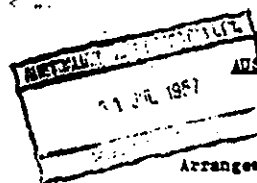




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AUSTRALIAN BLUE ASBESTOS LIMITED

Visit July 2nd - 6th. 1957

Copy for Mr. Broadhurst

Arrangements were made to visit Wittenoom with Mr. Broadhurst because of the following problems.

1. Cost of production has risen sharply during the last few months to about £10 per ton above forecast. The labour force has increased substantially at the same time.
2. Quality of production delivered to Johns-Manville since January 1957 has been well below standard as regards:-
 - (a) + 14 mesh fibre (5% cf. 70% specified)
 - (b) - 100 mesh fines (38% cf. 20% specified)
 - (c) presence of foreign matter, wire, wood etc. in fibre.
3. Mill assay results appeared to be unreliable generally indicating better quality than actual.
4. Production capacity of plant (having regard to limitation on throughput to obtain acceptable quality) appeared to be less than estimated in 1956.
5. Planning of new mill had reached a point where further discussion was necessary.

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I spent one day in Perth and four days at Wittenoom, July 2nd - 6th.

Because of the problems with mill assays, arrangements were made for Mr. R.W. Dibdin, a B.M.D. Research Engineer who is familiar with blue asbestos fibre test methods, to visit Wittenoom during the time I was there. He arrived on July 4th and ~~was~~ remain^d at Wittenoom until July 14th.

The half yearly accounts were completed on July 3rd and this was of assistance in determining cost increases.

(Costs.

It was known that the major cost increase which had occurred was in milling, and this was found to be due to two major causes.

- (a. Additional operating labour £1.8 per ton of fibre.
- b. Additional maintenance stores £3.2 p.t. fibre increase.

(The tons of ore treated and tons fibre produced for 6 M.E. 30.6.57 were each increased 20% over the previous 6 months.

Factors in the increased mill labour cost are:-

- a. Labour force increased from 65 at December 1956 to 95 at July 1957. Mill wages increased by 36% 6 M.E. 30.6.57 of 6 M.E. 31.12.56.

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- b. A.W.U. Award overtime provision covering mill operators amended December 1956. The effect of this is to increase the wages cost of Sunday operation by 25%, equivalent to 5% increase on mill labour costs spread over a week (10/- per ton fibre as compared to 6 M.E. 31.12.56).

Factors in the increased mill maintenance stores cost are:

- a. Impact mill wearing parts changed more frequently to get higher throughput and maintain recovery.
- b. A number of non-recurring charges for replacement of belt conveyors, rod mill motors, cyclones and screens were incurred.

The above factors in detail are:-

Mill Labour Force. The increase in numbers is partly due to increased throughput but the disproportionate increase is attributed to:-

- i. Plant being operated above rated capacity and requiring extra supervision to avoid spillages and blockages.
- ii. Additional operators on hand shovelling, barrowing and cleaning up spillages and at points where conveyors are not provided (trommel fines and rod mill cleaning screen).
- iii. Operators engaged on tailings recovery and retreatment of damp and dirty fibre. The March-June period generally has unfavourable weather conditions.

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- iv. The dust enclosure around the main treatment line makes access more difficult and an additional operator is used.
- v. Higher production and bigger mill stocks of bagged fibre have required extra labour. We have given some assistance in loading trucks with fibre which was not previously the case.
- vi. Greater care in weighing and closing bags, tallying and sampling has resulted in extra operators.

The scope for reducing the extra men engaged was examined in detail with the Mill Superintendent and it appeared possible to reduce the number by about 20, saving £2 per ton of fibre, as follows:

- i. 12 operators engaged on tailings recovery can be dispensed with immediately as we have no market in view for the No. 4 grade fibre being produced. This work may be resumed later. Retreatment will be carried out within the plant.
- ii. Three operators wheeling trommel fines to the tailings dump and three operators shovelling oversize from No. 14 screen can be dispensed with by installing two small conveyors.
Estimated Cost £2,000. Saving £6,000 per annum.
- iii. Three operators controlling cyclone discharge may be replaced by rotary outlet valve installation.
Estimated Cost £1,000 Saving £3,000 per annum.

iv. Ten men are engaged on picking and it seems worth while retaining them because each man picks about 10 tons per shift. The milling cost per ton of ore treated for power and maintenance is about £1 per ton so that the picker saves about £10 per shift, whereas his wages are about £4 per shift.

v. Wages for sampling were £3,500 for 6 M.E. 30.6.57. We can probably get the data we require for control of quality with less testing than at present. This point is being investigated by Mr. Dibdin.

vi. The overtime mill labour cost of operating four weekend shifts is about £2.0 per ton fibre. Overheads are about £10 per ton fibre and these are spread over an extra 26% of production, equivalent to £2.5 per ton fibre. Taking extra power and maintenance costs into account the extra production still appears worth while.

Mill Maintenance Stores. The total cost for 6 M.E. 30.6.57 was £37,400 cf. £16,034 for the previous half year, equivalent to £6.5 per ton fibre and £3.3 per ton fibre respectively.

There were increases in stores costs for every item of mill plant as follows:-

	<u>31.12.56</u>	<u>30.6.57</u>	<u>Remarks</u>
Jaw Crushers	580	1,530	Overhaul
Gyratory	290	1,730	Replacement
Symons	1,430	2,170	Normal maintenance
Rolls	1,750	2,930	Normal maintenance
Trommels	970	1,890	No.5 Cleaning Trommel
Screens	1,000	3,200	Replacement
Kubit & Hammer	3,350	6,320	See note x
Belt Conveyor	2,320	6,590	Replacement 600 ft.
Cyclones	590	2,690	Replacements
Rod Mills	528	2,740	New motors
Electrical	<u>1,050</u>	<u>2,170</u>	Wiring for above
	<u>£13,858</u>	<u>£33,960</u>	

Impact Mills. Last year on lower throughput and using some second hand beaters the life of kubit mill beaters was 15 shifts per set. This year it has been only 6 shifts per set because of higher throughput and with the objective of getting better fibre recovery.

Kubit mill beaters cost £30 per set and at the rate of 3 sets per week the cost for the half year would be £2,300.

Hammer mill beaters cost £16 per set and 5 sets per week are used. Cost £2,000 per half year. The cost per ton treated is higher because the hammer mill capacity is only about half that of the kubit mill.

The remainder of the £6,320 is in liners for the impact mills.

Kubit mill beater cost is $\frac{2300 \times 20}{76000 \times \frac{2}{3}}$ = 1/- per ton ore treated.

There is a lot of waste metal in used kubit mill beaters. There are possibilities of saving by:

- i. Re-using the beaters in a 2nd stage Kubit mill.
- ii. Re-melting and casting the beaters at Wittenoom (costly and doubtful).
- iii. Investigating other materials.

Also the kubit mill beater changing time could be reduced from the present 30 minutes per day by:

- i. Simplifying the attachment of wear bars which are removed for access.
- ii. Providing small pneumatic hoist for lifting beaters, wear bars etc.
- iii. Connecting several wear bars together and hinging them to swing open.

Mr. Dibdin has been asked to examine these possibilities.

Other Costs.

Mining Cost is the same this half year as for last half year whereas it could reasonably have been expected to come down say £1 per ton. However, some extra development charges have been incurred this year and more training of miners has been done.

Cutting out mining at Wittenoom as proposed will reduce power, air and supervision charges but this will be offset by an increase in ore transport cost per ton fibre because a greater percentage of ore will be carted from Colonial Gorge.

Labour Expense per ton fibre has increased from £4.6 to £5.3 because total wages per ton fibre have increased. Some of this is due to the award overtime rate change (5%) and the remainder to trainee miners and extra mill operators.

Labour expense has remained at 17% of wages.

	June 1956	December 1956	June 1957
No. of men	216	262	315
% increase on prev.	-	21	20
Tons fibre	3,290	4,870	5,800
% increase on prev.	-	48	20

Fuel Cost has increased from £4.9 to £5.0 per ton fibre because of freight increase.

Bag Cost has increased from £2.65 to £3.0 per ton fibre because of shortage of washed sugar sacks.

Dust Collection. Mill power cost has increased because of dust collection and will total about £2 per ton fibre with the full scheme in operation. This is being offset slightly by cutting out the rod mills and substituting impact mills with smaller rot-

Drying. Continuous operation of the drier is estimated to cost £2 per ton fibre for fuel. However, the drier should not be required continuously at its full capacity. Each 1% improvement in yield by earlier extraction of fibre is worth £1 per ton of course. (*£14,000 p.a. at present rate*)

Miscellaneous Cost Factors.

1. Foreign Matter. It now appears fairly clear that the fibre production was of poor quality during most of the half year ended December 1956, so that costs per ton fibre were probably higher than reported.

Production since March 1957 appears to have been of better quality as regards percentage of fibre which would have the effect of increasing the cost per ton fibre.

2. Stock Deficiency. Early this year a bagged fibre stock deficiency of 1200 bags was discovered. This has been made up from 1957 production although the deficiency was in 1956. The effect of this is to add £1 per ton fibre to 1957 costs.

A.B.A. COST SUMMARY

	<u>4 W.E.</u> <u>12.6.56</u>	<u>4 W.E.</u> <u>25.12.56</u>	<u>4 W.E.</u> <u>11.6.57</u>	<u>6 M.E.</u> <u>30.6.56</u>	<u>6 M.E.</u> <u>31.12.56</u>	<u>24 W.E.</u> <u>11.6.57</u>
Tons fibre	601	801	983	3290	4870	5800 x
Assay	3.4	3.1	3.3			3.2
Fibre/sq.yd.	0.225	0.208	0.167			0.198
Cost	89.7	87.8	93.6	95	87.9	92.4
Tons milled	6941	10599	13278	40148	63073	76000
1 Mitt. ore	28	25	25	25	30	30
Mill recovery	92	92	86.5	89.8	90.9	89.5
Fibre/shift	8.5	11.7	12.9	7.24	10.5	13.1
Yd/miner shift) Col. Gorge	6.9	9.7	8.16	7.4	7.9	7.30
Mining cost £/tn	29.3	31.4	30.1	28.9	30.8	31.1
Milling cost	24.6	22.1	27.3	25.4	21.7	27.7
Overheads	13.3	11.3	13.0	15.0	11.8	11.8
Freight	14.8	14.4	16.9	14.6	14.5	15.1
Depreciation	5.7	5.8	4.5	6.8	6.2	4.9
Men	233	257	322			
Prev. 4 weeks	200	268	309			
Av. 8 weeks	216	262	315			

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x 6 M.E. 30.6.57