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Implementation of the Federal Asbestos Standard in Connecticut

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In June 1972, the U.S. Occupational Safety and Health Administration (OSHA) issued a "Standard for Exposure to Asbestos Dust", the first federal standard for asbestos.¹ In addition to setting permissible levels for exposure to asbestos fibers, the new standard made mandatory certain environmental controls and monitoring. It also required annual medical examinations, as well as preplacement and termination examinations, for all employees exposed to airborne concentrations of asbestos fibers.

In order to determine how this standard was being implemented, we conducted a survey of Connecticut companies which use asbestos materials.²

Methods

We compiled a list of asbestos users in Connecticut from sources such as manufacturers' directories,³⁻⁶ advertising directories,⁷ the state industrial hygiene agency, and union representatives. Although our survey included several companies which did not label their product as "asbestos", we probably overlooked a large number of minor users. Also, we excluded most brake lining repair services, because of the large number of very small companies. Therefore, our findings may underestimate the practical problems in implementing the asbestos standard.

We contacted most of the companies, first by letter and then by telephone between September and December, 1972. In some cases, we toured plants in addition to interviewing company representatives.

Results

We identified a total of 63 companies, including 38 manufacturers and 25 contractors, who used asbestos materials. Since the manufacturers and contractors were found to differ in many respects, their results will be considered separately.

Manufacturers

General findings. — Table 1 lists the types of asbestos products manufactured by the 38 companies. None of the plants surveyed manufactured asbestos textiles or asbestos cement products, two major uses of asbestos in the United States.

Of these 38 manufacturers, 11 were certain, and another three were almost certain, that the asbestos standard did not apply to their situations. Many of these companies assumed they had no airborne asbestos because they used asbestos which was already bound with another substance, such as silicone, plastic or cement. However, only one company ac-

Type of Product	No. of Companies Manufacturing This Type of Product
Gaskets	10
Insulated products	
wire & cable	5
other (ships, ovens, paneling, etc.)	4
Reinforced plastics	5
Machined or treated products	4
Friction materials	3
Filter materials	2
Vacuum bottles	2
Other: paper, safety equipment, ammunition	3
Total	38

tually cited measurements of fiber concentrations to substantiate this claim. Companies also cited infrequent use of asbestos materials as a reason for ignoring the standard. One unusual case was a company with very high dust levels whose co-owners said OSHA was not applicable to them because they were the only workers.

Table 2 shows the distribution of the 38 companies according to company size and the number of employees considered "exposed" to airborne asbestos. The 14 companies which did not consider themselves covered by the standard claimed that no employees were exposed. Altogether, we were able to identify approximately 1600 employees considered exposed to asbestos by these manufacturers.

The remaining data on manufacturers relates only to the 24 companies which considered themselves covered by the standard.

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Awareness. — Thirteen of these 24 companies were uninformed about the specific details of the asbestos standard. Three companies learned of the new standard's existence through our survey, while the other ten knew of the standard but not of the details concerning the medical examination and monitoring requirements. All of the 11 companies with some understanding of the standard were subsidiaries or divisions of larger corporations, and had a personnel manager, industrial relations director or some other person whose job dealt specifically with OSHA matters.

Plans for changes in asbestos use. — Three of the 24 companies indicated that they would eliminate asbestos use in the

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Table 2. — Distribution of Connecticut Manufacturers Using Asbestos Materials, by Company Size and Number of Employees Considered "Exposed to Airborne Concentrations of Asbestos Fibers".

Total No. of Employees	No. of Employees Considered Exposed						Total Companies
	> 100	51-100	26-50	11-25	1-10	0	
> 500	1	1	2	1	0	1	6
251-500	3	1	2	0	2	0	5
101-250	5	0	1	1	3	2	7
51-100	—	1	1	2	0	3	7
26-50	—	—	0	1	1	2	4
< 25	—	—	—	1	2	5	8
Total Companies	1	3	6	6	6	14	36

near future, while 10 others were contemplating dropping asbestos operations or were looking for substitute materials. Several companies also emphasized that changing markets and increased sub-contracting had eliminated some of their asbestos work.

Monitoring and reduction of asbestos dust levels. — Of the 24 companies, 17 reported some measurements of asbestos fiber concentrations. In 14 cases, measurements had been taken by insurance company consultants or by the company's own personnel. For three other companies, the only measurements had been taken by a state or federal inspector. Of the remaining seven companies, one reported definite arrangements for monitoring, two were eliminating asbestos use, while four seemed to have no plans to take any measurements.

Of the 17 companies with previous monitoring, 15 provided some information on what levels were found (see Table 3). One of the companies between two and five fibers/cc was operating at one-third capacity at the time of these measurements; operation at full capacity was expected to result in fiber levels above the standard until extensive engineering controls could be installed. Only one of the eight companies which had some measurements above the present five fiber/cc standard planned to eliminate asbestos use for that reason, and only one company was positive that it could never meet the two fiber/cc limit by 1976.

Because of the new standard, most of the companies with higher measured levels of asbestos dust were making efforts to improve housekeeping procedures, to install engineering controls, or to reduce the amount of asbestos work done. However, in our visits to several plants, torn asbestos sacks and loose dust on tables and machinery surfaces were still very common.

Occupational medical facilities. — Of the 24 companies, six

had an in-plant physician who gave pre-employment medical examinations and five of these companies already provided a periodic medical evaluation, including chest radiographs.

Of the remaining 18 companies, 13 had arrangements with a local physician or hospital for emergency services; seven of these companies also provided pre-employment examinations, and four annually arranged for a mobile chest x-ray unit (70mm films only). Only one of these 18 companies already provided a periodic examination including a 14x17 inch chest radiograph to all employees exposed to asbestos. Some of the companies which had no examination program intended to ask physicians they had previously used to perform the required examinations, but they were uncertain whether such arrangements could be made conveniently. One company hoped to have the examinations performed by the corporate medical director from a nearby state.

The remaining five companies, which offered no company medical services, had no idea how they would arrange for the required medical examinations.

Contractors

Of the 25 contractors contacted, most were insulation and acoustical contractors. The one roofing and siding contractor, who had used very little asbestos materials in the last few years, and the one brake lining repairer, who was gradually phasing out of this business, both ignored the standard.

Insulation contractors. — The 12 insulation contractors, who employed up to 250 members of the local Asbestos Workers Union, carried out most of the asbestos insulation work in Connecticut. These contractors were all aware of the specifics of the asbestos standard through publicity from both the National Insulation Contractors Association (NICA) and the Union.

The contractors had been phasing out use of asbestos materials in new insulation for a number of years. After promulgation of the asbestos standard, the NICA indicated that it hoped to eliminate asbestos entirely from the products used in the industry.⁹ Ripping out old asbestos insulation represented only a small proportion of the contractors' business. Before installing new insulation, the contractors would frequently ask a client company to have its own maintenance workers and laborers rip out the old insulation. This suggested other groups of employees whose sporadic but hazardous exposure may go unrecognized.

Contractors had never monitored dust levels at job sites, and no individual contractors expressed interest in doing this. In fact, the NICA had petitioned OSHA to give its members one year's deferment from monitoring requirements.¹⁰

Table 3. — Asbestos Monitoring Results Reported by 15 Asbestos Products Manufacturers.

Levels Found	No. of Companies
Several samples greater than 10 fibers/cc	4
Several samples between 5 and 10 fibers/cc	4
All samples between 2 and 5 fibers/cc	2
All samples less than 2 fibers/cc	5

A few contractors planned to avoid the required medical examinations by eliminating asbestos use before the examination deadline. However, others hoped to provide examinations and wanted to act as a group in making arrangements. One contractor wanted to use the results of medical examinations to screen out employees who were poor risks in order to cut down on his liability for workmen's compensation claims. The business agent of the Union local expressed a great concern about the issues of confidentiality and job security; subsequently, a resolution at the Union national convention called for boycotting the examinations until safeguards were ensured.

Acoustical contractors. — Of the 12 acoustical contractors, five had done spray fireproofing work. However, all had begun to use non-asbestos spray materials in the past year, and none intended to use any more asbestos sprays. (Spraying of asbestos for fireproofing has since been prohibited by the Environmental Protection Agency.)

At least six of the 12 contractors occasionally cut asbestos-cement materials, such as ceiling boards or siding. Only one contractor who also did thermal insulation work thought that this infrequent work subjected him to the asbestos standard. The contractors did not know whether other regularly used materials contained asbestos.

Discussion

Our survey of the Connecticut asbestos industry underlined a number of practical problems in implementing the new OSHA asbestos standard. A few of the 24 manufacturers who considered themselves covered by the standard had not even known of its existence prior to our survey, and over half had been unaware of its specific requirements. This was especially true of smaller, independent companies that had no special management personnel to deal with OSHA. Simply printing a standard in the Federal Register did not make it sufficiently accessible to many companies affected by it. Complaints about inadequate information from OSHA have not been limited to the asbestos standard, and have been voiced by labor representatives¹¹ as well as small businessmen.¹²

Even enforcement agencies have an information problem, since they do not know which companies are covered by a particular standard. Although OSHA had designated asbestos as one of the five "target health hazards", meaning that asbestos-using companies would be particular targets for inspection, the local OSHA office did not have a list of Connecticut asbestos users, at the time of our survey. Even the state agency which had handled industrial hygiene problems in Connecticut for many years did not have a complete list. We would conclude that there is considerable need for improved two-way communication between the Federal and State agencies, on the one hand, and the affected companies and employees, on the other.

There has also been considerable confusion about the standard's applicability, much of which results from its failure to define "exposure" to asbestos. OSHA has not included a definition based on objective measurements of fiber levels; neither has it dealt with the problem of what temporary or incidental degree of exposure should still be considered "exposure" under the law. Admittedly, these are difficult issues, but vagueness is not an adequate solution. In our survey, 14 of the 38 asbestos products manufacturers as well as all of the acoustical contractors decided — for the most part, arbitrarily

— that their employees were not "exposed". Even the 24 manufacturers which considered the standard applicable were confused about which employees were "exposed"; while some favored a broad interpretation including all employees who worked even occasionally in the vicinity of asbestos operations, others included only employees who worked directly and frequently with asbestos materials.

Our study also suggested several manpower and quality-control problems related to implementing the standard. Although insurance companies were initially able to provide industrial hygiene consulting services for many client companies, they may not continue to conduct the asbestos monitoring services required in the future. The number of independent consultants is increasing, but it is difficult to judge whether the industrial hygiene manpower will grow sufficiently to meet the demand created by future standards.

In addition, neither OSHA nor the state enforcement agencies have sufficient staff to inspect all companies regularly. The OSHA area office, with jurisdiction in Connecticut and Western Massachusetts, had only one industrial hygienist. Several company representatives commented that "safety" inspectors had never paid any attention to asbestos problems. If safety inspectors were also trained in basic principles of industrial hygiene, they would be able to recognize common health hazards in plants that they visit.

While industrial hygienists were in short supply, the shortage of medical manpower and facilities seemed even more acute. Sixteen manufacturers and all 12 insulation contractors had no convenient access to personnel or to facilities to meet the standard's medical examination requirement. Although these companies could probably find a local physician to conduct the tests, it is doubtful that these physicians would have the necessary experience in occupational medicine, pulmonary function testing or chest radiograph interpretation. Also, since they would probably be unfamiliar with epidemiological methods of analysis, the companies and employees would lose one of the major benefits of medical surveillance — the use of group results as a "biological monitor" of the effectiveness of asbestos dust control.

Given the shortage of experienced industrial hygienists and occupational physicians, there is an even greater need to ensure that the environmental and medical information which is collected is valid and reproducible. Although the asbestos standard specifies the methods for measuring fiber concentrations, it is still questionable whether monitoring techniques are sufficiently standardized. For example, one company reported wide differences in the measurements made by three different industrial hygiene consultants over a relatively short period of time.

Also, the standard does not include any guidelines for conducting the medical examination procedures. It neither requires that chest radiographs be interpreted according to the ILO or UICC/Cincinnati Classification of Radiographs of Pneumoconioses,¹³ nor that pulmonary function tests be performed according to any specified criteria, such as those recommended by a workshop of the National Heart and Lung Institute.¹⁴

Our survey has also shown that many companies are confronting the problems of implementing the asbestos standard by eliminating use of asbestos materials. This trend leads to questions concerning the safety of asbestos substitutes, such as fiberglass and rockwool. Although they are presently thought

to be far less hazardous than asbestos,¹⁵ ¹⁶ a long latent period may delay the appearance of disease. Animal studies have suggested that very thin diameter glass fibers, now being brought into industrial use, may be as potent as asbestos in inducing mesothelioma.¹⁷

Widespread elimination of asbestos use introduces the additional problem that the standard's medical requirement covers employees only during their period of asbestos exposure. Despite the long latent period between exposure and disease onset, the standard does not provide for continued medical surveillance of persons formerly exposed for significant periods of time to moderate or high asbestos concentrations. Such persons are at least as likely to develop disease as those exposed to present, lower concentrations, and they actually need more, not less, medical supervision.

Summary

We have studied practical aspects of implementing the new federal asbestos standard among a selected group of Connecticut companies which use asbestos materials. We found many minor users of asbestos, most of whom did not consider their employees to be exposed to asbestos; this finding suggests the need for carefully defining "exposure" so that groups of employees with some risk of asbestos disease are not arbitrarily excluded from coverage. Since even those companies that knew they were covered by the standard were often unaware of its specific provisions, increased two-way communication with OSHA is greatly needed. So far, most companies have been able to obtain initial industrial hygiene consulting services from their insurance carriers. However, many small companies have had difficulties in providing appropriate facilities for medical surveillance. Other problem areas discussed include the need to standardize techniques for environmental measurements as well as for medical examination procedures, and to investigate the potential hazards of increasingly used asbestos substitutes. Many of our findings and comments are of a general nature, and are also relevant to future OSHA standards for other hazardous substances.

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