

K. J. COOKLIE



J. C. 47.

4th May, 1960

MEMO:

Dr. A. King,
Director,
Tuberculosis Control Branch,
17 Murray Street,
PERTH

Periodical chest x-ray examination of workers in the Asbestos industry during 1959 disclosed no new cases of Asbestosis, although there are several men whose x-rays must be considered suspect. Those whose x-rays are considered suspicious of Asbestosis will be examined again in 1960.

The length of exposure of workers contracting Asbestosis or Silicosis is much shorter than comparably employed men in the gold-mining industry and the extent of disease is greater. The small number of workers and the extremely high labour turnover make this fact obvious.

There are a number of puzzling and disquieting features. In several instances Asbestosis has been diagnosed in underground workers although the disease had been considered peculiar to the Mill. One member of the train crew underground, not usually at great dust risk, has what appears to be a mixture of silicosis, Asbestosis and possibly Tuberculosis. Another underground worker has what appears radiologically to be pure silicosis, but his sputum contains asbestos bodies.

The Mines Department has permitted me to inspect the results of their periodical dust counts. It is obvious that the new Mill is a great improvement on the old Mill and that conditions underground have also improved. It is too early to tell whether the new Mill will be responsible for fresh cases of industrial chest diseases or not.

The disquieting features about the dust counts are two:

- 1) The rock mined is apparently highly silicious and therefore particularly dangerous. The dust counts are on a par with figures for the old mines. A higher standard should be set in view of the high silica content and the additional Asbestosis risk.
- 2) The dust counts are of particles only, the same instrument is used for detecting silica particles and asbestos fibres

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The dangerous particle size in Silicosis is less than 5 microns, in Asbestosis the dangerous fibre length is between 20 and 40 microns. The dust counts are therefore of little value unless they show the number of fibres per cc within that range. The Konimeter in use in this State is not regarded as an effective instrument for dust counting in the Asbestos industry in Canada. A Midget-Impinger is used. It is stressed that fibres over 10 microns in length are of particular importance and whilst the total dust concentration should be below 10 million particles per cubic foot of air, The maximum fibre count (ie over 10 microns in length) permitted, is 1 million fibres per cubic foot of air.

Many workers remain at Wittenoom for less than one year and less than 50% of the work force, at any one time, have been continuously employed for more than four years. A very rough estimate of the percentage of workers, with over 4 years exposure and suffering from industrial chest disease is 12% (estimated by expressing the number of workers, detailed below, as a percentage of the number of workers examined in 1959 whose initial mining certificate was issued prior to 1955.)

In recent years it would be unusual to diagnose Silicosis in a gold miner with less than 10 years exposure. E.g. in 1958, there were no new cases of Silicosis in the 0-10 year group, 20 cases in the 10-20 year group and 29 cases in the 20-30 year group. Expressed as a percentage of the total number of mine workers this gives an annual incidence of Silicosis of approximately 1%. These percentage incidences are not very accurate and are not really comparable, but they do illustrate the grave hazard which existed at Wittenoom compared with the general mining industry.

The following are the particulars of cases of industrial disease detected at Wittenoom since 1958. The list is complete as far as our records go, but there may be a few cases diagnosed elsewhere who were not examined under either of the relevant Mining Act and therefore not brought to our notice.

Some newly diagnosed cases of Silicosis are not included because of previous lengthy gold-mining history which could reasonably be held responsible.

There have also been a few cases of workers developing pulmonary tuberculosis without Silicosis or Asbestosis, but their number does not suggest any particular hazard at Wittenoom, other than that associated with mining in general.

Five Mill workers have been diagnosed as suffering from Asbestosis since 1958 and one under ground worker. Their average

7 exposure to asbestos dust was four years.

Three workers with a mixed gold and asbestos mining history have developed silicosis and asbestosis. Four workers with a similar mining history have developed pure silicosis. Of these seven workers the average exposure to dust including all mining was 12 years and excluding previous mining (which is not entirely justifiable) was 7 years.

Conclusion:

The percentages quoted above (i.e. 12% of asbestos workers suffering from industrial chest disease with over 4 years exposure compared with 4% of gold miners with over 10 years exposure) are crude and probably paint too black a picture of the conditions which existed. With a shifting working population it is almost impossible to work-out accurate incidences. However, the very high labour turnover at Wittenoom is necessarily associated with a short average exposure per worker and many workers at risk were protected simply because their exposure time was too short. At least one of these short-term workers has been diagnosed as suffering from Asbestosis many years after he left the industry.

The problem is essentially one of ventilation conducted with a proper appreciation of the relative importance and medical significance of the asbestos fibre as distinct from the silica particle. Despite the many marked improvements which have been effected at the Mine and Mill, I am not satisfied that the risk of industrial chest disease has been eradicated or even brought to par with the risk of Silicosis in the gold-mining industry. The prevention of industrial chest disease is a medico-engineering problem and requires close liaison between the Mines Department, who are responsible for ventilation and dust counts, and the medical officers, who are responsible for the periodical clinical and chest x-ray examinations.

CHEST PHYSICIAN AND
MINES MEDICAL OFFICER.