



INSULATION HYGIENE PROGRESS REPORTS

FROM THE INSULATION INDUSTRY HYGIENE RESEARCH PROGRAM

Irving J. Selikoff, M.D., Program Director

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PLAINTIFF'S EXHIBIT

DOW-1568

Court of Appeals Orders Review of Asbestos Standard

In a historic decision on April 15, 1974, the U.S. Court of Appeals for the District of Columbia ordered the Secretary of Labor to review portions of the Asbestos Standard promulgated on June 7, 1972. The ruling, written by Circuit Judge McGowan, was in response to a petition filed by the AFL-CIO urging reversal of the existing standard.

The Court ruling, which was rendered in a forty-one page decision, contains the following provisions applicable to insulation work:

1. In those industries where a dust level of two fibers/ml is feasible, it should be implemented *before* 1976. Here, the court took note of testimony of Duncan Holaday of the I.I.H.R.P., industry witnesses and others that a two fiber standard could be implemented in commercial and industrial insulation work within two years (of April, 1972).

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Dr. Irving J. Selikoff, Director of the Insulation Industry Hygiene Research Program, answers questions regarding health effects of asbestos in discussions with Local 93 members David Patterson, Mario Di Rocco, Richard Younkman, Thomas Hughes, Thomas Smith, William Frazier, Edward Cisek and Mike Harnsworth.

Walter Hanna, Business Agent of Local 93, provides Dr. Henry Anderson of Mount Sinai with details of his past medical history.

Local 93 Exams Show Continuing Shipyard Problems

Examinations of Local 93 (Philadelphia Naval Shipyard) of the International Association of Heat and Frost Insulators and Asbestos Workers conducted by staff physicians of the Mount Sinai School of Medicine reveal asbestos problems still exist in shipyard work.

While much insulation material now has no asbestos content and the use of asbestos is required to be much better controlled, asbestos material in use by other trades poses a continuing problem. Here, asbestos cement and dust

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PURPOSES OF THE INSULATION INDUSTRY HYGIENE RESEARCH PROGRAM

1. To develop improved methods for minimizing exposure of insulation workers to dusts and fumes encountered in their work.
2. To disseminate knowledge of these improved methods of dust control wherever they may be applied advantageously and to offer cooperation, advice and assistance toward their universal adoption.

Dust Control Important in Alaskan Pipeline Work

Asbestos Workers from all parts of the United States will soon begin work insulating approximately 400 miles of the 48-inch diameter Alaskan pipeline. Additional insulation work will be required in pumping stations and tank farms. The work will commence this summer and continue for three years.

The insulation material to be used on the pipe will either be fibrous glass or rigid polyurethane foam. Little or no asbestos-containing materials are called for in the specifications.

While asbestos is not to be used, each of the two materials contemplated for use has been shown to produce cancer in animals. Because of the remoteness of operations, the extreme weather and working conditions, and the urgency to complete the job, special efforts are planned to assure that adequate precautions are taken to protect the health of insulators.

All of the procedures appropriate for dust control in asbestos work should be applied here—exhaust ventilation on all portable and stationary power tools, down draft cutting tables for hand saws, adequate clean-up procedures in fabrication shops, and use of disposable respirators, if warranted.

The possibility that dust from polyurethane foam insulation might be hazardous was discussed previously in Vol. 4, No. 2 of IHRP. In view of the possible extensive use of this material for insulating the pipeline, it is appropriate to review the available information on its possible health effects.

Workers who are sawing or abrading this material may be exposed to plastic dusts, dust from added fire retardants, dust from reinforcing materials, gases from unreacted TDI or MDI (See Vol. 5, No. 4) trapped in the insulation, and a mixture of decomposition products produced by heat from cutting or abrading operations.

No studies have been reported on effects on humans exposed to dusts from polyurethane insulation. However, the Institute of Environmental Medicine at New York University has conducted animal experiments which were designed to duplicate conditions of use.

Two groups of rats were exposed for

30 days to dusts and gases produced by grinding polyurethane insulation. For the low exposure group, the atmospheric concentration of dust was 3.6 milligrams per cubic meter (mg/m^3) and for the higher group it was 20 mg/m^3 . The Threshold Limit Value for "nuisance dusts" is 10 mg/m^3 . Thus, the "low" group was exposed to about one-third and the "high" group to about twice the dust concentration which is considered acceptable for long term, daily, occupational exposures.

Considering the brief exposure time and the relatively low dust concentrations, the effects on the animals were disturbing. One rat out of 39 in the lower exposure group and 9 out of 45 in the higher group developed emphysema. In addition, one lung cancer was found in each group, and one liver cancer in the "low" group.

The investigators concluded that polyurethane insulating materials must be considered a serious industrial health hazard.

In a 1972 publication by Dr. Mearl Stanton of the National Cancer Institute it was shown that fibrous glass and other inorganic fibers could produce mesothelioma when implanted into the pleura of rats. Subsequent investigations by the N.C.I. scientists have confirmed these results and a detailed description of their work was presented at the Lyon, France, Conference on the Biological Effects of Asbestos.

They concluded that the carcinogenicity of asbestos and fibrous glass (in their animal experiments) appeared primarily related to the structural shape of the materials, rather than to their physiochemical properties.

Of special concern here are fibers of a diameter less than 3-5 microns that may be inhaled and deposited in the lower spaces of the lung.

In commenting on the use of either of these materials on the Alaskan pipeline, Dr. Selikoff, Director of the I.I.H.R.P., stated, "We have learned the techniques and engineering controls that will allow asbestos to be used safely. These should be applied with equal vigor to the use of rigid polyurethane and fibrous glass."

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Asbestos Dust Does Not Respect Jurisdictional Lines

Local 93 Exams

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released during application of fire brick and other materials in boiler insulation by members of the Boilermakers Union may expose a variety of trades, including insulators. Local 93 members report this to be one of their most significant sources of exposure.

Asbestos dust in shipyard air certainly does not obey jurisdictional craft lines. In a British paper on the incidence of mesothelioma in shipyard workers, it was stated by Dr. F. Whitwell that, "the exact nature of their

Mano Di Rocco is examined by Dr. Alf Fischheim of Mount Sinai.



Frances Perez and Janet Kaffenburgh assist in the Local 93 examinations.



Deaths—Local 93, IAHFIW

Jan. 1, 1967—Dec. 31, 1973

Total deaths—all causes.....18

Total cancer.....10

Lung cancer.....4

Pleural mesothelioma.....2

Cancer stomach, colon.....2

All other cancers.....2

Asbestosis.....4

All other causes.....4

work was much less important than the fact that they worked in shipyards."

A letter has recently been sent by Walter Hanna, Business Agent of Local 93, to Michael Wood, Assistant to the President of the Boilermakers, alerting that union to the possible risks associated with their shipyard asbestos exposure.

The concern of Local 93 members for possible effects of their asbestos exposure is real. A review of the records of this Local reveals that more than half of the deaths of their members during seven years have been from cancer, and an additional 22% from asbestosis. (See Table).

Joan Oswald draws blood from William Frazier for laboratory analysis.



Review of Asbestos Standard Considered

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2. The provision that dust monitoring records be maintained for only three years was deemed inadequate in view of the need for such information in assessing the health effects of asbestos at different exposure levels.

Each of the above aspects of the standard was explicitly remanded to the Secretary of Labor for reconsideration and modification.

Furthermore, the Court ruled that certain provisions of the standard be interpreted in a manner to provide greater protection for insulators and other asbestos workers. It was specifically stated that the engineering controls and other dust control procedures mentioned in the standard be applied before dust concentrations are shown to be excessive.

It is *not* necessary that a dust count show levels above five fibers/ml before such items as in-bag mixing of cement, exhaust ventilation on *all* hand-operated or power-operated tools be utilized. The interpretation of the three-judge court is that these are now mandatory any time asbestos even *might* be released in excess of the exposure limits.

With respect to monitoring, the judges ruled that monitoring of workplaces must be continued periodically to assure that compliance with the standard is maintained even though initial dust counts showed levels lower than five fibers/ml.

Two principal contentions of the AFL-CIO in its suit were based upon the provisions in the Occupational Safety and Health Act that "The Secretary (of Labor) . . . shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity . . ." and that the National Institute of Occupational Safety and Health shall develop criteria documents that describe such safe levels of exposure.

The position of the AFL-CIO was: 1. that the Department of Labor *must* accept the recommendations of the National Institute for Occupational Safety and Health as to what constitutes safe exposure limits and can only take into account the feasibility of implementation in setting a standard, and 2. that the economic effect on an industry cannot

be considered in determining the feasibility of a health standard.

Each of these contentions was rejected by the Court as too restrictive or not consistent with procedures otherwise specified in the Occupational Safety and Health Act.

In the latter instance, however, Judge McGowen ruled that economic considerations of laggard employers *cannot* be used to delay implementation of a standard which is feasible for the rest of the industry.

The Court also rejected the position of labor that medical records be supplied only to a physician of the employee's choosing or to NIOSH. Thus the stalemate on employer-sponsored medical examinations for insulators remains. However, the position of the Department of Labor in this matter is that while the employer *must* offer such examinations, it is *not* required that an Asbestos Worker take them.

The judges also ruled that the specification of the present labeling provisions on asbestos products fell within the scope of the Secretary of Labor and need not be reviewed. In summary: While not granting all points in the AFL-CIO suit, the Circuit Court upheld in principle a major contention of labor on several items—that exposure be reduced to the lowest feasible levels as rapidly as possible.

The ruling of the Appeals Court comes at a time of increasing pressure on the Department of Labor for a review of the current Asbestos Standard.

Since the Department of Labor hearings were held on the standard, additional significant information on the scope of asbestos health effects has appeared which must be carefully considered and evaluated.

In their recommendation that a two-fiber standard be implemented within two years, NIOSH gave considerable weight to the existing British standard and the data that supported it. That standard, proposed by a committee of the British Occupational Hygiene Society and adopted by the British Factory Inspectorate, was based on the view that a lifetime work exposure of two fibers/ml would give rise to no more than a 1% risk that an individual would develop critical signs of asbestosis. Parenthetically, the committee noted that these data were *inadequate* to set a

level that would protect workers against cancer.

In proposing their standard, the British committee relied on the only substantive evidence existing at that time (1966-67) relating asbestos disease to exposure levels. That was data supplied to them on dust counts and clinical signs of asbestosis in the current work force of a large British asbestos textile factory.

Unfortunately, at the time of review only 13 individuals in the study group had longer than 30 years from first exposure to asbestos, and the majority had less than 20 years. As asbestos-associated disease seldom appears before 20 years and often after 30 years, this was a limitation of the BOHS study and was recognized as such by the committee.

Recently, new data have been published, involving many of the same individuals in the initial British study, suggesting that more asbestos-associated disease may be present than originally was thought to be the case. This increase could be the result both of the greater time for the disease to develop in the population and of the use of the recently developed ILO/UC standard classification procedure to identify X-ray evidence of asbestosis.

At the International Conference on the Biological Effects of Asbestos, held during October, 1972 in Lyon, France, it was announced that a review of the British standard would be considered.

Additionally, new information is being developed in the United States to identify groups, exposed at levels lower than the current Asbestos Standard, in which asbestos disease has been found. Furthermore, data published since the hearings on the Asbestos Standard substantiate that presented by I.I.H.R.P. personnel that insulation workers' exposures are, on a time-weighted average, considerably lower than five fibers/ml, thus raising serious questions over the efficiency of the current standard.

Prior to the Court of Appeals decision, the Department of Labor was considering changes that might be incorporated in a revised standard, particularly the feasibility of placing greater reliance on specified work practices rather than on periodic monitoring to assure a safe workplace.

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