</sub> = 1 : 15	0.36	0.40	0.54
	Sn: WO <sub>3</sub> = 1 : 25	0.36	0.40	0.53
Aberfoyle	TIN	0.56	0.57	0.76
	WOLFRAM	0.35	0.36	0.48
	Sn: WO <sub>3</sub> = 1 : 1	0.43	0.44	0.60
	Sn: WO <sub>3</sub> = 1 : 2	0.40	0.41	0.54

1916 June, 1921

2. Using price of Tin: \$30.20 per L.T.U.  
 Wolfram: \$54.00 per L.T.U.

		Mill Recovered Grade %	Mine Recovered Grade %	Mine Head Grade %
Storeys Creek.	TIN	0.56	0.62	0.83
	WOLFRAM	0.31	0.35	0.47
	Sn: WO <sub>3</sub> = 1 : 15	0.32	0.36	0.48
	Sn: WO <sub>3</sub> = 1 : 25	0.32	0.36	0.47
3. Factor to convert volumetric tons (mined) to long tons (milled): 1.11 (S.G.)				
4. Factor to convert volumetric tons (mined) to long tons (milled): 1.01 (A.L.)				
Aberfoyle	TIN	0.56	0.57	0.76
	WOLFRAM	0.31	0.31	0.42
	Sn: WO <sub>3</sub> = 1 : 1	0.40	0.41	0.54
	Sn: WO <sub>3</sub> = 1 : 2	0.37	0.37	0.50

METHOD OF CALCULATION

- Recovered units of metal required per ton of ore milled =  $\frac{\text{total cost per ton}}{\text{price obtained per unit}}$  = Mill cut off grade (recovery)
- Mill cut off grade divided by mill recovery = Mine cut off grade (recovery)
- Mill cut off grade divided by mill recovery = Mine cut off grade (recovery)

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STOREYS CREEK TIN MINING COMPANY N.L.

ORE RESERVE ESTIMATE AS AT 1ST JULY, 1971

The ore reserve estimate decreased from 408,300 tons to 377,150 tons this year.

The classification of ore reserves has been carried out on the same system as in previous years. A description of each category is listed below and Table I shows the ore reserves on each level, category by category.

CATEGORIES

Indicated Ore (Categories A, B, C and D)

Indicated ore is ore considered to be of economic grade (based on visual grade estimation) that has been outlined by -

- (i) a development or stope opening on three or more sides
- (ii) making a projection 30 feet beyond an isolated development or stope opening

One exception to this, included in the reserves this year, is ore below 11 level on Footwall Vein (i.e. 12 level blocks) which has been projected to diamond drill intersections. This ore which has been included in category C amounts to 15,200 tons.

Category A. Ore blocks considered to be economical at current prices (Wolframite \$48/unit and Cassiterite \$30/unit, realized prices in Australian dollars) and accessible now at present costs.

Category B. Ore blocks considered to be economical at current prices and accessible with moderately increased costs (Sandfill, development and rehabilitation).

Category C. Ore blocks considered to be economical, but of marginal profitability at current prices or accessible with high costs (Sandfill, development, shaft sinking, rehabilitation).

Category D. Ore blocks considered to be uneconomical at present prices due to low grade or excessive costs.

Inferred Ore (Category E)

Inferred ore is ore projected up to 30 feet beyond indicated ore.

Table II gives a level by level comparison of ore reserve categories as at July, 1970 and as at July, 1971.

Tonnage Variations.

1. Category A - Decrease 4,600 tons.
  - (a) Extraction of ore: mainly on 3, 7, 9 and 11 levels.
  - (b) Reassessment.
  - (c) Transfer from lower categories.
2. Category B - Decrease 4,000 tons.
  - (a) Reassessment.
  - (b) Transfer to higher category.
3. Category C - Decrease 11,500 tons.
  - (a) Reassessment: particularly of blocks below 11 level.
  - (b) Transfer to higher categories.
4. Category D - No change.

No ore has been included in this category this year: cut-off grade is such that all blocks on the reserve are above the economic limit.
5. Category E - Decrease 11,050 tons.
  - (a) An increase in indicated ore, on 9 and 11 levels particularly i.e. transfer to higher categories.
  - (b) Reassessment.

Ore Reserve Plans

The Ore Reserve Plans used in 1970 were updated and the methods used in calculations and drafting were the same as in previous years i.e.

- (a) A plan of each vein system at a scale of 1" = 40' showing areas previously mined, and areas of indicated and inferred ore.
- (b) Tonnages were calculated using a density factor of 13.6 cubic feet per ton and a stoping width of 4 feet for veins whose width was less than 4 feet or a stoping width equal to vein width for veins whose width was greater than 4 feet.

One new Ore Reserve plan was drawn and this shows newly developed veins. These are listed in Table 4.

Summary of Major Reasons for Decreased Ore Reserve Tonnage.

- (1) The major decrease in the ore reserve was due to the deletion of several blocks which were considered to be barren or near barren.

These blocks are listed hereunder:-

- (a) Hangingwall Vein B Split, West Branch: 11,300 tons deleted on 9 and 11 levels.
- (b) Hangingwall Vein B Split: 10,700 tons deleted on 9 and 11 levels.
- (c) Footwall Vein: 12,550 tons deleted on and below 11 level.

A total of 34,550 tons was deleted on this basis.

However, development during the year was sufficient to partially offset the loss of block tonnage resulting from mining and the deletions listed above.

(1) The major increases in the Ore Reserve were due to development and are listed hereunder:-

- (a) Footwall Vein: Increase 3,900 tons due to stope development.
- (b) No.2 Vein C Split: Increase 1,000 tons due to driving on 9 level.
- (c) No.1 Vein South, West Branch Split: Increase 3,450 tons due to rising from 8 to 7 level on a previously unmined vein.
- (d) Hangingwall Vein, Footwall Split, 11 level: Increase 4,200 tons due to driving on 11 level and rising from 11 to 9 level.
- (e) Hangingwall Vein, Footwall Split, 7 level: Increase 3,250 tons due to driving on 7 level. This is a different vein than the one mentioned in (d).
- (f) Footwall Vein, Footwall Split: Increase 5,800 tons due to driving on 6 and 7 levels and rising from 7 to 6 level.

TABLE IORE RESERVES AS AT 1ST JULY, 1971.BLOCK TONS

LEVEL	CATEGORY					TOTAL
	A	B	C	D	E	
ADITS	11,950	2,500	1,150	-	800	16,400
1	16,550	3,550	-	-	2,600	22,700
1A	1,950	2,400	1,100	-	-	5,450
2	6,100	6,050	4,550	-	-	16,700
3	14,750	6,450	450	-	3,400	25,050
4	500	6,050	2,500	-	2,150	11,200
5	-	-	1,900	-	-	1,900
6	7,850	7,500	6,750	-	4,000	26,100
6A	-	-	1,550	-	-	1,550
7	13,650	7,700	2,850	-	6,550	30,750
7A	1,650	-	-	-	-	1,650
7B	1,950	2,550	-	-	-	4,500
8	26,050	10,900	3,850	-	7,350	48,150
8A	-	-	2,400	-	-	2,400
9	58,350	2,950	-	-	11,550	72,850
11	26,850	30,150	4,900	-	12,700	74,600
12	-	-	13,300	-	1,900	15,200
TOTAL	188,150	88,750	47,250	-	53,000	377,150

TABLE II  
LEVEL BY LEVEL COMPARISON OF THE ORE RESERVE CATEGORIES  
JULY, 1970 - JULY, 1971

	A		B		C		E		TOTAL	
	1970	1971	1970	1971	1970	1971	1970	1971	1970	1971
ADITS	12,350	11,950	1,400	2,500	1,150	1,150	750	800	15,650	16,400
1	16,150	16,550	3,150	3,550	-	-	2,550	2,600	21,850	22,700
1A	2,150	1,950	4,100	2,400	1,150	1,100	-	-	7,400	5,450
2	5,750	6,100	7,050	6,050	4,500	4,550	-	-	17,300	16,700
3	16,000	14,750	6,650	6,450	450	450	6,000	3,400	29,100	25,050
4	2,050	500	5,200	6,050	2,450	2,500	1,950	2,150	11,650	11,200
5	-	-	-	-	1,900	1,900	-	-	1,900	1,900
6	7,650	7,850	5,050	7,500	6,200	6,750	2,900	4,000	21,800	26,100
6A	-	-	-	-	-	1,550	-	-	-	1,550
7	16,300	13,650	6,100	7,700	4,400	2,850	550	6,550	27,350	30,750
7A	1,650	1,650	-	-	-	-	-	-	1,650	1,650
7B	1,950	1,950	2,550	2,550	-	-	-	-	4,500	4,500
8	15,300	26,050	9,750	10,900	3,800	3,850	6,250	7,350	35,100	48,150
8A	-	-	-	-	2,550	2,400	-	-	2,550	2,400
9	68,250	58,350	15,450	2,950	-	-	17,200	11,550	100,900	72,850
11	27,200	26,850	26,300	30,150	9,200	4,900	24,500	12,700	87,200	74,600
12	-	-	-	-	21,000	13,300	1,400	1,900	22,400	15,200
<b>TOTAL</b>	<b>192,750</b>	<b>188,150</b>	<b>92,750</b>	<b>88,750</b>	<b>58,750</b>	<b>47,250</b>	<b>64,050</b>	<b>53,000</b>	<b>408,300</b>	<b>377,150</b>

TABLE III

LEVEL BY LEVEL COMPARISON OF THE ORE RESERVE AS AT  
1ST JULY, 1970 AND AT 1ST JULY, 1971

LEVEL	1.7.70 ORE TONS	1.7.71 ORE TONS	DIFFERENCE ORE TONS	REMARKS
ADITS	15,650	16,400	+ 750	Due to reassessment
1	21,850	22,700	+ 850	Due to reassessment
1A	7,400	5,450	- 1,950	Due to extraction
2	17,300	16,700	- 600	Due to extraction
3	29,100	25,050	- 4,050	Due to extraction
4	11,650	11,200	- 450	Due to extraction
5	1,900	1,900	0	
6	21,800	26,100	+ 4,300	Due to development
6A	-	1,550	+ 1,550	Due to reassessment
7	27,350	30,750	+ 3,400	Due to development
7A	1,650	1,650	0	
7B	4,500	4,500	0	
8	35,100	48,150	+13,050	Due to development
8A	2,550	2,400	- 150	Due to reassessment
9	100,900	72,850	-28,050	Due to extraction and reassessment
11	87,200	74,600	-12,600	Due to extraction and reassessment
12	22,400	15,200	- 7,200	Due to reassessment
TOTAL	408,300	377,150	-31,150	

TABLE 4

VEINS RECORDED ON ORE RESERVE PLAN SC-OR-14

- (i) Hangingwall Vein, Footwall Split, 7 level.
- (ii) Hangingwall Vein, Footwall Split, 11 level.
- (iii) Faulted extent of Footwall Vein.
- (iv) Footwall Vein, Footwall Split.
- (v) No. 1 Vein South, West Split.