

To MEMO FOR RECORD

Date December 11, 1970

From Jon L. Konzen, M.D.

cc: G. E. Devitt - Tower 11

Subject BERLIN ASBESTOS EXPOSURE

This memo is intended to summarize what is known to date concerning the scope of asbestos exposure at the Berlin, New Jersey, plant, the possible health effects on the workers, the stage of in-plant environmental control, other assessments of the physical condition of exposed workers, disposition of workers who demonstrate physical findings compatible with excessive asbestos exposure and interim measures of exposure control until good environmental control can be achieved throughout the plant.

Periodic chest x-rays made over the years when read as individual films do not tend to demonstrate excessive asbestos exposure.

Limited environmental sampling studies performed by the insurance carrier demonstrated at best a borderline exposure to all dust including asbestos, as well as other ingredients in Kaylo.

In September 1968, a private industrial hygiene consultant carried out a survey of the in-plant atmosphere. At the same time he did air pollution studies. The result of this sampling study using impinger techniques did not demonstrate a serious dust exposure except at the batch mix area, the sawing stations on the integrated saw line and the band saw operation. The impinger technique basically samples for all dust which was the accepted method at the time, although people realized the weakness of this system. At that time it was recommended that employees in these areas should wear an appropriate dust respirator.

In February 1969, a meeting was held at the Berlin plant with representatives of the Medical Service, Environmental Control, Plant Management, Plant Engineering, Toledo Engineering, the Industrial Hygiene Consultant and Ventilation Engineers from Johns-Manville. The ventilation requirements were extensively reviewed on site and recommendations as to control methods were discussed at length.

In June 1969, the same industrial hygiene consultant again surveyed the in-plant atmosphere and sampled both by the older impinger technique as well as by a limited number of samples taken using the "new" membrane filter method. The membrane filter technique checks for actual fibers, and this is how the health guideline is now set. It tends to be more specific for asbestos than the old "impinger" method. The results of this sampling again suggested and

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isolated excessive exposure locations and personal protective devices were recommended for those areas.

In August 1969, three possible cases of asbestosis were investigated and well documented by a physician experienced in chest diseases. The result of these work-ups demonstrated asbestosis in one individual. Previously, the only known case of asbestosis in the Berlin plant was in a man with a very atypical exposure.

The periodic x-rays taken during 1969 which demonstrated abnormalities, as read by the local Berlin radiologist, were forwarded for review by another x-ray consultant at the School of Public Health, University of Michigan. Prior to this, for a number of years they have been read by the Institute of Industrial Health, University of Michigan. The results of these x-rays were reported in February 1970, and suggested an increased frequency of somewhat non-specific findings which, in itself, could not rule out possible pulmonary changes from asbestos exposure. The films, approximately forty in number, demonstrated approximately nine films which were compatible with asbestos over-exposure.

An epidemiological study based on the x-ray readings to date, suggest an increased incidence of radiological pulmonary changes in employees exposed to the manufacturing areas of the plant. Similar changes were not noted in unexposed employees.

A comprehensive industrial hygiene study by an independent industrial hygiene consulting firm (not the original industrial hygiene consultant), in July 1970, demonstrated several additional areas of excessive asbestos exposure. This study also evaluated the partially completed dust ventilation system and recommended improvements.

As a result of meetings held in 1968 and 1969 with the Industrial Hygiene Consultant, members of the Johns-Manville Ventilation Group, our Corporate Engineering, Plant Engineering and Plant Management, it was expected that satisfactory in-plant environmental control based on the old threshold limit value: at 12 fibers/cc, greater than 5 microns in length would be attained by early 1970. Completion of this work was delayed and therefore the extensive industrial hygiene survey which was planned for April 1970, was also put off. In June 1970, after it was learned that the threshold limit value was to be lowered to 5 fibers/cc, greater than 5 microns in length, coupled with the medical evidence of possible pulmonary changes from excessive asbestos exposure, a comprehensive industrial hygiene survey evaluation of the ventilation installed to that time was carried out. It was felt that this evaluation would assist in determining if the proposed and partly installed ventilation system would be adequate to meet the needs of the new threshold limit value. It would

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also permit us to determine if personal protective measures would be required until total environmental control was achieved within the plant. This was the industrial hygiene survey that demonstrated the additional exposure hazard from asbestos.

A meeting in July at the plant attended by Plant Management, Plant Engineering, Toledo Engineering, Corporate Environmental Control and Corporate Medical determined that in-plant environmental control which would meet the new criteria could be achieved by late 1970 or early 1971. Medical evaluation based on the exposure levels, length of time it would take to install an effective comprehensive respirator program and the personnel problems generated by such a program, dictated the best course of action would be not to install the respirator program but to complete the ventilation work already started. The areas would then be sampled upon completion of the installation to determine compliance with the standard of five fibers per milliliter.

In those areas where the engineering was in process, the design was to be reevaluated based on the requirements of the new threshold limit value.

In work locations which had been newly identified as excessive asbestos exposure areas, assessment by plant and corporate engineering was to be carried out to determine the necessary ventilation, cost and timing to control the exposure.

In mid-October, a progress meeting was held and included representatives from Corporate Engineering, Plant Management, Plant Engineering and Medical Services. At this meeting the revised scope for the ventilation system and its cost was reviewed. It was determined that the plant would request \$50,000 for advanced engineering money in order to get the project moving. The actual request was for \$29,000 but this was not approved at the group level.

A subsequent review by Messrs. Peck and Grant requested a review with considerations for possible cost reduction. Paul Scheuerle was requested to develop a priority for possible changes in operation which would eliminate some of the dust producing conditions and also to establish a priority in which changes could be made, as well as a step-wise procedure for installing the necessary control equipment. Mr. Scheuerle attempted to carry out this request. It has been suggested that one pouring line be phased out. In the event that additional production capacity would be needed, they would activate the #3 pouring line which is equipped with some control equipment. Number 3 pouring line has never been sampled since it was never in operation during any of the sampling periods.

In early November, Mr. Devitt reviewed the step-wise procedure proposed and does not feel that this step-wise method of control will satisfactorily prevent

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under exposure to our workers. It is his professional judgement that the entire package of proposed changes must be installed if control is to be achieved in a reasonable time period.

It has now been determined that if the funds were immediately allocated, it still would require nine to twelve months to complete the installation of the entire package.

At this time all of the ventilation control equipment proposed and funded in 1969, has been installed with the exception of those areas which were put on hold when it was determined that they could not possibly meet the required control parameters.

Shortly after the first of the year, Mr. Devitt and I will go to Berlin and review location by location the asbestos exposure and will use as guidelines the July 1970 sampling study for operations which have not changed appreciably. In areas where it is believed that better control has been achieved, Mr. Devitt will carry out new sampling studies. Areas which have been changed because of plant alterations and new processes will be sampled again. On the basis of this sampling we will recommend to plant and higher management that a personal respirator program be installed in areas which demonstrate excessive exposure.

It is understood such a program will require mandatory wearing of respiratory protection which will be vigorously enforced by plant management. Also, this respirator program will have to be supported by an effective respirator maintenance program. Such a program may require the part-time services of one individual who will care for and service the respirators.

This respirator program is to be only an interim measure to protect the health of individuals working in asbestos exposure and should in no way influence the vigorous activity necessary to install good industrial hygiene ventilation control.

In-plant monitoring of personnel by the plant physician on a yearly basis must be continued and expanded. In those cases where the yearly evaluation is outside the scope of the plant physician such individuals should be carefully worked up by a chest physician and his recommendations followed.

The annual chest x-rays, in addition to be read by the local radiologist, are to be sent to Dr. George Wright in Cleveland, who will read the films using an international pneumoconiosis classification. It must be remembered that such a surveillance program is "after the fact" for the individual concerned but serves as a warning sign if positive cases are noted. It also will permit a prompt recognition and appropriate handling of any cases which are discovered.

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