

FILE NAME: Colonial Sugar Refinery (CSR)

DATE: 1957 Aug

DOC#: CSR134

DOCUMENT DESCRIPTION: Govt Inspection Results with Dust Counts -
Wittenoom Mines

The Manager,
Australasian Blue Asbestos Ltd.,
WITTENOOM.

KALGOORLIE. 27th August, 1957.

Dear Sir,

Attached is a copy of dust counts and temperatures recorded in underground working places at your Colonial and Wittenoom mines. Also the results of dust counts taken in the treatment plant.

You will observe that the dust counts underground are very high. These could be lowered by ensuring that a greater volume of air is made to flow through the working places.

The measurements of airflow resulted:-

Colonial Mine:

Exhaust (measured before fan)	68,500cfm.
Total Intake (Main Adit	28,750cfm
No.1 South Drive Fluctuates	(may even reverse)
No.2 South Drive	4,950cfm
No.3 South Drive	27,000cfm
	60,700cfm.

Wittenoom Mine:

Exhaust (measured post fan)	50,625cfm
Intake (through new portal)	32,650cfm

Air is lost through the doors in the following quantities:-

Through door to 1181 Crosscut	3,120cfm.
" " " 1200 Crosscut	6,430 "
" " " 1600 Crosscut	9,100 "
" " " 2000 Crosscut	5,200 "
" " " 2400 Crosscut	6,600 "

leaving 2,200 cfm to ventilate the 2702 and 2704 Stopes.

Yours faithfully,

J. M. F.

DISTRICT INSPECTOR OF MINES.



State Mining Engineer,
Mines Department,
PERTH.

KALGOORLIE. 23rd August, 19

I visited Wittenoom during the period 13th to 17th August and inspected underground working places at both Colonial and Wittenoom mines; made measurements of the major airflows; and inspected and secured dust counts in the treatment plant. A copy of the temperatures and dust counts recorded at these places is attached.

The majority of the ore is now being won from the Colonial mine where about 20 machines are engaged on stoping operations. These machines break the ore on one shift and on the shift opposite to the machines scrapers are used to clean the face and move the broken ore into the passes. The ratio is approximately one scraper party to two machines. Development is carried out by three parties, and appears to be lagging behind. At the Wittenoom mine the operations are now purely on a salvage basis. Six scraper parties are engaged cleaning the broken ore from stopes and this is expected to be completed by the end of the current month.

Air measurements: These were made using a vane anemometer and resulted:

Colonial Mine : Exhaust	68,500cfm.
Intake through Main Adit	28,750cfm
" through No.1 South Drive	Fluctuates (may even reverse)
" " No.2 South Drive	4,950cfm. (Fluctuates)
" " No.3 South Drive	27,000cfm.
<u>Total Intake:</u>	<u>60,700cfm.</u>

N.B. In previous reports No.1 South Drive and No.2 South Drive have been referred to as No.1 Cliff Opening and No.2 Cliff Opening respectively but the new titles are those now adopted at the mine.

The above figures for airflow indicate that a large volume of air is passing through the mine, which is correct, but the path the air takes is variable. At one time the velocity of the air entering through the main adit is very strong, whilst a short time later the velocity is practically negligible and the air must be entering the mine through another opening. The airflow through the No.1 South Drive is very small as an intake and at times has been measured as reversing. In fact there is no positive airflow through the intake openings and no constant path that the air adopt. The cause is attributable to the air currents in the gorges and slo the walls of the gorge. In order to improve the airflow it will be necessary to instal doors, regulators, and fans to induce the required airflow. The attention of the mine management was drawn to this matter, as well as the need for the air to be prevented from short circuiting directly to the main fan without passing through working places.

The fan inducing the airflow is a 60" Axial Flow fan installed at an opening to the mine workings on the eastern cliff face 200 feet north of the main adit.

Wittenoom Mine: Exhaust	50,625cfm
Intake through New Portal	32,650cfm

The discrepancy between Intake and Exhausted air is 17,975cfm. which is probably being short circuited to the fan through the ineffective sealing of old adit openings, and a poor stopping at the fan itself.

For the amount of work proceeding in this mine the 32,650 cubic feet per minute entering the mine is adequate although more air could be made to extend to the bottom of the mine to ventilate the 2700 stopes. The leakage through the doors does improve conditions in some stopes. The losses through the doors are tabulated below:-

Intake through new portal.	32,650cfm.
Lost through door in 1181 Crosscut.	3,120 "
Lost through door in 1200 Crosscut.	6,430 "
Flow along 1180 Drive.	23,100 "
Lost through door in 1600 Crosscut.	9,100 "
Flow along 1180 Drive.	14,000 "
Lost through door in 2000 Crosscut.	5,200 "
Flow along 1180 Drive.	8,800 "
Lost through door in 2400 Crosscut.	6,600 "
Flow along 1180 Drive.	2,200 "

This 2,200cfm flows to the 2700 stopes and joining with the other air eventually reaches the exhaust fan by way of old worked out stopes etc.

Dust Counts: The attached figures appear to me to be very high for the underground workings. Whilst I do consider that attention could be given to improve the air circuit through the mine conditions underground were satisfactory and is evidenced by the wet and dry bulb temperatures. Compressed air-water jets are supplied at the ore passes into which the ore is scraped. During seventy five percent of the time I spent at the Colonial mine water was not available due to the main water pipe to the mine being broken. This caused boring operations to be suspended but did not affect the scraping which continued irrespective of water being available or not. With the instrument, used for taking the sample of dust, there is a tendency, particularly in a dusty atmosphere, for future sections of the glass slide to be polluted. I feel then that the results obtained under these conditions for the dust samples are not a true indication of the dust content of the air.

Treatment Plant: Little visible improvement was evident to the external appearance of the treatment plant. However much is being attempted in an endeavour to improve the dust collection. That section of the plant which includes the Rolla Kubit breaker and screens has been totally enclosed and fitted with exhaust ducts which connect to ducting leading to a Rotoclone dust collector. This dust collection appears satisfactory. Another Rotoclone unit is installed but as yet has not been permanently connected to the roof discharge from the fibre collecting cyclones. An inadequate supply of power was given as one reason. When connected a great improvement is expected. Foundations for a third Rotoclone dust collector have been commenced. It is anticipated this will exhaust dust created at the crushing units inside the plant building.

Plans have been prepared for the construction of a new treatment plant at the Colonial mine. Bulldozers were in operation levelling out fill for the foundation for the site. The high elevation of the entrance to the mine on the gorge face, and the fall into the valley of the gorge should assist in the plant layout. The first construction anticipated is the installation of a conveyor belt in the lower tunnel, to convey the ore from the mine bin, to a jaw crusher, thence to a Symons crusher and to a storage bin. The ore will be carted by trucks from this bin to the treatment plant in Wittenoom gorge whilst the remainder of the plant is constructed.

General: At present the fibre being recovered is in the vicinity of 1000 tons per four weekly period and this from the treatment of 17,000 tons of ore. It is envisaged that a tonnage of 40,000 tons of ore per four weekly period will be attained.

- 3 -

This will call for increased working stopes and development will have to be stepped up. All this will require improved ventilation and possibly the sinking of a ventilation shaft from the top of the hill will be necessary sooner than is anticipated at the moment.

J. M. Fairney

DISTRICT INSPECTOR OF MINES.

44, 219

DATE	MINE	PLACE	COUNT	TEMPERATURE		REMARKS
				DRY	WET	
11-8-57	Colonial Mine	5040 Stope h.v. Section (Cutting pillar)	650	75	61	Working. 20 feet. Fan assisting vent.
		5040 " h.v. " (Cutting pillar)	600	74	59	Working. through air.
		5040 " Stope drive West.	580	71	60	Scraping (tizer on opposite shift) - on to be installed.
		5010 " h.v. Section	1000	75	64	Scraping. Last sample taken in middle of Stope during scraping operation. through air.
		5030 " h.v. "	1000	76	59.5	Working. through air.
		5040 " h.v. "	1000	74	67	" " "
		5040 " h.v. "	1000	79	70	" " "
		5020 Chute.		74	59	Working. into mine. through air. using. Not using air-water spray.
		5020 Stope h.v. Section		80	72	Working. through by rock of water.
		5020 " Stope drive West	1000	80	67	Working. stopped - no water. Vent. by 16" F.P. fan
		5010 " h.v. Section		75.5	62	Machine idle. no water. through air.
		5010 " h.v. "		74	59	Machine idle. no water. through air.
		5050 " h.v. "		77	70.5	" " " " " "
		5050 " h.v. "		79	65	Machine idle. no water. Fired at crib time.
		5050 " h.v. "		80	72	Scraping. holes. Band end. Secondary ventilation required.
		2050 Chute.		74	60	Scraping operation. based on unloading. ropes.
		No. 3 Drive South. Stripping.		65	51	Working. (chute) - strong air flow (intake from horse).
11-8-57		5020 Chute.	750			Working. from chute in through air. by.
		No. 3 Drive North 2050 Chute.		75.5	59	Preparing to clean up by bagging (mech.) the broken ore from rise. through air.
		No. 3 Drive North and Stripping.	490	78	62	Bagging (mech.) the stripping. Vent. by fan. Equipped with 1 ton, opening from 5,400 ft.
		No. 1 Drive North 2050 Chute.	900			illing trucks. Ore hung up.
		No. 1 " " 2050 "	1000			" " Ore berred down.

TABULATION OF DUST COUNTS

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DATE	MINE	PLACE	COUNT	TEMPERATURE		REMARKS
				DRY	WET	
AUSTRALIAN ELIUS ANDERSON LTD.						
16 - 8 - 57	Treatment Plant.	Nos. 1 & 2 Ross Chain Reader from ore bin.	420			Operators platform. High dust count probably due to dust discharged from top of plant.
		No. 2A. Conveyor belt.	250			At the pickers positions.
		Feed to Blake Jaw Crusher.	360			Operators platform.
		Jacques Crusher.	540			Crusher stopped & sample taken at operators platform.
		Vicinity Traylor crusher.	730			Men employed cleaning up around here.
		Discharge from Symons to belt conveyor (A.10)	1000+			
		Vicinity of Gobra Mill.	1000+			
		Operating platform for Rolls and screens etc.	480			This section totally enclosed and fitted with ducts leading to cyclones.
		Operators platform vicinity of Rubit breaker, screens and fibre collection.	410			This section also enclosed and connected to dust collection unit.
		Vicinity of Nos. 3 & 4 Ironwols.	440			
		Bagging section	360			Weighing bag.
		Bagging section.	1000+			Two men working here filling bags.
		Centre of fibre storage room.	210			Bags being loaded onto truck outside
		Outside plant. Vicinity of	100			
		Plant office.				
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J. M. Fairley
DISTRICT INSPECTOR OF MINES.