FILE NAME: Asbestos Cement Pipe and Sheet (ACPS)

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2/19/68 - cc: E M Fenner

2/22:68 - cc: S. Speil

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Department of Community Medicine

February 16, 1968

JM RESEARCH
RECEIVED
F. L. PUNDSACK
FEB 21 1968

Dr. F. L. Pundsack, Director
Division and Corporate Research and Development
Johns-Manville Research and Engineering Center
P. O. Box 159
Manville, New Jersey 08835

Dear Dr. Pundsack:

I have been aware that inquiries have been made concerning the possible health hazard associated with the drinking of potable water circulated through asbestos-cement pipes.

I presume this concern is derived from the recognition of the carcinogenic hazard of asbestos. While this hazard exists, I would qualify such categorization at this time, by adding the phrase "under certain industrial conditions." Workmen occupationally exposed to asbestos have an increased risk, in many instances, of lung cancer, pleural and peritoneal mesothelioma, possibly gastrointestinal cancer, asbestosis and possibly several causes of death, not yet well defined.

We are on very much less secure ground in judging whether any health hazard exists with non-occupational asbestos exposure. While there is evidence that environmental asbestos contamination occurs, association of disease with the minimal levels involved has not been unequivocally demonstrated despite some suggestive evidence under special circumstances.

To compound the difficulties in answering the question you ask, studies on environmental asbestos disease have been concerned with inhalation exposure. There is no way to translate these experiences into exposure by ingestion. Thus, we cannot equate a priori the response of the respiratory mucosa with that of the mucosa of the gastrointestinal tract; I am sure that these responses to asbestos are markedly different. For example, asbestos bodies are often formed in lung parenchyma following inhalation of asbestos fibers yet such bodies occur rarely, if at all, in the gastrointestinal mucosa, following ingestion.

Moreover, experimental work so far has not yielded evidence of significant adverse effects associated with ingestion. For example, Russian work with dog-feeding experiments has demonstrated some mucosal changes, but these were minor, while in our own Laboratory feeding experiments in hamsters have produced very few sub-mucosal asbestos bodies and an adenocarcinoma of the colon in only one animal (very likely coincidental, since such are known to occur spontaneously in these animals). Yet, the exposure to ingested asbestos in this experimental work was very much larger indeed than might be anticipated in water obtained from asbestos-cement pipes.

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This is not to say that the problem of ingested asbestos does not require further study; it obviously does. First, such studies will be useful in determining whether any relationship exists between ingestion of such material and the occurrence of peritoneal mesothelioma or gastrointestinal carcinoma (alternate routes of contact can be suggested in the pathogenesis of these tumors) and, second, as part of wider necessary studies to define whether any health hazard exists with low-level exposures in general.

Thus, there is no evidence at this time that the presumably very low-level exposures by ingestion which might occur by intake of water supplied through asbestos-cement pipes has resulted in a recognized health hazard. Even if such a hazard could be defined, it would be difficult to be sure that asbestos-cement pipe water were the only source since a number of foodstuffs and other substances are filtered through asbestos filters and may presumably contain small numbers of the fibers (including beer!).

The question of potential health hazards associated with low-level environmental asbestos exposure is under intensive study at this time. As noted, the potential hazard of asbestos-cement pipes is part of this general problem. I hope and trust that we will find that no hazard exists with the very low level of exposure associated with environmental contamination and that the problem will be found to be confined to the much heavier exposure in industry. If I had to hazard a guess at this time, I would suggest that this is what we will find.

I hope that this information will be of assistance to you in your research on this problem.

Sincerely yours,

I. J. Selikoff

Irving J. Selikoff, M.D.
Professor and Chairman
Division of Environmental Medicine

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