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IN CONJUNCTION WITH JOHNS-MANVILLE
ASBESTOS LITIGATION

CLIFFORD L. SHECKLER
HISTORY AND THE J-M ASBESTOS STORY

My first encounter with the administration of safety and health programs in Johns-Manville was in 1952. I assumed the position of Safety Engineer for the Manville Plant, Research Center and Data Processing Center complex. Most of my activities to 1957 were related to safety engineering. In 1957 I became Supervisor of Safety and Health for the Manville complex. I then became involved in developing and administering the health programs in addition to safety programs.

In 1959 I became Corporate Manager of Safety and Health. My location was moved to NYC and I replaced Hugh Jackson who assumed other unrelated responsibilities. I worked directly for Dr. Kenneth Smith, Corporate Medical Director. My responsibilities included the following:

Administration of Corporate domestic and informational Divisions Occupational Health, Industrial Hygiene Engineering, Accident Prevention, Toxicological, workmen's compensation and unemployment compensation programs.

We were engaged in extensive activities in all of these fields within the corporation. We were fully aware of the potential hazards of toxic substances to our employees within the mining and manufacturing operations.

I first became aware of the fact that there may be a health problem with the installers of insulation products, men working in the construction and ship building industries, in early 1964. In fact it was April of 1964 when I first had any detail of Dr. Selikoff's Insulation Worker Study.

Dr. Selikoff's study at that time included Heat, Frost and Asbestos Workers from the Newark, N. J. Local 32 and the New York City Local 12. "The Occurrence of Asbestos Among Insulation Workers in the United States, Annals of the New York Academy of Sciences, Biological Effects of Asbestos", Dec. 1965. His study was started January 1, 1963 (p.143) and eventually involved 1522 members of the two union locals (p. 142).

The people involved in this cohort of 1522 workers were engaged in various jobs and continually changed jobs while doing construction work. Also conditions of work changed continually from job to job. Materials used varied considerably. Insulation materials included asbestos, hair felt, wool felt, cork, rockwool, fibrous glass, shredded rope and others. Environmental conditions also varied with the type of work being done.

Dr. Selikoff stated (p. 142) "measurement of dust exposures of insulation workers have been but infrequently reported and have been hampered by the varied nature of the work. As in other asbestos work, peak counts are met which are excessively high, but generally counts for asbestos fibers have been within the 5.0 MPPCF Threshold Limit Value of the American Conference of Govern-

Selickoff
Dust counts
usually within
5 MPPCF

mental Industrial Hygienists. Such counts as have been available, made during work engaged in by the men studied by us, have shown a range similar to that of published counts."

Dr. Selikoff's results of his insulation worker studies really did not become widely known until the data was presented at a New York Academy of Sciences Conference on Biological Effects of Asbestos in October 1964. The conference was later reported in the Annals of the New York Academy of Sciences, Volume 132, Article 1, pages 1-766 dated December 31, 1965. The Conference was attended by approximately 150 medical/scientific and occupational health specialists from all over the world. This conference was actually the first formal knowledge of asbestos health hazards to installers, fabricators and users of asbestos and asbestos products.

Dr. Selikoff further reported (p.140) "The only large scale survey of asbestos insulation workers was undertaken in the U.S.A. by Fleisher in 1945. They found only 3 cases of asbestosis and concluded that asbestos pipe covering of naval vessels is a relatively safe operation. Unfortunately 95 percent of those examined by them had worked for less than 10 years at the trade, and as we shall see, evaluation of the risk of insulation workers limited to study of men with relatively short durations of exposure may be misleading."

1945
FLEISHER
DRINKER STUDY
95% of group
worked less
than 10
years.

Dr. Selikoff also said (p.142) "Marr has recently (1964) brought shipyard insulation experience up to date, comparing it with the observations of Fleisher and colleagues and concludes that insulation materials and work methods have remained essentially the same since 1945."

Before the Selikoff initial work was reported in mid to late 1964, most of the literature, excluding the Fleisher report, was related to mining or manufacturing of asbestos and asbestos products. Although considerable literature came out of Europe, it dealt primarily with asbestos textile manufacturing.

Upon learning of the existence of the insulation workers study in April, 1964, I took immediate steps to alert J-M top management that the study was underway and upon receiving preliminary data in early 1964, we in J-M began to take specific courses of action.

WHAT J.M. DID AFTER 1964

Labeling

One of the first steps to be taken was to design and place labels on products in order to alert the users of the potential hazard. In early to mid 1964, before the NY Academy Conference, J-M had taken the step to voluntarily commence placing caution labels on thermal insulation products. Specification sheets for the labels were issued in September, 1964. We began with those presenting the greater potential hazard by way of their higher asbestos and/or silica content. As rapidly as possible we continued to label all thermal insulation products. There was no legal requirement for this type of labeling, therefore, we were guided

by the recommendations of the Manufacturing Chemist's Association. The label design and wording was initiated by me, forwarded to the legal department for their approval, then forwarded to the specific Division Production Manager for his approval. The J-M labels on J-M materials in 1964 were in fact, more specific more comprehensive and clearer than that eventually required by the Occupational Safety and Health Act signed into Federal law in 1970.

Labeling was not restricted to insulation materials but was initiated for numerous other products containing asbestos. The problem with the insulation workers made it obvious that there could be other potential problems with the handling of asbestos-cement and various asbestos containing products.

At the outset of the labeling program, we had the labels printed on stick-on type labels. The purpose was to use up the cartons, boxes and packages already printed and in stock. The stick-on labels were not practical to use. Shortly we went to the use of a rubber stamp which proved to be more acceptable. As soon as the inventory of printed cartons was used, the label was then printed directly on the cartons, bags, boxes, packages, etc. Labels were modified over the years since 1964. Slight wording changes were made, also the size of some labels was increased. The method of initiating the labels remained the same, except in 1968 the Environmental Control Department was added to the approving authority for labeling. Today labels must be approved by the Corporate Labeling Committee chaired by Paul Kotin, M.D.

Reduce Asbestos Content in Product Used

Another program undertaken was a research product development

of insulation

task force to reduce the asbestos content of insulation materials. J-M "magnesia" and "calcium silicate" pipe and block covering contained approximately 14% to 15% asbestos. This asbestos content was diminished to about 8% by 1970 and 0% with the discontinuance of the products. Inasmuch as these are the most widely used products by the insulators, the gradual reduction of asbestos content was very meaningful. The composition of insulation materials varied with the manufacturers and types of materials. Products with high amosite content could be dustier to use than those with high chrysotile content.** High temperature materials with diatomaceous earth added could be dustier. Some manufacturers produced cements that contained up to 95% asbestos. Again, because the asbestos content was continually diminished to 0%, the environmental effect was meaningful.

It should be noted that the insulation workers in addition to working with various materials and on varied jobs, also performed many functions. Balzer's observations reported that their job time, average, while working with asbestos insulation was:

** This could be important in shipyard cases where most amosite containing insulation was used. Unibestos was particularly high in amosite.

- 10% Prefabrication
- 40% Use of pro-cut materials and shaping with hand and power tools.
- 30% Fitting to surface with wire, glue, etc.
- 10% Tearing out and removing old and unusable material.
- 5% Mixing mineral wools, fibrous glass, and asbestos cements.
- 5% Cleanup and transporting scrap.

Balzer, Environmental Exposures in the Insulation Trade, NICA Outlook, April 1970.

We also initiated a research development program to provide substitute materials in place of asbestos in insulation products.

CONTACT + EDUCATION OF USERS OF J. M. PRODUCTS

In early 1966 we extended our Safety and Health services to users of J-M products through our trade organizations. These included the National Insulation Manufacturers Association, the Asbestos Textile Institute,** the Asbestos Cement Products Association, the Sprayed Mineral Fiber Manufacturers Association, the Quebec Asbestos Mining Association, etc. We became very active

** Activities of ATI were never concerned with insulation products or insulation applicators.

concerning Health and Safety in each of these organizations.

Booklets were written, seminars held, research undertaken.

Program in NIMA (now TIMA) Union + Trade Organizations
In the National Insulation Manufacturers Association (NIMA), now

known as the Thermal Insulation Manufacturers Association (TIMA),

we formed a Health and Safety Committee. The purpose was to reach the many contractors and their workers with information that would alert them to the potential hazard of asbestos containing insulation materials and provide preventive measures in the safe handling of the materials. We produced a program and presentations were made to the Midwest Insulation Contractors Association, Central States Insulation Contractors Association, South West Insulation Contractors Association, Northeastern Insulation Contractors Association, Associated Asbestos Contractors of the Southeastern States, Associated Asbestos Contractors of the Western States, New York State Insulation Contractors Association, and Middle Atlantic Insulation Contractors Association. *Can we get this material*
The first round of meetings were held in 1966-67. The meetings were met with such success that a second round of meetings were held in 67-68. We spoke to well over 1000 contractors each round.

This program of presentations was coordinated through the National Insulation Contractors Association. The regional groups are part of the NICA. The presentations were made by a task force including Ted Brody, President of NICA and a private contractor; Cliff Sheckler, Chairman of NIMA Health and Safety Com-

mittee and J-M; John Vyverburg, NIMA Board and OCF; Jack Barnhart, Executive Director of NIMA. Meetings were four to five hours duration. The NIMA program presented to the contractors in the 66-67 and 67-68 meetings covered the following subjects:

1. Biological effects of toxic materials and causal relationships to pulmonary and other diseases. Although we placed emphasis on materials contained in insulation products, we did not restrict our comments entirely to those materials. We stressed cigarette smoking in some detail and related Dr. Selikoff's findings relating to smoking.
2. Descriptions and samples of chrysotile, amosite and crocidolite asbestos.
3. Asbestos types and content in various insulation products.
4. Demonstrations and explanations of Threshold Limit Values. Should maximum allowable concentrations of asbestos, silica, cement, natural and fluxcalcined diatomite, gasoline, carbon tetrachloride, toluene, methyl alcohol and turpentine in 10 ft. x 10 ft. x 10 ft. room.

5. Methodology for industrial hygiene engineering sampling and analysis for asbestos dust with demonstrations of sampling equipment.
6. Engineering controls including both stationary and portable exhausts systems.
7. Exhibit of Bureau of Mines approved type respirators for pneumoconiosis producing dusts. Demonstration on how to fit them, change filters.
8. Discussed necessity for clean clothing and discontinued use of compressed air for blowing off clothing.
9. Methods for handling bags and mixing cements.
10. Use of mechanical ventilation in confined spaces.
11. Discussed need for physical examination programs for workers involved in installation of insulation products. Avoid further injury of impaired workers. Need for knowledge of impairment and restricted breathing capacity in relation to use of respirators.
12. Dust abatement during tear-out by cutting down and confining scrap.

13. Offered assistance to contractors having specific problems.

The first 66-67 round of meeting brought requests from the Contractors for some type of written material that they could convey to workers. Our NIMA Committee, therefore, wrote two booklets which were presented during the 67-68 meetings. The booklets were entitled:

1. "Recommended Health Safety Practices for Handling and Applying Thermal Insulation Products Containing Asbestos".
2. "Recommended Health Safety Practices for Handling and Applying Thermal Insulation Products Containing Mineral Fibers".

In early 1966, through the NIMA we also worked closely with Dr. Lewis Cralley and the USPHS who has conducting studies of Asbestos Workers.

We, in J-M worked with many other trade organizations and similar to NIMA, we assisted with producing booklets such as:

1. "Recommended Health Safety Practices for Handling and Fabricating Asbestos Textile Products".
2. "Recommended Practices for Fabricating and Applying Asbestos-Cement Products in the Building and Construction Industries".
3. "Recommended Safety Practices for Handling Asbestos Fiber".
4. "Method for Determining Asbestos Dust Concentrations - Approved by the ATI".

From the time of the N.Y. Academy of Sciences Conference on asbestos in late 1964, we in J-M established a liason with Dr. Selikoff. Subsequently through NIMA we also established a liason with Mr. Hutchinson, President of the Heat, Frost and Asbestos Workers. Dr. Selikoff developed an idea of forming an organization to cope with the problems of the insulation workers. I was requested to organize the attendance of the meeting and assist with the agenda. The meeting was sponsored by the N. Y. Academy of Sciences and was held on May 14, 1968. It was attended by representatives of industry, labor, government, including QAMA, Certain-teed Products, American Insurance Association, Heat Frost and Asbestos Workers, Building and Construction Trades Department AFL-CIO, Industrial Hygiene Foundation of America, University of California School of Public Health, U. S. Department of Health Education and Welfare - Public Health Service, Baldwin-Ehert-Hill MC, Pittsburgh Plate Glass, General Aniline and Film, Sprayed Mineral Fiber Mfgs. Assoc., Owens-Corning Fiberglas, NIMA, U. S. Dept. of Watering - Bureau of Mines, J-M Research and Engineering, J-M Corporation, NICA and others.

The agenda for the meeting was as follows:

The New York Academy of Sciences
Working Group on Insulation Industry Hygiene
May 14, 1968

1. Greetings from The Academy - Admiral E. S. Schanze
2. Background data: Health hazards among insulation workmen - Dr. I. J. Selikoff
3. Background data: Threshold limit values for asbestos - Dr. W. Clark Cooper
4. Perspectives for elimination of health hazards among insulation workmen -
Dr. I. J. Selikoff
5. Elements of an Industrial Hygiene Program for the Insulation Industry -
Dr. Murray C. Brown, Dr. Earle P. Shoub and Dr. I. J. Selikoff
General Discussion - opened by Dr. Frederick L. Pundsack
 - . Identification of dust sources
 - Review of trade practices
 - Analysis of IAHFIAW survey
 - Baseline levels: Light microscopy, EM, biological.
 - . Prevention of dust formation
 - Materials manufacture
 - Packaging and transport
 - Manipulation of materials
 - Trade practices
 - . Removal of dust
 - . Protective masks
 - . Housekeeping practices
 - . Establishment of surveillance procedures
 - Dust levels
 - Materials; new materials
 - Trade practices
 - . Medical Surveillance program
 - . Cigarette smoking
 - . Development of educational material
6. Consideration of initiation of an Industrial Hygiene Program - Mr. Albert E. Hutchinson, Mr. Ivan Sabourin and Dr. K. V. Lindell
General Discussion
 - . Research Program
 - Current industry modifications; recommendations
 - Identification of necessary subsequent research
 - . Scientific Advisory Committee
 - . Insulation Industry Research Council
 - . Funding

Insulation Industry Hygiene Research Program (IIHRP)

As the result of this May 14, 1968 meeting the Insulation Industry Hygiene Research Program (IIHRP) was born. The organizations three major goals were:

1. The prevention of dust formation.
2. The control and limitation of dusts that are unavoidable, and preventing inhalation of dust by those exposed to it through human elements and technological elements.
3. Changing methods of manufacturing and application of insulating materials.

The joint enterprise enlisted the support of J-M, Heat Frost and Asbestos Workers, Environmental Sciences Laboratory - Mt. Sinai, Bureau of Occupational Health - U. S. Public Health Service and subsequently the Sprayed Mineral Fiber Mfgs. Assoc.

J-M provided financial support to the program, purchase of laboratory equipment including an electron microscope, other equipment including a station wagon, and the services of a full time industrial hygienist (W. M. Reitze). Monthly reports (green sheets) were distributed to all members of the International Heat, Frost and Asbestos Workers Union in their magazine, "The Asbestos Worker", they were also published in the NICA "Outlook", which is their trade journal, and I distributed copies to each of the

trade organizations with whom I was working as a J-M service.

The "green sheets" covered many safety and health subjects in each issue, but usually carried a feature subject. Some of these were as follows:

- A. Joint Health Research Efforts Starts for Insulation Men.
- B. New Masks Undergoes Field Tests.
- C. Sprayed Fiber Controls are Adopted.
- D. Cigarettes and Asbestos Don't Mix.

The IIHRP program continues today and reports by way of the "Green Sheet" are distributed. I am not aware as to who continues to participate in the program.

J M Financially Supported Quebec Asbestos Mining Assoc. spray
~~J-M was a major supporter of an asbestos medical/scientific program sponsored by the Quebec Asbestos Mining Association. Carl Hindell, then V. P. and General Manager of the Asbestos Fiber Division was very active. Also, Dr. George Wright was active in the scientific Committee. I personally only have knowledge of the organization and was not actively engaged in the work. It is my understanding that the work was extensively oriented toward supporting medical research and involved considerable expense.~~

Through NIMA and along with other members of the NIMA Health and

Safety Committee, I met on several occasions with Mr. Hutchinson, President and on one occasion with Mr. Haas, then V.P., now President of the International Heat and Frost and Asbestos Workers. These meetings took place sometime between 66 and 68 if my memory serves me right. Jack Barnhart and John Vyverberg were with me. We discussed the health hazards related to the exposure to asbestos dust and the measures we might take to assist in a disease prevention program. We were interested in promoting physical examination programs for the asbestos workers. It must be realized that the asbestos workers are hired out of a union hall and may only work for a given contractor a few days, then another crew is sent to the contractor, therefore, he has little control as to whom he hires and their physical ability to work on the job. I will relate a personal reaction to part of our conversation with Mr. Hutchinson. He smiled, got out of his chair and shook the fibrous glass drapes behind his desk and said: "This is the damn stuff that will kill you, that asbestos isn't bad at all." On subsequent occasions that we met, the same attitude persisted. It is important to understand that there has been a bitter jurisdictional work dispute between the Asbestos Workers and the Sheet Metal Workers. Hutchinson's desire, and Haas after him, to this day is to eliminate the use of fibrous glass on the interiors of air transmission systems and replace it with outside wrap.

Respirator Development Program

In addition to a respirator development program by J-M and Mt. Sinai Environmental Sciences Laboratory, J-M also undertook a respirator evaluation testing program for asbestos fiber at Mc-

Gill University in Montreal. I administered the program and we tested a number of the most prominent respirators, both those approved and not approved for pneumoconiosis producing dusts by the U. S. Bureau of Mines.

The U. S. Bureau of Mines testing programs and approvals were based on silica dusts and not fibrous dusts. Particulates act differently from fibers and we were interested in knowing which respirators were more efficient for fibrous materials and which were less resistant for easier breathing. The program concluded after about six months and resulted in the use of more disposable type respirators which were far more desirable to workers. The resulting data was made available to Dr. Selikoff and the U. S. Bureau of Mines. This work was done about 1968.

To date, there is no medical/scientific evidence to justify a specific threshold limit value number of fibers. TLV's have been moved around and downward and there are proposals to continue to change the numbers. The American Conference of Governmental Industrial Hygienists (ACGIH) had been responsible for making the recommendations for voluntary TLV's up to the passage of the OSHA Act. Standards are now promulgated by OSHA. The following is a history of asbestos TLV's:

5.0 MPPCF (Million particles per cubic foot of air on time weighted basis (eight times daily - 40 hours weekly). Adopted by the ACGIH in 1947 and

reaffirmed at their annual meeting in April, 1964. As measured with impinger.

12.0 F/CC over 5 Microns in Length. (Fibers per cubic centimeter of air as measured by the milipor filter - personal sampler or 2.0 MPPCF as measured with the impringer. Adopted by ACGIH in 1968.

1970 - Federal Occupational Health & Safety Act signed into law. TLV standard effective under the Act August 27, 1971 was the ACGIH recommended standard of 12.0 F/CC over 54 in length or 2.0 MPPCF.

1970 - ACGIH further reduced their recommended standard for asbestos dust to 5.0 F/CC greater than 5.04 in length with exposures of up to 10.0 F/CC for 15 minute intervals each hour up to 5 hours per day. OSHA did not follow this ACGIH recommendation and continued their standard @ 12.0 F/CC greater than 5.0 Microns in length.

7/7/72 - OSHA reduced the TLV not to exceed 5.0 F/CC greater than 5.0 Microns in length on a time-weighted 8 hour average exposure. The level not to exceed 10.0 F/CC longer than 5.0 Microns at any time (ceiling value).

7/1/76 - The 7/7/72 level reduced to 2.0 F/CC greater than 5.0 Microns in length in a time-weighted 8 hour average exposure and not to exceed 10 F/CC over 5.0 Microns length (ceiling).

1975 - OSHA proposed amendments to further reduce the TLV to 0.5 F/CC greater than 5.0 Microns in length. This proposal is currently under-going hearings and is not effective as of this date (3/78). The effective standard today is 2.0 F/CC.

Clifford L. Sheckler