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Research in
Construction

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to the
built environment

Examining the Impact of Water Quality on the Integrity of Distribution Infrastructure

Objectives

Conducted a research needs study to identify how changes in water treatment processes might affect the distribution system infrastructure.

Background

Current and anticipated water-quality regulations from regulatory agencies in Canada and the U.S. require utilities to continually upgrade their water treatment processes, improve operations, or change source-waters. These changes may affect the physical, chemical, and biological characteristics of the distributed water and thus disrupt the equilibrium between the distributed water and the distribution infrastructure. (For example, decreasing pH to comply with the Disinfection Byproduct Rule (DBPR) may increase corrosion of cast iron pipes.) Before making any changes utility managers need to understand the impact of modifying the quality of distributed water on the integrity of the distribution infrastructure.

Statement of Work

- Identified from the literature the water quality requirements to meet current and anticipated regulations.
- Identified the impacts of changing water quality on the distribution infrastructure and developed a synthesis document.
- Conducted a workshop in March 2006 with experts from the utility and drinking-water communities in Canada and the U.S. to consolidate current knowledge and identify research needs for the future.

Outcomes

A final report, which can be used by utilities to identify potential impacts of changes to distributed water quality on the integrity of the distribution infrastructure, was published by AwwaRF and disseminated to its utility subscribers in fall 2007. The report also includes a list of related knowledge gaps requiring further research and/or development.

Partners

American Water Works Association Research Foundation (AwwaRF) and experts from the utility and drinking water community.

Start and Completion Dates

This project began in June 2005 and was completed in March 2007.

Project Manager

Dr. Rehan Sadiq: 613-993-6282; Rehan.Sadiq@nrc-cnrc.gc.ca

For more information, see http://irc.nrc-cnrc.gc.ca/ui/bu/integrity_e.html

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