



**A/C Pipe
Producers Association**

Public Affairs Committee

Internal Correspondence

TO *J. F. Welch*

J. F. Welch, Director, Public Affairs

October 1, 1981

DATE

FROM

SUBJECT Guidelines on Use of Asbestos Cement Pipe in Aggressive Water Conditions

REF: Executive Committee minutes, July 16, 1981.

ACTION REQUIRED: Review for discussion at PAC meeting, October 13, 1981.

The Executive Committee has directed Staff to prepare for its review and approval a revised policy on aggressive waters. Enclosed is the current position statement, developed by the Market Development Committee in 1979.

Please be prepared to submit recommendations for revision of this policy at the upcoming PAC meeting. If you have any questions, please do not hesitate to call.

JFW/ajb

Enclosure

cc: A. Kahn, Esq.
N. Rahn, Esq.

copies to: Public Affairs Committee

H. Olson
I. Adams
W. Perrell
J. Woods
J. Baker
T. Dougherty
D. Stinson
W. McCallie
B. Collier

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GUIDELINES ON THE USE OF ASBESTOS CEMENT PIPE IN AGGRESSIVE WATER CONDITIONS

It is known that highly corrosive or "aggressive" water can have a detrimental effect on most piping materials, accessories, and appurtenances used in potable water systems. Highly aggressive water may extract materials from these products thereby reducing their projected life expectancy and adding impurities to the water.

Asbestos-cement (A/C) is one of the most corrosion resistant pipe materials used to convey water. This corrosion resistance has been demonstrated in service over the past fifty years. This fact is further attested by corrosion studies conducted by the U.S. Government. These governmental studies have involved both iron pipes and A/C pipe exposed to aggressive soil conditions (U.S. Bureau of Standards), and highly aggressive waters (U.S. Bureau of Mines). In each of these studies A/C pipe has demonstrated significant superior corrosion resistant properties to cast and ductile iron pipe.

While the service stability and long term performance of A/C pipe is well documented, the Association of Asbestos Cement Pipe Producers (AACPP) strongly supports water industry standards aimed at correcting or controlling the corrosiveness of all potable water. Since corrosion control is not being practiced by all utilities, AACPP has taken a leadership position in support of standards covering the responsible use of A/C pipe in aggressive water conditions.

The American Water Works Association (AWWA) and the American Society of Testing and Materials (ASTM) publish standards which contain criteria for determining the type of A/C pipe to be used under various internal water conditions. These criteria are based on "Aggressive Index" (AI) which defines water "aggressiveness" or corrosivity in the following terms:

$$\text{Aggressive Index (AI)} = \text{pH} + \log (\text{A-H})$$

where pH = Index of acidity (or alkalinity) of the water, standard pH units

A = Total alkalinity, ppm as calcium carbonate

H = Calcium hardness, ppm as calcium carbonate

Highly Aggressive: AI < 10.0

Moderately Aggressive: AI = 10.0 - 11.9

Non-Aggressive: AI ≥ 12.0

AACPP supports the use of the aggressive water guidelines published in AWWA and ASTM Standards for A/C pipe. There are conditions of use where the useful life of A/C pipe and many other types of pipe, particularly metallic pipe, will be affected by highly aggressive waters. It is the position of AACPP that such waters should be treated to a less aggressive condition.

Where the Aggressive Index remains less than 10.0 following stabilization treatment, the manufacturer should be contacted for recommendations to extend the useful life of A/C pipe.



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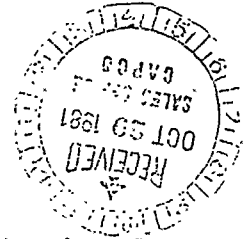
TO: Public Affairs Committee
International Affairs Committee

FROM: *J. F. Welch*
J. F. Welch, Director, Public Affairs

DATE: October 22, 1981

SUBJECT: News Article - Asbestos in Drinking Water

ACTION REQUIRED: Review for information



Enclosed is a news article forwarded by Winner/Wagner & Associates, Inc., AACPP's special counsel in California. It describes the finding of high levels of asbestos in the drinking water in Humboldt County. The article reports the asbestos levels in parts per million so Staff does not know if the reporter or the engineering firm has its facts confused.

Staff Recommendations

1. That the Humboldt Bay Municipal Water District be contacted and provided the latest information on asbestos in drinking water. Staff is not aware whether the District uses A/C pipe, but there is always the liability of spill-over into surrounding municipalities which may use A/C pipe.
2. That Member Companies obtain a copy of the Winzler and Kelly report and forward same to AACPP.

If you have any questions, please do not hesitate to call.

JFW/ajb

Enclosure

cc: A. Kahn, Esq.
N. Rahn, Esq.
B. Garcia (Winner/Wagner) w/o enclosures

copies to:	<u>Public Affairs Committee</u>	<u>International Affairs Committee</u>
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CAPCO JEN 0032998

High Asbestos In Eureka Water

Officials Not Panicked, Await More Studies And Federal Money

By Pat Murkland
Bee Correspondent

EUREKA — Water used for drinking by more than 70,000 Humboldt County residents contains one of the highest concentrations of asbestos fibers found in water supplies across the United States, according to an engineering firm study made public Thursday.

The asbestos, a fiber suspected to cause cancer, enters water through eroding serpentine rock along the Mad River, according to the study by the Eureka engineering firm of Winzler & Kelly.

The river is the main source of water for municipalities served by the Humboldt Bay Municipal Water District. The district requested the engineering study last year after a University of California researcher found a correlation between gastrointestinal types of cancer and asbestos in San Francisco Bay area drinking water.

Levels of asbestos eroding naturally into Humboldt water reservoirs far exceed levels of asbestos found in the Bay area supplies and in drinking water across the country studied by the U.S. Environmental Protection Agency in 1978, the engineering firm concluded.

The average rate of asbestos in the Humboldt Bay district was 70 parts per million, while the Bay area averaged 25 parts per million, according to the engineering firm.

Asbestos levels vary during the sea-

sons but show marked increase during winter months, the study said.

The firm recommended that county health officials ask the California Department of Health Services to include Humboldt County in current state and federally funded research of Bay area drinking water.

But the district board of directors voted Thursday to hold back on any decision until more is known about the health effects of asbestos.

"Our board financially is not in the position to be a trailblazer in this," said board chairman Herbert Urban.

"It takes millions and millions (of dollars) to first ascertain what the problems are and to design filtering plants to take care of them and this is being done all through the country. We would prefer to wait for the federal government or the state government or other larger agencies to do something on this."

The federal Environmental Protection Agency has established water quality criteria for toxic pollutants. But federal standards for asbestos apply to waste discharges and not to drinking water standards.

Urban said that federal and state information will probably become available within the next two years.

"Possibly they'll mandate that we bring it down to certain levels and if they do, then possibly we'll receive financial support on the mandate," Urban said.

"We know that our native Americans

have been drinking it since time immemorial. We know that the city of Eureka has used Mad River water since the 1930s, and we're not prone to feel it's a panic problem."

But the engineering report said it is difficult to assess health risks from asbestos because in many instances, long periods of time elapse before trouble is detected.

"Nobody has defined asbestos fibers in water as truly being a health problem," engineer John Winzler said.

Winzler said sophisticated filtration systems probably are the only way to solve the problem.

"But again, nobody has mandated that this be done yet," he said. "Neither the state or the EPA has enough knowledge that there is a health problem or that you should do anything about it."

The EPA recommends, however, that for maximum protection, people should avoid exposure to asbestos-contaminated water. The EPA estimates concentrations of asbestos results in additional lifetime cancer risks for one person in 100,000.

When the engineering firm compared EPA's criteria with concentrations of asbestos fibers in the Humboldt water supply, it estimated there is a lifetime cancer risk for approximately one person in 500. The firm added, however, that a statistical review of health records was needed to support its estimate.



A/C Pipe
Producers Association

Internal Correspondence

TO: *JFW*
Public Affairs Committee
International Affairs Committee

FROM:

J. F. Welch
J. F. Welch, Director, Public Affairs

DATE:

July 9, 1981

SUBJECT

AWWA Presentations on Vinyl-Lined A/C Pipe

ACTION REQUIRED: Review for information

At the 100th Annual Conference of the American Water Works Association, held in St. Louis, Missouri, June 7-11, 1981, the enclosed papers were presented on the vinyl-lined A/C pipe - tetrachloroethylene issue.

The lead-off presentation was given by Richard S. Woodhull, Chief, Bureau of Water Supplies, State of Connecticut. The follow-up presentation was given by Wyatt McCallie, Senior Counsel, Johns-Manville Corporation. The enclosures will be printed in the Annual Proceedings of the Conference.

JFW/ajb

Enclosures

cc: A. Kahn, Esq.
N. Rahn, Esq.
Special Counsel (4)
AIA/NA
Asbestos International Association
Asbestos Institute
Brian Commins, PhD.
W. E. Smith, M.D.

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CAPCO JEN 0033000

USE OF VINYL-LINED ASBESTOS-CEMENT PIPE
A CASE HISTORY
BY
RICHARD S. WOODHULL

In March of 1980, the writer was speaking at a seminar of the New England Water Works Association (NEWWA) on a corrosion control panel. At the conclusion of the presentation by State panel members, one of the panelists beckoned me to accompany him outside the hall. There, he told me of a startling series of tests that had been conducted during the fall and winter by his agency on selected public water supplies utilizing asbestos-cement pipe in their systems. In the course of a routine investigation, they had stumbled upon the contamination of a public water supply with substantial amounts of tetrachloroethylene (TCE). A search for an external source of the chemical was fruitless. The source water was totally free of the contaminant and yet far out in the distribution network TCE was being picked up in the water. Where could it be coming from? A search for cross-connections in the area showed no problem of that nature to exist. Subsequent investigation showed that it was the pipe itself that was the source of TCE.

Why should low levels of TCE in drinking water be of concern to health authorities? It is worrisome because laboratory work with mice has indicated that TCE does have the potential to cause tumors in test animals. This could translate to a danger for humans. This is in the area of the kind of risk that cannot at the present time be proved, one way or the other, when amounts of TCE below the level of acute toxicity are present. But because the possibility of harm exists, it is felt prudent to reduce human exposure to TCE to the lowest practical level. Toxicologists with the state and with the U.S. Environmental Protection Agency (EPA) fixed the acceptable long term risk for TCE in drinking water at 20 micrograms per liter (ug/l) and rationalized that a continuing level as high as 40 ug/l would be acceptable in water from vinyl-lined pipes because the exposure, although of somewhat uncertain duration, would be far less than lifetime.

Is the vinyl-lining necessary? Does the benefit outweigh the risk? Where does the TCE come from and is TCE release into the water necessary? These questions also needed examination. The EPA-assisted investigation found that the manufacturers of asbestos-cement pipe had decided that the corrosion of the pipe interior by acid water would be inhibited if the pipe material was coated by a material that would not dissolve in acid water. In order to apply this very thin coating to the pipe interior, the solvent TCE was used. This is a volatile chemical and most of it is evaporated in the pipe drying and curing process. It appears, however, that in some situations sufficient quantities of TCE remain as to permit measurable quantities to be released into the drinking water as it passes through the pipe. My fellow panelist reported recovering as much as 1,100 ug/l of TCE from consumer taps.

We in Connecticut immediately began to check for ourselves whether this reported phenomenon was a matter for concern in our state. We were somewhat surprised to learn that the first Connecticut utility we contacted had heard the same report as we at the same conference and had already submitted water samples for labora-

tory testing taken from vinyl-lined pipe areas in their system. Shortly thereafter, at a regional meeting of state and EPA officials, the vinyl-lined pipe was a topic of concerned discussion. Explanation was made of what had been learned thus far and it was determined that the individual states would immediately begin a canvass of water utilities to determine the extent of use of this particular pipe. There was discussion at this meeting of the health risks and a tentative acceptable lifetime exposure level of 20 ug/l was arrived at. While this meeting was still in progress, the writer received by telephone the preliminary results of the first tests in Connecticut. The highest figure was 150 ug/l. This prompted an immediate meeting with the water utility and the town health director at which it was decided to notify all consumers whose homes were in the affected areas and where TCE levels in excess of 20 ug/l were being recorded. The areas with high TCE levels were found to be limited to newer service areas, located at the ends of the system, where the vinyl-lined pipe had been in use for only 2 years.

At the time the decision was made to inform consumers of the presence of TCE in drinking water, we did not know what the solution for reducing or eliminating the TCE would be. It seemed the only proper procedure was to conclude that the consumer had a right to know and to inform them. Additional sampling schedules were mapped out and a notice was composed that was signed jointly by the water utility and both health agencies outlining the situation to the extent it was known. Flushing and retesting of identified affected areas was begun at once. It was soon discovered that flushing effectively reduced TCE levels, but that it built back up to preflush levels within a matter of days. It soon became evident that flushing alone could not adequately deal with the problem. Upon reflection that difficult rusty water problems had in times past yielded to continuous bleeding of water at deadends, it was decided to install bleeders at the ends of the vinyl-lined areas where a continuous water flow of 2 to 3 gallons per minute (gpm) could be maintained. This was quickly achieved by a splendidly cooperative water utility. Subsequent tests for TCE in samples collected from these deadend bleeders soon established the success of this procedure. The TCE level is kept below 10 ug/l by maintaining a 24 hour per day flow of 2-3 gpm. Inasmuch as this is less than 1/2 the prescribed lifetime acceptable level, we are comfortable with this control procedure. Monitoring is continuing so as to be assured that TCE levels do not rise and to detect when TCE disappears, as we expect it will do eventually.

In Connecticut, a statewide survey disclosed that only 5 water utilities had installed any of the vinyl-lined asbestocement pipe for a total among them of about 20 miles. All such areas are being satisfactorily controlled by the operation of bleeders at areas of insufficient water movement. Because of the concern about possible adverse health effects, the Connecticut legislature passed, effective in June of 1980, a 1 year moratorium on the installation of any vinyl-lined pipe pending the advice of the state commissioner of health as to further recommended action. The commissioner has advised the legislature that the ban against installation of pipe made in this fashion should be extended indefinitely. It remains the policy of the Connecticut Department of Health Services that exposure to TCE or to other solvents or materials that may have a carcinogenic potential should be avoided to the full extent possible.