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State Mining Engineer,
Mines Department,
PERTH.

KALGOORLIE.
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Ventilation - Australian Blue Asbestos Mine - Wittenoom.

A visit was made to the asbestos mine operated by Australian Blue Asbestos Ltd. at Wittenoom, and underground workings and treatment plant inspected. The attached sheets give the tabulation of dust counts and temperature readings recorded.

In conjunction with the ventilation officer of the mine an air survey was completed and the accompanying plan gives direction and volume of air flow, temperature readings, and dust counts recorded in the air channels.

The following points engaged my attention and were discussed with the mine manager, Mr. Paul Thomas.

Underground.

A fair volume of air (13,560 c.f.m.) enters the mine through the South haulage adit on the upper seam but after flowing approximately 300 feet this volume diminishes to 11,560 c.f.m. and after another 400 ft. the initial volume is diminished to 6,250 c.f.m. less than half the volume which enters the mine at this particular entrance. Brattices in poor condition and faulty stoppings allow this good air to escape through old workings and short circuit to the exhaust fan. Some of the doors used as stoppings and regulators to the flow of air are of poor construction, and buckled considerably due to concussion from explosions during firing. Some doors need equipping with a self-closing device e.g. strong springs, especially noted was a door near the battery charging station. (Mr. Thomas in reply to this suggestion said that a self closing device had been fitted but had since disappeared and suggested theft.)

On the lower seam 27,260 c.f.m. enters the mine and through rise-rise connections flows to the upper seam, thereby ventilating the workings on the northern side. This air is exhausted by the main exhaust fan.

Intake air.	Upper Seam	13,560	c.f.m.
"	Lower Seam	27,260	
Total Intake air		40,820	c.f.m.
Exhaust Air (Measured past fan)		39,930	c.f.m.

Since it is necessary that the asbestos when mined should not be wet the amount of dust particles in the air is high. Especially is this noticed where the ore is screened into lading pockets by scraper hoists. The hoist operator is subjected to this. But Respirators are on order and will be issued to the hoist operators when received.

Venturi ducts and cloth. It was noted that 6" diam. steel pipes were in use for considerable distances from the fan. These pipes are very satisfactory in resisting damage due to firing, but, the loss of efficiency by the fan due to friction loss is high, and the decrease in volume of air supplied, is great. Therefore the use of the 6" diam. steel pipes is unwarranted. (Mr. Thomas says they are endeavouring to secure 10" diam rubberised venturi cloths.)

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Venturi ducts and cloth were not suspended to the walls and most cases were lying on the floor of the workings. Cloths were not up to the working face and in no case were they nearer than 15 ft. and this distance varied, being up to approximately 70 ft. in the No. 4 Drive on the Upper Seam.

The selection of the position of the electric fans, used in ventilating the working face in development ends, in some cases was poor. In the particular case of the 2 L Drive the fan is ahead of an opening to the upper seam and thus causes the air to be recirculated.

The ventilating of stopes requires attention. The use of secondary mechanical ventilation is urged where one section of the stope is advanced more than 10 ft. past the general face of the stopes.

Ventilation Officer.

At the time of my visit the surveyor was filling the position of ventilation officer. The appointment of a permanent officer is a necessity. Ventilation on this mine needs more supervision as evidenced by the incorrect selection of fan sites as instanced above. The recording of temperatures and action necessary when they are found to be too great, is of great importance, and if possible, dust samples should be taken. More supervision should be given by shift-bosses to the necessity for keeping venturi cloths up to the face, and the co-operation of the miners also obtained.

Treatment Plant.

By comparing the results of dust samples taken during this visit with those taken by Mr. Lloyd in September 1950, it will be seen that conditions have improved. The improvement is probably due to the installation of a Farman dust collector (wet), and fans which exhaust to atmosphere above the mill building.

The area in the vicinity of the treatment plant appears very dusty and is probably due to the exhaust, from the fans in the plant, drifting down or being forced down by the wind. (The situation of the plant in respect to the walls of the gorge may cause the wind to bear down.) It was suggested that more lengths of ducts would carry the exhaust dust higher and in some measure eliminate the dust nuisance.

Changerooms.

Several drawings of changerooms as in use in K-lecorlie were obtained and supplied to the mine superintendent. They were discussed and information required was supplied. The present changeroom appears to be too small for the number of men using it and another building will be required. The selection of a site for the new changeroom seems to be the major problem.

General.

On examination of the dust samples, both from underground and the treatment plant, the amount of fibre visible is very small. Some samples appear to have no fibre present, and an estimate of the percentage of fibre present in the air would be very difficult to make.

The development faces are taken over an average of 7 ft high by 8 ft. wide and contain only a total of 2 inches of fibre in a height of 18 to 24 inches. This gives about 2.5%, by area, as asbestos.

In stope faces taken 3 ft. 6 inches high and 8 ft. wide the percentage of fibre rises to 5%.

Whilst boring, the machine miner endeavours not to bore the fibre and thus he is subjected to very little attack by the fibre. The country rock surrounding the fibre is considered variously as a ferruginous quartzite or ferruginous sandstone, both of which rocks have a high silicon content.

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The high temperatures measured at working places in the mine can be attributed mainly to two factors.

(1) The lack of the use of water on the walls, backs, and faces, of working places, and on the broken dirt either left or being bogged.

(2) The neglect by miners to keep the ventilator cloths up to the working places, and a lack of supervision in this matter.

It is felt that ventilation conditions generally would be improved by attention to the above matters. The greater use of water in the mine could be achieved if a process of fibre-drying was incorporated in the treatment plant.

Since my visit to the mine, The Senior Inspector of Mines has been advised that Mr. K. McMahon has been appointed Ventilating Officer attached to the company. It is hoped that this appointment will have the effect of improving supervision, and installation of ventilating appliances.

G. M. F.

ASSISTANT VENTILATION INSPECTOR OF MINES.