

FILE NAME: Johns-Manville (JMA)

DATE: 1967 - 1968

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DOCUMENT DESCRIPTION: Asbestos Research; Transite Pipe;
Drinking Water Controversy - Letters, Media Articles & Report

X

4173

Environmental Control Department
Research & Engineering Center
March 20, 1968

K
F
W. P. Raines - GHQ

Water Contamination Studies
Asbestos-Cement Pipe

On Wednesday, March 20, I received a telephone call from Mr. Ronald F. Coene, Chief of the Basic Data Section, Environmental Health Studies, U.S.P.H.S. Mr. Coene had two reasons for calling:

- (1) Senator Baker of Tennessee had addressed a letter of inquiry concerning health hazards of asbestos-cement pipe to the U.S.P.H.S. Mr. Coene was obtaining data for Senator Baker. The data he required related to government purchase specifications for asbestos-cement pipe. I referred him to J. P. Baker and contacted Mr. Baker to discuss the situation with him prior to his being contacted by Mr. Coene.
- (2) Mr. Coene apparently works very closely with Mr. McCabe and therefore he was interested in progress of our water contamination studies. I briefed him in general terms on our three-pronged study. I told him meaningful data probably would not be available from the Manville-Bound Brook comparison and the community water studies until mid- to late-April. I further indicated that I thought data from our new test stand would not be available until mid-summer. He was interested in results to date, so I gave him numbers that we had obtained from our Globe, Arizona water study. He apparently was impressed with the minute quantities of fiber we were finding. I suggested that when we had final results we contact U.S.P.H.S. and they come to the Research Center for a discussion with, perhaps, F. L. Pundsack, S. Speil, myself and others. I think this would be better than trying to transmit our findings by letter.

If you have any questions, please call me.


E. M. Fenner

EMF/ems

cc: J. F. Baker - GHQ
F. L. Pundsack
S. Speil
J. H. Swensen
File
C

Environmental Control Department
Research & Engineering Center
April 2, 1968

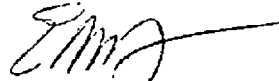
W. P. Raines - GHQ

Water Contamination Studies

On Tuesday, March 26, 1968, Mr. Jeremiah P. Lynch, Assistant Chief, Environmental Activities, United States Public Health Service, met at the Research and Engineering Center with J. P. Leineweber and me to review the techniques we were using in determining asbestos fiber content in water samples.

Previously, the U.S.P.H.S. had planned to use the results from our water contamination studies as a basis for their determination of the health hazard from ingested asbestos fiber. Mr. Lynch informed us that because of additional governmental requests for information his section had been given an assignment to conduct water contamination studies. We surmise that U.S.P.H.S. will use their results in their health determinations rather than ours. After the review of our techniques Mr. Lynch expressed an opinion they would not completely follow our procedures, but would probably develop their own. He did not indicate what these procedures would be.

I still plan to invite two or three people from the U.S.P.H.S. to meet with us at the Research Center to review results from Phase 1 and 2 of our study. This review will take place in mid- to late April.


E. M. Fenner

EMF/ems

cc: F. I. Pundsack
S. S. [illegible]
J. P. Leineweber
J. H. Swensen
File
C

HOWARD H. BAKER, JR.
TENNESSEE

Nashville
4/18
United States Senate

WASHINGTON, D.C. 20510
Washington
Transcript

April 1, 1968

Mr. James J. La Panna
Councilman
Metropolitan Government of Nashville
and Davidson County
205 Courthouse
Nashville, Tennessee

Dear Mr. La Panna:

Enclosed is the letter I received from the Public Health Service regarding the use of asbestos-cement pipe by the government. I hope Mr. Everts' letter will adequately answer the questions you have raised but don't hesitate to call on me if you need additional information.

Sincerely,

Howard H. Baker, Jr.

HHBjr:cw

Enclosure

cc: Mr. K. R. Augst
Mr. Frank Griffin
Mr. William R. Willis, Jr.



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

MAR 30 RECD

NATIONAL CENTER FOR
URBAN AND INDUSTRIAL HEALTH
222 EAST CENTRAL PARKWAY
CINCINNATI, OHIO 45202

REFER TO:

March 26, 1968

Honorable Howard H. Baker, Jr.
United States Senate
Washington, D.C. 20510

Dear Mr. Baker:

Reference is made to the inquiry you received from Councilman James J. LaPenna, of Nashville, concerning the use of asbestos-cement pipe by the Federal Government and the question relating to a health hazard through its use.

The Federal Government has had a specification for asbestos-cement pipe since 1940. It was designated as SS-P-351; revised in 1953, and is now designated as SS-P-351a. We understand from the General Services Administration, who is responsible for keeping this specification current, that the 1953 specification is presently being revised and will become effective sometime in April or May of this year, and will be assigned number SS-P-351b.

All agencies of the Government are required to use this specification in purchasing asbestos-cement pipe. The Public Health Service has in the past, and is continuing to purchase asbestos-cement pipe for use in its Indian Health Program referring to this specification in its bid documents.

The question of a health hazard resulting from the use of asbestos-cement pipe in water distribution systems has arisen, as Mr. LaPenna has stated. There have been no specific studies of this problem. The health hazards of asbestos in occupational exposures in years past have been high and health effects noted. Current practices have markedly reduced these industrial exposures. Exposure to the public of asbestos from water pipe would be relatively slight, but we have undertaken a small project to document the extent of this exposure. We will be most happy to keep you informed of the results of this study.

Sincerely yours,

Curtiss M. Everts
Chief

Water Supply and Sea Resources
Program

February 26, 1968

Mr. Charles F. Barber
Executive Vice President
American Smelting and Refining Company
120 Broadway
New York, N. Y. 10006

Dear Chuck:

Attached is a copy of a letter from Dr. Irving J. Selikoff which presents the same point of view that Dr. Selikoff expressed in his letter to Dr. Bistowish of Nashville last December 7. This letter is certainly more positive than negative for our cause and seems to take the wind out of Vanderbilt University's Dr. Snell's sails, since Dr. Snell used the previous writings of Dr. Selikoff in making his original allegations.

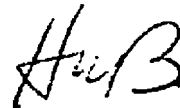
We are now proceeding full steam with the position paper on asbestos-cement pipe. A due date of March 15 has been placed on this position paper.

Also enclosed are some reproductions of newspaper clippings in connection with an appearance of Mr. J. Baker of Johnsville before the Metro Health Board of Nashville and an additional appearance before the Metro Councilmen.

I repeat that as agreed at our meeting on January 3, this information is to be kept strictly on a top executive level. It is definitely not to be distributed to the field.

It is with this understanding that the attachments are sent to you.

Sincerely yours,



HMB:LH
Encs.

cc F. J. Solon, Jr. ✓

February 26, 1968

Mr. Gene G. Curry
Secretary
Flintkote Company
30 Rockefeller Plaza
New York, N. Y. 10020

Dear Gene:

Attached is a copy of a letter from Dr. Irving J. Selikoff which presents the same point of view that Dr. Selikoff expressed in his letter to Dr. Bistowish of Nashville last December 7. This letter is certainly more positive than negative for our cause and seems to take the wind out of Vanderbilt University's Dr. Snell's sails, since Dr. Snell used the previous writings of Dr. Selikoff in making his original allegations.

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Sincerely yours,

HMB:LH
Encs.

cc F. J. Solon, Jr. ✓

February 26, 1968

Charles E. DeLong, Esq.
Secretary and Resident Counsel
Certain-teed Products Corporation
120 East Lancaster Avenue
Ardmore, Pennsylvania 19003

Dear Charlie:

Attached is a copy of a letter from Dr. Irving J. Selikoff which presents the same point of view that Dr. Selikoff expressed in his letter to Dr. Bistowish of Nashville last December 7. This letter is certainly more positive than negative for our cause and seems to take the wind out of Vanderbilt University's Dr. Snell's sails, since Dr. Snell used the previous writings of Dr. Selikoff in making his original allegations.

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Sincerely yours,

HMB:LH
Encs.

cc F. J. Solon, Jr. ✓

February 26, 1968

Mr. S. D. Weaver
Vice President and General Manager
Cement Asbestos Pipe Company
Ragland, Alabama 35131

Dear Mr. Weaver:

Attached is a copy of a letter from Dr. Irving J. Selikoff which presents the same point of view that Dr. Selikoff expressed in his letter to Dr. Bistowish of Nashville last December 7. This letter is certainly more positive than negative for our cause and seems to take the wind out of Vanderbilt University's Dr. Snell's sails, since Dr. Snell used the previous writings of Dr. Selikoff in making his original allegations.

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I repeat that as agreed at our meeting on January 3, this information is to be kept strictly on a top executive level. It is definitely not to be distributed to the field.

It is with this understanding that the attachments are sent to you.

Very truly yours,

HMB:LH
Encs.

cc F. J. Solon, Jr. ✓



MOUNT SINAI SCHOOL OF MEDICINE
of The City University of New York
FIFTH AVENUE AND 100TH STREET · NEW YORK, N.Y. 10029



Department of Community Medicine

February 16, 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.

February 16, 1968

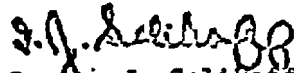
This is not to say that the problem of ingested asbestos does not require further study; it obviously does. First, such studies will be useful in determining whether any relationship exists between ingestion of such material and the occurrence of peritoneal mesothelioma or gastrointestinal carcinoma (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,



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

IJS:df

Pipe-Cancer Tie Stirrs Furor

By FRANK RITTER

Metro councilmen and a Vanderbilt University professor clashed verbally yesterday over what prompted the professor to infer recently that asbestos cement pipe might cause cancer.

Dr. James Snell, assistant professor at the Vanderbilt school of medicine was questioned at length by Councilman James Hamilton about a letter he wrote recently in which he raised the cancer question.

"THE IMPLICATION of your letter," Hamilton told Snell during a council committee meeting, "was that Metro Council, under the guise of saving a few cents, was going to place hundreds of thousands of people in danger of getting a dread disease—cancer."

"We certainly don't want to do that. And coming at the time it did, and in the alarming way it was written and distributed to the public, it would seem to me the letter was unfair."

The meeting, a joint session of the finance and public works committees of Metro Council, was called to consider whether the city should permit asbestos pipe companies to bid on Metro pipe contracts.

Cast iron pipe has been used exclusively, although it is more expensive initially than asbestos pipe, for at least 40 years in the Nashville water system.

HAMILTON asked Snell yesterday if there have been any studies to determine if iron oxide from cast iron pipe might cause cancer. Snell replied that there have been no such studies, to his knowledge.

"There has been no research," Hamilton asked, "on whether asbestos cement pipe or cast iron pipe can cause cancer, has there?"

Snell said there has not been.

Hamilton said if Snell was sincere in raising the question about asbestos pipe, he should have raised the same question about cast iron pipe.

"I think it is perfectly reasonable to raise such a question" about cast iron pipe, Snell replied.

"WOULD YOU raise the question, doctor?" asked Councilman James LaPenna.

"I would be very happy

(Turn to Page 12, Column 7)

Pipe-Cancer Tie Stirs Forum

(Continued From Page One)

to write the Public Health Service about it," Snell answered. "The whole question of contamination of food and water should be raised, in my opinion."

Snell sent his letter last November to Robert L. Lawrence, Metro water works director, supporting Lawrence's decision to prohibit asbestos cement pipe manufacturers from bidding on Metro waterpipe purchases.

The professor said he would consider the use of asbestos pipe "a medical hazard of significant degree" until the Public Health Service has checked it out completely.

EXPLAINING TO the councilmen yesterday that he had no ulterior motive in writing the letter, Snell said:

"I regret the vindictive attitude that some people have against me, merely as a result of my raising this question."

"I'm not vindictive against you, doctor," Hamilton interrupted. "In fact, I had never met you until now. It just seems to me that a scientist is under a requirement to state all factors in a case."

"I don't think you understand how this came about," Snell said. "I simply raised thought that before Nashville undertakes to buy large amounts of asbestos pipe, this question should be raised."

"**IF YOU DESIRE** to raise the same question about cast iron pipe, then I think it is very reasonable. I have no political motive. I have no financial interest in these pipe companies. I am not aligned politically with any group."

Hamilton reacted angrily at this statement by Snell and declared:

"We're not inquiring, doctor, into your political alignments, your religion, or anything else."

The exchange between the councilmen and Snell followed presentations by representatives of both Clow Corp., which has supplied all Metro waterpipe the past four years, and Johns-Manville Sales Corp., an asbestos pipe dealer seeking to bid on pipe purchases here.

K. RAYMOND Augst, assistant district sales manager for Johns-Manville, told the councilmen that there are strong indications Metro could save 34% on its pipe purchases if the city permitted the asbestos pipe firms to bid.

Augst said Metro bought \$1.3 million worth of

cast iron pipe from July, 1966, to September, 1967. Asbestos pipe, Augst added, would have cost only \$364,000 — giving Metro a savings of \$459,000.

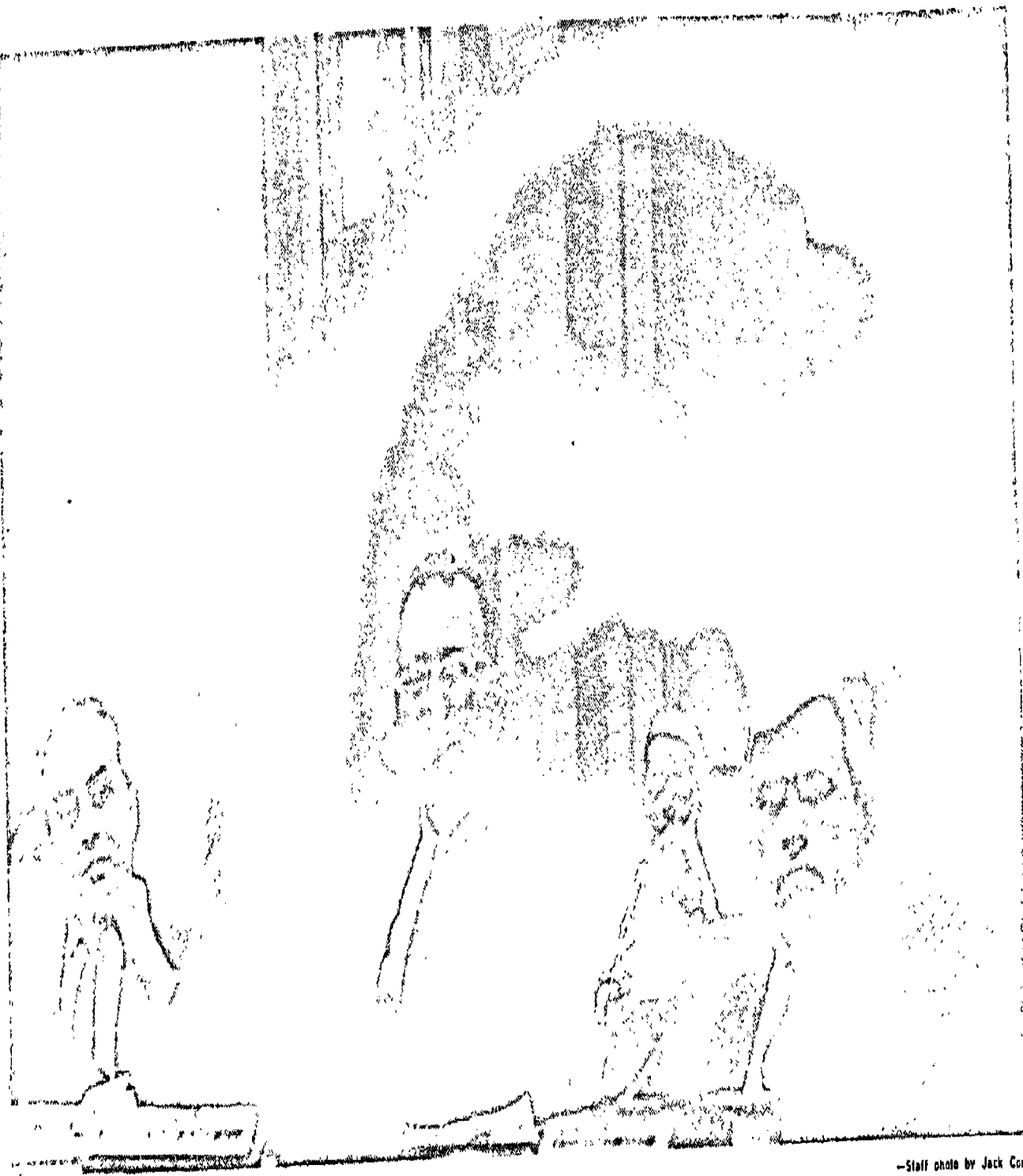
Lawrence has defended buying the more expensive pipe on grounds it is better and has "a greater factor of safety."

However, Johns - Manville representatives insisted yesterday that their product will serve the city equally as good as cast iron pipe if it is installed properly.

SHORTLY AFTER Snell wrote his letter last year to Lawrence, raising the question of whether asbestos pipe could cause cancer, the Metro Health Board took a similar stand.

The board voted Jan. 17 to "not approve the use of asbestos pipe" until sufficient information could be obtained to prove if it is medically safe.

Yesterday, at an early morning meeting, the board voted to reconsider its stand on the basis of evidence submitted by Johns-Manville Co. representatives.



—Staff photo by Jack Corn

It's Cast Iron vs. Asbestos in Council Squabble

Metro councilmen listen intently as spokesmen for cast iron and asbestos cement pipe firms argue the relative merits of their products. The piece of pipe in the foreground is cast iron. It was taken from an old city waterline after serving without any breakdown for nearly 75 years, Metro waterworks officials said. The councilmen, from left, are Tandy Wilson, Thurman Brooks and Richard Taylor.

Health Board To Review Asbestos Water Pipe Use

The Metro Health Board on a motion by Dr. David Strayhorn Sr. voted today to reconsider its stand on the use of asbestos-concrete pipe for water lines.

The board voted Jan. 17 to "not approve the use of the pipe" until sufficient information could be obtained to prove the pipe was medically safe.

Metro health director Dr. Joseph Bistowish said the board's action did not mean that it would change its position concerning the pipe but only that it would reconsider any information concerning the safety of the pipe.

"Asbestos is a known cancer

causing agent when inhaled," Dr. Bistowish said, but added that sufficient information is not available concerning its use as a water conducting material.

The U.S. Public Health Service is initiating a study into asbestos pipe, probably as a result of an inquiry to them from the health department.

"The service told us we were the first municipal health board to raise the question concerning the safety of the pipe," Dr. Bistowish said.

Representatives of an asbestos-cement pipe producer spoke to the board to explain their position. The spokesmen said they objected "to being guilty until proven innocent."

C O P Y

✓
Research & Engineering Center
June 6, 1968

File: 425-1

F. L. Pundsack

Water Contamination Studies

Re: Letter of E. M. Fenner to F. L. Pundsack of 5/16/68

Using the information we have obtained on the quantity of fiber in water after passing through asbestos-cement pipe, we have calculated the rate of erosion of the pipe, based on the following assumptions.

1. The pipe contains 20 per cent by weight of fiber.
2. The density of the pipe is 110 pcf.
3. The rate of erosion is uniform over the entire length of pipe.
4. The strength of the pipe is reduced to one-half its original value when the wall thickness is reduced by one-half.

The attached table shows erosion rates in inches per year, and the time in years required for the wall thickness to be reduced by one-half. These figures are for a 5 mile length of pipe, with a water velocity of 4 ft/sec, and 6 micrograms of fiber in each gallon of water.

These calculations were made on the C.E.I.R. time-sharing computer, and data are available for a much wider variety of conditions if they are required.

J. P. Leineweber

mac

Attachment

cc: E. M. Fenner
S. Speil
J. H. Swensen
Attn: J. F. Herr

A T T A C H M E N T

EROSION OF ASBESTOS-CEMENT PIPE BASED ON FIBER CONTENT OF WATER

Pipe Diameter (in.)	Erosion Rate (in./yr)	Years to 1/2 Wall Thickness
4	2.18×10^{-5}	11,700
6	3.27×10^{-5}	9,300
8	4.36×10^{-5}	8,100
10	5.45×10^{-5}	8,350
12	6.54×10^{-5}	7,950
16	8.72×10^{-5}	7,500
20	1.10×10^{-4}	7,900
24	1.31×10^{-4}	7,875

NOTE: Data based upon a 5 mile length of pipe, with a water velocity of 4 ft/sec, and a fiber content of 6 micrograms per gallon.

mac
6/6/68

Tabular Data

"Analysis of the evidence suggesting
general community asbestos
air pollution"

I.J. Selikoff, M.D. and E. Cuyler Hammond, Sc.D.

Mount Sinai School of Medicine
City University of New York

Monday, July 22, 1968.
Ninth American Medical Association
Air Pollution Medical Research
Conference, Denver, Colorado

Mesothelioma and Asbestos Exposure

<u>Geographical Area</u>	<u>Year</u>	<u>Period</u>	<u>Population</u>	<u>Total</u>	<u>EXPOSURE</u>			
					<u>Occupation</u>	<u>Family</u>	<u>Neighborhood</u>	<u>Exposure not Identified</u>
<u>A. Occupational Series</u>								
1 London ¹	1965	1957-64	71 Asbestos Factory deaths	15	15	0	0	0
* 2 New York- New Jersey ²	1968	1942-67	369/632 asb. worker deaths	20	20	0	0	0
3 Dresden ³	1968	1954-67	277 asb. worker deaths	30	30	0	0	0
<u>B. Local Case Records Series</u>								
4 Liverpool ⁴	1964	1955-63	Tumor Registry	17	14	-	-	3
5 Belfast ⁵	1965	1950-64	Pathology records	42	32	0	0	10
6 London ⁶	1965	1917-64 (1960-64)	Pathology records	76	31	9	11	25
7 New Jersey ⁷	1967	1964-66	Community Hospital	17	15	0	2	0
8 Malmo, Sweden ⁸	1968	1957-66	12763 Hosp. Autopsies	35	5	-	-	30
9 Newcastle ⁹	1968	-	Path. Records	22	20	1	-	1
<u>C. Area-Wide Series</u>								
10 N.W. Cape Province, S.A. ¹⁰	1960	1965-60	-	33	17	1	14	1
11 Pennsylvania ¹¹	1967	1958-63	-	42	20	3	8	11

Mesothelioma and Asbestos Exposure

- 1) Smither, W.J.: Proc. Roy. Soc. Med. 59:57, 1966.
- 2) Selikoff, I.J., 2nd International Symposium on Biological Effects of Asbestos, Dresden, April 22-25, 1968.
- 3) Anspach, M.: Dresden, 1968.
- 4) Owen, G.: Brit. Med. J. 2:214, 1964.
- 5) Elmes, P., McCaughey, W.T.E. and Wade, O.: Brit. Med. J. 1:350, 1965.
- 6) Newhouse, M. and Thompson, H.: Brit. J. Indust. Med. 22:261, 1965.
- 7) Borow, M., Conston, A., Livornese, L.L. and Schalet, N.: JAMA 201:587, 1967.
- 8) Hägerstrand, I., Meurman, L. and Ödlund, B.: Acta Path. Microbiol. Scand. 72:177, 1968.
- 9) Ashcroft, T.: Dresden, 1968.
- 10) Wagner, J.C., Sleggs, C.A. and Marchand, P.: Brit. J. Indust. Med. 17:260, 1960.
- 11) Lieben, J. and Pistawka, H.: Arch. Envir. Health 14:55a, 1967.

Pleural calcification (asbestotic) among
populations living in vicinity of asbestos mines.

	<u>Number Examined</u>	<u>Pleural Calcification</u>
Finland ¹		
County "A" (Asbestos Mine)	6312	499
County "B" (No Mine)	7101	0
Bulgaria ²	3325	155
Avren County (Asbestos Mine)		(23 + 132)

1 - Kiviluoto, R.: Acta Radiol. Suppl. 194, 1960

2 - Zolov, Bourilkov and Babadjov: Envir. Res. 1:287, 1967

Asbestos bodies in autopsy series

<u>CITY</u>	<u>Year of Publication</u>	<u>Technique</u>	<u>Number Examined</u>	<u>Percent Positive</u>			<u>Occupational Analysis</u>
				<u>Total</u>	<u>Male</u>	<u>Female</u>	
Capetown ¹	1963	Smear	500	26.4	30.4	20.0	0
Belfast ²	1965	Thin sections	200	-	20.5	-	+
Pittsburgh ³	1965	Smears	100	41.0	47.2	34.5	0
Finland ⁴	1966	Thick sections	264	57.6	60.1	54.3	0
Miami ⁵	1966	Smear	500	27.2	31.6	20.4	0
London ⁶	1966	Thick sections	115	24.3	-	-	0
Montreal ⁷	1966	Scape	100	48.0	57.1	36.4	0
	1966	Smear	80	21.2	-	-	0
Glasgow ⁸	1967	Smear	100	23.0	37.1	0	0
Milan ⁹	1967	Smear	100	51.0	54.7	44.4	0
Newcastle ¹⁰	1968	Scrape	311	20.3	25.5	11.3	+
New York City ¹¹	1968	Thick sections: 901 ashed		42.4	46.9	33.4	+

1) Thompson; Kaschula and MacDonald: S. Afr. Med. J. 37:77, 1963.

2) Elmes, McCaughey and Wade: Brit. Med. J. 1:350, 1965. 3) Cauna, Totten and Gross: J.A.M.A. 192:371, 1965. 4) Muerman, L.: Acta Path.

Microbiol. Suppl. 181, 1966. 5) Thompson and Graves: Arch. Path. 81:548,

6) Hourihane, Lessof and Richardson: Brit. Med. J. 1:1069, 1966.

7) Anjivel and Thurlbeck: Canad. Med. Assoc. J. 95:1179, 1966. 8) Roberts: J. Clin. Path. 20:570, 1967. 9) Ghezzi, Molteni and Puccetti: Med. Lavoro

58:223, 1967. 10) Ashcroft: Brit. Med. J. 1:614, 1968. 11) Selikoff and Hammond, current studies.

Asbestos bodies in the lungs of 901
consecutive autopsies, N.Y.C. 1966-67

	<u>TOTAL</u>	<u>MALES</u>	<u>FEMALES</u>
	<u>0/47</u>	<u>0/26</u>	<u>0/21</u>
0-1			
2-19	1/5	0/2	1/3
20-39	14/47	11/34 (32%)	3/13 (23%)
40-59	110/262	90/192 (47%)	20/70 (29%)
60-79	220/454	155/299 (52%)	65/155 (42%)
80+	<u>37/86</u>	<u>25/46</u> (54%)	<u>12/40</u> (30%)
	382/901	281/599 (47%)	101/302 (33%)

Asbestos bodies in the lungs of a series of 561 NYC residents examined at autopsy 1966-1967, with study of occupation.

<u>AGE</u>	<u>MALE</u>			<u>FEMALE</u>		
	<u>NO.</u>	<u>+</u>	<u>- % POS.</u>	<u>NO.</u>	<u>+</u>	<u>- %POS.</u>
0-1	0	0	0	0	0	0
2-19	1	0	1	1	1	0
20-39	21	7	14 (33)	11	4	7 (36)
40-49	51	23	28 (45)	18	4	14 (22)
50-59	71	38	33 (54)	22	5	17 (23)
60-69	110	61	49 (55)	46	21	25 (45)
70-79	98	55	43 (56)	52	19	33 (38)
80+	<u>30</u>	<u>16</u>	<u>14 (53)</u>	<u>29</u>	<u>8</u>	<u>21 (27)</u>
	382	200	182	179	62	117

52%

35%

382	200	182
<u>179</u>	<u>62</u>	<u>117</u>
561	262	299

TOTAL	+	-
-------	---	---

Asbestos bodies in 561 NYC autopsies, categorized
by potential occupational asbestos exposure

AGE	MALES		FEMALES	
	KNOWN	NOT KNOWN	KNOWN	NOT KNOWN
<u>0-1</u>	<u>0/0</u>	<u>0/0</u>	<u>0/0</u>	<u>0/0</u>
2-19	0/0	0/1	0/0	1/1
20-39	0/1	7/20	0/0	4/11
40-49	9/14	14/37	0/0	4/18
50-59	13/22	25/49	0/0	5/22
60-69	12/19	49/91	2/2	19/44
70-79	15/19	40/79	0/0	19/52
80+	<u>6/6</u>	<u>10/24</u>	<u>0/0</u>	<u>8/29</u>
	55/81	145/301	2/2	60/177
	(68%)	(48%)		(34%)

Asbestos bodies in 561 NYC autopsies, by
broad occupational categories

MALES

<u>AGE</u>	<u>BLUE COLLAR</u>	<u>WHITE COLLAR</u>	<u>FEMALES</u>
0-1	0/0	0/0	0/0
2-19	0/0	0/1	1/1
20-39	5/9 (56%)	2/12 (17)	4/10 (40%)
40-49	20/34 (59%)	3/17 (18)	4/19 (21%)
50-59	24/44 (55%)	14/27 (52%)	5/21 (24%)
60-69	43/70 (61%)	18/40 (45%)	21/46 (46%)
70-79	34/64 (53%)	21/34 (62%)	20/53 (38%)
80+	<u>12/19 (63%)</u>	<u>4/11 (36%)</u>	<u>7/29 (24%)</u>
	138/240 (58%)	62/142 (44%)	62/179 (35%)
	200/382 (52%)		
2+-3+	32/138	6/62	

Asbestos bodies in specific occupational categories,
among 561 autopsies (NYC, 1966-67)

	<u>TOTAL POSITIVE</u>	<u>POSITIVE 2+-3+</u>
SHIPYARD	18/22 (82%)	9/18
CONSTRUCTION	34/48 (71%)	12/34
TRANSPORTATION	20/34 (59%)	4/20
MAINTENANCE	8/10	4/10

PLEURAL CALCIFICATION: X RAY SURVEY

IN SELECTED FINNISH AREAS 1960-1965 (RAUNIO)

<u>AREA</u>	<u>POPULATION</u>	<u>NO. X-RAYED</u> [*]	<u>NO. CALCIFICATION</u>	<u>CALCIFICATION/1000</u>
1. 10 rural counties East Finland (asbestos deposits)	72,439	43,483	1232	28.00
2. 25 rural counties East Finland (no asbestos deposits)	232,754	129,587	70	0.54
3. 71 rural counties S.W. and N. Finland (no asbestos deposits)	534,861	265,223	7	0.02
4. 13 Medium-sized towns (4,536-76,231)	315,040	194,908	119	0.61

*Approximately 80% of inhabitants over 15.

K 5

Environmental Control Department
Research & Engineering Center
May 16, 1968

W. P. Raines - GHQ

F

Meeting With United States Public Health Service
Water Contamination Studies
May 15 and May 16, 1968

On Wednesday, May 15 and Thursday, May 16, 1968,

Dr. Graham Walton and
Mr. Ronald Coene,
Water Supply & Sea Resources Program
National Center for Urban & Industrial Health
Department of Health, Education & Welfare
Cincinnati, Ohio

visited the Research Center to discuss the results of our studies on contamination of potable water from asbestos-cement pipe. Meeting with them from Johns-Manville were:

F. L. Pudsack
J. P. Laineveber
H. M. Jackson
E. M. Penner

We completely reviewed with them phases (1) and (2) of our study:

- (1) Study of Municipal Water Systems (9 cities)
- (2) Round Brook/Manville Comparisons.

After introductory remarks by E. M. Penner, J. P. Laineveber described in detail the techniques we used. Data sheets giving complete results from these studies were passed out and discussed in detail.

During our discussions we repeatedly stressed two facts:

- (1) The small size of fibers found - under 0.5μ in diameter.
- (2) Maximum fiber found in any municipal system was approximately 6 micrograms ($6\mu\text{g}$) per gallon.

Our visitors' reaction was very favorable. They stated they were impressed with the thoroughness and apparent accuracy of our study.

May 16, 1968

Neither Dr. Walton nor Mr. Coene has medical or toxicological training. The data and impressions they obtained will be reviewed with medical people and toxicologists at Cincinnati. Final determinations will be based on our results and results from a study presently being conducted by their Environmental Activities Group. Findings will not be published or presented as a paper. They will be available to Johns-Manville and to any government official, such as a Public Health Officer. Findings may not be quoted by us in our advertising. However, we are at liberty to refer inquiries to the Department of Health, Education and Welfare for answers.

My impression is that Dr. Walton and Mr. Coene's report of our activities will be highly favorable to us.

E. M. Fenner

EMF/ems

cc: A. C. Smith
J. F. Baker - DEQ
H. M. Jackson - DEQ
F. L. Pundsack
J. P. Laineveber
J. H. Swensen
File
C

gms

Division Headquarters
August 8, 1968

H. M. Jackson - 2nd Floor



POLYMERS FOR SEWAGE FLOW
YOUR LETTER TO D. L. HINMON AUGUST 5, 1968

Thank you for sending us the New York Times article on Polymers that Speed the Flow of Sewage. John Wirts of Cleveland, who is mentioned in the article, is a personal friend of ours and has written me about this material. We plan to discuss it with him personally at a meeting in Chicago next month.

I appreciate you taking time to send us the article. We need all the help we can get, and it's good to know you're looking out for us.

J. S. AUTRY

JSA/md

cc: D. L. Hinmon - 11th Floor
M. Harris

General Headquarters
February 5, 1968

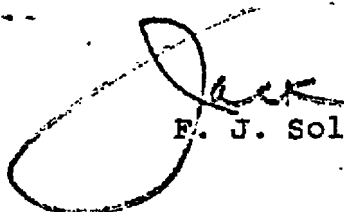
H. M. Ball

Herb:

Attached is a progress report on our environmental health project in the asbestos-cement area.

In line with our agreement at the January 3rd meeting of a/c pipe manufacturers, you may want to pass this report on to them.

If there are questions before so doing, please let me know.


F. J. Solon, Jr.

cc-Dr. George W. Wright, Cleveland, Ohio

M. Harris

J. Baker

W. P. Raines

H. M. Jackson



PROGRESS REPORT
Environmental Health Project
Asbestos-Cement Pipe

At the conclusion of the January 3rd meeting of asbestos-cement pipe manufacturers, several of us volunteered for specific assignments. This is the first report of progress on those assignments.

Assignment: H. M. Ball to visit the General Counsel of the Cast Iron Pipe Research Association to discuss the desirability of eliminating reference to alleged health hazards in the promotion of various types of water pipe.

PROGRESS

Mr. Ball and Jay Baker carried out this assignment on January 18, meeting with both the General Counsel and the Executive Secretary of the Association at the Counsel's Washington, D.C. office. Mr. Ball has reported the successful results of that meeting to the other a/c pipe manufacturers. J-M Pipe Division people report no new "incidents" since that time.

Assignment: F. J. Solon, Jr. to visit Dr. Murray Brown of the U.S. Public Health Service to sound him out on what PHS plans to do about questions regarding the safety of a/c pipe and whether he would be receptive to the idea of broadening any PHS study to include cast iron, plastic and other types of pipe used to carry potable water.

PROGRESS

At a subsequent meeting with Dr. George W. Wright, Medical Consultant to the President of Johns-Manville, it was deemed advisable for Dr. Wright, who knows Dr. Brown well, to make the contact. He did so by phone the week of January 21. Dr. Brown told Dr. Wright he was aware of the problem, that Senator Gore of Tennessee had shown interest in it and that he (Dr. Brown) had an appointment with

Dr. Stewart, the Surgeon General, that week and that the subject of a/c pipe could very well come up. He promised to report after his visit with Dr. Stewart.

He did not report that week so Dr. Wright called him January 31 to learn:

1. The subject did not come up in Dr. Brown's meeting with the Surgeon General.
2. If there is to be a test program on a/c pipe, it will probably be given to Dr. Brown's group - and that he ~~has~~ already made up his mind to include cast iron, plastic and other types of pipe in the program.
3. Dr. Brown has written to Dr. I. J. Selikoff asking for a copy of Dr. Selikoff's letter to Dr. Bistowish, Director of Health of Nashville and Davidson County. He is awaiting receipt of that letter before writing to Senator Gore, as the Senator had requested. He

has had no pressure from Senator Gore in the meantime and believes the political pressure is off.

In light of the above, it would not seem to be necessary for a delegation of a/c pipe manufacturers to visit Dr. Brown or anyone else in the PHS at this time regarding the inclusion of cast iron pipe, etc., in any test program. However, we will keep in touch with the situation through Dr. Wright so that should consideration of a test program become imminent, we will be on top of it and can then mutually decide strategy.

Assignment: Johns-Manville will prepare a position "background" paper on the a/c pipe environmental health question.

PROGRESS

The first rough draft has been completed. To the comments of Dr. Wright which form a firm base for this paper, we wanted to add those of Dr. Selikoff. Ivan Sabourin, Counsel to the Quebec Asbestos Mining Association, obtained from Dr. Selikoff a copy of the Selikoff letter to Dr. Bistowish along with his (Dr. Selikoff's) permission to give it to F. J. Solon, Jr. This gave us direct knowledge of the letter instead of the indirect knowledge we had had previously.

Now, in order to get "our own" letter of comment, Dr.

Fred Pundsack of Johns-Manville who, with a group including

Mr. Sabourin, has been having exploratory scientific meetings with the Selikoff Mount Sinai group for several months, wrote to Dr. Selikoff on January 30th, requesting his comments on health aspects of a/c pipe. We understand that Dr. Selikoff will answer this request - so that in the next two weeks, we should have our own letter from which we can excerpt for our position "background" paper. If this works out as scheduled we should have a final position paper ready by March 1st.

Assignment: F.J. Solon, Jr. to talk with Dr. Wright re possible research programs on the a/c pipe health question.

PROGRESS

Dr. Wright contacted Dr. Robert T. deTreville of the Industrial Hygiene Foundation, Pittsburgh, where much asbestos fiber research has been and is being carried on. Dr. deTreville's letter to Dr. Wright with an attached report from Dr. Paul Gross, shows that in tests already underway, involving rat feeding, no abnormalities have yet been found in the gastro intestinal tracts of these animals in the 21 months since the test program began. This is encouraging and we hope this preliminary report will be borne out on the final report when all animals have been processed. We have no date as yet for this final report.

Since these tests involve chrysotile fiber only, Dr. Wright is now considering the advisability of a similar test program involving crocidilite fiber. This will be further discussed at a meeting on February 20.

Further on the Nashville "situation":

Attached are copies of two clippings from the Nashville Banner, January 17 and the Nashville Tennessean, January 19 showing that Dr. Bistowish is still openly opposing a/c pipe despite the point of view expressed in Dr. Selikoff's letter to him. At a meeting this past week with Moke Harris and Jay Baker of the J-M Pipe Division, we agreed on strategy aimed at getting the "full story" into the Nashville papers (i.e., Dr. Selikoff's letter to Dr. Bistowish which takes a much more-temperate view of the hazard than Dr. Bistowish has thus far verbalized to the press and others.)

WATER CONTAMINATION STUDIES

At the January 3rd meeting we covered briefly the water test program we were getting underway at the Manville Research Center. Attached is a confirming memo from Ed Fenner, Director of our Environmental Control Department regarding that program.

Generally, I would say good progress is being made.
We will continue to report as that progress warrants.

F. J. Solon, Jr.

Environmental Control Department
Research & Engineering Center
January 2, 1968

CONFIDENTIAL

W. P. Raines - GHQ

Water Contamination Studies

The water contamination studies planned by the Research Center are in three groups. In the first two the samples collected will be checked as follows:

- (1) Filtration tests, and microscopic examination of the particulate matter to detect asbestos, if present.
- (2) Water hardness.
- (3) Water pH.
- (4) Iron content of the water.

The Group I program involves tests of water from Bound Brook, N. J., "an all cast-iron pipe town" and Manville, N. J., "an all asbestos-cement pipe town". The sampling and testing program will begin immediately after the first of the year. Samples will be taken weekly from each town. The program will continue until definitive results are obtained.

The Group II test program involves water samples from the following cities:

Globe, Arizona
San Diego, California
Long Beach, California
Providence, Rhode Island
Wichita, Kansas
Memphis (Capleville District), Tennessee.

Two samples will be taken from each city. The first sample will be the source water before it has passed through asbestos-cement pipe and the second will be water after it has passed through the pipe. Samples from Globe, San Diego, and Long Beach have been received and the others are due soon.

CONFIDENTIAL

W. P. Raines - GHQ

-2-

January 2, 1968

The Group III tests will be made on a new pipe test loop stand under construction at the Research and Engineering Center. This test stand will permit controlled studies of the erosion or disintegration of asbestos-cement pipe by water of different pH and hardness values. The system utilizes a 30-ft test run of asbestos-cement pipe and is equipped with fairly sophisticated control equipment. The water run through the test will be filtered and examined for asbestos fiber content. The water, which will not be recirculated, will be continuously and automatically adjusted to the proper pH and hardness values. This system is scheduled to be in operation in April 1968. The first long-term test is planned with very severe water conditions insofar as asbestos-cement pipe is concerned - low pH and low hardness.


E. M. Fenner

EMF/ems

cc: E. L. Pundsack
J. H. Swensen
File
C

JANUARY 17, 1968

Health Board Advises Against Asbestos Pipe

By DICK BATTLE

The Metropolitan Board of Health recommended today asbestos cement pipe not be used in the Metropolitan water system "until more evidence can be developed" concerning any health hazard from asbestos fibers.

Dr. Joseph Bistowish, director of health, said the board "has instructed me to recommend to Mr. Lawrence (director of water and sewerage services Robert L. Lawrence) against the use of asbestos pipe at this time until we can get more evidence. We want more information about it before we can make a firm decision."

Councilman James LaPenna has been urging that bidding be opened to allow purchase of asbestos-cement pipe.

Rejected Plea

Lawrence, who is responsible for specifications on materials, has rejected LaPenna's suggestions on the basis cast iron pipe is superior to the asbestos pipe in tensile strength and suitability for use here.

Several medical experts have suggested the possibility that the ingestion of asbestos fibers from the use of asbestos pipe might be a cause of intestinal cancer.

Dr. Bistowish said he also

has asked the Nashville Academy of Medicine, through its Public Health Committee headed by Dr. Alvin Keller, to investigate the use of asbestos pipe.

The board in other actions this morning voted to add measles vaccination to the immunizations required for admission to schools, nursery schools and day care centers.

Delays Clinic

The board delayed opening of a public health clinic in the Edgehill Urban renewal project pending "discussion of several problems . . . including the level of indigency and how

we can assure follow up care . . ." The director said he would probably discuss the matter with Vanderbilt and General Hospital officials.

Dr. Bistowish said a study of influenza cases involving employees at a local industrial plant indicates a new strain of flu virus, "A-2 Taiwan" was the cause of much of the recent flu epidemic.

He said clinical evidence might develop another strain but "we know this new (A-2 Taiwan) strain has been prevalent here based on the small number of cases checked at one industrial plant."

JANUARY 19, 1968

NASHVILLE TENNESSEAN 1/19/68

Bistowish Opposes Asbestos Pipe Use

By FRANK RITTER

Dr. Joseph Bistowish, Metro health director, recommended to a council committee last night that asbestos cement pipe not be used in the water system here because of "possible health hazards."

There is no evidence, Bistowish explained, to prove that the ingestion of asbestos fibers is not related to cancer. And until further tests are conducted to show that no hazard exists, the health director added, "I would not like asbestos pipe carrying water to my house."

However, a sales representative for a major asbestos pipe manufacturer replied that cities which have used asbestos pipe for decades show no greater incidence of cancer than cities that don't use the pipe.

BISTOWISH MADE his recommendation to the council's public works committee, headed by Councilman Richard Taylor. The public works committee, along with the council's purchasing committee, has been studying the relative merits of asbestos and cast iron pipe.

Nashville has used cast iron pipe exclusively, although it is more expensive than asbestos pipe, for at least 40 years in the water system here. Robert L. Lawrence Jr., Metro waterworks director, has defended the practice on grounds cast iron pipe is better.

Bistowish, in raising the question relating to a possible health hazard inherent in asbestos pipe, said it is a proven fact that inhalation of asbestos fibers can cause cancer.

"We do know that you can get cancer by inhaling asbestos fibers," he added, "but we aren't certain about the ingestion of fibers — there have been no studies to prove it doesn't cause cancer."

"It is my understanding that such studies are now underway, and perhaps they will shed some light on the question. But to my mind, there are too many unanswered questions at this time about asbestos pipe."

K. RAYMOND August, assistant district sales manager for Johns-Manville Sales Corp., a manufacturer of asbestos pipe, said asbestos pipe has been used for 25 to 30 years in some cities without adverse consequences.

"There is nothing to prove," he added, "that there are not agents in cast iron pipe which would cause cancer."

August then raised the question of whether the "tar" which is used for the inside lining of cast iron pipe is carcinogenic (cancer-producing?).

Taylor called last night's meeting of the public works committee primarily to permit representatives for Clow Corp., manufacturer of cast iron pipe, to explain why they feel their product is better than asbestos pipe.

LENNART A. Fahlander, general sales manager for the corporation, spoke for an hour about what he termed the advantages of using cast iron pipe, using colored slides to illustrate his talk. He spent another half hour answering questions.

Taylor sharply limited discussion of questions raised by August, competitor of Clow Corp., and would not allow the asbestos pipe representative to

give a full presentation of his views.

W. J. Hayes Jr., direct sales representative for Johns-Manville, said he thinks most of the adverse comments about asbestos pipe could have been refuted if Taylor had permitted others the freedom he gave Clow representatives in speaking out.

"We were not given an opportunity at this meeting," Hayes added, "to make a presentation or offer a rebuttal to the questions raised."

"IF WE HAD been permitted to speak out, we would have shown asbestos pipe has been used for many decades in all parts of the nation, and used with great success."

"We would have discussed, if we had been given a chance to reply, U.S. Department of Commerce figures which show that the use of asbestos pipe throughout the country has increased from 21.7% of the business in 1945 to 31% in 1965. During the same period, the use of cast iron pipe has dropped from 76.3% to 64.2%."

"This indicates that the use of asbestos pipe in water systems throughout the nation is accepted."

The public works committee made no recommendation last night on whether Metro should purchase asbestos pipe instead of cast iron pipe.

Under present policies of the waterworks department, the asbestos pipe representatives are not permitted to bid on contracts for supplying pipe to the local government.

LAW OFFICES

GULLETT, STEELE, SANFORD & WHITE

B. B. GULLETT
THOMAS WARDLAW STEELE
VAL SANFORD
CHARLES HAMPTON WHITE
JACK WRIGHT ROBINSON
BEN H. GANTRELL

SEVENTEENTH FLOOR, LIFE & CASUALTY TOWER
NASHVILLE, TENNESSEE 37210
TELEPHONE 244-4004

February 26, 1968

Mr. Jay F. Baker, Production Manager
Water Pipe Division
Johns-Manville Corporation
22 East 40th Street
New York, New York 10016

Dear Mr. Baker:

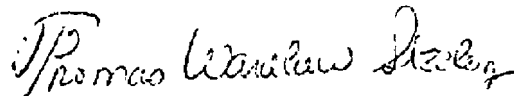
Enclosed is a copy of my letter which I have mailed to the Board through Mr. Willis, its Chairman, summarizing our position which we advocated before the Board.

We are sending you under separate cover a taped transcript of the hearing before the Board. Dr. Bistowish advises that there will be no charge for this, but that the Board would be pleased if you would furnish them with a new tape. I think this would be advisable.

Presumably I will be notified when the Board has taken a position upon its reconsideration, and I will, of course, advise you and Mr. Ball.

It was a pleasure to have worked with you in Nashville.

Very truly yours,



Thomas Wardlaw Steele

TWS:ejj
Enclosure

xc: Mr. Herbert Ball

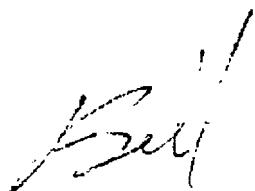
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January 9, 1968

TO: C. B. Burnett
H. M. Ball
E. M. Fenner
H. M. Jackson ✓
K. V. Lindell
A. B. Marchant
C. L. Sheckler
F. J. Solon, Jr.
A. C. Smith
Dr. George W. Wright
Ivan Sabourin
Carl Thompson (Hill & Knowlton)

CC: G. H. Martens, Jr.

RE: RESEARCH STUDIES ON ASBESTOS-CEMENT PIPE

As promised at the December 19 meeting, Ed Fenner has prepared a summation of the status of the various water contamination studies being planned or conducted at the Research Center. I believe that we agreed that this should be distributed to the Committee, so attached is a copy.


W. P. Raines

wpr/eb
att.

Health Board To Review Asbestos Water Pipe Use

The Metro Health Board on a motion by Dr. David Strayhorn Sr. voted today to reconsider its stand on the use of asbestos-concrete pipe for water lines.

The board voted Jan. 17 to "not approve the use of the pipe" until sufficient information could be obtained to prove the pipe was medically safe.

Metro health director Dr. Joseph Bistowish said the board's action did not mean that it would change its position concerning the pipe but only that it would reconsider any information concerning the safety of the pipe.

"Asbestos is a known cancer

causing agent when inhaled," Dr. Bistowish said, but added that sufficient information is not available concerning its use as a water conducting material.

The U.S. Public Health Service is initiating a study into asbestos pipe, probably as a result of an inquiry to them from the health department.

"The service told us we were the first municipal health board to raise the question concerning the safety of the pipe," Dr. Bistowish said.

Representatives of an asbestos-cement pipe producer spoke to the board to explain their position. The spokesmen said they objected "to being guilty until proven innocent."

Pipe-Cancer Tie Stirs Furor

By FRANK RITTER

Metro councilmen and a Vanderbilt University professor clashed verbally yesterday over what prompted the professor to infer recently that asbestos cement pipe might cause cancer.

Dr. James Snell, assistant professor at the Vanderbilt school of medicine was questioned at length by Councilman James Hamilton about a letter he wrote recently in which he raised the cancer question.

"THE IMPLICATION of your letter," Hamilton told Snell during a council committee meeting, "was that Metro Council, under the guise of saving a few cents, was going to place hundreds of thousands of people in danger of getting a dread disease—cancer.

"We certainly don't want to do that. And coming at the time it did, and in the alarming way it was written and distributed to the public, it would seem to me the letter was unfair."

The meeting, a joint session of the finance and public works committees of Metro Council, was called to consider whether the city should permit asbestos pipe companies to bid on Metro pipe contracts.

Cast iron pipe has been used exclusively, although it is more expensive initially than asbestos pipe, for at least 40 years in the Nashville water system.

HAMILTON asked Snell yesterday if there have been any studies to determine if iron oxide from cast iron pipe might cause cancer. Snell replied that there have been no such studies, to his knowledge.

"There has been no research," Hamilton asked, "on whether asbestos cement pipe or cast iron pipe can cause cancer, has there?"

Snell said there has not been.

Hamilton said if Snell was sincere in raising the question about asbestos pipe, he should have raised the same question about cast iron pipe.

"I think it is perfectly reasonable to raise such a question" about cast iron pipe, Snell replied.

"WOULD YOU raise the question, doctor?" asked Councilman James LaPenna.

"I would be very happy

(Turn to Page 12, Column 7)

Pipe-Cancer Tie Stirs Forum

(Continued From Page One)

to write the Public Health Service about it," Snell answered. "The whole question of contamination of food and water should be raised, in my opinion."

Snell sent his letter last November to Robert L. Lawrence, Metro water works director, supporting Lawrence's decision to prohibit asbestos cement pipe manufacturers from bidding on Metro waterpipe purchases.

The professor said he would consider the use of asbestos pipe "a medical hazard of significant degree" until the Public Health Service has checked it out completely.

EXPLAINING TO the councilmen yesterday that he had no ulterior motive in writing the letter, Snell said:

"I regret the vindictive attitude that some people have against me, merely as a result of my raising this question."

"I'm not vindictive against you, doctor," Hamilton interrupted. "In fact, I had never met you until now. It just seems to me that a scientist is under a requirement to state all factors in a case."

"I don't think you understand how this came about," Snell said. "I simply raised thought that before Nashville undertakes to buy large amounts of asbestos pipe, this question should be raised."

"IF YOU DESIRE to raise the same question about cast iron pipe, then I think it is very reasonable. I have no political motives. I have no financial interest in these pipe companies. I am not aligned politically with any group."

Hamilton reacted angrily at this statement by Snell and declared:

"We're not inquiring, doctor, into your political alignments, your religion, or anything else."

The exchange between the councilmen and Snell followed presentations by representatives of both Clow Corp., which has supplied all Metro waterpipe the past four years, and Johns-Manville Sales Corp., an asbestos pipe dealer seeking to bid on pipe purchases here.

K. RAYMOND Augst, assistant district sales manager for Johns-Manville, told the councilmen that there are strong indications Metro could save 34% on its pipe purchases if the city permitted the asbestos pipe firms to bid.

Augst said Metro bought \$1.3 million worth of

cast iron pipe from July, 1966, to September, 1967. Asbestos pipe, Augst added, would have cost only \$864,000 — giving Metro a savings of \$459,000.

Lawrence has defended buying the more expensive pipe on grounds it is better and has "a greater factor of safety."

However, Johns-Manville representatives insisted yesterday that their product will serve the city equally as good as cast iron pipe if it is installed properly.

SHORTLY AFTER Snell wrote his letter last year to Lawrence, raising the question of whether asbestos pipe could cause cancer, the Metro Health Board took a similar stand.

The board voted Jan. 17 to "not approve the use of asbestos pipe" until sufficient information could be obtained to prove if it is medically safe.

Yesterday, at an early morning meeting, the board voted to reconsider its stand on the basis of evidence submitted by Johns-Manville Co. representatives.

GULLETT, STEELE, SANFORD & WHITE

B. B. GULLETT
THOMAS VAN HULST STEELE
VAL SANFORD
CHARLES HAMPTON WHITE
JACK WRIGHT ROBINSON
DEN H. CAMPBELL

SEVENTH FLOOR, LIFE & CASUALTY TOWER
NASHVILLE, TENNESSEE 37210
TELEPHONE 244-4004

February 26, 1968

Mr. William R. Willis, Jr., Chairman
Metropolitan Board of Health
Nashville, Tennessee

Dear Bill:

Personally, I again express, to you and the Board our sincere appreciation for the courteous and full hearing which you gave my client, Johns-Manville Corporation on February 21 on the question of the use of asbestos cement pipe in the city water system.

Due to the length of time our presentation took, I did not want to further infringe on the Board's time and patience with a closing statement. Rather, I thought it would be well for me to write you and the other Board members simply summarizing our client's position which we attempted to express and advocate before the Board. Simply stated, it is this:

There is no evidence of any kind at the present time that the use of asbestos cement pipe in metropolitan water systems constitutes a potential health hazard related to the increase of incidence of cancer in the digestive organs resulting from ingestion of asbestos particles or fibers. Our presentation attempted to demonstrate to the Board (1) that ~~there~~ is no authoritative medical information on the subject because for the first time in a 55-year history of the use of this pipe in public water systems, the question has been raised at Nashville as to whether or not it presents a health hazard; (2) that authoritative medical opinion that is available is all to the effect that there is no probability that a health problem exists in the use of asbestos cement pipe; (3) that there is no established relationship, either by scientific study or logical deduction, between the health hazard presented by inhalation of asbestos fibers in an industrial environment and any danger resulting from the ingestion

Mr. William R. Willis, Jr., Chairman
February 26, 1968
Page 2

of the comparatively minute quantity of asbestos fiber which could be expected from the use of asbestos cement pipe in a water system; and (4) that my client, Johns-Manville Corporation, has commenced what it hopes will be a definitive study of the problem since the question has been raised at Nashville, and the preliminary findings and conclusions from this study are that in seventy years, one person could not be expected to ingest as much asbestos material from a water system as an insulation worker could be expected to inhale in one 24-hour period, and, further, that there are no asbestos particles in the sampled water systems large enough to meet the definition of a particle in the authoritative determination of the minimum particle count that produces a safe environment for industrial workers in industries using asbestos.

We have suggested to the Board of Health that the position which it has previously taken is unfair and discriminatory toward our client as a producer and seller of asbestos cement pipe because of the lack of evidence upon which to base disapproval of asbestos cement pipe in the municipal water system. The Board's previous action was to recommend that the Metropolitan Government not use asbestos cement pipe until sufficient evidence and information was available to establish that it is free from health hazard. It is our position that this stigma of disapproval thus placed by the Board upon our client's product is an extraordinary penalty against manufacturers and sellers of asbestos cement pipe which has been imposed merely because it has been suggested to the Board that the known carcinogenic qualities of asbestos fibers, when inhaled in great quantities by workers in an industrial environment, affords a basis for a deduction that the use of the pipe in a water system may possibly present a parallel problem by ingestion of asbestos particles through consumption. By the same process of reasoning, it could be said that asbestos brake linings, in common use on virtually every automobile on the streets of the city, should be banned because it is known that when brakes are applied, minute particles of asbestos are emitted into the air, and because of the studies which have been made in industrial environments where the pollution has been extreme, a health hazard may be presented by the use of the brake linings.

Mr. William R. Willis, Jr., Chairman
February 26, 1968
Page 3

We submit that Dr. Strayhorn correctly summarized the Board's alternatives on its reconsideration of the matter; that is, (1) re-adopt its previous position of disapproval, (2) approve asbestos cement pipe because of no known evidence to form the basis of disapproval, or (3) neither approve nor disapprove until information and evidence is developed and presented to form the basis for a conclusion. It is our position that the first of these, which the Board has already adopted, is the least justified under the circumstances, particularly in view of the fact that the stigma of disapproval has not been accorded a number of other products (including cast iron pipe) which, according to authoritative studies, contain materials which are potentially just as cancer-producing; that the Board would be justified in assuming the second position as being consistent with due process which requires some evidence being produced before guilt is affixed; and the Board should at least assume the position of neutrality stated thirdly until it is presented evidence upon which it can rely either for approval or disapproval.

We have every confidence that this Board, when it exercises the deliberate, calm and mature judgment of which it is fully capable on a reconsideration of this matter, will reverse its previous stand and adopt one of the last two alternative positions, thereby depriving those who, from a competitive standpoint, have attempted to conduct a "scare" campaign against our client's products, of the weapon which was afforded them by the Board's previous position.

Very truly yours,



Thomas Wardlaw Steele

Thomas Wardlaw Steele

TWS:ejj

xc: Dr. Otto Billig
Mrs. Robert T. Lagemann
Dr. W. David Strayhorn

Division Headquarters
December 14, 1967

D. L. Hinmon

The Cancer Scare
Asbestos-Cement Pipe

Today we had officials from Fairfax County, Virginia visit our plant. After we showed them our process and product, they brought out a copy of the articles that appeared in the Nashville papers. They asked what work JM had done to prove that asbestos was not harmful to public health in asbestos-cement water pipe.

We are fairly sure that they received these articles from the Nashville papers from representatives of the cast iron pipe companies. Therefore, it is our belief that these articles will be spread much further by our competition, and that we will need to furnish, as quickly as possible, official statements to our District Managers in the field whenever and wherever this question is raised.

I, therefore, request a meeting of you and Mr. Solon as quickly as possible as to what information we can immediately send to the field. We could keep this information up-to-date as we gain more information on the program that is now underway for the development of more information on this subject.

Hugh Jackson was notified by the Cincinnati Office of the U. S. Public Health Service that they are going to completely investigate this problem and render an opinion. They have asked Hugh what work we have done to help guide them in their work. Therefore, it will also be necessary to set up the best type of communications with these people in Cincinnati for the work that they will be doing to develop their answer.

In addition, I think that we should inform the Certainteed Company, The Flintkote Company and the Cement Asbestos Pipe Company of the information that we have developed so far. Also, to keep them informed of additional information as we develop it. I suggest we phone these companies and try to set up a date in early January for them to come to New York and hear the story that we

December 14, 1967

presented to the City of Nashville people. Further, to discuss their ideas on how the problem should be attacked, and possibly for them to share in any costs incurred on the development of the necessary information.

I further recommend that I inform the Sales Managers of these companies (Ed Kock of Flintkote, James Reichel of Certainteed and Lee Taylor of Capco) of our intentions of holding such a meeting and try to arrive at a mutually satisfactory date. At the same time, I would like to inform that we will have an attorney present and a court recorder that will record all of our deliberations, and that we will confine our discussions to this subject only.

MH/jc

M. HARRIS

cc:

C. B. Burnett

F. J. Solon

H. Jackson

J. F. Baker

file

Research & Engineering Center
November 30, 1967

M. Harris - DH

Soft Water Coatings

At the October meeting, it was agreed that the information currently available on this project would be summarized for further discussion at the next meeting. This letter summarizes the information I have. Please advise if you believe more manpower should be assigned and, if so, where should effort be decreased?

The project originated as SPR P-22, "Improved Soft Water Coating for Potable Water Pipe". The objective was to improve the appearance and eliminate the odor problems found with the asphalt coating. Mr. Orth also requested that exploratory work on a system for coating all water pipe be included under this project. Through September 30, the R & D costs have been \$13,500. During 1967, the expenditures have been \$5,500 through September 30. In terms of manpower, this is at the rate of 1/6 of a man (team) year in 1967.

There has been limited success to date. A substitute coating (polyterpene) has been found which has a better appearance and greatly reduced odor and taste problem potential. It has temporarily satisfied Providence, R.I. and is the coating applied to all pipe purchased by them. It has poor ultraviolet resistance and, therefore, cannot be inventoried by J-11 or the custs or without protection from the sun.

Other coatings have been and are being evaluated. We believe that we have found an improved coating. It is vinyl-toluene copolymer approved for coating food packages. It is similar to polyterpene in many respects. To date, it has not checked and peeled under ultraviolet although it does show yellowing. We are recommending a TP trial.

It is anticipated that any replacement for the asphalt will cost more; e.g., 8-inch 150 - \$.002/ft for asphalt to .02/ft for the coatings currently under consideration.

Once a satisfactory replacement is found, it will be necessary to do further testing to establish how much better the material is than asphalt and how close it comes to being a good long-term protective coating.

At the present time, the only material we know which will give permanent long-term protection is our epoxy lining.

The ideal coating system would be a permanent low-cost coating which could be applied within the present lathe line operation or at the forming machine. None are currently known. Regardless of what coating system is developed, we could not state that it provided complete protection. Field cutting, tripping and valve insertion make this practically impossible.

November 30, 1967

The ideal solution to the overall problem would be to make the portland cement binder system insoluble or to substitute an insoluble binder system. There has been extensive work done on making an insoluble inorganic binder system without success. All of the known organic binders which would be suitable for potable water are prohibitively expensive in a Hazza type pipe. Exploratory work is continuing in this area at the rate of 1-1/4 to 1-1/2 man (teams) per year. The general company program accounts for one man (team) of this.

More effort can be applied to this program by the department but only if we stop other work. The people that have competence in the technologies involved are currently working on:

- Filament Wound Fittings
- Filament Overwrapped Thermoplastic
- Reinforced Plastics
- Lined Pipe
- High Temperature TFP-PIPE & Insulins

The particular people involved number 5 man (teams). Any significant diversion of effort would significantly curtail one or more of these projects.

J. H. Swenson

jtd

cc: F. J. Solon, Jr.
D. L. Hinson - CH
G. R. R. Vahl - DH
J. E. Hesse - DH
P. E. Dix - DH
C. A. Bailey - DH
D. C. Josephs - DH
Z. O. Walcox - DH
C. J. Sulewski
File

12/28
December 22, 1967

Mr. Leland J. McCabe, Chief
Disease Studies
Water Supply & Sea Resources Program
Department of Health, Education & Welfare
222 East Central Parkway
Cincinnati, Ohio 45202

Dear Mr. McCabe:

I have received a copy of your letter of December 7, 1967 forwarded to me by Mr. H. M. Jackson.

Our Research Center has begun a comprehensive investigation into the wear characteristics of asbestos-cement pipe when used in drinking water service. We are attempting to include an examination of the Memphis, Tennessee situation.

We will gladly furnish you with pertinent details developed from these studies. Preliminary results from our research efforts should be available in about two months. We will contact you as soon as significant data have been obtained.

Very truly yours,

E. M. Fenner
Director, Environmental Control

EMF/oms

cc: H. M. Jackson - DHQ ✓

bcc: C. B. Burnett - GHQ
A. C. Smith
D. L. Hinmon - DHQ
F. J. Solon - GHQ
W. P. Raines - GHQ
M. Harris - DHQ
F. L. Fundsack

G. W. Wright, M.D.
St. Luke Hospital
11311 Shaker Boulevard
Cleveland, Ohio 44104

File & C

December 14, 1967

Mr. Leland J. McCabe, Chief
Disease Studies
Water Supply and Sea Resources Program
Department of Health, Education and Welfare
222 East Central Parkway
Cincinnati, Ohio 45202

Dear Mr. McCabe:

I have forwarded your letter of December 7 to Mr. E. M. Penner, Director of Environmental Control, at our Research Center, Flanders, New Jersey, for reply to the specific questions you have raised.

As you may know, we have been and are cooperating with the U. S. Public Health Service, through Dr. L. J. Falley's organization, in a study of the asbestos industry. This study is principally concerned with the biological effects of asbestos resulting from the inhalation exposures encountered in industry.

The recent opinions expressed by Dr. J. D. Snell, Jr., as reported in the Nashville papers, raised some serious questions.

Please be assured that we will collaborate fully with you in your investigation and make the knowledge and resources of our Research organization available to you.

Yours very truly,

E. M. Jackson
Director of Industrial Relations

Copy to:

Mr. E. M. Penner, Flanders

cc:	C. B. Burnett	)	
	G. W. Wright, M.D.	)	
	A. C. Smith	)	Please see attached note
	D. L. Hinman	)	to all receiving copy of this letter.
	F. J. Solon	)	
	W. P. Raines	)	
	M. Harris	)	

Attachment to H. M. Jackson's letter of 12/14/67
to Leland J. McCabe, Dept. of H. E. & W., Cincinnati, Ohio

12/14/67

Note to:

C. B. Burnett
G. W. Wright, M.D.
E. M. Fenner
A. C. Smith
D. L. Hinmon
F. J. Solon
W. P. Raines
M. Harris

By phone contact on December 13, Dr. Cralley advised me that he was aware of the Nashville situation--in fact, had been asked to make comments for Dr. Murray Brown's use and signature.

He indicated the essence of the comments were that the asbestos health hazard potential via the routes of inhalation and ingestion were two totally different situations. Substantial dosages over long periods of time were necessary to produce ill effects by inhalation. In his opinion, it was inconceivable that sufficient fibre intake could be accomplished through the ingestion route alone, and particularly so when related to the water intake capacity of humans. He also expressed an opinion that a pH which would attack the cement would also attack and modify the fibre.

Dr. Cralley does not know whether the comments were forwarded.

Although Dr. Cralley does not know L. J. McCabe personally, he will contact him and advise him of the current asbestos industry study and our relationship with the Department.

H. M. Jackson

P. S. - Copy of L. J. McCabe's letter of December 7, 1967, is attached.



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

NATIONAL CENTER FOR
URBAN AND INDUSTRIAL HEALTH
222 EAST CENTRAL PARKWAY
CINCINNATI, OHIO 45202

REFER TO

December 7, 1967

Johns-Manville Company
22 East 40th Street
New York, New York 10016

Gentlemen:

We have had an inquiry from a local health officer about the carcinogenic effect of asbestos from A-C pipe in drinking water.

We will decide about the effects of ingested asbestos, but would like to know if you have any data about the amount of asbestos that might occur in drinking water. How much is introduced during pipe repairs and tapping? Does solution of the calcium out of the cement into the water release asbestos fiber? Do you know anything about a report "-that near Memphis, Tennessee, there was a period in one locality where the pH in the water was 10 or 11 and this resulted in a solution in the cement component of the pipes to such an extent that the water became milky-" that we have been asked about.

I will appreciate your comments on this problem.

Sincerely yours,

Leland J. McCabe
Chief, Disease Studies
Water Supply and Sea Resources
Program

~~F.I.S.~~
~~405~~

SAINT LUKE'S HOSPITAL

of the Methodist Church

11311 SHAKER BOULEVARD

CLEVELAND, OHIO 44104

November 30, 1967

Mr. Clint Burnett, President
Johns-Manville Corporation
22 East Fortieth Street
New York, New York 10016

Dear Clint:

The following is with regard to the apprehension voiced by James D. Snell, Jr., M.D., of the Vanderbilt University Hospital with regard to the potential hazard of asbestos fiber in the drinking water from asbestos cement pipe systems.

The current state of our knowledge is essentially as follows. In some reports there has been a suggestion that gastrointestinal cancer may be higher in some groups who have been quite heavily exposed to the inhalation of asbestos fiber as for example the insulation workers and some of the textile plants. It is assumed that the fiber which enters the gastrointestinal tract is that which has been deposited on the mucous surfaces of the nose and trachea and bronchi from whence it is brought up to the back of the throat on a mucous layer and swallowed. Some, of course, may be swallowed with drinking water of contaminated glasses or from the surface of the teeth or mouth cavity. I do not know of any responsible investigator including Cuyler Hammond who believe that there has been a clear-cut demonstration of a higher incidence of death to intestinal cancer in a relationship with asbestos fiber exposure via these routes.

12/8
per growth
Schiff
study
established
high rate
related to
inhalation
of asbestos?
There has been demonstrated an unusually high incidence of peritoneal mesothelioma (cancer of the surfaces covering the intestinal tract) in workers exposed to the inhalation of fiber as for example those involved in insulation work and in textile manufacture. The same is to be true in populations which on first glance may not be so heavily exposed to the inhalation of fiber as for example some of the natives in certain parts of South Africa who do not actually work in the mines and mills and some of the people who live in parts of the London area where the handling of asbestos fiber is geographically prominent. That some of these or perhaps all have had a moderately heavy exposure to the inhalation of asbestos fiber seems likely because of environmental circumstances with which you are familiar. In any event, they can scarcely be considered chance or occasional exposures to the fiber. My purpose in citing these points is that there is every reason to believe

??

Mr. Clint Burnett

November 30, 1967

that whatever carcinogenic effects asbestos fiber may have it is a dose related one. Most assuredly there is as yet no evidence to the contrary.

*Lime
B-carbonate
condition*
*Hard
Water
condition*

The question which is most pertinent now is whether or not the quantity of fiber that might be shed from transite pipe over a period of time would contaminate the water sufficiently to make it reasonable to think that in a lifetime of use of water from such sources a person might ingest enough fiber to conceivably be carcinogenic. I asked Dr. Spiel whether he had any information on the "weathering" of transite pipe and he informed me that although they are making such a study he has no information as yet. I understand from other sources that under some circumstances the inner surface of transite pipe becomes coated with lime and that the surface immediately in contact with the water flowing through the pipe soon becomes that of lime and not asbestos cement at all. We therefore do not know the actual potential for fiber intake by way of the gastrointestinal tract through the media of ingested water. I think most would speculate with me that the number of fibers would be very small and far lower than the number of fibers inhaled, brought back up and swallowed by workers who process and fabricate the fiber and utilize it. If we know that the workers of this latter sort have no clearly demonstrated increased incidence of gastrointestinal cancer, I would think the risk of cancer production from drinking water would be even less by a factor of several thousand.

One other point deserves some mention. While we believe the carcinogenic effects of some kinds of asbestos fiber are dose related, there is also evidence that there is a long lag period between the deposition of the asbestos fiber and the ultimate development of the tumor. This means that over a span of many years the important dose relationship is probably only in the first part of a person's life. Hence, any lifetime ingestion is important in terms of those years prior to the last ten or fifteen years preceding the development of the tumor. Some of this last thought is speculative and I offer it only as a matter to consider.

I took the liberty of calling Dr. Murray C. Brown, Chief of the Occupational Health Program in the National Center for Urban and Industrial Health in Cincinnati about this matter. I wanted to learn from him whether or not the Public Health Service had an official attitude towards asbestos cement pipe. He told me that they were in receipt of a letter from the same Dr. Snell and also Dr. Distowish of Nashville, Tennessee to whom a copy of Dr. Snell's letter to Mr. Lawrence had been sent. He told me that they have

Mr. Clint Burnett

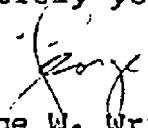
November 30, 1967

answered both of these letters saying essentially that the department does not have an official position at this time, that it has given it some consideration, that it seemed to them the risk was very much lower in the matter of water contamination than in the known problem of air contamination and that they were not in a position even now to make an official statement one way or another. He also told me (not as a part of the letter to Dr. Snell) that there is a list of acceptable pipe and it is his impression that asbestos cement is on that.

I hope these comments will be of some help to you.

With best wishes.

Sincerely yours,


George W. Wright, M.D.
Head, Medical Research
Department

GWV:kal

Copy: Karl V. Lindell

FROM: JACK SOLON

This list shows our asbestos-cement
pipe has been installed since 1932.
We're having Hill & Knowlton check
rates of stomach cancer in those
cities checked.



ACCEPTANCE through continued use is another way of proving that TRANSITE PRESSURE PIPE performs effectively and efficiently.

Typical examples of the thousands of communities using TRANSITE PIPE are found in the following partial list of large cities which have many years of experience with it.

Each one has its own particular problems which TRANSITE is solving, but all without exception are benefiting from its long life and over-all economies which are achieved at the most reasonable investment levels possible for water works improvements.

O. A. Wirsig

Partial List of Municipalities Using TRANSITE Water Pipe

<u>City & State</u>	<u>Footage*</u>	<u>Used Since</u>
Phoenix, Arizona	501,000	1938
Tucson, Arizona	532,300	1935
✓ Los Angeles Dept. of Water and Power, California	1,333,600	1936
✓ San Diego, California	924,780	1934
Long Beach, California	515,350	1939
Palo Alto, California	373,820	1936
✓ East Bay Mun. Utility District Oakland, California	1,159,740	1933
Pensacola, Florida	144,429	1941
Miami, Florida	133,996	1936
Peoria, Illinois	521,721	1941
✓ Wichita, Kansas	804,870	1948
New Orleans, Louisiana	656,000	1945
East Jefferson Parish Wat. Wks. District #1, Louisiana	1,042,000	1941
Lake Charles, Louisiana	372,000	1939
New Bedford, Massachusetts	57,065	1934
Saginaw, Michigan	279,134	1933
Great Falls, Montana	116,000	1943
Wilson, North Carolina	164,344	1937
Lima, Ohio	135,866	1937
Ontario, Oregon	500,000	1935
✓ Providence, Rhode Island	684,377	1937
✓ Knoxville, Tennessee	210,909	1938
✓ San Antonio, Texas	392,000	1938
Lubbock, Texas	603,000	1938
Olympia, Washington	250,000	1937
Winnipeg, Canada	338,500	1932

* Through 1957

November 1958

HILL AND KNOWLTON, INC.
Public Relations Counsel
150 EAST FORTY-SECOND STREET
NEW YORK, N. Y. 10017
212-697-5600

CARL THOMPSON
Vice President

ENVIRONMENTAL HEALTH UNIT
December 6, 1967

Mr. W. P. Raines
Director of Public Relations
Johns-Manville Corporation
22 East 40th Street
New York, N.Y. 10016

Dear Bill:

Attached is a report from data of the U.S. Office of Vital Statistics concerning trends in stomach cancer for the U.S. and selected cities.

The report essentially merely sets forth factual data from these statistics. Considerable differences from year to year in the same cities and between cities will be noted and should be expected from data of this type. Where there is an up, down and up, or a down, up and down, for the three years, within the same range, there probably is no significance in these changes at all.

Also, it should be remembered that, generally speaking, urban areas report a higher incidence of cancer of all types (with the exception of skin) than do the more rural areas.

The table giving mortality ratios for stomach cancer in the U.S. shows a steady downward trend from 1947 to the present. Since this is the average for the entire country, obviously some sections will show higher and some lower incidence than for the U.S. as a whole. Data for the individual cities is not available prior to 1960. However, any marked deviation from the U.S. trend since 1947 would show up in abnormally high figures for a particular city -- which does not appear in any of the cities listed, keeping in mind that the city incidence is going to be higher generally than the national average as compared with the rural incidence. For example, Providence, R.I., which shows the highest percent of stomach cancer is still not out of the range that produces the U.S. average.

These figures clearly show, especially in the percentage of stomach cancer deaths to total deaths, that there is basically very little difference in trends among the cities even though the ranges from the lowest averages to the highest averages are fairly noticeable.

You will also note that there are three random cities thrown in -- Toledo, Louisville and Birmingham -- which are left in because they show that the fluctuations or lack of it in the cities you gave me are not unusual. It

Mr. W. P. Raines
December 6, 1967
Page 2

might be wise to pick a few more cities of this type and drop in to further illustrate these fluctuations since a couple of your cities do not look "good" if you just consider the figures and nothing else.

Of course, the finest pair is the Knoxville-Nashville comparison, which, as you will note, we have given in a separate table.

Sincerely,


Carl Thompson

CT:sdd
Enclosure

Data Relating to Stomach Cancer

During the past 20 years, there has been a unique and marked drop in the mortality from stomach cancer in the United States. The decline in stomach cancer mortality since 1947 has been steady and consistent, as represented by the following table showing U.S. death rates per 100,000 population for "Malignant neoplasm of digestive organs and peritoneum, not specified as secondary." Source: National Office of Vital Statistics, U.S. Public Health Service.

Table I

<u>Year</u>	<u>Cancer of Digestive Organs Death Rate per 100,000 population</u>
1947	55.2
1952	53.4
1957	51.7
1962	49.5
1965 (last year figures available)	48.7
1966 (estimated)	48.4

Since 1960, the Office of Vital Statistics, has listed mortality data from various cities in the United States. These are not death rates, but actual numbers of deaths. However, comparable figures are given for the United States as a whole.

Table II

Deaths from 60 Selected Causes for the United States

<u>Year</u>	<u>Total Deaths -- All 60 Causes</u>	<u>Cancer of Digestive Organs Number of Deaths</u>	<u>% All Deaths</u>
1960	1,711,982	91,035	5.3
1962	1,756,720	92,047	5.2
1964	1,798,061	93,158	5.1

The decline in the death rate from stomach cancer is reflected in the consistently smaller percentage every two years of stomach cancer deaths related to all deaths from the 60 major causes. By way of comparison here are figures for four cities in Tennessee.

Table III
Deaths from 60 Selected Causes for Standard Metropolitan Statistical Areas

<u>City</u>	<u>Year</u>	<u>Total Deaths -- All 60 Causes</u>	<u>Cancer of Digestive Organs Number of Deaths</u>	<u>% All Deaths</u>
Nashville, Tenn.	1960	3,675	129	3.5
	1962	3,753	155	4.1
	1964	3,787	159	4.1
Knoxville, Tenn.	1960	3,038	131	4.3
	1962	3,006	132	4.3
	1964	3,180	125	3.9
Memphis, Tenn.	1960	5,476	247	4.5
	1962	5,971	271	4.5
	1964	5,975	279	4.7
Chattanooga, Tenn.	1960	2,661	114	4.3
	1962	2,683	109	4.1
	1964	2,842	103	3.5

It will be noted that the percentage figures for the Tennessee cities are lower than those for the United States as a whole and generally comparable. However, in Nashville and Memphis the percentage of stomach cancer deaths to all deaths has shown a slight rise, while in Knoxville and Chattanooga the rate has been following the national trend.

It will be noted that the percent of stomach cancer to all cancer varies from above to below the national average but generally they follow the national trend.

Trends in other selected cities are shown in Table IV.

Table IV

<u>City</u>	<u>Year</u>	<u>Total Deaths -- All 60 Causes</u>	<u>Cancer of Digestive Organs Number of Deaths</u>	<u>% All Deaths</u>
Los Angeles, Calif.	1960	58,601	3,110	5.3
	1962	61,353	3,105	5.0
	1964	64,931	3,316	5.1
Providence, R. I.	1960	7,872	535	6.7
	1962	7,947	570	7.1
	1964	8,087	532	6.5
San Antonio, Texas	1960	5,042	241	4.7
	1962	5,427	287	5.2
	1964	5,411	274	5.0
San Diego, Calif.	1960	7,616	362	4.7
	1962	7,924	463	5.8
	1964	8,448	453	5.3
Wichita, Kans.	1960	2,368	103	4.3
	1962	2,493	91	3.6
	1964	2,573	120	4.6
Lubbock, Texas	1960	1,021	25	2.4
	1962	937	29	3.1
	1964	1,100	31	2.8

Table IV (continued)

<u>City</u>	<u>Year</u>	<u>Total Deaths -- All 60 Causes</u>	<u>Cancer of Digestive Organs Number of Deaths</u>	<u>% All Deaths</u>
Miami, Fla.	1960	8,389	503	6.0
	1962	9,409	545	5.8
	1964	10,092	575	5.7
New Orleans, La.	1960	8,918	422	4.7
	1962	8,910	396	4.4
	1964	9,334	422	4.5
Peoria, Ill.	1960	2,675	142	5.3
	1962	2,585	130	5.0
	1964	2,691	152	5.6
Saginaw, Mich.	1960	1,629	69	4.2
	1962	1,737	89	5.1
	1964	1,655	89	5.4
Toledo, Ohio	1960	4,711	247	5.2
	1962	4,758	266	5.6
	1964	4,769	296	6.2
Louisville, Ky.	1960	6,915	348	5.0
	1962	7,121	336	4.7
	1964	7,301	341	4.7
Birmingham, Ala.	1960	5,987	253	4.2
	1962	6,192	247	4.0
	1964	6,390	258	4.0

To my knowledge, there have been no reports
in medical literature of studies that indicate
any relationship between gastro-intestinal cancer
and the drinking of water supplied through an
asbestos-cement pipe water system.

George W. Wright, M.D.
Medical Consultant to
Johns-Manville Corporation



12/6/67
DATE

TELETYPE MESSAGE



DO NOT WRITE OR TYPE IN THIS SPACE

SEND WESTERN UNION

To: c/ROYAL ORLEANS
LOCATION
HOTEL

DR. G. W. WRIGHT
NAME

NEW ORLEANS, LA.

FURTHER THOUGHT RE MONDAY TRIP. WE HAD 10:00 AM PHONE DATE WITH YOU MONDAY TO
GO OVER ASBESTOS-HEALTH POSITION PAPER. WOULD YOU CONSIDER TAKING EARLY
MORNING PLANE MONDAY, MEET WITH US ON POSITION PAPER BEFORE GETTING WITH PIPE
DIVISION PERSONNEL AND NASHVILLE GROUP? WILL BE HOME FROM NOON ON SUNDAY
AWAITING YOUR CALL RE MONDAY PLANS.

PRINT OR TYPE - BE BRIEF.

WHY FILE THIS!

Form 3-11C

F. J. SOLON, JR. JOHNS-MANVILLE
SENDER

X43001

RESP. No.

Asbestos-Cement Warning Sounded

By DICK BATTLE

Health and medical authorities have warned Metro Director of Water and Sewerage Services Robert L. Lawrence Jr. that substitution of asbestos-cement pipe for cast iron water mains may create a "medical hazard of significant degree."

"Asbestos has been fairly well established in medical circles as causing a high incidence of cancer" in the lungs or gastrointestinal tract, one letter to Lawrence stated. A copy of the letter was also sent to Councilman James J. LaPenna, chairman of the council's purchasing committee who has urged broadening water pipe specifications to include bidding by asbestos-cement pipe manufacturers.

Warning

The warning expressed by Dr. James D. Snell Jr., assistant professor of medicine, Vanderbilt University, and by Dr. J. M. Bistowish, Metro director of health, follows efforts by Councilman LaPenna on Nov. 21 to promote an all expense paid trip for councilmen to visit the "research center" of an asbestos-cement pipe manufacturer "30 minutes outside New York City."

For many years Lawrence has insisted on the use of cast iron pipe for the local water system. He has informed LaPenna he does not consider asbestos-cement pipe comparable in durability to cast iron pipe.

LaPenna has not insisted that asbestos-cement pipe be installed in the Metro water system. He has urged that specifications be rewritten to allow bidding by asbestos-cement manufacturers or suppliers as a means of forcing lower bids from cast iron pipe manufacturers. Lawrence has said he will not approve use of the pipe and changing specifications under these circumstances is not "honest."

'Work Trip'

The trip for councilmen to the eastern research center of an asbestos-cement pipe manufacturing firm is a "work trip," LaPenna states, to gain information about the product.

He told the council on Nov. 21, however, it was "very possible no tangible results will come from it (the 'work trip') but urged they make the overnight junket in a company plane at no cost to themselves and also invited newsmen and Metro officials to sign up for the free trip. Copies of the two letters from Doctors Snell and Bistowish dated Nov. 14 and 17 respectively were mailed to LaPenna.

Dr. Snell's letter to Lawrence states:

"I read with great concern the council's recommendation that Metropolitan Government re-write their specifications on water pipe to allow asbestos-cement to competitively bid. I was not aware, nor apparently am many medical people aware, that asbestos containing pipe has been used in water systems.

"Asbestos has been fairly well established in medical circles as causing a high incidence of cancer, in the lungs if breathed, or in gastrointestinal tract if swallowed even in amounts small enough to be visible only under a microscope.

"Regardless of who is using it now, and regardless of any reassurances by salesmen from asbestos-cement pipe manufacturers, I would consider it a medical hazard of significant degree to use such pipe in a water system until the U.S. Public Health Service had checked it out completely. Without specific clearance by the Public Health Service it seems to me the burden of common sense would suggest that it is impossible to work on the pipe or add to it without releasing particles of asbestos into the water. If any particles were released, current medical knowledge suggests that a rise in certain types of cancer could be expected in about 20-50 years among the population.

"I have a premonition that such things as water pipe may not have to be cleared with any U.S. Public Health Service agency except those to make sure bacteria cannot penetrate the pipe. If so, there has been a terrible mistake made in allowing use of asbestos containing pipe in water systems.

"It is my opinion that al-

though it is common practice in many cities, we would be unwise to change our specifications to allow asbestos-cement pipe to compete in the bidding until the full facts can be ascertained. I intend to pursue this matter with public health officials to see if this pipe has some safety features of construction which make it non-hazardous."

Dr. Bistowish

Dr. Bistowish wrote the following letter on Nov. 17 in response to communication from Dr. Snell:

"Following your telephone call relative to the use of asbestos pipe for water systems, I contacted the Engineering Division of the State Board of Health and was informed while they would prefer not to have asbestos pipe used, there was no prohibition against it and such pipes are used in some parts of the country. I can find no one at the state level who has knowledge of any adequate studies to rule out health hazards from the use of asbestos piping. I have written for information from the U.S. Public Health Service and to the National Center for Urban and Occupational Health to determine if they have knowledge of studies being made on this material.

"It may interest you to know that in one area near Memphis, ph (parts hydrogen) of the water was about 10 or 11 and complaints from residents were received that the water was milky. Investigation revealed that the lime had been dissolved from a cement component of the pipe and constant flushing had to be continued to keep the pipes clear.

'Very Possible'

"It seems very possible that if the cement were removed from the pipes the asbestos might also be found in the water. I am trying to secure additional information about this episode."

Copies of this letter were sent to Lawrence and LaPenna.

Replying to Dr. Snell's letter of Nov. 14, Lawrence thanked him and stated: "I do not believe I had known that asbestos was conducive possibly to cancer in the intestinal tract or in the lungs. However, inasmuch as it is possibly a silicate, I am able to see that it might cause irritation both in the mucous membrane of the lungs and the mucous membrane of the stomach and intestines. This is highly interesting information and very pertinent to the problem with which I am now confronted, and which, however, has arisen off and on for many

years."

Lawrence said his rejection of the asbestos-cement pipe was based primarily on past successful experience with cast iron pipe "without noticeable deterioration" and its advantages over the lighter pipe for use in rocky soil.

Be Resolved

"The point which you have raised is, of course, recognized of serious importance and if there should be any doubt in the minds of competent members of the medical and engineering professions, a matter of this nature should always be resolved in such a manner as to remove any doubt whatsoever."

Lawrence, in response to questions, said LaPenna had been furnished with copies of all correspondence from Drs. Snell and Bistowish and his (Lawrence's) reply and addition to engineering consultants' reports and findings relative to comparisons of cast iron pipe and asbestos-cement pipe. The director of water-sewerage services said he had hoped LaPenna would reveal to the council, his committee and the public the reports, correspondence and information relevant to the pipe controversy.

Today the Metropolitan Clerk's office reported LaPenna and the other councilmen have signed up for the New York trip offered by the pipe manufacturer. The councilmen making the trip with LaPenna are: Raymond Buchanan, Frank Griffin, John Driver, Earl Shacklett, John Fox, Robert McBride, Mansfield Douglas, Paul Blankenship, Martin Garrett and Thomas Sharp.

H. Jackson 2nd

SCHEDULE - CITY OF NASHVILLE VISIT

Monday - December 11, 1967

Depart Nashville 8:00 CST

Arrive Newark 12:30 EST

Following customers will be our guests:

Mr. James J. La Penna	-	Chairman of Purchasing Committee and Councilman Metropolitan Gov't of Nashville and Davidson County
Mr. Frank Griffin	-	Member of Purchasing Committee and Councilman
Mr. Mansfield Douglas III	-	" " " " " "
Mr. Earl Shacklett	-	" " " " " "
Mr. Paul Blankenship	-	" " " " " "
Mr. Martin Garrett	-	" " " " " "
Mr. Thomas Sharp	-	" " " " " "
Mr. Raymond Buchanan	-	Metropolitan Councilman
Mr. John Fox	-	" "
Mr. Robert McBride	-	" "
Mr. John Driver	-	" "
Mr. James Squires	-	Reporter - Nashville Tennessean
Mr. Richard Penuel	-	Reporter - Station WLAC-TV

Group will proceed direct from Newark to the Doral Hotel. Meeting will begin in the Murray Hill Room at 2:00 PM.

J-M Personnel in attendance:

H. M. Jackson	J. F. Baker
D. L. Hinson	H. V. Watson
F. J. Solon	K. R. Augst
W. P. Raines	W. J. Hayes
M. Harris	(Dr. George Wright, M. D.)

Agenda:

2:00 Welcome and Introductions - M. Harris

2:10 Introduce Hugh Jackson who will introduce Dr. Wright (Medical question)
Dr. Wright comments and questions.

2:45 History of TRANSCITE in U.S. - J. Baker
Growth of A.C. Industry - J. Baker
Introduction to film "Underground Arteries".

3:30 Briefing of Dinner Plans and Outline of Tuesday Schedule

3:35 Close by H. V. Watson

7:00 Dinner - Japan Kobe Steak House
145 West 49th Street

Tuesday - December 12, 1967

7:00AM Breakfast - Doral Hotel
7:30AM Depart for Manville Pipe Plant
(Approx)9:00AM Plant Tour - H. Engel
10:30AM Depart Plant for Research Center
10:45AM Welcome to Research Center - J. Swensen
Tour - Winn Corrison
12:45PM Lunch - Research Dining Room
2:00PM Meeting - Main Training Room - M. Watson
Technical Presentation
3:10PM Closing Remarks - J. Baker
3:15PM Depart Research for Newark Airport
4:00PM Plane Departure to Nashville

JH Personnel in attendance Tuesday:

F. J. Solon	J. Baker
W. P. Raines	H. Watson
H. Harris	K. R. Augst
J. Swensen	W. J. Hayes
W. Corrison	

Background on Visitors:

Mr. La Penna	-	Chairman of Purchasing Committee - Attorney
Mr. Blankenship	-	Vice Chairman of Purchasing Committee - Attorney
Mr. Griffin	-	Office Supply and Printing
Mr. Shacklett	-	General Contractor
Mr. Douglas	-	(Neoto) Western Electric Purchasing Dept.
Mr. Garrett	-	Garage and Service Station Operator
Mr. Sharp	-	Composing Room - Newspaper Printing Corp.
Mr. Duchannan	-	Insurance Business
Mr. Fox	-	State Hotel and Restaurant Inspector
Mr. McBride	-	Used Car Dealer
Mr. Driver	-	Service Station and Hotel Operator

CONFIDENTIAL

Division Headquarters
December 6, 1967

M. Harris

**Asbestos Pickup
Field Survey**

Research has completed studies on two separate samplings of water from the supply line serving the research center. These tests were conducted as follows:

- a. 3 gallon samples of water were taken at the source (Treatment Plant) and at the discharge end of the 2000' of Transite line.
- b. Samples were then filtered through a .3 micron milapore filter and the residue dried and ashed (incinerated).
- c. The dried residue was then photographed and analyzed by Electron Microscope.

In both samples of discharge water a minute trace of asbestos fibrils were detected. But, in both samples of source water, the same minute trace of fibrils was found.

We do not presently have the physical capability to make a quantitative analysis of the concentration of these fibrils in the measured volume of water.

Research estimates it would take from two to four weeks to set up so that we would have this capability. I strongly recommend we take steps to get this done immediately.

We are getting source water samples and samples from the far extremities of the distribution system at the following locations:

1. Providence, R. I. - ~~known~~ soft waters
2. Wichita, Kansas - known soft waters
3. Manville, N. J. - water composition unknown but readily available
4. Long Beach, Cal. or San Diego, Cal. - friendly relations and long Transite history
5. Globe, Arizona - well water source (in the west)
6. Southeast Memphis - near Memphis, Tenn.
Suburban Natl. Dist., Capeville, Tenn.

This appears to me the quickest way possible to develop factual data on the extent, if any, of fiber pickup. If you agree, I will proceed with the districts to obtain the samples.

It is my understanding that Mr. Solon and Mr. Raines will report to Mr. Burnett on the other portion of the field survey, i.e.: the correlation between stomach cancer incidence and the use of asbestos cement pipe in selected cities. I furnished them with a list of cities with long Transite histories for this use.

dh

J. F. Baker

cc: C. B. Burnett
D. L. Hinson
F. J. Solon
H. M. Jackson
W. P. Raines

SAINT LUKE'S HOSPITAL

of the Methodist Church

11311 SHAKER BOULEVARD

CLEVELAND, OHIO 44104

December 20, 1967

Mr. F. J. Solon, Jr.
Johns-Manville Corporation
22 East Fortieth Street
New York, New York 10016

Dear Mr. Solon:

You have asked me to submit to you in written form an expression of my opinion with respect to certain questions raised by a letter from Dr. James D. Snell, Jr. addressed to Mr. Robert L. Lawrence of the Metro Water Department in Nashville, Tennessee.

If I interpret Dr. Snell's concern correctly, it is based in part on an overinterpretation of incomplete information with respect to the gastrointestinal system plus some generalizations gleaned from the literature regarding respiratory system cancer and asbestos exposure which he is assuming are applicable to the gastrointestinal system.

He sets forth the reason for his apprehension in his second paragraph of the letter dated November 14, 1967. My response to these follows.

While it is generally accepted by those who have looked into the matter that there is a relationship between the inhalation of "asbestos" fiber and the frequency of occurrence of bronchogenic lung cancer in the population occupationally exposed to the fiber the precise mechanism whereby this relationship is mediated is certainly still moot. The fact that such a relationship seemed to hold in Great Britain as shown by Merriweather in 1955 but did not appear to hold in a pure chrysotile exposure as shown by Truhan and Braun some years later made it apparent that one could not use the word asbestos in a generic way but would have to take sufficient care to know what kind of asbestos might be implicated. At the present moment crocidolite seems to be the form of fiber most strongly implicated. Further information concerning the mechanism of the relationship was presented by Selikoff and Hammond at the American Medical Association Meeting in Atlantic City in June of 1967. They demonstrated that in their careful

F. J. Solon, Jr.

December 20, 1967

prospective study of a group of insulation workers all of their cases of lung cancer developed in men who were moderate to heavy cigarette smokers and not a single case has developed thus far in a non-smoker. This data strongly suggests that the role of asbestos fiber is as a co-carcinogen and not a carcinogen in its own right. Dr. Snell infers that asbestos causes a high incidence of cancer in the lung but it should be pointed out that this relationship even when taken together with cigarette smoking seems to pertain most strongly to insulation workers and there is no supporting evidence to indicate that such a high incidence occurs in all of the other form of occupational exposure. The frequency from the textile mills of Great Britain does not appear to be as high as in the insulation workers reported by Selikoff. The frequency as reported by Enterline more recently in the building products, friction materials, and the U.S.A. textile plants appears to be lower than in the insulation workers thus far reported. I cite this because it seems to me unwarranted to make the inference that asbestos fiber in and of itself causes a high incidence of cancer in the lung and from this make the inference that it is a strong carcinogen and must therefore in very small amounts do the same thing to the gastrointestinal system if swallowed. To summarize this part; in my opinion the current evidence does support the contention that in occupational exposures to asbestos fiber there is a higher incidence of bronchogenic cancer than in non-occupational exposures; the fiber acts as a co-carcinogen; there is no reliable evidence at this time that asbestos by itself acts as an agent to cause bronchogenic cancer; the most likely offending form of fiber is crocidolite; and most importantly, the effect appears to be dose related as well as related to a long latent period between the onset of exposure and the development of the neoplasm. I believe it important to indicate that knowledge of what happens in the lung per se can be transferred to what might happen in the gastrointestinal tract only with the greatest caution, if indeed it can be extrapolated at all to any other organ system.

In the second paragraph Dr. Snell also indicates his belief that there is a high incidence of cancer in the gastrointestinal tract as a result of swallowing asbestos fiber. I have difficulty in knowing what he means by the statement "even in amounts small enough to be visible only under a microscope." Fibers small enough to remain airborne and be

F. J. Solon, Jr.

December 20, 1967

inhaled or ingested are of necessity visible only under a microscope because they are the order of 40 or less microns in length and less than 5 microns in diameter. As to total amounts swallowed over a period of years I don't know what the microscope would do in the way of playing a role in estimating this. Be that as it may, one wonders what evidence he is quoting to indicate a proven high incidence of cancer of the gastrointestinal tract in persons occupationally exposed to fiber. Most likely he is referring to a paper forming part of the symposium on "biological effects of asbestos" held in October of 1964 and published at the end of 1965. This paper by Hammond, Selikoff and Churg indicated a frequency of cancer of the stomach, small intestine and colon about three times as high as the expected whereas even at that date they were quite careful to indicate that the primary source of their information was not entirely reliable since they say and I quote, "taken at face value it would appear that asbestos workers have an abnormally high risk of dying of gastrointestinal cancer. However, we will refrain from drawing conclusions on this matter at the present time." It is of importance that in their most recent paper concerning this general subject and referred to in this letter previously as having been presented at the American Medical Association Meeting in June, 1967 they continued to be just as cautious. They again report that the observed rate of cancer of the stomach, colon, and rectum in their groups under intensive study was three times the expected but they state and I quote, "Although this bears out our earlier findings, the number of deaths from these causes was so small that we still refrain from drawing any conclusions at this time." Certainly Dr. Snell's apprehensions nurtured by his belief that a high incidence of gastrointestinal cancer has been proven to occur as a result of the ingestion of asbestos fibers would seem unwarranted.

Since the relationship to bronchogenic cancer appears to be rather clearly a dose related one and the same is true for all known carcinogens, I would think that if any association between asbestos fiber and gastrointestinal cancer exists, it should be dose related. The insulation workers that are constantly under study by Selikoff et al are obviously a quite heavily exposed group. According to various reports emanating from that laboratory as much as 25 per cent of the population under study has asbestosis and this means a heavy exposure. It can be accepted that a very large per cent of

F. J. Solon, Jr.

December 20, 1967

the fibers deposited in the tracheo-bronchial tree of such workers is brought back up and some of this must of necessity be swallowed. In addition, some fiber deposited in the oral and nasal cavities will ultimately find its way into the intestinal tract. I would reason from this, therefore, that in the insulation workers the gastrointestinal exposure to fiber would be high and therefore if there was a strong relationship of fiber ingestion to gastrointestinal cancer it should not be difficult to demonstrate it.

There are some other data in humans bearing on this. Enterline has recently published a study of the death certificates of a large number of workers who manufacture building materials, friction products and textiles utilizing asbestos fiber. He compared the causes of death in these workers to those of a cotton textile processing group. Looking at these data one sees no relationship suggesting an inordinately high frequency of gastrointestinal cancer even when one takes into consideration the factor of dilution caused by including rather large numbers of fairly young and short-term exposed people. Taking all things into consideration, I do not believe there is substantial evidence at this time to support the contention that even the highest intensity of exposures that we know of in industry lead to clear cut increased frequency of gastrointestinal cancer.

There is abundant animal experimentation along these lines. There have been large scale animal experiments studying the effects of asbestos fibers of various kinds and sizes on the pulmonary systems by exposing the animals to airborne fiber. In many of these experiments the intensity of exposure and duration was well over two years and sufficient to produce well developed pulmonary fibrosis. Such studies carried out in Saranac Lake were to my own knowledge always characterized by careful gross examination of the entire body of these animals and this included the intra-abdominal contents. Since receiving information concerning the apprehensions of Dr. Snell I have checked on this matter with the Saranac Lake group and in addition with Dr. Forde McIver at the University of South Carolina. Utilizing all manner of animals including dogs and with observations going up to two and more years in the mouse and on to four or more years in the dog none of the investigators involved in these studies has ever seen anything whatsoever to suggest a relationship between fiber exposure and gastrointestinal or liver cancer in the exposed animals. In fact,

F. J. Solon, Jr.

December 20, 1967

to their best knowledge, they have never seen a tumor of the gastrointestinal tract in these experimental animals. I cite this data because such animals do not cough and spit and of necessity swallow the fibers that are brought back up from the lungs. In addition, the food, especially of the small animals is covered by the settled-out asbestos fibers in the experimental chambers. These experiments are as a rule conducted with exposures for six to eight hours a day, five days a week and the food in general is simply added to that which is already in the feeding boxes. When fresh vegetables are fed, they are placed in the cages in the morning and cleaned out only with the general cleaning of the cages the next day. I would estimate that the ingested fiber in these experimental animals far exceeds that of workers in industry. In mice, the observations were carried out over the lifetime of the animal and for 75 percent or more the expected lifetime in most of the other animals. Although it is difficult to extrapolate from animals to man, the total lack of any evidence whatsoever that in the experimental animal the ingestion of asbestos fiber causes any sort of malignancy in the intestinal tract would seem to me to be important. In fact, it is this total lack of finding of tumors in the gastrointestinal tract in this type of experiment that has obviated the necessity of setting up a full-fledged feeding type of experiment. I understand that one or two investigators are embarking on this kind of study at the present time, although I personally do not see the need for it.

It seems to me, therefore, that Dr. Snell's apprehensions are based on an erroneous impression that a high incidence of gastrointestinal cancer has been proven to exist in persons occupationally exposed. There is evidence that such a relationship does not exist. This is both with respect to humans and experimental animals. In this context I think it should be re-emphasized that the intensity of exposure in all of the circumstances alluded to is far higher than one could conceivably expect in the drinking of water from asbestos cement pipe.

A third type of neoplasm has been implicated recently with the inhalation and consequent ingestion of asbestos fiber. Although Dr. Snell did not mention mesothelioma I presume he may have had this tumor in mind also. This tumor arises from the lining of the pleura space and abdominal cavity or peritoneum. In 1960 Dr. Wagner and his co-workers, at

F. J. Solon, Jr.

December 20, 1967

that time working in a hospital that serviced a rather dispersed population, noted an unusual frequency of occurrence of mesothelioma in the patients admitted to their hospital. In the general population, as will be indicated later, this tumor is one of the exceedingly rare ones and hence the occurrence of only a few cases in a single hospital within a short period of time was rather dramatic and required further investigation. Wagner and his co-workers learned that a factor common to all of their cases was either a history of having worked for a long period of time in the production of asbestos fiber or having had rather intimate contact with it over many years. The non-industrial contact being a strong one in that such individuals had picked short fiber from the tailings heap, had walked or ridden on roads constructed of asbestos-bearing rock, or had washed the clothes of asbestos workers in the mines and mills frequently over many years. Subsequent investigations in the South African asbestos producing regions indicates quite clearly that this unusual frequency of mesothelioma occurred only in those areas producing crocidolite and the chrysotile producing areas failed to show this unusual frequency of mesothelioma. It was of some interest, too, that not all crocidolite producing areas showed a high frequency of mesothelioma. Subsequent to this disclosure, an unusual frequency of mesothelioma has been unearthed in Great Britain where at the present time I am told a total of 276 cases of mesothelioma in the entire British Isles have been located. I do not know over how many years this series of cases were accumulated. Even at this number it continues to be a rare tumor. Retrospective exploration of the life experiences in these identified cases of mesothelioma has shown a bona fide exposure to the inhalation of asbestos fiber such as employment in the asbestos textile industry, the unloading of fiber at the docks or handling of the fiber en route to the mills, etc., in a majority of the cases. In some instances direct employment in such a way has not been demonstrated but a greater than casual contact with fiber has been disclosed such as living in the immediate neighborhood of industrial operations known to disperse fiber into the general environment or washing of clothes of a member of the family employed in the asbestos industry. In the few remaining cases, in the light of the great difficulty of disclosing asbestos fiber exposure by retrospective methods involving questioning of relatives, etc., it is highly probable that an actual greater than casual contact with fiber did occur in all. More recently, a greater than anticipated frequency of occurrence of mesothelioma has been disclosed in insulation workers and there

F. J. Solon, Jr.

December 20, 1967

is some evidence rather strongly suggesting the same is true in at least some of the asbestos textile employees of the U.S.A. In all of these exposures, crocidolite is again to be found. As was true in the chrysotile exposures of South Africa, a study of similar asbestos exposures in the milling of this type of fiber in the Canadian production area has failed to disclosed any unusual frequency of mesothelioma. A careful study of the Finnish population exposed to anthopholite also has failed to disclose a single case of mesothelioma.

In addition to a strong suggestion that crocidolite is the agent implicated in some way with the occurrence of mesothelioma, there is evidence to suggest that this tumor likewise is dose related. In all of those situations where the exposure can be relatively well documented, the occurrence of mesothelioma has been in persons not only exposed to crocidolite, but also the exposure has been greater than casual even though this tumor apparently has occurred in the absence of sufficient exposure to cause actual pulmonary asbestosis. It would appear that the total exposure may be somewhat less than that needed to relate strongly to bronchogenic carcinoma, nevertheless the exposure is still one that is much greater than casual. By casual exposure I mean the kind of exposure which might occur in persons not working or living daily in contact with known sources of asbestos fiber dissemination. The finding of ferruginous bodies in the majority of the adult population whose lungs come to necropsy examinations suggests rather strongly that the entire population of the civilized world has some--though casual--exposure to the inhalation of fibers amongst which one can reasonably assume asbestos should be included. The finding of these fibers in the lungs indicates that such fibers most assuredly have been swallowed and hence enter the gastrointestinal tract in some as yet unknown numbers. In spite of this probable uniform type of casual exposure to asbestos fiber, Selikoff, Churg and Hammond report in the New England Journal of Medicine, Volume 272, page 560 in 1965 that of the 31,652 persons who were known to have died between the ages of 30 and 89 years and who were members of a follow-up of 1,048,183 persons only three had died of mesothelioma of the pleura and none of mesothelioma of the peritoneum. In the light of what we now know, it can be assumed that 50 per cent or more of these 31,652 persons who died must have had at least enough exposure to fibers,

F. J. Solon, Jr.

December 20, 1967

some of which were doubtless asbestos, to cause ferruginous bodies. It can be further assumed that some unknown quantities of asbestos fiber were ingested during their entire lifetime, beginning with the application of body dusting powder. Since only three subsequently developed mesothelioma it is clear that some quantity of asbestos fiber ingestion is well tolerated, even for life.

There is further evidence along this line which will be presented next spring by Dr. William E. Smith and his co-workers. Pleural mesotheliomata have been produced by the injection of asbestos fiber and other non-asbestos materials in the pleural space of experimental animals. Smith's group have shown that a progressive attenuation of the amount of asbestos fiber placed in the pleura leads to the development of fewer and fewer mesotheliomata and at the one milligram dose no mesotheliomata developed.

With this background of information, what can be said in a direct fashion about the actual problem which raised Dr. Snell's apprehensions. There is some useful information in this regard. One can inquire into the evidence that asbestos fibers are released from asbestos cement pipe. It is my understanding that in predeterminable circumstances asbestos cement pipe may develop an inner lining of carbonates completely shielding the original pipe from contact with the water flowing through it. In other circumstances, the pipe does not in any way disintegrate and therefore releases no fibers. You would know better than I as to the possibilities that repair of pipe might at the time release some fibers but I cannot conceive that this occasional type of fiber release if it did occur could be anything other than a casual type of exposure. In some circumstances I am told that asbestos cement pipe might slowly lose substance from its inner surface and thus release some asbestos fiber. This kind of weathering must be very slow--if rapid, it would be economically unwise to use this pipe under such circumstances. With information concerning the volume of water transiting the system, the area of the inner surface of the pipe and the rate of weathering it should be possible to make some rough calculations of the total fiber dispersal. I would anticipate that the amount ingested would be so low as to be in the casual exposure range where mesothelioma has not developed with an unusual frequency.

F. J. Solon, Jr.

December 20, 1967

Even more meaningful to me is the fact that asbestos cement pipe has been in use in water systems throughout the U.S.A. for twenty-five to thirty years in a rather large number of major urban locations. These geographic areas, as for example the Los Angeles Department of Water and Power in California, have medical facilities which are not likely to have overlooked a frequent occurrence of this exceedingly rare tumor.

In this connection some data are available in regard to cancer of the digestive organs which include the gastrointestinal tract. Data from the National Office of Vital Statistics of the U. S. Public Health Service indicates that from 1947 to 1966 the rate of occurrence of tumor of this body system has dropped from 55.2 per hundred thousand population to 48.4. Substantial amounts of asbestos fiber have been used in various ways from 1930 on in the U.S.A. and one would anticipate that if this fiber was playing a role in the causation of gastrointestinal tumors, it might be expected to have led to an increase in tumor rather than the observed decrease.

For the U.S.A. as a whole, and from the same statistical source, cancer of the digestive organs is reported in 1964 to have been responsible for 5.1 per cent of all deaths. In Los Angeles, California where asbestos cement pipe has been used in very substantial amounts from 1936 on, the reported figure for cancer of digestive organs as the cause of death is 5.1 per cent in 1964. In other cities where asbestos cement pipe has been utilized in the water system for twenty-five or more years, as for example Knoxville, Tennessee; San Antonio, Texas; San Diego, California; Lubbock, Texas; and New Orleans, Louisiana, the per cent is less than the average for the U.S.A. and in Providence, Rhode Island and Miami, Florida, it is slightly above the average namely 5.7 per cent.

I find it difficult to understand the reasoning upon which Dr. Snell bases the last sentence of his third paragraph to the effect that "If any particles were released, current medical knowledge suggests that a rise in certain types of cancer could be expected about twenty to fifty years among the population." I wonder if Dr. Snell might provide us with the information on which he bases his inference that medical knowledge suggests such a development

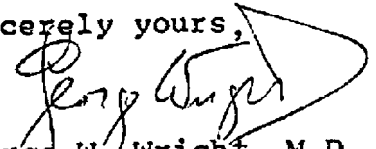
F. J. Solon, Jr.

December 20, 1967

following the release of a few or some determined number of particles into a water system. All of the information that I and others have strongly indicates that the relationship between neoplasia and asbestos fibers is a dose related one and to believe that a single fiber can cause a cancer seems incredible. The medical literature contains ample evidence that the kind of exposure to fiber experienced by those using the fiber in an occupational way is manyfold that of the general population. In the lungs received from persons with several years or more of continuous industrial exposure to asbestos fiber the number of ferruginous bodies can only be described by the word "myriads" whereas in the casually exposed lungs it is necessary to digest large parts of the lung or squeeze the juice from large volumes of lung in order to find one or two such ferruginous bodies. In those instances where bronchogenic cancer or mesothelioma appear to occur with greater frequency on a population basis, the number of ferruginous bodies also appears to be much larger than in those casually exposed. I do not believe that Dr. Snell can offer any substantial scientific evidence to indicate that the ingestion of one or a hundred or a thousand asbestos fibers on one or more instances is causally related to the development of mesothelioma. Most assuredly so few fibers cannot be related to gastrointestinal cancer, which appears to be his major worry, since in individuals known to be exposed far more heavily daily over a period of many years there is no acceptable evidence of a higher than anticipated frequency of cancer of this system. If Dr. Snell does have such evidence, we and others would welcome knowing about it.

With best wishes.

Sincerely yours,


George W. Wright, M.D.
Head, Medical Research
Department

GWW:kal

THIS LETTER FOLLOWED A QUERY FROM MR. LA PENNA AS TO THE
SOURCE OF DR. SNELL'S PREVIOUS COMMENTS.

VANDERBILT UNIVERSITY



NASHVILLE, TENNESSEE 37203

TELEPHONE 254-5411 AREA 615

Department of Medicine • School of Medicine

December 6, 1967

James J. La Penna
513 Stahlman Building
Nashville, Tennessee 37201

Dear Mr. La Penna:

You are correct in surmising that my statements are based on the medical literature. Enclosed are two examples. If you care to read further, there are 27 references in the 1966 Cumulated Index Medicus which link asbestos with cancer, and an additional 14 such references in the 1965 Cumulated Index Medicus. They are listed under the heading "Asbestosis."

The relationship of asbestos exposure to cancer of the lung has been well known for several years, being listed on page 708 of Rubin's Thoracic Diseases published in 1961. The original relationships were noted only in people working within industries using a lot of asbestos. About six months ago, however, in a pathology conference we discussed a patient who died of a mesothelioma (a malignant tumor) and was found to have asbestos fibers associated with the tumor despite never working in industries associated with asbestos exposure. Our pathologist stated he was seeing more of these tumors than ever before, and in people not working in areas of known exposure. We discussed the fact that asbestos was being put into many things these days, and that somehow it seemed to be involving more people than just miners or manufacturers.

When I saw that water pipe was being made from asbestos, it really upset me. The Food and Drug Administration has taken drugs off the market for producing tumors only in experimental animals. Yet, somehow, an agent known to cause cancer in humans has been allowed to contaminate drinking water. The only possible defense is that the amount of asbestos each person gets from the water will be so small that only a very rare, susceptible, individual will develop cancer. Do you want to gamble on whether you or your family are the susceptible ones — just to save a little money? I do not.

Respectfully,

James D. Snell, Jr.

James D. Snell, Jr., M.D.

JDS:jd
Enclosures

MERCURY

no methods of measuring the resistance or sensitivity of *Staph. pyogenes* to mercury salts have been compared. Little difference was noted, but the agar method is preferred as it is technically easier to perform. Resistance to mercury appears to be associated with antibiotic resistance, but no difference in tolerance between the two groups was demonstrated by means of intracerebral injection of mice. The mercury test may have a place as a screening procedure in view of the relationship between the resistance to mercury and to antibiotics.

We are grateful to Miss Thibeau and Mrs. J. Small for their technical assistance.

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SPECIAL REPORT

Asbestos and Cancer

The Report and Recommendations of a Working Group Convened Under the Auspices of the Geographical Pathology Committee of the International Union Against Cancer

EDITOR'S NOTE—In October 1964, the New York Academy of Sciences sponsored an international meeting on the biological effects of asbestos. Following this meeting, some 40 delegates from Australia, Canada, Finland, France, Germany, Great Britain and Ireland, Italy, South Africa and the United States were invited to study the vast amount of information which had been presented with a view to the organization of an international study of asbestos and cancer. The terms of reference of this Working Group covered three major aspects of the problem: epidemiology, pathology and experimental pathology, and physics and chemistry.

The findings of the Working Group and their recommendations arising from these studies are recorded, in slightly abridged form, in the following report.

THE ASSOCIATION OF EXPOSURE TO ASBESTOS DUST AND CANCER

THE main types of asbestos of commercial interest are amosite, anthophyllite, chrysotile, crocidolite and tremolite. There is evidence of an association between exposure to asbestos and malignant neoplasia. This has been established mainly on information from Germany, Italy, South Africa, the United Kingdom and the United States of America.

The types of tumours which have been shown to be associated with exposure to asbestos dust are:

1. Carcinoma of the lung.
2. Diffuse mesothelioma of the pleura and peritoneum.

There is some suggestion of an association also with gastrointestinal carcinoma, and possibly with ovarian tumours.

The latent period between first exposure to the dust and detection of the related tumours is many years, usually 20 or more. Instances up to 60 years have been reported. For this reason, further cases of these associated tumours will be expected to occur for many years to come, even if dust exposures are now greatly reduced.

Present evidence indicates that the associated carcinomas of the lung are not limited to exposure to any one type of asbestos fibre. However, further investigations are urgently needed to establish whether the degree of risk is importantly related to the type of fibre inhaled.

In the case of mesotheliomas evidence from several countries suggests that exposure to crocidolite (blue fibre) may be of particular importance, but it cannot be concluded that only this type of fibre is concerned with these tumours, and further investigation of this problem is needed.

Certain types of asbestos fibres in the virgin state have been found to contain oils, waxes and other organic matter. In addition, asbestos fibres readily absorb hydrocarbons subsequent to mining. Small or trace amounts of various elements such as nickel and chromium are also found associated with some types of fibre. The possible role of such associated materials in the development of tumours following exposure to asbestos dust, is not yet clear.

These findings, when considered in relation to the great increase in the use of asbestos for many purposes in all countries, suggest that a more serious and widespread hazard from exposure to asbestos dust may exist than is widely appreciated.

DECEMBER 11, 1967

Councilmen To Go On Pipe Plant Tour

By JIM SQUIRES

Nine Metro councilmen will leave today for a two-day inspection tour of the Newark, N.J., plant of the Johns-Manville Co., a manufacturer of asbestos-cement water pipe.

The pipe firm has invited the lawmakers in an effort to convince them that the cheaper asbestos-cement product is an adequate substitute for the costly cast iron now being used in Metro's water system.

THE COMPANY claims Metro can save \$300,000 annually by buying asbestos-cement pipe.

Robert L. Lawrence, Metro waterworks director, has consistently refused to allow asbestos-cement pipe companies to bid on government purchases. He declined the invitation to tour the plant.

Making the trip are Councilmen James LaPenna, Frank Griffin, Earl Shacklett, Mansfield Douglas, Martin Garrett, Thomas Sharp, John Fox, Robert McBride and John Driver.

LaPenna is chairman of the council's "watchdog" committee on purchasing which is now investigating Metro's pipe purchases.

THE COMMITTEE was formed and the probe launched following an investigation by THE NASHVILLE TENNESSEAN

which disclosed that one cast iron pipe company, James E. Clow & Sons, has won every Metro pipe contract in the last four years.

Through a hodge-podge pattern of bidding, the investigation disclosed, Clow has gotten all Metro pipe business, while its two major competitors have been equally successful in Chattanooga and Memphis and in small towns surrounding Nashville.

Clow has been the low bidder in Nashville on every contract, while at the same time bidding high on similar pipe in other areas of the state. At the same time, companies bidding high in Nashville consistently underbid Clow in towns as close as Murfreesboro and Columbia.

LaPenna has proposed widening specifications to allow competition between cast iron and asbestos-cement manufacturers.

Lawrence has refused to do this, saying he has no intention of accepting an asbestos-cement company bid no matter how low the price.

AT THE LAST council session, he distributed a pamphlet which claimed to show the superior strength of cast iron compared with asbestos-cement.

The pamphlet was prepared by the Cast Iron Pipe Research Association.

The councilmen will return to Nashville tomorrow night.

Asbestos Pipe, Cancer Tie Hit

By JIM SQUIRES
Staff Correspondent

NEW YORK — There is no evidence to support a recent statement by a Nashville doctor that use of asbestos-cement water pipe might cause cancer, a noted cancer researcher said here yesterday.

Dr. George Wright, chairman of The Institute for Occupational and Environmental Health, said he did not think such a relationship "will ever be established."

WRIGHT, HEAD of the department of medical research in internal medicine at St. Luke's Hospital in Cleveland, Ohio, said a letter from Dr. James Snell, an assistant professor at Vanderbilt University school of medicine, suggesting such a relationship "apparently arises out of an incomplete perspective" of the problem.

Wright spoke to nine Metro councilmen here to tour a Johns-Manville plant in Newark, N.J., a manufacturer of asbestos-cement pipe.

Snell sent a letter last month to Metro waterworks director Robert L. Lawrence supporting Lawrence's decision to prohibit asbestos-ce-

ment manufacturers from bidding on Metro waterpipe purchases.

The council committee on purchasing had suggested that Lawrence allow asbestos-cement manufacturers to bid because the product is less expensive than the cast iron pipe now being used.

SNELL WROTE that asbestos is a known cause of cancer and can contaminate drinking water. The physician said he did not believe this fact had been brought to the attention of the U.S. Public Health Service.

Wright, an adviser to the U.S. Public Health Service, said the asbestos-cement pipe industry had long been aware of a link between certain types of asbestos fibers and lung cancer and with Mesothelioma, a rare malignant tumor found on the lung covering and the gastrointestinal tract.

He pointed out, however, that asbestosis (a lung tissue disease) and lung cancer are caused only by inhalation of certain asbestos fibers in large amounts and over long periods of time.

MESOTHELIOMA, he said, has never been linked positively with swallowed amounts of asbestos and is "extremely rare."

"Evidence of research indicates that virtually everyone is exposed to asbestos fibers," he said. "In fact, it would appear reasonable to assume that there is no such thing as not having been exposed. If mere exposure is a cause, we would all have it."

Wright cited widespread use of asbestos fibers in insulation, electrical wiring and stove ovens and toasters.

"THERE IS A great upswing in the use of asbestos fiber, but the incidence of cancer has actually fallen off," Wright said.

Wright said asbestos-cement pipe, consisting of 20% asbestos fiber, has been in water systems in some areas for as long as 30 years. In many instances, he said, there is no evidence of wear in these pipes to release asbestos fiber.

"After this many years of experience, if these fibers were to be a source of Mesothelioma — a dramatic tumor — it would be known," Wright stated.

"THIS WOULD not escape. This is not a new point of interest to the industry," he added.

Wright said manufacturers of asbestos products were among the first to discover its possible biological effects and have spent "millions of dollars" in the field.

The doctor said he is preparing a written answer to Snell's statement.

"I don't know Snell or his background in this area," Wright said, "but no doctor is knowledgeable in all areas. I have spent much of my life in this field, and even I am not."

SNELL WROTE Lawrence Nov. 14, stating he would consider the use of asbestos-cement pipe "a medical hazard of significant degree" until the U.S. Public Health Service had checked it out completely.

Officials of the Johns-Manville Co., asked about this yesterday, said the Public Health Service is among its customers.

"We have sold them thousands of feet of pipe," said Jay Baker, product manager. "I feel certain we will sell them much more."

THE COUNCILMEN are scheduled to tour the manufacturing plant and research center today. The company claims its product will save Metro \$300,000 a year on pipe purchases.

Asbestos Pipe Use Backed

By JIM SQUIRES
Staff Correspondent

NEW YORK—Eight Metro councilmen recommended yesterday that waterworks director Robert L. Lawrence allow manufacturers of asbestos-cement pipe to bid on Metro pipe purchases.

The councilmen urged that the bans against the firms be dropped after a tour of the Newark, N.J., plant of Johns-Mansville Corp., a manufacturer of the asbestos-cement product.

"IT'S A SHAME that a product this good has been kept out of the bidding," said Councilman Frank Griffin. "I see no reason why these manufacturers cannot be given the opportunity to bid for our business."

James LaPenna, chairman of the council purchasing committee, said the tour of the Johns-Mansville facility produced "overwhelming evidence that asbestos-cement pipe is a quality product and widely used throughout the world."

Joining Griffin and LaPenna in the recommendation were Councilmen Martin Garrett, John Fox, Mansfield Douglas, John Driver, Earl Shacklett and Robert McBride.

A NINTH councilman making the trip, Tom Sharp, said he would make no recommendation concerning the product pending further investigation. Sharp said he wanted to learn as much about the cast iron water pipe now being used by Metro as he learned about the asbestos-cement product during the two-day visit here.

The councilmen toured the facility at the invitation of Johns-Manville officials at no expense to the government. The firm had previously told the purchasing committee it was being excluded from bidding because of Lawrence's opposition to the use of asbestos-cement pipe.

The purchasing committee has been investigating Metro's pipe purchasing practices

(Turn to Page 15, Column 1)

Asbestos Pipe Use Backed

(Continued From Page One)

since a probe by THE NASHVILLE TENNESSEAN disclosed that a single cast iron manufacturer has gotten all Metro water pipe business in the last four years.

THE FIRM, JAMES B. Clow & Son, was successful low bidder on all pipe contracts, while its three major competitors were equally successful in the state's other major cities.

Griffin and LaPenna, after viewing quality and durability tests of the asbestos-cement pipe, said it is "apparent" Metro has been "victimized by a lack of true competition among cast iron pipe companies."

Comparing list prices of asbestos-cement and cast iron pipes, LaPenna estimated Metro can save \$525,000 over the next 18 months by allowing asbestos-cement manufacturers to bid against cast iron companies.

"I am not saying we should switch entirely to asbestos-cement or that one product is superior," he said. "It is my personal feeling the two products are comparable and all vendors should be allowed to bid."

LAPENNA SAID councilmen who toured the plant will present their findings to the full purchasing committee later this month. The committee will make recommendations to the council.

Comments from other councilmen concerning asbestos-cement pipe were:

John Fox: "I think these firms have a good product and should be allowed to bid. If installed to specifications, the nature of the terrain will not matter."

THIS STORY FILED BY
JIM SQUIRES FOLLOWING
DR. WRIGHT'S PRESENTATION
AT THE DORAL HOTEL, N.Y.C.
DEC. 11, 1967.

Martin Garrett: "Our biggest problem is selling it to Mr. Lawrence. I personally think we should let the contractors buy the pipe and that both cast iron and asbestos-cement companies be allowed to try for the business."

John Driver: "I was amazed at the strength and quality of this asbestos-cement material, especially after what we had heard locally. I think the company should have the privilege of competitive bidding. With expenses continuing to go up, it is advantageous to us to save tax money."

Mansfield Douglas: "I was quite impressed and am convinced that the pipe is sufficient to carry water under the stress and strain anticipated in Metro's system. I see no reason why these companies are not allowed to bid."

Robert McBride: "I feel there are places where asbestos-cement might not work in the local system. At the same time there are places where it will do the job as good as cast iron and at a much lower cost. With a water-sewer expansion program as large as ours, this is a good place for us to save a substantial amount of money."

DZ#

SCHEDULE - CITY OF NASHVILLE VISIT

Monday - December 11, 1967
 Depart Nashville 8:00 CST
 Arrive Newark 12:30 EST

Following customers will be our guests:

Mr. James J. La Penna	-	Chairman of Purchasing Committee and Councilman Metropolitan Gov't of Nashville and Davidson County
Mr. Frank Griffin	-	Member of Purchasing Committee and Councilman
Mr. Mansfield Douglas III	-	" " " " " "
Mr. Earl Shacklett	-	" " " " " "
Mr. Paul Blankenship	-	" " " " " "
Mr. Martin Garrett	-	" " " " " "
Mr. Thomas Sharp	-	" " " " " "
Mr. Raymond Buchanan	-	Metropolitan Councilman
Mr. John Fox	-	" "
Mr. Robert McBride	-	" "
Mr. John Driver	-	" "
Mr. James Squires	-	Reporter - Nashville Tennessean
Mr. Richard Pennell <i>Wes Welch</i>	-	Reporter - Station WLAC-TV

Group will proceed direct from Newark to the Doral Hotel. Meeting will begin in the Murray Hill Room at 2:00 PM.

J-M Personnel in attendance:

✓ H. M. Jackson	✓ J. F. Baker
✓ D. L. Hinson	H. V. Watson
✓ F. J. Solon	K. R. Augst
✓ W. P. Raines	W. J. Hayes
✓ H. Harris	✓ (Dr. George Wright, M. D.)

Agenda:

2:00	Welcome and Introductions - H. Harris
2:10	Introduce Hugh Jackson who will introduce Dr. Wright (Medical question) Dr. Wright comments and questions.
2:45	History of TRANSGITE in U.S. - J. Baker Growth of A.C. Industry - J. Baker Introduction to film "Underground Arteries".
3:30	Briefing of Dinner Plans and Outline of Tuesday Schedule
3:35	Close by H. V. Watson

7:00 Dinner - Japan Kobe Steak House
145 West 49th Street

Tuesday - December 12, 1967

7:00AM Breakfast - Doral Hotel
7:30AM Depart for Hanville Pipe Plant
(Approx)9:00AM Plant Tour - H. Engel
10:30AM Depart Plant for Research Center
10:45AM Welcome to Research Center - J. Swensen
Tour - Winn Corrison
12:45PM Lunch - Research Dining Room
2:00PM Meeting - Main Training Room - M. Watson
Technical Presentation
3:10PM Closing Remarks - J. Baker
3:15PM Depart Research for Newark Airport
4:00PM Plane Departure to Nashville

JM Personnel in attendance Tuesday:

F. J. Solon	J. Baker
W. P. Raines	H. Watson
H. Harris	K. R. Augst
J. Swensen	W. J. Hayes
W. Corrison	

Background on Visitors:

Mr. La Penna	-	Chairman of Purchasing Committee - Attorney
Mr. Blankenship	-	Vice Chairman of Purchasing Committee - Attorney
Mr. Griffin	-	Office Supply and Printing
Mr. Shacklett	-	General Contractor
Mr. Douglas	-	(Necto) Western Electric Purchasing Dept.
Mr. Garrett	-	Garage and Service Station Operator
Mr. Sharp	-	Composing Room - Newspaper Printing Corp.
Mr. Buchanan	-	Insurance Business
Mr. Fox	-	State Hotel and Restaurant Inspector
Mr. McBride	-	Used Car Dealer
Mr. Driver	-	Service Station and Hotel Operator

Asbestos-Cement Warning Sounded

By DICK BATTLE

Health and medical authorities have warned Metro Director of Water and Sewerage Services Robert L. Lawrence Jr. that substitution of asbestos-cement pipe for cast iron water mains

may create a "medical hazard of significant degree."

"Asbestos has been fairly well established in medical circles as causing a high incidence of cancer" in the lungs or gastrointestinal tract, one letter to Lawrence stated. A copy of the letter was also sent to Councilman James J. LaPenna, chairman of the council's purchasing committee who has urged broadening water pipe specifications to include bidding by asbestos-cement pipe manufacturers.

Warning

The warning expressed by Dr. James D. Snell Jr., assistant professor of medicine, Vanderbilt University, and by Dr. J. M. Bistowish, Metro director of health, follows efforts by Councilman LaPenna on Nov. 21 to promote an all expense paid trip for councilmen to visit the "research center" of an asbestos-cement pipe manufacturer "30 minutes outside New York City."

For many years Lawrence has insisted on the use of cast iron pipe for the local water system. He has informed LaPenna he does not consider asbestos-cement pipe comparable

(Please Turn to Page 13, Col. 1)

in durability to cast iron pipe. LaPenna has not insisted that asbestos-cement pipe be installed in the Metro water system. He has urged that specifications be rewritten to allow bidding by asbestos-cement manufacturers or suppliers as a means of forcing lower bids from cast iron pipe manufacturers. Lawrence has said he will not approve use of the pipe and changing specifications under these circumstances is not "honest."

'Work Trip'

The trip for councilmen to the eastern research center of an asbestos-cement pipe manufacturing firm is a "work trip," LaPenna states, to gain information about the product.

He told the council on Nov. 21, however, it was "very possible no tangible results will come from it (the 'work trip') but urged they make the overnight junket in a company plane at no cost to themselves and also invited newsmen and Metro officials to sign up for the free trip. Copies of the two letters from Doctors Snell and Bistowish dated Nov. 14 and 17 respectively were mailed to LaPenna.

Dr. Snell's letter to Lawrence states:

"I read with great concern the council's recommendation that Metropolitan Government re-write their specifications on water pipe to allow asbestos-cement to competitively bid. I was not aware, nor apparently are many medical people aware, that asbestos containing pipe has been used in water systems.

"Asbestos has been fairly well established in medical circles as causing a high incidence of cancer, in the lungs if breathed, or in gastrointestinal tract if swallowed even in amounts small enough to be visible only under a microscope.

"Regardless of who is using it now, and regardless of any reassurances by salesmen from asbestos-cement pipe manufac-

turers, I would consider it a medical hazard of significant degree to use such pipe in a water system until the U.S. Public Health Service had checked it out completely. Without specific clearance by the Public Health Service it seems to me the burden of common sense would suggest that it is impossible to work on the pipe or add to it without releasing particles of asbestos into the water. If any particles were released, current medical knowledge suggests that a rise in certain types of cancer could be expected in about 20-50 years among the population.

"I have a premonition that such things as water pipe may not have to be cleared with any U.S. Public Health Service agency except those to make sure bacteria cannot penetrate the pipe. If so, there has been a terrible mistake made in allowing use of asbestos containing pipe in water systems.

"It is my opinion that although it is common practice in many cities, we would be unwise to change our specifications to allow asbestos-cement pipe to compete in the bidding until the full facts can be ascertained. I intend to pursue this matter with public health officials to see if this pipe has some safety features of construction which make it non-hazardous."

Dr. Bistowish

Dr. Bistowish wrote the following letter on Nov. 17 in response to communication from Dr. Snell:

"Following your telephone call relative to the use of asbestos pipe for water systems, I contacted the Engineering Division of the State Board of Health and was informed while they would prefer not to have asbestos pipe used, there was no prohibition against it and such pipes are used in some parts of the country. I can find no one at the state level who has knowledge of any adequate studies to rule out health hazards from the use of asbestos piping. I have written for information from the U.S. Public Health Service and to the National Center for Urban and Occupational Health to determine if they have knowledge of studies being made on this material.

"It may interest you to know that in one area near Memphis, ph (parts hydrogen) of the water was about 10 or 11 and complaints from residents were received that the water was milky. Investigation revealed that the lime had been dissolved from a cement component of the pipe and constant flushing had to be continued to keep the pipes clear

'Very Possible'

"It seems very possible that if the cement were removed from the pipes the asbestos might also be found in the water. I am trying to secure additional information about this episode."

Copies of this letter were sent to Lawrence and LaPenna.

Replying to Dr. Snell's letter of Nov. 14, Lawrence thanked him and stated: "I do not believe I had known that asbestos was conducive possibly to cancer in the intestinal tract or in the lungs. However, inasmuch as it is possibly a silicate, I am able to see that it might cause irritation both in the mucous membrane of the lungs and the mucous membrane of the stomach and intestines. This is highly interesting information and very pertinent to the problem with which I am now confronted, and which, however, has arisen off and on for many years."

Lawrence said his rejection of the asbestos-cement pipe was based primarily on past successful experience with cast iron pipe "without noticeable deterioration" and its advantages over the lighter pipe for use in rocky soil.

Be Resolved

"The point which you have raised is, of course, recognized of serious importance and if there should be any doubt in the minds of competent members of the medical and engineering professions, a matter of this nature should always be resolved in such a manner as to remove any doubt whatsoever."

Lawrence, in response to questions, said LaPenna had been furnished with copies of all correspondence from Drs. Snell and Bistowish and his (Lawrence's) reply and addition to engineering consultants' reports and findings relative to comparisons of cast iron pipe and asbestos-cement pipe. The director of water-sewerage services said he had hoped LaPenna would reveal to the council, his committee and the public the reports, correspondence and information relevant to the pipe controversy.

Today the Metropolitan Clerk's office reported LaPenna and the other councilmen have signed up for the New York trip offered by the pipe manufacturer. The councilmen making the trip with LaPenna are: Raymond Buchanan, Frank Griffin, John Driver, Earl Shacklett, John Fox, Robert McBride, Mansfield Douglas, Paul Blankenship, Martin Garrett and Thomas Sharp.

Metropolitan Government of Nashville and Davidson County

MEMBER OF COUNCIL
205 COURTHOUSE
NASHVILLE, TENNESSEE 37201



November 24, 1967

Mr. K. R. Augst, Area Manager
Johns-Manville Sales Corp.
Pipe Division
Marrero, Louisiana 70072

Dear Mr. Augst:

Thank you for your letter of November 22, 1967. Please put in writing the amount of insurance coverage per person and any other details you may wish, specifically about your Research Center and what you plan to show us. Once we get on the plane, you will take over.

We Suggest 1:00 PM

Can we leave at about 8:00 a.m. Central Standard time on December 11, 1967, and get back to Nashville at about 6:00 p.m. on December 12, 1967?

7:00 PM

Enclosed is a copy of the letter sent by Dr. Snell to Mr. Lawrence which your company should know about. Any comments you might have about this should be sent to Mr. Lawrence as well as to me.

Best regards,

Jim La Penna

James La Penna, Chairman
Purchasing Committee

JJLaP/cb

Enclosure

*See W.W.L. about a research
plan library on General Electric
orders against CI Company's.*

November 14, 1967

Robert L. Lawrence, Director
Metro Water Department
Metropolitan Court House
Nashville, Tennessee

Dear Mr. Lawrence:

I read with great concern the council's recommendation that Metropolitan Government re-write their specifications on water pipe to allow asbestos-cement pipe to competitively bid. I was not aware, nor apparently are many medical people aware that asbestos containing pipe has been used in water systems.

Asbestos has been fairly well established in medical circles as causing a high incidence of cancer, in the lungs if breathed, or in the gastrointestinal tract if swallowed even in amounts small enough to be visible only under a microscope.

Regardless of who is using it now, and regardless of any reassurances by the salesmen from asbestos-cement pipe manufacturers, I would consider it a medical hazard of significant degree to use such pipe in a water system, until the U.S. Public Health Service had checked it out completely. Without specific clearance by the Public Health Service it seems to me the burden of common sense would suggest that it is impossible to work on the pipe or add to it without releasing particles of asbestos into the water. If any particles were released, current medical knowledge suggests that a rise in certain types of cancer could be expected in about 20-50 years among the population.

I have a premonition that such things as water pipe may not have to be cleared with any U.S. Public Health Service agency except those to make sure bacteria cannot penetrate the pipe. If so, there has been a terrible mistake made in allowing use of asbestos containing pipe in water systems.

It is my opinion that although it is common practice in many cities, we would be unwise to change our specifications to allow asbestos-cement pipe to compete in the bidding until the full facts can be ascertained. I intend to pursue this matter with public health officials to see if this pipe has some safety features of construction which make it non-hazardous.

Respectfully,

James D. Snell, Jr., M.D.
Assistant Professor of Medicine

JDS:jd

cc: Joseph M. Bistowish, M.D.
James J. La Penna

*Metro Nashville
Medical Director*

December 14, 1967

Mr. Leland J. McCabe, Chief
Disease Studies
Water Supply and Sea Resources Program
Department of Health, Education and Welfare
370 East Central Parkway
Cincinnati, Ohio 45207

Dear Mr. McCabe:

I have forwarded your letter of December 7 to Mr. S. M. Fennar, Director of Environmental Control, at our Research Center, Finders, New Jersey, for reply to the specific questions you have raised.

As you may know, we have been and are cooperating with the U. S. Public Health Service, through Dr. L. J. Talley's organization, in a study of the asbestos industry. This study is principally concerned with the biological effects of asbestos resulting from the inhalation exposures encountered in industry.

The recent opinions expressed by Dr. J. D. Snell, Jr., as reported in the Nashville papers, raised some serious questions.

Please be assured that we will collaborate fully with you in your investigation and make the knowledge and resources of our Research organization available to you.

Yours very truly,

H. M. Jackson
Director of Industrial Relations

Copy to:

Mr. S. M. Fennar, Finders

cc:	C. B. Burnett	)	
	C. W. Wright, M.D.	)	
	A. C. Smith	)	Please see attached note
	D. L. Hinson	)	to all receiving copy of this letter.
	F. J. Solon	)	
	W. P. Raines	)	
	M. Harris	)	

Attachment to H. M. Jackson's letter of 12/14/67
to Leland J. McCabe, Dept. of H. E. & W., Cincinnati, Ohio

12/14/67

Note to:

C. B. Burnett
G. W. Wright, M.D.
E. M. Fenner
A. C. Smith
D. L. Hinmon
F. J. Solon
W. P. Raines
M. Harris

By phone contact on December 13, Dr. Cralley advised me that he was aware of the Nashville situation--in fact, had been asked to make comments for Dr. Murray Brown's use and signature.

He indicated the essence of the comments were that the asbestos health hazard potential via the routes of inhalation and ingestion were two totally different situations. Substantial dosages over long periods of time were necessary to produce ill effects by inhalation. In his opinion, it was inconceivable that sufficient fibre intake could be accomplished through the ingestion route alone, and particularly so when related to the water intake capacity of humans. He also expressed an opinion that a pH which would attack the cement would also attack and modify the fibre.

Dr. Cralley does not know whether the comments were forwarded.

Although Dr. Cralley does not know L. J. McCabe personally, he will contact him and advise him of the current asbestos industry study and our relationship with the Department.

H. M. Jackson

P. S. - Copy of L. J. McCabe's letter of December 7, 1967, is attached.