

CAMBRIDGE WATER BOARD

MEETING MINUTES

December 11, 2018

This meeting was called to order at 5:05 p.m. at 250 Fresh Pond Parkway, in Cambridge, Massachusetts. Those in attendance were:

Cambridge Water Board (CWB): Ann Roosevelt, Jason Marshall, Richard Johnson, Kathleen Kelly and James Burruss

Cambridge Water Department (CWD): Sam Corda, Tim MacDonald, Fred Centanni, Mark Gallagher, Dave Kaplan, Ed Dowling, Linda Vierboom

CDM: James Pescatore, Rich Lester, Colleen Heath, Carol Rego

Cambridge Public Health Department (CPH): Sam Lipson

Visitors: Madeline Fletcher, Anthony Shufflebotham, Barbara Taggart, Sandra Fairbank, Craig Kelley (City Councilor), Sue Reinart (Cambridge Day), Ashley Higgs Hammell (Toxics Action Center), Dan Totten (Aide to Councilor Zondervan), Bill Coyne, Jr. (Counsel to American Chemistry), (Janice Snow & Jim Barton (FPMP Advisory Committee), Justin Connor (U.S. Pipe), Ron Glive (Sanexen Inc/AquaPipe)

Mr. Johnson announced that he will be recording the meeting.

A. MINUTES OF NOVEMBER 13, 2018 MEETING

Mr. Marshall moved, and Mr. Johnson seconded the motion to approve the November 13, 2018 minutes as written. The vote was unanimous in favor of the motion.

B. MANAGING DIRECTOR'S REPORT

CDM/CIPP/Plastic Pipe Study Presentation (Draft/First Phase): Questions and comments were encouraged at the end of each sub section of the presentation. Mr. Corda said the idea of the presentation format is to understand what information is available today as a baseline and to allow for discussion. The Draft/First Phase Cured in Place Pipe (CIPP)/Plastic Pipe Study was presented in Power Point by James Pescatore and Rich Lester of CDM. *This presentation is posted online and can be accessed from the following link:*

<https://www.cambridgema.gov/~media/Files/waterdepartment/waterboardminutes/drafevaluationofcuredinplaceandotherplasticpipesuitability.pdf?la=en>

Mr. Pescatore began the presentation with an introduction which discussed the need and purpose of CIPP and High-Density Polyethylene (HDPE) pipe. HDPE pipe is a flexible and tough thermoplastic pipe making it a good material for trenchless installations, directional drilling and slip lining. It is manufactured to meet drinking water material – American Water Works Association (AWWA) standards, is NSF/ANSI 61 and Massachusetts Department of Environmental Protection (MDEP) approved for potable/drinking water use.

CIPP is a polymer fiber reinforced tube or hose where the internal material, not in contact with the Water, is impregnated with an epoxy resin. The material in contact with the water is either polyurethane, polyethylene or polypropylene and the pipe is NSF/ANSI 61, AWWA and MDEP drinking water approved.

Ductile iron is considered the preferred material for renewal/replacement of water distribution and transmission mains in Cambridge.

Key Topics: CIPP/Plastic Pipe Study Presentation

What is the mission/where does funding lie for NSF/ANSI? NSF is a third-party testing agency that is used by the EPA to certify various materials for potable/drinking water use.

Is ductile iron superior? Can it last like the 120-year-old cast iron pipes now? Mr. Gallagher said that it has more strength than HDPE and CIPP. Ductile iron has no issue with burial depth and it is a superior product. The only potential flaw is that you must be more careful with external corrosion or stray currents. Cathodic protection systems can be used to extend the life of iron and steel pipe. In general cast iron pipe has a thicker outer wall and as such can last longer than ductile iron. The typical ductile iron pipe that Cambridge specs out is class 52 (thicker wall) ductile iron pipe with a double cement lined (1/8" vs. 1/16" thick).

Is data available on plastic pipe aging? There is more data on HDPE than cured in place pipe (CIPP), there is no long-term study data available on either CIPP or HDPE pipe. In fact, out of over 1 million miles of buried potable water mains, there are only 1140 miles of CIPP and an undetermined amount of HDPE pipe in the US.

What is the approval process? Proof of NSF, AWWA and MDEP approval. The DEP website shows approvals. Mr. Pescatore will make a note to ask MDEP regarding applications and docket #'s relating to their approvals of these materials.

Does it matter how big the pipes are or how fast water is moving as to how water interacts with the pipe lining? Yes. The flow does matter. The median water residence time in the Cambridge water system (the time that a molecule of water is in contact with a segment of pipe) equals 24 minutes.

Can material data safety sheets be looked at? Yes, but they do not contain specific formulations because of the proprietary formulas. Vendors must give NSF the formulations to be used to perform the specific test regimes for approval, but that information is not available to the general public. Ron Glive of AquaPipe said proprietary formulas are published to a select group only.

Was research done by CDM on chemical abstracts? The formulation of various CIPP/HDPE pipes are proprietary and as a result we have not.

Do the results of their testing get shared? Yes and no. Other than the materials are certified, specific results are not shared. CDM can follow up on.

Has there been a leeching out study regarding the human health effects of CIPP due to ingestion? No. Bi-annual re certification is required offered Ron Glive of Aqua Pipe.

Mr. Lesser said there is not a lot of quantitative data for contaminants in HDPE implantations. Limited qualitative data. No contaminants were identified at levels that pose a significant risk to human health. Almost all the studies are short term, it was noted. Ms. Roosevelt wants a clause on slide #63 to include "limited data". Limited quantitative data is available for HDPE pipe. More industry research is needed. More field work is needed looking at various variables. There should be studies which look at the long-term evaluation of drinking water quality following installing of CIPP and HDPE pipe for 5, 10 or 20 years. Nothing found in literature on installation phase. VOC data to be shared when received.

Comments:

Ms. Roosevelt read from a letter from Andrew Whelton, dated 5/17/17, which commented that NSF/ANSI 61 is not a health risk assessment, her reading is attached. Ms. Roosevelt would like the final report to be more specific about that. Dr. Whelton's presentation at the Forum to Discuss the Health Effects of Plastic Lined Pipes on Drinking Water held at the Cambridge Water Department on 5/2/17, is available on the CWD website.

Ms. Roosevelt read a brief article from the Environmental Defense Fund Publication.

Key Topics: CIPP/Plastic Pipe Study Presentation

Mr. Johnson would like CDM to include contaminant levels that result in cancer death and asked who the risk assessor would be.

Mr. Corda stated there is a lack of detailed information relating to these materials. He said that one of the recommendations coming out of this process will be to develop a water sampling and test protocols to understand the CIPP and HDPE materials that we have already installed. Once this process is established we will then implement and maintain the testing program. The ultimate goal of the program would be to determine if the small amount of these materials that have been installed should be removed or can remain. Mr. Corda also stated that the sampling and testing process will be long-term and in the mean time we will not be using these materials at all.

“Meanwhile”, said Mr. Corda, “our cathodic protection system is working well; there are no leaks in the 40” riveted steel transmission main to and from Payson Park and there is no need to add any structural lining materials to these mains.”

The letter from the Massachusetts Sierra Club to the Water Board opposing the use of CIPP is attached for reference.

The list of references will be included in the CDM written report.

The next steps are to develop a water sampling and test protocol to understand the CIPP and HDPE materials that we have already installed.

C. OPERATIONS

Transmission and Distribution:

No comments

Watershed: In response to the question of the exact location of the owner’s tree at 171 Lexington Street, Lincoln, Mr. Kaplan said it was positioned on Cambridge property and owner’s boundary line.

Business:

No comments

Water Operations:

No comments

Engineering:

No comments

D. ACTION ITEMS

Election of the President:

Ms. Roosevelt was nominated to be the President of the Cambridge Water Board for 2019.

Mr. Kelley moved, and Mr. Johnson seconded the motion to elect Ms. Roosevelt as President of the Cambridge Water Board for 2019. The vote was unanimous in favor of the motion.

E. MISCELLANEOUS CORRESPONDENCE AND ITEMS OF INTEREST

No comments

F. NEW BUSINESS

None

G. NEXT MEETING DATES/TOPICS

- January 8, 2019: Approved/Distribution System Update
- February 12, 2019: Approved/TBD
- March 19, 2019: TBA/Customer Service Module
- April 9, 2019 vs. the 16th: TBA/TBD
- May 14, 2019: TBA/TBD
- June 18, 2019: TBA/TBD

Ms. Kelley moved, and Mr. Marshall seconded the motion to adjourn the meeting at 7:34 p.m.
The vote was unanimous in favor of the motion.

Ann Roosevelt reading of Andrew Whelton Comments on CDM Smith Study, December 11, 2018*

The test procedure that's referred to as NSF/ANSI 61 is - NOT- a health risk assessment. A health risk assessment is what is needed to make claims about health impacts associated with chemical exposure.

From the US EPA website: "A human health risk assessment is the process to estimate the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the future." website:<https://www.epa.gov/risk/human-health-risk-assessment>

To conduct a health risk assessment you need to know which specific chemicals will be present, their concentrations, and then information associated with doses that cause adverse health effects. The number of chemicals, types, and concentrations may be different with time as the plastic ages. For example, in Europe one epoxy study showed chemical levels increased with time not decreased.

The NSF/ANSI 61 test is not a health risk assessment. It is a test conducted with many limitations that many people, including consultants, cities, health departments, and even contractors do not seem to understand.

The test does not transparently identify the array of chemicals leached. It is conducted under specific laboratory conditions not necessarily similar to field

conditions indicative of the real-world. Evidence showing lab tests representing all field conditions was not found.

There may be batch to batch and contractor to contractor variations that translate to differences in chemical leaching. The NSF/ANSI 61 test does not address this.

There may be chemicals that are leached which subsequently react with disinfectants (causing disinfectant loss or generate disinfectant byproducts). The NSF/ANSI 61 test does not address this.

There may be chemicals that are leached that can be used by microorganisms to grow. This has been reported for some plastics used for drinking water contact. The NSF/ANSI 61 test does not address this.

Having a test conducted referred to as NSF/ANSI 61 on a product is not a bad thing. The results do not enable you or anyone else to understand the health risks posed by the plastic product that is manufactured in a drinking water system.

* These are partial comments. Whole comments will be provided.



50 Federal Street, 3rd floor
Boston MA 02110
(617) 423-5775
www.sierraclubmass.org

December 6, 2018

Dear Cambridge Water Board:

The Massachusetts Chapter of the Sierra Club has been actively supporting efforts to stop plastic pollution and to reduce toxics. We commend Cambridge for its leadership in this effort, for example, with its plastic bag and polystyrene ordinances.

We oppose the introduction of cured-in-place pipe (CIPP) for several reasons. First, all plastics are unsustainable since they are based on petrochemicals derived from scarce, non-renewable natural gas and oil, which today is increasingly fracked. The extraction and manufacture of plastics release significant pollution under normal operating conditions, and even more through accidents. These exposures usually inflict the most harm to workers and to neighbors, which are usually environmental justice communities.

CIPP brings specific health and environmental risks through the use of primary resins such as polyurethane and epoxy, and numerous supporting chemicals (including additives such as hardeners, plasticizers, etc.). Chemicals are initially released into the atmosphere during the curing process, especially under heat treatments. Once in use, the CIPP will leach or mechanically break down over time resulting in various plastic chemicals and particles entering drinking water that will ultimately reach aquatic environments as wastewater. CIPP can produce other chemicals from interactions with disinfectants in the drinking water. These proprietary CIPP products vary widely and many are so new that the long-term effects are unknown. The range of chemicals is broad and determining the composition and therefore the hazards is difficult if not impossible. The regulatory safety frameworks for CIPP are very weak. Disposal of CIPP at the end of its life is also problematic. The numerous potential dangers of contaminating drinking water argue against the use of CIPP.

As with most plastic applications, traditional solutions using natural materials such as ductile iron are simplest and safest. And as you know, in the case of water pipe, natural materials are also longer lasting. We urge you to continue to use these methods.

Respectfully,

Deb Pasternak
Mass. Sierra Club, Chapter Director
deb.pasternak@sierraclub.org