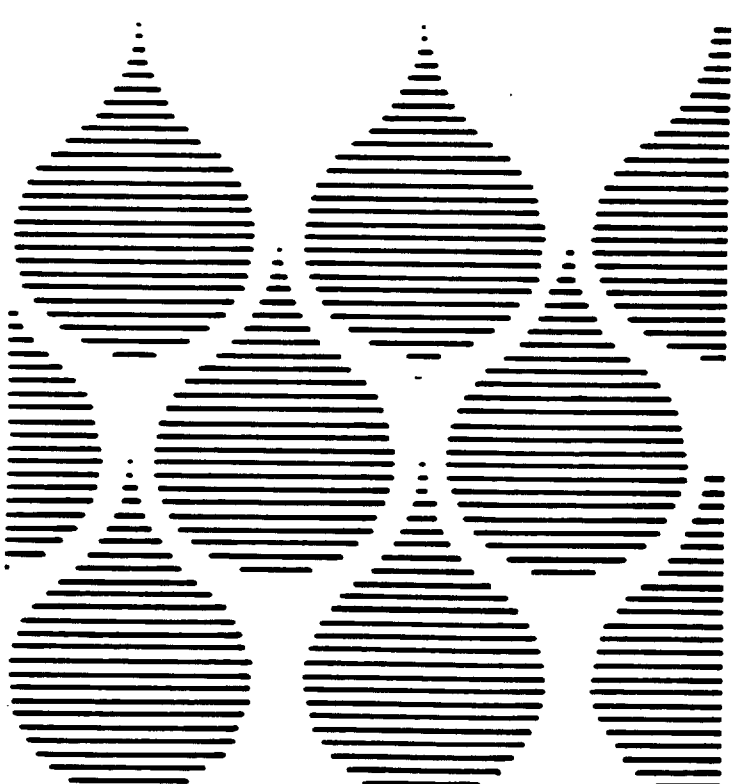
PLAINTIFF'S EXHIBIT
UC-893

Asbestos in Water

A hazard to health?



A 13199

Published by AsbestosClaims.Law
asbestosclaims.law/library/16102/1

Introduction

Water supplies in various sections of the world contain infinitesimal amounts of asbestos fiber, along with other particulate matter. The fibers come primarily from natural sources, and secondly from man's activities, including the mining and milling of asbestos-bearing rock and the manufacture, use, and disposal of some asbestos-containing materials.

Inhalation of excessive quantities of airborne asbestos fiber in occupational settings is known to increase the risk of respiratory disease and certain types of cancer among industrial workers. There is also an indication of an increased incidence of gastrointestinal (GI) cancer among these workers. This has led to speculation as to whether the general public is subject to a health risk from the small amounts of asbestos fiber that may be found occasionally in water. In its report issued in 1973, the Advisory Committee on Asbestos Cancers to the Director of the International Agency for Research on Cancer, a division of the World Health Organization, stated that no evidence exists which would support the existence of an increased risk of cancer resulting from asbestos fibers present in water, beverages, food or in the fluids used in the administration of drugs.[1]

Since the discovery of the risk to health from uncontrolled fiber, the asbestos industry has committed itself to the safe handling of the remarkable mineral in the workplace and to control its operations to eliminate the release of free fibers into the environment. A separate AIA/NA pamphlet discusses asbestos in air. This pamphlet is addressed to the issue of asbestos in water.

Asbestos Serves the World

Asbestos, used since antiquity, has widespread and important applications in our modern technological society. Because of its remarkable resistance to fire, heat, friction, and corrosion, approximately 3,000 different products containing asbestos, ranging from pot holders to brake linings, from asbestos-cement pipe and building materials to packing and gaskets are in daily use throughout the world. In the vast majority of these products, the asbestos is "locked-in" with cement, resins, or other binders which restrict fiber release during normal handling or use. In 1974, nearly 850,000 tons of asbestos, primarily chrysotile from Canada, was used in the United States. Worldwide production is about 5 million tons.

GI Cancer and Asbestos Exposure

Both human evidence and animal experimentation regarding a possible relationship between excessive asbestos exposure and an increased risk of gastrointestinal cancer is scanty and contradictory.[2] Some researchers have reported higher-than-normal rates of GI cancer among industry groups heavily exposed to airborne asbestos.[3] Several major animal feeding experiments, however, produced no tumors in the GI tracts of the animals, even though the amounts of fiber fed to the animals were massive when compared with human occupational exposures known to result in respiratory disease.[4]

While some injection experiments have produced site and mesothelial tumors in test animals, the amount of fiber used in each case was so large as to render any attempted translation to human experience inappropriate. The studies strongly suggest that development of cancers in test animals is directly related to dose and, even more importantly, to the size of the fiber used in the experiment. Electron microscope-sized fibers (less than 5 microns in length) did not produce tumors in test animals.[5]

Medical opinion on the subject of gastrointestinal cancer and heavy occupational exposure is divided. Some experts consider the evidence inconclusive while others believe that only a "small risk" may exist. [6]

Asbestos-Cement Pipe

Asbestos-cement pipe has been used to convey potable water for more than half a century in North America, Europe and other parts of the world. The question has been raised as to the

[redacted]
A 10200

8L2

Published by AsbestosClaims.Law
asbestosclaims.law/library/16102/2

possible health hazard of drinking water conveyed through these pipes.

It can be assumed that, if there is a relationship between gastrointestinal cancer and use of asbestos-cement pipe, there would be an increase in the cancer rate as use of the pipe has increased. U.S. Public Health Service records show, however, that incidence of GI cancer in the United States has steadily declined though the usage of asbestos-cement pipe has risen significantly.[7]

In a study of drinking water in nine cities that used asbestos-cement pipe for periods ranging from 8 to 17 years, not one of the water samples, either before or after passing through the asbestos-cement pipe, contained fibers that were visible under a light microscope. The highest asbestos content found in this study was 6 micrograms per gallon, about one five-millionth of an ounce. This means that if a man were to drink eight glasses of water a day he might swallow a total of twenty-seven ten-thousandths of an ounce (.0027) of asbestos in a lifetime of 70 years.[8,9]

A special committee of asbestos-health experts convened by The American Water Works Association Research Foundation reviewed all available data and concluded that the "risk to health from the use of (asbestos-cement water pipe) systems is small—approaching zero."[8]

Reserve Mining Case

Perhaps the most widely publicized alleged health hazard from asbestos in water is the case of the Environmental Protection Agency vs. Reserve Mining Company. The case, involving the disposal of waste taconite tailings into Lake Superior, became a health issue when it was claimed that the tailings contained cummingtonite, said to be a form of asbestos.

Many experts were called for testimony during the proceedings. The court appointed witness, Arnold L. Brown, M.D., Chairman of the Department of Pathology and Anatomy, Mayo Clinic, Rochester, Minnesota, stated that there is no evidence of an excess of cancer in Duluth, Silver Bay, or other North Shore communities and further testified: "Scientifically and medically I see no evidence for an increased incidence of cancer in those communities that could be attributed to the presence of asbestos fibers in air or water."[10]

Early in the trial, the court ordered an extensive study of tissues from deceased persons in the Duluth area to determine the presence of asbestos fibers. The study failed to disclose any asbestiform fibers which could have come from Reserve during the lifetimes of the subjects. The subjects had been selected by Court witnesses as representatives. Only tissues from persons inhaling Duluth air and ingesting Duluth water in excess of 15 years were examined.[10]

In a summary of medical testimony, before the Eighth Circuit Court of Appeals, it was stated: "There is no evidence that ingestion of asbestos in any amount has ever caused disease in anyone. Thus, there is no evidence that Reserve's discharge into Lake Superior (whether or not such discharge contains any asbestos) constitutes a present or future likelihood of disease."[11]

In March 1975, the Court in its final ruling ordered the company to comply with all air and water discharge regulations, but noted, "the evidence is insufficient to support the kind of demonstrable danger to the public health that would justify the immediate closing" of the facility.

Asbestos Filters

Minute amounts of fiber in some beverages and parenteral (injectable) drugs filtered through asbestos-containing filters have also been detected. It is difficult to determine whether the minute asbestos fibers in some liquids come from the filter or are already in the water. There is evidence that asbestos filters remove asbestos material along with other particulates.

Asbestos-containing filters have been in worldwide use for many years. It is reasonable to inquire if beverages or food containing electron microscope-size mineral fibers, including asbestos, might expose large populations to a potential health hazard. Numerous studies have shown that, despite their long-term use, there is no evidence that anyone has ever contracted gastrointestinal cancer or mesothelioma from beverages or injec-

A13201

[redacted]

Union Carbide trial exhibit UC-893: Asbestos Information Association/North America Pamphlet 'Asbestos in Water... Published by AsbestosClaims.Law
ACL Doc 16102 · Page 3 of 5 asbestosclaims.law/library/16102/3

table drugs filtered through asbestos filters.

A measurement of the normal "background" level of asbestos fibers provides a means of comparing the levels in beverages, and drugs filtered through asbestos containing filter pads. Studies in the United States and abroad have consistently shown that the asbestos content of various soft drinks, beers, wines, and parenteral drugs is no more than and, in many cases, less than the natural background level of asbestos detected in water.[12,13]

Preliminary results of a 1973 survey made for the Food and Drug Administration showed that the use of asbestos-containing filters bears no relationship to the presence of asbestos fibers in the finished product.[14] Thus, it is unlikely that the elimination of asbestos filters in the production of parenteral drugs will result in any reduction in asbestos content of the finished product.

Governmental Action

The Environmental Protection Agency has promulgated national waste water effluent standards for asbestos manufacturing operations to control the potential discharge of asbestos-bearing waste into our nation's waterways and publicly owned treatment works. The asbestos manufacturing industry in the United States participated in the development of these regulations.

In March 1975, the Food and Drug Administration published a regulation restricting the utilization of asbestos filters in the manufacture, processing or packaging of components of drug products for parenteral injection in humans. At the same time, however, FDA reaffirmed a previous decision made in September 1973 that "promulgation of regulations on the limitations or prohibition of the use of asbestos filters for the preparation of foods and non-parenteral drugs . . . is unwarranted until more reliable data can be obtained concerning these matters."[15]

SUMMARY

1. Asbestos exists naturally in small though detectable amounts in certain rock formations throughout the world and for millions of years has been released into the environment through erosion by wind and water.

2. The Advisory Committee on Asbestos Cancers of the International Agency for Research on Cancer has stated that evidence does not indicate a risk of cancer resulting from asbestos fibers present in water, beverages, food or fluids used in the administration of drugs. Levels of asbestos found in beverages, drugs, etc., have not been demonstrated to be hazardous to human health.

3. The evidence for a relationship between heavy occupational asbestos inhalation and increased risk of gastrointestinal cancer is inconclusive.

4. There is no existing evidence of a relationship between gastrointestinal cancer and drinking water carried through asbestos-cement pipe.

5. The asbestos content of various soft drinks, beer, wines and parenteral drugs filtered through asbestos containing filter pads is no more than and in many cases less than the natural background level of asbestos that may be found in the world's water sources.

REFERENCES

1. "Report of the Advisory Committee on Asbestos Cancers to the Director of the International Agency for Research on Cancer," *British Journal of Ind. Medicine*, Vol. 30, pp. 180-186, 1973.
2. "Report on Research at St. James' Hospital, Leeds, England" by L.M. Swinburne, Appendix 4, including report from Asbestos Research Council, October 1970-October 1971.
3. "Cancer Risk of Insulation Workers in the United States," a paper by I.J. Selikoff and E.C. Hammond presented at IARC Conference on the Biological Effects of Asbestos, Lyon, France, 1972.
4. "Feeding of Blue Asbestos to Rats" by F.M. Bonser and D.B. Clayton, 1967. Annual Report, British Empire Cancer Campaign for Research, p. 242.

A 13202

[redacted]

824

Published by AsbestosClaims.Law
asbestosclaims.law/library/16102/4

5. "The Locus of Pathogenicity of Asbestos Dust" by P. Gross, Archives of Environmental Health, Vol. 27, p. 240, 1973.
6. "Asbestos: The Need for and Feasibility of Air Pollution Controls," National Academy of Sciences, Committee on Biologic Effects of Atmospheric Pollutants, ISBN 0-309-01927-3, 1971.
7. "Asbestos-Cement Water Pipe and Health" A/C Pipe Producers Association, Washington, D.C., p. 4, 1973.
8. "A Study of the Problem of Asbestos in Water," The American Water Works Research Foundation, *American Water Works Association Journal*, Sept. 1974, p. 5.
9. "Asbestos-Cement Water Pipe and Health." A/C Pipe Producers Association, Washington, D.C., p. 3, 1973.
10. From testimony by Dr. Arnold Brown in Federal District Court as quoted in *Congressional Record*, Jan. 29, 1975, p. S1179
11. From testimony in Federal District Court as quoted in *Congressional Record*, Jan. 29, 1975, P. S1180.
12. "Asbestos Fibers in Beverages and Drinking Water," by A.M. Cunningham and R. Pontefract, Nature, Vol. 232, p. 332-333, 1971.
13. Report to Food and Drug Administration by Mr. Philip McGrath, July 10, 1973.
14. Report to the Acting Director, Bureau of Drugs by Dr. J. Richard Crout, 1973.
15. *Federal Register*, March 14, 1975, p. 11867.

AIA
NORTH AMERICA

Additional copies of this pamphlet
are available.

Asbestos Information Association/North America
1660 L Street, N.W.
Washington, D.C. 20036

A13203

825

[redacted]

Published by AsbestosClaims.Law
asbestosclaims.law/library/16102/5