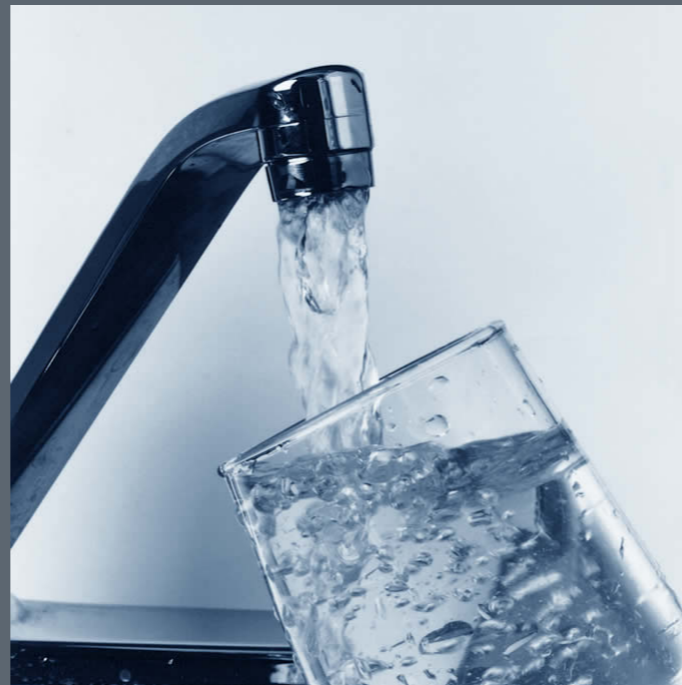


# *Backflow Prevention and Cross Connection Control Rule and Implementation!*

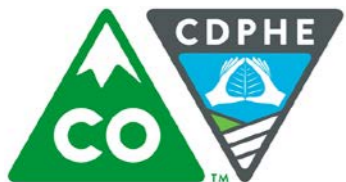


Jorge Delgado, PE  
Senior Field Engineer  
November 24, 2015



**COLORADO**  
Department of Public  
Health & Environment

*State of Colorado  
Backflow Prevention and  
Cross-connection Control  
Background*



**COLORADO**  
Department of Public  
Health & Environment

# Background

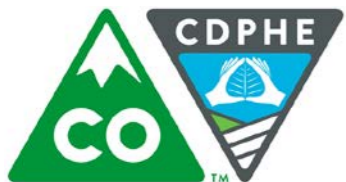


- Colorado Revised Statutes (1962)
  - C.R.S. 25-1-114 (1)(h)
- Colorado Department of Public Health and Environment (Mid 1980s)
  - Colorado Primary Drinking Water Regulations, Article 12
  - Readability rulemaking, Regulation 11.37 CPDWR (2014)
  - RTCR+ Rulemaking, Regulation 11.39 CPDWR (2015)  
Large Stakeholder Process

# *Acronyms*

- Backflow Prevention and Cross-connection Control (BPCCC)
- Colorado Department of Public Health and Environment (Department)
- Colorado Primary Drinking Water Regulations (CPDWR)
- Safe Drinking Water Program (SDWP)

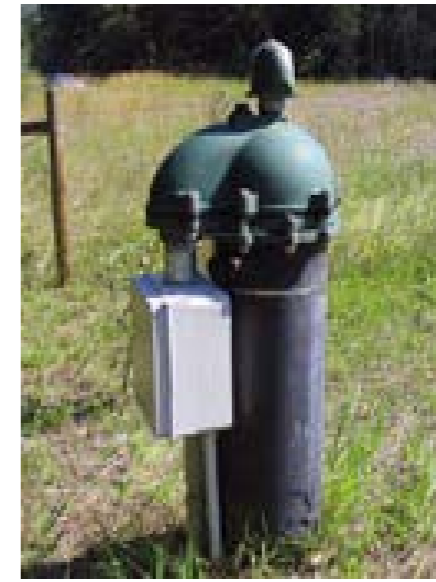
*Regulation 11.39  
Backflow Prevention and  
Cross-connection Control  
Rule*



**COLORADO**  
Department of Public  
Health & Environment

# *Who is affected?*

All public water systems



# Rule Overview

- Name change to Backflow Prevention and Cross-connection Control Rule
- Less stringent testing requirements.
- Flexibility, more compliance options and providing time to comply
- Improved documentation/reporting to verify compliance for PWS and CDPHE
- Improved regulation clarity
  - 14 new or revised definitions
  - New language leads to clearer expectations
  - Safe Drinking Water Program Policy 7



# *Overall Rule Requirements*



- Backflow contamination event reporting requirements
- Written backflow prevention and cross-connection control program
- Distribution system survey and waterworks survey to identify cross connections
- Installation of backflow prevention assemblies or methods on uncontrolled cross connections
- Testing and inspection requirements for backflow prevention assemblies and methods
- Annual backflow prevention and cross-connection control program report



# *CDPHE Expectations*



- Backflow contamination event reporting
- Written BPCCC program needs to be available upon request and will be reviewed during Sanitary Surveys
- Distribution system survey and waterworks survey compliance ratios met
- Installation of backflow prevention assemblies or methods on uncontrolled cross connections and appropriate documentation
- Annual testing and inspection of backflow prevention assemblies and methods and compliance ratios met and appropriate documentation
- Annual BPCCC report due May 1 of the following year. Needs to be available upon request and will be reviewed during Sanitary Surveys

# Overall Rule Requirements



- Backflow contamination event reporting requirements
  - If the supplier learns of a suspected or confirmed backflow contamination event, the supplier must notify and consult with the Department on any appropriate corrective measures no later than 24 hours after learning of the backflow contamination event.
  - Please report any suspected backflow contamination event to:

1.877.518.5608

and please have available as much of the following information as possible:

Date and time of incident, location of incident, type of threat or incident, Public Water System Name and Identification Number, water supplier contact name and phone number; method of discovery (consumer complaint, witness, perpetrator, employee report); response actions taken (water quality parameter testing, isolation of affected water); recovery actions taken, notifications made (customers, law enforcement, news media, etc.); assessment of threat, if possible.

# *CDPHE Expectations*

- CDPHE expects that supplier will communicate appropriately to the Department any known backflow contamination events which contaminated the PWS's distribution system. This will be discussed during SS
  - If the supplier learns of a suspected or confirmed backflow contamination event, and does not report the event to CDPHE it is a violation.
- Regulation 11.39 (6) (a)(i) Tier 2 violation:
  - The supplier fails to notify the Department of any suspected or confirmed backflow contamination event as specified in 11.39(3)(a).

# *Overall Rule Requirements*

Questions

# *BPCCC Program Rule Requirements*

- Written backflow prevention and cross-connection control program which includes:
  - Suppliers survey process,
  - Supplier's authority for survey, control & testing,
  - Backflow prevention assembly & method selection process,
  - Compliance tracking for installation, testing, & inspection,
  - Certified Cross-connection Control Technician verification.



# *CDPHE Expectations*

- Written program must address the survey process
  - Needs to address how supplier determines if a connection is a non-single-family connection which will require a survey (commercial, industrial, agricultural, irrigation multi family),
  - How the supplier documents surveys and makes note of identified cross connections.
  - Should include if applicable questionnaires, and personnel qualified to perform surveys, and
  - May include known number of service connections which will require surveys and compliance goals for the upcoming 5 year period.

# *CDPHE Expectations*

- Written program must address the supplier's authority or compliance approach for conducting surveys, controlling cross connections and ensuring testing & inspection of assemblies and methods
- should include a copy of any ordinance, legal agreements or discuss the supplier's compliance approach.
- How the supplier documents that identified cross connections have been controlled appropriately.
- How the supplier documents that backflow prevention assemblies and methods have been tested and inspected upon installation and annually there after.

# *CDPHE Expectations*

- Written program must address the backflow prevention assembly & method selection process
  - Should include any reference material used to select backflow prevention assemblies and/or methods such as SDWP Policy 7 and any other reference material.
  - Should include any pre determined criteria for site specific deviations



# *CDPHE Expectations*

- Written program must address the compliance tracking process used to track the installation, maintenance, and testing & inspecting of backflow prevention assemblies and methods



# *CDPHE Expectations*

- Written program must address the process that will ensure that assemblies were tested by a Certified Cross-connection Control Technician.
- Should also include a small description of how the suppliers ensures that the certified tester's certification was current the date of the test.

# *BPCCC Program Rule Requirements*

Questions

# *Survey Rule Requirements*

- Distribution system survey to identify cross connections
  - The supplier must survey all non-single-family-residential connections to the public water system to determine if the connection is a cross connection.
  - The supplier may chose to control non-single-family-residential connections to the public water system with the most protective backflow prevention assembly or backflow prevention method.
  - The supplier must survey all connections within the supplier's waterworks treatment works to determine if there are cross connections that need to be controlled.

# Survey Compliance Ratio

- System survey requirements to determine if cross connections are present

TABLE 11.39-I Survey Compliance Ratio	
<u>Compliance Date</u>	<u>Compliance Ratio</u>
By December 31, 2016	Greater than 0.60
By December 31, 2017	Greater than 0.70
By December 31, 2018	Greater than 0.80
By December 31, 2019	Greater than 0.90
By December 31, 2020 and each year after	1.0

- Identified cross connections must be controlled in 120 days\*

\*Department approved alternative compliance schedules allowed

# *Survey Rule Requirements*

## Questions

# *Control Rule Requirements*

- Installation of backflow prevention assemblies or methods on uncontrolled cross connections must be completed within 120 days unless the supplier has received a Department approved alternative schedule
- Annual testing and inspection requirements for backflow prevention assemblies and methods
- Containment and Containment by Isolation
- Annual backflow prevention and cross connection control program report

# Annual Testing Compliance Ratio

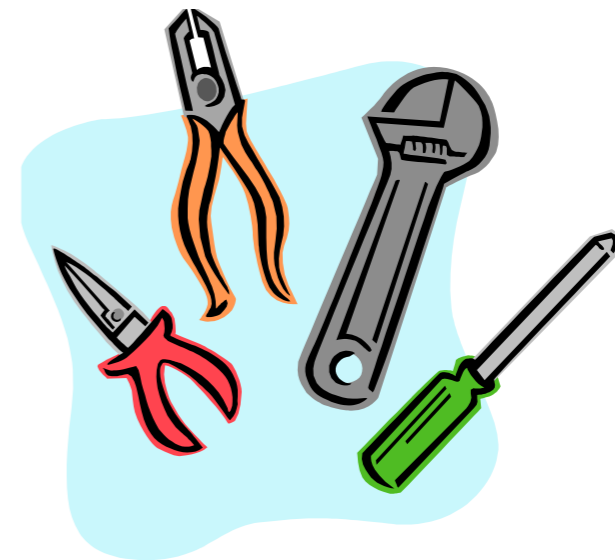
TABLE 11.39-II Backflow Prevention Assembly Annual Testing Compliance Ratio	
<u>Compliance Date</u>	<u>Annual Compliance Ratio</u>
By December 31, 2016	Greater than 0.50
By December 31, 2017	Greater than 0.60
By December 31, 2018	Greater than 0.70
By December 31, 2019	Greater than 0.80
By December 31, 2020 and each year after	Greater than 0.90

Assemblies that fail testing:

→ repair/replace assembly in 60 days\*

Inadequate prevention method:

→ correct the problem in 60 days\*



\*Department approved alternative compliance schedules allowed



# *Control Rule Requirements*

Questions

# Report Rule Requirements

- Beginning in 2017, the supplier must develop a written backflow prevention and cross-connection control program report for the previous calendar year that includes all of the following information<sup>\*\*\*</sup>:
  - Total number of non-single-family-residential connections to the public water system and connections within the supplier's waterworks
  - Total number of connections surveyed
  - Survey compliance ratio, total number of identified cross connections
  - Number of uncontrolled cross connections identified
  - Number of backflow prevention assemblies & methods installed and tested
  - Backflow prevention assembly annual testing compliance ratio.

# *CDPHE Expectations*

- Beginning in 2017, written backflow prevention and cross-connection control program report for the previous calendar year must be completed by May 1. will be reviewed during sanitary surveys and may be requested by the Department at any time.



# *Report Rule Requirements*

Questions

# Violations

- Treatment technique violations = 13
  - e. g., failure to achieve the survey compliance ratios, failure to comply with assembly testing requirements, failure to comply with backflow prevention method inspection requirements
- Backflow prevention and cross-connection control violations:
  - Failure to develop or implement a written program
  - Failure to complete an annual program report

# *Public Notice Requirements*

- For the past several years we have been identifying and discussing violations of Regulations 11 and 100 during sanitary survey site visits.
- All violations require public notice. The public's right to know about drinking water violations has been part of by the act since congressional re-authorization in 1996.
- Due to long-standing software and staffing constraints, the department has not cataloged and managed field-identified violations in the state's database. Therefore, the public notice requirements were not noted in the sanitary survey letters or tracked.

# *Public Notice Requirements*

- Beginning on January 1, 2016 the public notice requirements will be included in the sanitary survey letters and they will appear automatically in the draft consumer confidence report for the year following the sanitary survey.
- In the event of a backflow prevention and cross-connection control treatment technique violation, the supplier must:
  - (i) Notify the Department no later than 48 hours after the violation occurs.
  - (ii) Distribute Tier 2 public notice as specified in 11.33

# *BPCCC Public Notice Requirements*

- In the event of a BPCCC treatment technique violation (11/13), the supplier must:
  - (i) Notify the Department no later than 48 hours after the violation occurs.
  - (ii) Distribute Tier 2 public notice as specified in 11.33
- In the event of a BPCCC violation (2/13), the supplier must:
  - (i) Notify the Department no later than 48 hours after the violation occurs.
  - (ii) Distribute Tier 3 public notice as specified in 11.33.



# *Violations and PN Requirements*

Questions

# Guidance

- Website Development:  
<https://www.colorado.gov/pacific/cdphe/drinking-water-cross-connection-control-program>
- Program and Report Templates for various system types
- Survey Questionnaires
- Sanitary Survey
  - Revised Alternative Survey Compliance Schedules
  - Development of Programs
  - Survey Assistance
- Compliance schedules for retro fits that exceed 120 days
- Sample Calculations

# *BPCCC Rule Implementation Steps*

Step 1. Review Regulation 11.39 and Safe Drinking Water Program Policy DW-007. Additional guidance and templates are provided at:

<https://www.colorado.gov/pacific/cdphe/drinking-water-cross-connection-control-program>

Step 2. Select and establish legal authority and or compliance approach for implementation of the BPCCC program survey, installation and testing of assemblies and methods.

# *BPCCC Rule Implementation Steps*

Step 3. Develop written BPCCC plan which at a minimum includes:

- Established legal authority and/or compliance approach,
- Documented survey procedure and/or compliance approach,
- Documented assembly or method selection and installation procedure,
- Tracking mechanism description (spreadsheet, software, master list),
- Verification of tester's credentials (test report).

# *BPCCC Rule Implementation Steps*

- Step 4. Identify total number of service connections and waterworks. Example list included in SDWP Policy 7. Includes onsite irrigation, boilers, and fire systems
- Step 5. Identify total number of non-single-family-residential service connections (i.e. service connections and waterworks which require survey, this generally includes all commercial, industrial and multi-family service connections).
- Step 6. Identify total number of non-single-family-residential service connections that have already been surveyed and or controlled. Service connections controlled with and air gap, reduced pressure zone assembly or controlled appropriately for the identified contaminant can be considered surveyed.

# *BPCCC Rule Implementation Steps*

Step 7. Perform service connection surveys.

Step 8. Control identified cross connections with appropriate assemblies or methods within 120 days of discovery.

Step 9. Ensure methods and assemblies are properly tested or inspected upon installation and or annually.

# *Guidance and Implementation*

## Questions

# *CDPHE BPCCC Resources*

- Discuss site specific deviation criteria
- 60 & 120 day alternative schedules
- Program implementation
- Survey requirements
- Cross connection identification
- Compliance strategies
- Website



# *CDPHE BPCCC Contact*

- Jorge Delgado, P.E., Senior Field Engineer, 303.692.3511, [jorge.a.delgado@state.co.us](mailto:jorge.a.delgado@state.co.us)
- Tyson Ingles, P.E., Drinking Water Lead Engineer, 303.692.3002, [tyson.ingels@state.co.us](mailto:tyson.ingels@state.co.us)



# *Questions & Comments?*



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