Identifying and Addressing Cross Connection Control Program Challenges

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Overview

– City of Durham Department of Water Management (DWM) Cross Connection Control (CCC) Program
– Identification of regulatory and policy conflicts
– Multiple CCC Program assessments

– Results
– Lessons learned
– Conclusions
City of Durham DWM CCC Program

- CCC Program established in 1986 in order to:
  - Comply with federal and state regulations
  - Comply with local ordinances
  - Protect the system from potential contamination

- Staff in the CCC Program implement the City’s CCC ordinance and requires:
  - Backflow permits for all new installations and replacements
  - Installation of BFPAs on industrial, nonresidential, irrigation, fire, etc.
North Carolina Laws and Regulations

– NC Laws
  • New Session Law 2015-45
  • NC General Assembly Session 2015, Senate Bill 770
  • 2012 North Carolina Residential Code, R313.1 Townhouse Automatic Fire Sprinkler Systems
  • Residential fire sprinkler policy (future)

– Conflicts between the laws and Durham’s CCC Program
  • Program management and administration
  • Ordinance and policy enforcement
  • Permitting

– NC Building Code
City of Durham
DWM Approach

Contracted with AECOM to evaluate:

– The impacts of the laws
– Identify potential conflicts
– Assist in developing solutions to eliminate conflicts
– Review the overall CCC Program with a goal to improve program efficiency
AECOM’s Approach

– AECOM interviewed eight municipalities across North Carolina, South Carolina, Tennessee, and Virginia to characterize alternative program approaches and to identify best practices

– Interviews focused on the following aspects of the CCC Programs:
  • Areas of responsibility
  • Ordinances, policies, and guidance documents
  • Staffing and operations
  • Permitting and fees
  • Hazard assignments
  • BFPA installation, testing, and maintenance
  • Recordkeeping
Areas of Responsibility

– CCC Program responsibilities were divided into two categories:
  • Time sensitive activities (highest priority)
  • Additional responsibilities (to be completed when time is available)

– The three main responsibilities that the majority of the municipalities all share are:
  • Staff training and certification
  • Recordkeeping
  • QA/QC
Monitoring and Ensuring Compliance

– CCC Program responsibilities include ensuring compliance for new construction as well as building renovations (up-fits)

– Plan review and approval by the CCC Group is often required prior to issuance of a Certificate of Occupancy (or similar)

– The reviews, permitting, and inspections are time sensitive
Areas of Responsibility (Continued)
BFPA Installation, Testing, and Maintenance

– The City of Durham CCC Group:
  • Tracks BFPA installed at the water meter (containment) as well as on internal plumbing cross connections (isolation)
  • Inspects new installations (Level 3 Plumbing Inspector) as part of the Certificate of Occupancy
  • Tests City of Durham owned BFPA (Certified Tester)
  • Administers the Mandatory Opt-In Testing Program for Residential Customers (> 60 days past due)

– Four of the interviewed municipalities require customers to coordinate with approved certified tester to complete annual inspections and testing
Areas of Responsibility (Continued)

Achieving Balance

– CCC Programs are tasked with implementing the municipalities’ CCC ordinances in order to protect the water supply from contamination

– All programs indicated that:
  • A large amount of manpower is required to maintain these programs
  • They are frequently understaffed
  • There is a need to identify a database that will adequately maintain CCC Program records and communicate with other municipality systems

– Time-sensitive responsibilities take priority

– Other responsibilities are often not addressed, for example:
  • Ordinance/policy review and update
  • Inspections of existing buildings for compliance
  • Public awareness campaigns
Decentralization of Program Responsibilities

– A majority of participating municipalities share responsibilities with other departments in order to remain on schedule

– One municipality split their CCC Group based on if the BFPA served as containment or isolation

– Others had additional departments (e.g., Water and Sewer) maintaining and renting out BFPAs to contractors for usage (e.g., fire hydrant usage during construction activities)

– Decentralization of responsibilities may lead to non-compliant BFPAs and a potential backflow incident
Ordinances, Policies, and Guidance Documents

– The City of Durham CCC Program is based on:

  • Ordinance 1413 – Cross Connection Control (Section 70 Article VII of the Durham City Code)
  • Cross Connection Control Policy (a supplement to the CCC Ordinance)

– New Session Law 2015-45

  • Issued 13 July 2015
  • Amended the NC General Statute 143-151.58 to define “willful misconduct, gross negligence, and/or gross incompetence to include the enforcement of a requirement that is more stringent than or otherwise exceeds the Code requirement.”
  • Raised concern that the CCC Group may not be able to enforce requirements if not specified in the approved ordinance
Ordinances, Policies, and Guidance Documents (Continued)

– NC Session 2015 – Senate Bill 770, Section 13 – Exclude Certain Minor Repairs from Building Permit Requirements
  • Passed in October 2016
  • Raised concern that CCC Groups may no longer be able to require a backflow permit for the replacement of a BFPA

– Residential Fire Sprinkler Policy (Current Requirement)
  • Optional requirement for residential purposes
  • Potential to be mandatory if included in the NC Building Code following the next vote (as early as mid-2018)
  • Implications regarding future BFPA testing because they would no longer be able to turn off the water to the building / customers due to non-compliance of annual testing of BFPAs.
– Legal reviews of the recent NC Session Laws indicated that the CCC Ordinance and Policy should be reviewed and revised to ensure compliance with the most recent regulations

– Two municipalities indicated that review periods were established for ordinance and policy documents
Staffing and Operations

– All municipalities noted being short staffed

– CCC Groups typically consist of:
  • CCC Program Manager
  • Certified BFPA testers
  • Administrative staff (optional)
  • Outside contractors

– Municipalities often require owners coordinate with a certified tester (contractor) to complete annual testing
Permitting and Fees

– NC Session 2015 – Senate Bill 770 raised concern that the CCC Group may no longer be able to require a backflow permit for the replacement of a BFPA

– Section 13a updated the NC General Statute Section 143-138, North Carolina State Building Code. Section (b5) for minor activity in residential structures

• A permit is not required for construction, installations, repairs, replacements, or alterations costing $15,000 or less.
• It continues to provide a list of exceptions.
• Exception (2) has the potential to be applied to the CCC Program, specifically new installations or replacements of existing BFPAs.
Hazard Assignments

– Hazard Classifications
  • Follow the North Carolina Plumbing Code when assigning cross-connection hazard classifications
  • Depending on end use of the water, hazards are classified as either high or low

– Participating municipalities have different hazard classification measures; however, they all rely on a classification system based on the risk posed by a potential cross-connection or facility activities.
Recordkeeping

- One of the main responsibilities for the CCC Programs

- Recordkeeping is used to track installed BFPAs, including:
  - Installation and replacement
  - Inspection / testing / maintenance
  - Tester information
  - Annual testing due date
  - Complete inventory of BFPAs

- Municipalities utilize “off the shelf” programs (e.g., Tokay, XC2) or in-house developed programs (e.g., Access)

- Seven of the municipalities surveyed manually enter data provided by testers into their recordkeeping database
Recordkeeping and Information Sharing

– Current recordkeeping methods do not facilitate inter-departmental communication

– A common initiative includes efforts to modernize the BFPA tracking methods
  • Three programs, including Durham, are undergoing a transition to new recordkeeping databases
  • Three additional programs were considering update options
Results

Following discussions with the eight regional municipalities, AECOM worked with the DWM CCC Group to:

- Assess the current program
- Identify areas for improvement
- Develop detailed recommendations to implement identified improvements
- Review and update the CCC ordinance and policy
Lessons Learned

Results of the interviews revealed that all of the CCC Programs face similar challenges, including:

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<tbody>
<tr>
<td>1</td>
<td>Decentralization of program responsibilities</td>
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<td>2</td>
<td>Difficulty achieving a balance between program scope, manpower, and resources</td>
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<td>3</td>
<td>Recordkeeping and information sharing across departments</td>
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<td>4</td>
<td>Monitoring and ensuring compliance for new construction and major renovations through both plans reviews and on-site inspections</td>
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Planning for the Future
Moving Forward to Address Challenges

– Implement a formal outlook and planning process
  • Identify immediate, short term (1 – 3 years) and long term (3 – 5 years) planning goals
  • Review the schedule for planning and program needs
  • Develop a CCC Program Plan (Master Plan)

– Employ a “Working Group” across departments and with Department leadership to facilitate implementation of initiatives

– Expand the public awareness efforts for the CCC Program
Summary

– North Carolina adopted several new laws that had the potential to create regulatory and policy conflicts within the Durham CCC Program, with respect to:
  • Program Management and administration
  • Ordinance and policy enforcement
  • Permitting

– All eight CCC Programs surveyed shared similar struggles related to:
  • Program responsibilities
  • Maintaining sufficient manpower and resources
  • Interdepartmental communication
  • Monitoring and ensuring program compliance
Questions?

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