



A/C Pipe
Producers Association
Public Affairs Committee
International Affairs Committee

TO *J. F. Welch*
FROM J. F. Welch, Vice President

Internal Correspondence

DATE April 27, 1982

SUBJECT AACPP Trade Releases

REF: JFW correspondence, same title, February 12, 1982

ACTION REQUIRED: Review for information

Enclosed are two articles published as a result of trade releases made under the "A/C Advisory" program.

The April, 1982 issue of Journal of the American Water Works Association reproduced portions of the recent "A/C Advisory" on field performance of A/C water pipe.

The January 22, 1982 issue of Occupational Health and Safety Letter published the statements of Dr. Murray and Browne (Advisory #3) regarding the lack of association between asbestos fibers and gastrointestinal cancer. This article also resulted in an information request from the Director, Criteria and Standards, Office of Drinking Water, Environmental Protection Agency. Staff understands that the Journal of American Water Works Association also will publish parts of an AACPP trade release on the Murray-Browne statement.

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

JFW/ajb
Enclosure

cc: A. Kahn, Esq.

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OCCUPATIONAL HEALTH & SAFETY LETTER

Volume 12, No. 2

GERSHON W. FISHBEIN, PUBLISHER

January 22, 1982

Main Office • 1097 National Press Building • Washington, D.C. 20045 • (202) 347-3868

Published twice a month. Rate: \$125 per year; \$235 in combination with Environmental Health Letter.
Checks and orders payable to Environews, Inc., 1097 National Press Bldg., Washington, D.C. 20045

2 BRITISH SCIENTISTS SAY EVIDENCE FAILS TO LINK ASBESTOS, GI CANCER:

Two British scientists, Dr. Robert Murray and Dr. Kevine Browne, have written that the evidence from animal experiments, occupational exposure and epidemiology "is beginning to point strongly away" from any association between asbestos fibers and an excess mortality from gastrointestinal tumors.

Their findings were reported in *The Lancet* and were the subject of a news release by the A/C Pipe Producers Association in Arlington, Va. Dr. Murray is a Fellow of the Royal College of Physicians, Glasgow.

They relied on two major recent animal studies. One, conducted by the Institute of Occupational Medicine in Edinburg, "confirmed the absence of asbestos-related gut tumors in a large-scale study in rats monitored for their whole lifespan," they reported. The other reference was to studies now underway with animals by the National Institute of Environmental Health Sciences. On the latter, EPA was quoted as saying "the initial results did not detect any adverse effects on the test animals from asbestos in the diet."

so that it will not adhere to the tanks or pumps. The possibility of a power outage or mechanical breakdown makes this method unreliable; the material settles, and starting the stirring mechanism is impossible without emptying the storage vessel or diluting the sludge sufficiently to make a thin liquid. Other disadvantages are the constant power required for stirring, the cost of plant-capacity expansion, and the added power requirements caused by such expansion.

Air-diffusion, with application on farm land, is the latest and most promising method of handling and disposing of lime-softening sludge that contains magnesium hydroxide. This method turns the thixotropic property of this compound into an advantage; the sludge does not have to be agitated constantly, only when it is being prepared for transport.

The air-diffusion method of sludge liquefaction was developed by L.E. Bultman of the Missouri Cities Water Company. Installations were made and tested in existing sludge-holding tanks at several water treatment plants. From these test installations, empirical formulas were developed for air quantities and grid spacing. Tanks varied from 3 to 15 m (10 to 50 ft) in diameter, with both sloping and flat bottoms. All installations did a good job of relieving the sludge. The process was patented, and work began on developing systems for manufacture.

The Liberty, Mo., municipal water plant sludge disposal system was designed as a prototype for this patented process by a consulting engineering firm.* The system consists of a pumping station to transfer the sludge blowdown from two solids-contact basins, two 228 000-L (60 000-gal) sludge storage tanks with air-diffusion grids, a compressed-air blower, and a sludge hauler.

Sludge blowdown from the solids contact basins is pumped into the bottom of one of the storage tanks. Supernatant is run by gravity back to the plant to be processed into finished water. After the first tank is filled with sludge, use of the second tank begins. Free water is decanted from the first tank, and the blower is run for a few minutes to liquefy the sludge prior to hauling. The sludge can be liquefied with no problem, even after several days' settling.

The sludge hauler is a large tank truck with flotation tires and a vacuum pressure system for both loading and unloading. The sludge is mixed by compressed air during transit and applied by means of a specially designed splash plate. The lime is spread uniformly in a 10.8-m (36-ft) swath at the desired rate.

*Larkin and Assoc., Kansas City, Mo.

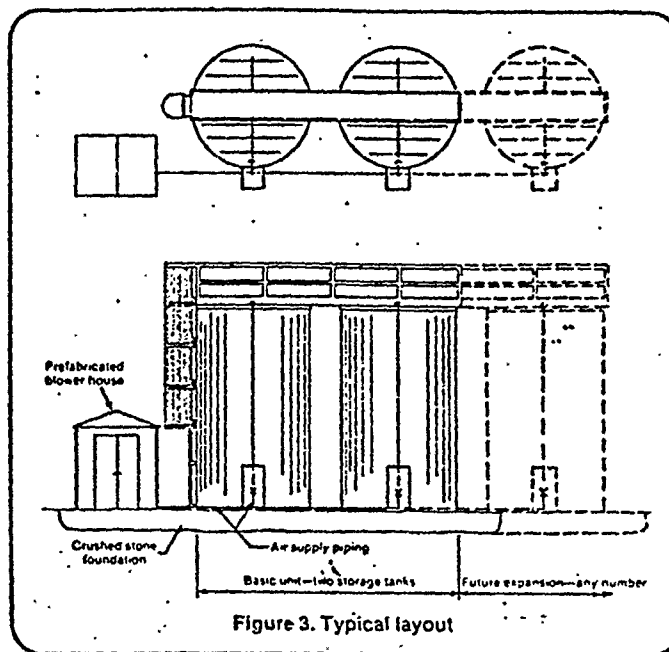


Figure 3. Typical layout

Sludge of 46 percent dry solids by weight is routinely applied with this equipment. As more requests come in for this new source of agricultural lime, the city hopes to sell the product to defray fuel costs.

The air-diffusion system can be readily adapted for retrofitting and can easily be tailored to any size water treatment plant. In a new plant designed for future capacity expansion, only the first tanks and the blower are required in the initial installation. The same blower will serve additional tanks as they are brought on line.

Reference

1. THOMPSON, C.G., & BLACK, A.P. Magnesium Carbonate: A Recycled Coagulant for Water and Waste Treatment. Trans. 22nd Ann. Conf. on Sanitary Engrg. Univ. of Kansas (Feb. 2, 1972).

For additional information concerning the air-diffusion method, contact L.E. Bultman at Missouri Cities Water Co., P.O. Box 1077, St. Charles, MO 63301, or C. Percy at Larkin & Assoc., 9233 Ward Parkway, Suite 300, Kansas City, MO 64114.

AC pipe retains strength in corrosive water environment

An ongoing quality assurance program¹ shows nearly all asbestos-cement (AC) water distribution pipes still exceed structural requirements for new pipe even after many years' use.

Forty-five samples of AC pipe from geographically diverse areas and of varying ages were analyzed for loss of structural integrity and evidence of corrosive water attack. Emphasis was on older pipe installations conveying waters that ranged from nonaggressive to highly aggressive (corrosive). More than 50 percent of the systems were 30 years old or older; several were 40 to 45 years old.

New AC pipe is subjected to physical inspection followed by strength and composition testing to control finished quality. Four tests are used: hydrostatic, flexure, crushing, and free lime. Detailed test procedures are set forth by two nationally recognized standards-setting organizations.^{2,3} All except the free-lime test were used in this evaluation of the AC pipe field samples.

Field technicians obtained and verified the service history of AC pipe samples provided by cooperating water utilities. Testing was carried out in a laboratory, for the most part on 12-in.-long samples. In addition, a depth-of-penetration anal-

ysis was performed on a coupon from each sample. This was done by scraping away any soft material present on the inside surface of the pipe and then measuring the remaining wall thickness with a micrometer.

Overall, the data substantiate the ability of AC distribution pipe to convey moderately to highly aggressive water over a long period of time with little or no apparent loss of strength. The degree of corrosive attack is correlated with the aggressive index of the water. Even where corrosion was measured by depth of penetration, structural integrity was maintained.

References

1. HERR, J.F. Transite Pipe Field Study Program. Johns-Manville Corp. Res. & Dev. Ctr., Rept. E 425-T-1424 (Aug. 22, 1980).
2. AWWA C400-80, Asbestos-Cement Distribution Pipe, 4 in. Through 16 in., and AWWA C402-77, Asbestos-Cement Transmission Pipe, 18 in. Through 42 in. AWWA, Denver, Colo.
3. ASTM C296-78, Standard Specification for Asbestos-Cement Pressure Pipe; ASTM C500-79a, Standard Methods for Testing Asbestos-Cement Pipe; and ASTM C663-79, Standard Specification for Asbestos-Cement Transmission Pipe. ASTM, Philadelphia, Pa.