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U.S. REGULATIONS FOR CONTROL OF ASBESTOS EXPOSURE

by

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My topic today is U.S. Regulations for control of asbestos exposure. My comments will be made as a technical person viewing the controls from the standpoint of industry.

I will limit the discussion to regulations promulgated by two Federal agencies.

First, the Occupational Safety and Health Administration (OSHA) Standard for Exposure to Asbestos Dust.

Second, the Environmental Protection Agency (EPA) National Emissions Standard for Hazardous Air Pollutants - Asbestos.

First, the OSHA Standard. The major requirements of the standard relate to:

Exposure limits

Methods of compliance

Personal protective equipment

Method of measurement - monitoring

Caution labels

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Housekeeping

Medical examinations

I'll comment briefly on these requirements; first from the standpoint of the total industry, except construction, and second as they relate to the construction industry usage of products.

First, then, comments exclusive of construction.

Exposure Limits. As a non-health scientist, I do not consider myself qualified to discuss exposure limits. That problem will be adequately addressed by others.

Methods of Compliance. The standard specifies engineering controls as the first step to compliance, and work practices as the second. Industry is in agreement with this procedure. However, engineering controls and work practices frequently go hand in hand; and compliance may necessitate application of both.

Personal Protective Equipment. This requirement needs little comment. We agree that use of respirators should be restricted to operations where engineering controls and work practices are not adequate, or not feasible, and of course should be permitted in emergency situations.

Monitoring. Method of measurement, monitoring, is one of the two controversial sections of the standard; this controversy revolving around the accuracy and precision of the procedure. We endorse the need for monitoring of the workplace,

be it asbestos, or any other potentially hazardous substance. However, since the accuracy and precision of the method are not yet fully documented, particularly at low exposure levels, its role in any regulatory process must be carefully scrutinized from a scientific point of view. I have discussed this monitoring problem with many knowledgeable people, including Dr. Gerald R. Chase, Biostatistician/Epidemiologist, in the Johns-Manville Health, Safety and Environment Department. Dr. Chase commented as follows:

> "Since the precision of the entire monitoring method has not been adequately documented, it is not yet possible to characterize compliance/non-compliance decisions in a statistical framework, particularly in the low airborne concentration range. Studies are now underway in the U.S. and abroad which will increase our knowledge of the entire monitoring procedure. Based on limited data available, it is known that the current monitoring method will predictably give estimates over a broad range when simultaneous samples are taken. For example, readings well above 1.5 F/cc will predictably be found with readings well below 0.5 F/cc."

In any discussion of monitoring, frequency of sampling must be examined. The present standards require monitoring at intervals no greater than six months for employees whose

exposure may reasonably be foreseen to exceed either exposure limit. We believe this is a fair and logical requirement.

The standard leaves to the discretion of the employer monitoring frequency for employees whose exposure is below both limits by the statement:

> "Samples shall be of such frequency and pattern to report with reasonable accuracy the level of exposure of employees."

We believe this requirement is too discretionary and suggest the following:

> "Monitoring may be discontinued for a representative employee only when at least two consecutive monitoring determinations, made not less than five working days apart, show exposures for that employee at or below exposure limits."
>
> and,
>
> "When there has been a production process or control change which may result in an increase in employee exposure to asbestos fibers or whenever the employer has any other reason to suspect an increase in exposure levels, a new determination shall be made, and thereafter repeated at six-month intervals until two consecutive monitoring determinations show compliance."

Caution Labels. Industry agrees that any asbestos-containing product with the potential for release of fibers in excess of the allowable exposure limits should be labeled.

Housekeeping. Obviously, good housekeeping in this industry, as in all others, is essential.

Medical Examinations. This is the other controversial requirement of the standard. We support the basic need for physical examinations; however, we have two concerns. The first is with the wording and interpretation of the requirement in the present standard. The wording is:

> "...make available comprehensive medical examinations to each of his employees engaged in occupations exposed to airborne concentrations of asbestos."

Exposure has been interpreted to mean any detectable level of airborne asbestos in the workplace. In other standards governing use of potentially hazardous substances, OSHA has incorporated a triggering or action level, generally at one-half the exposure limit. If an employee exposure is below the action level, repeat medical examinations are not required. We believe this philosophy should be extended to the asbestos standard.

Our other concern relates to frequency. Is an annual medical examination necessary or would a schedule such as this be adequate?

"Initial or pre-employment physical examination and for those who have not worked in the asbestos industry before, repeat examinations during the fourth year, sixth year, eighth year, tenth year, and annually thereafter."

People who have worked in the asbestos industry previously would also have the initial examination and repeat examinations when required, in accordance with the proposed schedule modified to compensate for the years already spent in the industry.

My comments thus far have been directed toward the present standard, which covers all uses of asbestos and asbestos-containing products, including the construction industry. OSHA has recognized that the construction industry, because of its mobility--mobility of both the workplace and workforce--presents an entirely different set of problems. The proposed revised standard published in Notice of Proposed Rulemaking in the Federal Register of October 9, 1975, specifically excluded construction. OSHA has stated their intent to develop a separate standard applicable only to the construction industry.

Our suggestion is to base the construction industry standard on work practices--practices that have been developed by industry and certified as to effectiveness in maintaining airborne fiber levels below allowable limits by independent industrial hygiene laboratories. Proper use by contractors of these

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certified practices would result in compliance with all applicable requirements of the standard except medical surveillance. I'll have additional comment on the medical examination requirement in a moment. First, a look at the status of work practices for the construction industry.

The Asbestos-Cement Pipe Producers Association has prepared a series of work practices for the field installation of asbestos cement pipe. The effectiveness of these work practices has been documented by tests and industrial hygiene monitoring conducted by Equitable Environmental Health, Inc. Booklets detailing the work practices have been furnished to the construction industry at no charge. Use of the several recommended procedures assures that any airborne fiber levels generated during pipe installation are well below exposure limits.

Work practices for other asbestos-containing products used in the construction industry are in the process of preparation; work practices for asbestos-cement sheets, flooring materials, and built-up roofing.

Now, back to medical examinations. The action or triggering level concept would apply here also. If the certified work practices maintained airborne fiber concentrations below the action level, then repeat physical examinations would not automatically be required.

If the work practices are unable to maintain fiber concentrations below the triggering level, then repeat examinations should be offered to exposed employees. We recommend that frequency of examinations be as previously suggested.

Now, the problem arises as to who performs the examinations, who pays for them, and who maintains the records. Obviously, the employer must pay; but solutions to the other two problems are not easy. Perhaps a series of local clinics or hospitals could be designated to perform the required medical examinations. Employees, where required, would be offered medical examinations at these clinics. The medical records might be retained by the clinic, or by the National Institute for Occupational Safety and Health (NIOSH), but not by the employer.

That concludes my commentary on the OSHA standard. In summary, the major problems are:

1. Need for a separate standard for the construction industry.

2. Need for recognition of the lack of accuracy and precision in monitoring method, particularly at low levels.

3. Need for revision in the medical surveillance procedure.

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Now, the requirements of the Federal EPA relative to airborne emissions, waste disposal, and fluid effluents.

Under the authority of Section 112 of the Clean Air Act, a section entitled National Emission Standards for Hazardous Air Pollutants, the EPA established regulations controlling airborne emissions of asbestos, and disposal of asbestos-containing wastes. These regulations apply to milling, manufacturing and end use.

The standard is based on two major requirements.

1. Prohibits asbestos-containing visible emissions from any stationary source working with asbestos. A visible emission is defined as any emission visually detectable without the aid of instruments.

2. Provides for the use of specified air-cleaning procedures which may be employed in lieu of meeting the no visible emissions requirement.

What do these requirements mean? If an asbestos-using operation has no visible emissions from any source, be it a stack or even a window, then that operations is in compliance. If a visible emission does exist and that emission contains asbestos, then the operation can be brought into compliance by use of an EPA-approved air-cleaning device. Compliance is achieved even if visible emissions still exist after installation of the air-cleaning device.

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We are in basic agreement with these requirements. The no visible emission regulation eliminates the need to quantify asbestos in the exhaust from a stack. Determination of fiber concentrations in an exhaust gas stream is a difficult and time-consuming procedure of doubtful accuracy.

Further, the regulation specifies that a fabric bag filter device be used as the air cleaner, except when the character of the exhaust stream--temperature or moisture--prohibits its use. This filtering method is the most effective and efficient technique known today for removal of fiber from an air stream.

The EPA has encountered a problem with the section of the standard which pertains to demolition. Here, the EPA has specified the procedures, or work practices, to be used in removing asbestos-containing materials during building demolition. A contractor, cited for failure to employ the specified work practices, challenged the regulation in court and won. The court ruled that, under the Clean Air Act, the EPA could not utilize a work practice requirement in lieu of an emission standard. It is my understanding that in order to correct this problem, the EPA has petitioned Congress to modify the Clean Air Act to permit specification of work practices.

The EPA has promulgated supplementary regulations, again under Section 112 of the Clean Air Act, governing the disposal

of asbestos-containing wastes. These regulations impose a tremendous burden on asbestos-using operations, but I can't question the need.

However, at the time these regulations were proposed, I suggested a modification in the requirement for warning signs and fences around the waste dump. I don't believe that signs and fences are a suitable replacement for cover. Under the regulations, the waste dump operator has the option of covering the asbestos waste with suitable material in lieu of signs and fences. I would have preferred that cover be the prime procedure and that warning signs and fences be used only when cover was not feasible or practical.

The Federal Water Pollution Control Act Amendments of 1972 require that all industrial sources treat effluent by applying "Best Available Technology Economically Achievable," commonly known as BAT and to have this technology in operation not later than July 1, 1984. The EPA believes that application of BAT in our industry can achieve no discharge of process water to navigable waters, so that is their requirement. What does this requirement mean? Simply that our industry must develop methods for recycling waste water. Technology to accomplish this does exist, but application of technology will require time and money.

Summarizing my comments on the EPA regulations, my only major objection is the specification of fences and warning

signs as the prime means of public protection at a waste disposal site. My preference is for cover with suitable material as the prime requisite, with fences and warning signs as an alternative procedure when cover is not practical or feasible.

Three final comments, one relative to asbestos, and the other two pertinent to all occupational health hazards.

First. We all must realize that asbestos is a ubiquitous mineral: it is naturally occurring in many parts of the world. Because of this, a zero concentration of airborne asbestos is a rarity, if not an impossibility. This fact must be taken into account when setting occupational exposure limits for asbestos.

Second. Monitoring techniques are becoming more sophisticated. Just because we can measure more accurately the extent of a hazard in the workplace, we must not delude ourselves by believing that this increase in our analytical capability is paralleled by an increase in hazard. Actually there need be no relationship between the two.

Third. Government agencies, industry, and unions are all engaged in monitoring workplace exposures. We must develop a means for interchange of information and data.

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REFERENCES

1. 29 CFR 1910.1001. Standard for Occupational Exposure to Asbestos

2. 29 CFR 1910.1001 (Docket No. H-033) Occupational Exposure to Asbestos -- Notice of Proposed Rulemaking.

3. 40 CFR 61. National Emissions Standards for Hazardous Air Pollutants - Asbestos, Beryllium and Mercury.

4. 40 CFR 427. Effluent Guidelines and Standards - Asbestos Manufacturing Point Source Category.