



# 2015 NEWWA Spring Conference

Regulators' Perspective:  
Cross Connection (CC) Control in CT

William Sullivan (Bill)  
Sanitary Engineer 3  
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Drinking Water Section



# Drinking Water Section (DWS)

- 💧 DWS - Regulatory Agency for Public Water Systems (PWS) – Primacy Agent
- 💧 Functional Programs
  - 💧 Engineering & Regulatory Compliance
    - 💧 Technical Review & Field Assessment Unit
    - 💧 Capacity Unit
    - 💧 Enforcement Unit
    - 💧 SDW Rule Implementation Unit
  - 💧 Source Assessment/Protection Unit
  - 💧 Grants & Administration Unit
  - 💧 DWSRF Unit

# Importance of Water Operators

💧 CT DPH Recognizes that:

Certified Operators are front line in maintaining the purity and adequacy of the state's public drinking water,

A well-trained, committed and ethical operator workforce, working to assure regulatory compliance, is essential for the security and safety of our public water supplies.





# Agenda

- 💧 This presentation will quickly:
  - Summarize CT's regulatory approach to the control of cross connections
  - Summarize the required responsibilities & authorities of the following CC Stakeholders:
    - Customers of PWSs
    - PWSs
    - Local Health Departments (LHD) / CT DPH
    - Local Building Officials
  - Hazards / Health Risks related to contamination via cross connection

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# CT Cross Connection Stakeholders

- 🔹 **Customers** of Public Water Systems (PWSs)
  - 🔹 Residential, Hospital, Manufacturing Facility, etc.
- 🔹 **PWSs** (small to large)
  - 🔹 CT DPH Certified Cross Connection Survey Inspectors
  - 🔹 CT DPH Certified Backflow Prevention Device Testers
- 🔹 **Local Health Departments & CT DPH**  
(HD Directors, Reg. Sanitarians, Food Service Inspectors, Engineers)
- 🔹 **Local Building Officials**



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# CT Cross Connection Stakeholder - Customers of PWSs



💧 **Customers must comply with RCSA Sec. 19-13-B38a. (AKA “Backflow Prevention Requirements”)**

Examples:

- Air Gap or RPD on line to boiler with chemical addition,
- Air Gap, RPD or DCVA on a line to Fire Sprinkler system w/o chemical & w/ Siamese connection,
- All vacuum breakers shall be installed at an elevation higher than any outlet according to manufacturers instructions,



# CT Cross Connection Stakeholder - Customers of PWSs

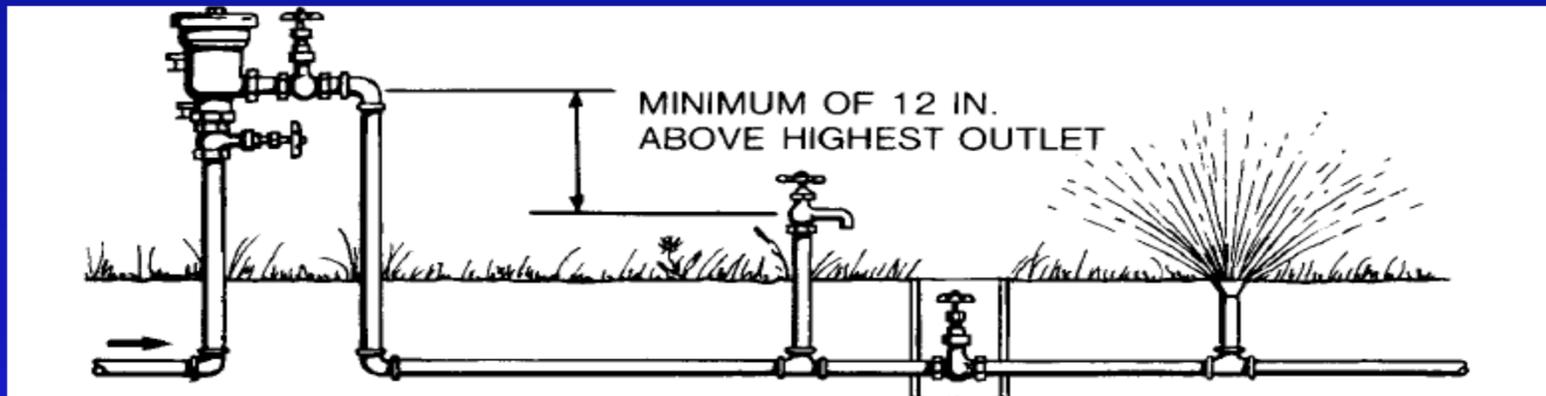
## 💧 Customers must comply with RCSA Sec. 19-13-B38a. Examples: (cont.)

- The customer shall notify the PWS prior to the installation of any RPD, DCVA or PVB,
  - Immediately after installation of a device, the customer shall arrange for the PWS to have each device tested,
  - The PWS Shall have each RPD, DCVA & PVB, which exist at their customers location, tested annually,
  - All tests shall be performed by a CT DPH Certified Backflow Prevention Device Tester (DWBT certification),

# CT Cross Connection Stakeholder - Customers of PWSs

💧 Customers must comply with RCSA Sec. 19-13-B38a.  
Examples: (cont.)

- Each RPD, DCVA and PVB shall be located in a room or structure that is well lighted, properly drained, and not subject to flooding,
- New devices shall conform to the revision of AWWA Standard C510, C511 or the applicable standard of the ASSE



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# CT Cross Connection Stakeholder - Customers of PWSs

💧 **Customers must comply with RCSA Sec. 19-13-B38a.**

**Examples: (cont.)**

- Reduced pressure principle backflow preventer (RPD): required on the line to all facilities where toxic or objectionable substances are used (containment language) in addition to the required air gap, vacuum breaker or RPD on individual pieces of equipment (isolation language) unless the PWS determines that an RPD is not necessary.



# CT Cross Connection Stakeholder - Customers of PWSs

💧 **Customers must comply with RCOSA Sec. 19-13-B37a.**

**Examples:**

- No physical connection between a PWS and that of any other water supply is permitted, unless interconnection approved by CT DPH

💧 **Customers must comply with RCOSA Sec. 19-13-B51a.**

- No physical connection between piping carrying water from a PWS and piping carrying water from another source shall be permitted unless other water supply is of safe, sanitary quality and interconnection is approved by the commissioner of health

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# CT Cross Connection Stakeholder - Customers of PWSs

## 💧 Customers must comply with CGS Sec. 19a-37d

Notification must be provided to the PWS by any person engaged in the installation of irrigation system or connection to any other water system

Any person engaged in these activities must comply with all applicable rules and regulations of the water company



# CT Cross Connection Stakeholders - PWSs

System Type	Number	Population
Community	536	2,752,583
Non-transient Non-community	533	109,031
Transient Non- community	1439	59,588
Public (Total)	2,508	2,921,202

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# CT Cross Connection Stakeholders - PWSs

- PWSs must comply with RCOSA Sec. 19-13-B38a., 25-32-11(e) & 19-13-B102(f)
- The PWS Shall have annual tests performed on the RPDs, DCVAs & PVBs, which exist at their customers location,
- All tests shall be performed by a CT DPH Certified Backflow Prevention Device Tester (DWBT cert #),



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# CT Cross Connection Stakeholders - PWSs

- 💧 **PWSs must comply with RCSA Sec. 19-13-B102(f)**
- The PWS Shall have inspections of customer premises, were one or more of the 5 “categories of concern” are known to exist, performed on a annual or 5 year frequency,
- All inspections shall be performed by a CT DPH Certified Cross Connection Survey Inspector (DWCI cert. #),



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# Categories of Concern

## Section 19-13-B102(f) (cont.)

### Categories of Concern

- 💧 (1) **Any water supply source** other than that of the public water system is known to exist.
- 💧 (2) **Toxic or objectionable chemical or biological substances** are used in water solution on public, commercial or industrial premises.
- 💧 (3) **Water pressure is raised by pumping** on other than residential premises above that furnished by the supplier.
- 💧 (4) There is a **water storage tank, public swimming pool or water filter**, for other than residential use.
- 💧 (5) There is known to be a **sprinkler system for either fire protection or irrigation**.



# CT Cross Connection Stakeholders - PWSs

- 💧 **PWSs must comply with RCSA Sec. 19-13-B102**
- An annual report must be submitted to the CT DPH, which summarizes the inspections for cross connections, status of uncorrected violations and tests results of RPDs, DCVAs and PVBs,



**CROSS CONNECTION SURVEY REPORT FORM**

Community Public Water Systems Serving 1,000 persons or less and Non-Community Public Water Systems

SURVEY YEAR \_\_\_\_\_ PAGE \_\_\_\_\_ OF \_\_\_\_\_

PUBLIC WATER SYSTEM: \_\_\_\_\_ PUBLIC WATER SYSTEM ID #: \_\_\_\_\_

TOWN: \_\_\_\_\_

You may copy this form if additional consumer premises (more than 4) are to be listed.

A)			
Name of Tester(s) / Inspector(s)	Certificate #	Expiration date	I certify that the information in this report is substantially correct (Signature)

B) Consumer Premise	C) Categories of concern	D) Date of most recent inspection	E) Violations		F) Testing Backflow Prevention Devices					
			Number found	Number uncorrected	Device Type <sup>1</sup>	Total	Number of Devices Tested	Failed	Repaired	
1					PVB					
					DCVA					
					RPD					
2					PVB					
					DCVA					
					RPD					
3					PVB					
					DCVA					
					RPD					
4					PVB					
					DCVA					
					RPD					

<sup>1</sup> PVB = Pressure Vacuum Breaker, DCVA = Double Check Valve Assembly, RPD = Reduced Pressure Principle Device

G)	
B) Consumer Premise (as numbered above)	Status of Uncorrected Violation
1	
2	
3	
4	



# CT Cross Connection Stakeholder - PWSs

## 💧 536 Community PWSs –

324 of 536 submit an annual CC Survey Report

212 are exempt from CC Survey Report requirements

95 of 536 serve a population >1000 persons

> 53,000 Testable BF prevention devices (yr. 2009)



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# CT Cross Connection Stakeholder - PWSs

- 💧 533 Non-Transient Non-Community PWSs -
  - 12 of 533 serve population >1000 persons
  - 368 of 533 submit an annual CC Survey Report
- 💧 1439 Transient Non-Community PWSs –
  - 245 TNCs submit an annual CC Survey Report



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# CT Cross Connection Stakeholder – PWSs

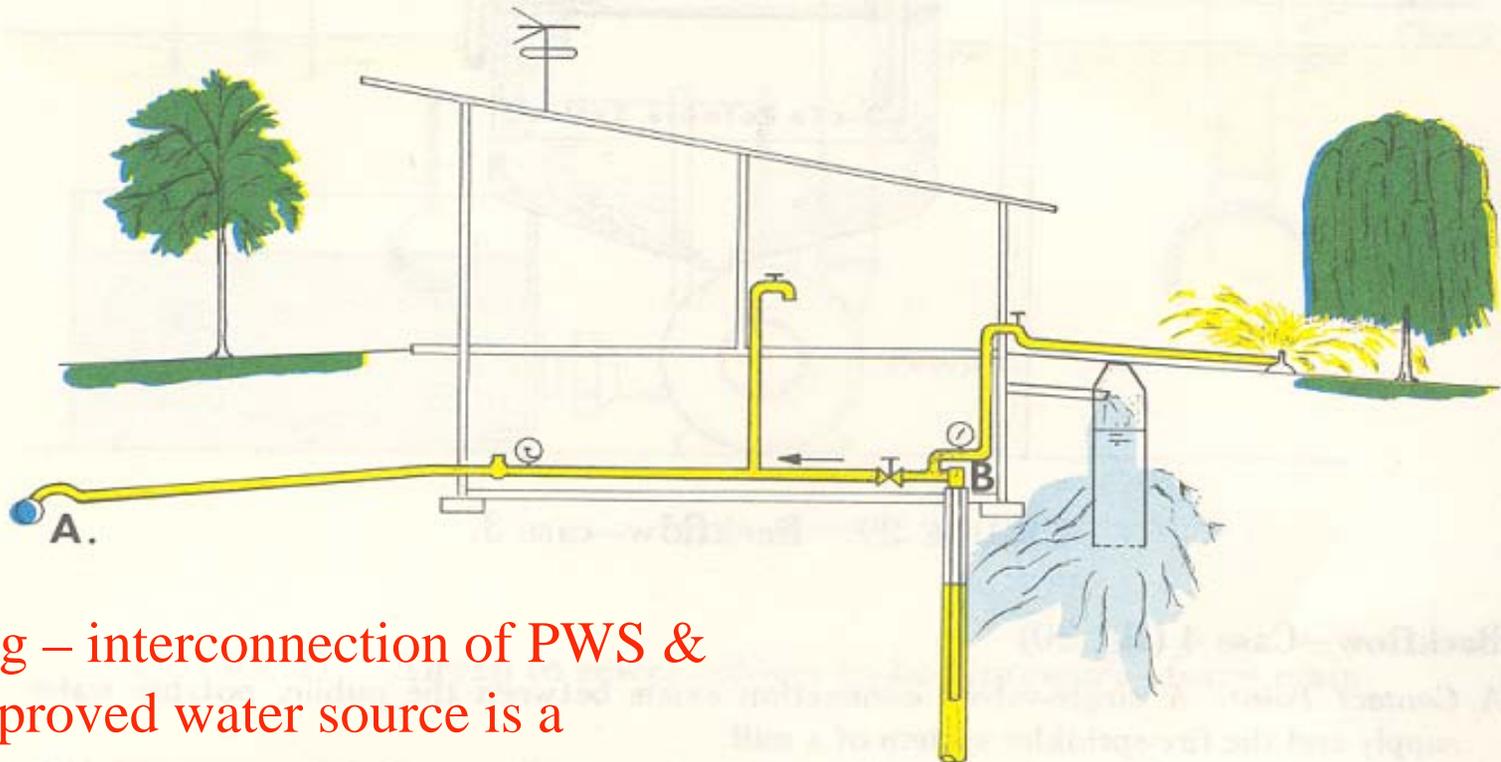
- 💧 **PWSs serving >1,000 persons - Cross Connection Survey Report – 2009 sample data**
- 3,062 Cross Connection Violations were identified by CT Certified Cross Connection Survey Inspectors
- 17,795 annual CC inspections performed
- 7,752 five year CC inspections performed
- 53,476 device tests
- 1,904 device failures



# CT Cross Connection Stakeholder – PWSs

- 💧 **PWSs must comply with RCSA Sec. 19-13-B37**
- PWSs are prohibited from providing new service to any customer who maintains a connection to another source of water or who premises is not in compliance with the device requirements of RCSA Sec. 19-13-B38a.

# Backpressure Backflow



Wrong – interconnection of PWS & un approved water source is a violation

FIGURE 28. Backflow—case 2.



# CT Cross Connection Stakeholder – LHD & CT DPH

- 💧 LHD or CT DPH have authority under RCOSA Sec. 19-13-B37
- LHD or CT DPH may order a PWS to disconnect service to a customer whose premises is connected to another water source or whose premises is not in compliance with the device requirements of RCOSA Sec. 19-13-B38a.





# CT Cross Connection Stakeholder – LHD

- 💧 LHD have authority under RCOSA Sec. 19a-37d
- LHD may issue an order to a PWS to disconnect service to premises, where the Local Director of Health has determined that a connection (fire suppression extinguishing system, irrigation system, fixtures, facilities, etc.) to a PWS creates an unacceptable risk of injury to the health or safety of the persons using the water.



# CT Cross Connection Stakeholder – Local Bldg. Official

- 💧 **LBO** are required under RCOSA Sec. 19a-37d
- the **Local Building Inspector** must provide, no later than 7 days an application has been filed, written notification to the PWS of any permit application where a change of use or installation of fixtures or facilities requires the installation of an RPDs, DCVAs, or PVBs,
- the **PWS's Cross Connection Inspector** shall perform an evaluation of cross connection protection and notify the local building inspector of its findings, and
- f. the **Local Building Inspector** shall not issue a permit or certificate of occupancy until any cross connection issue has been corrected, and

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# Summary

- 🔹 Customers, PWSs, LHD / CT DPH, Local Building Officials each have responsibilities / authorities with respect to cross connection control.
- 🔹 CT's Cross Connection Control Regulations provide the framework of authorities & responsibilities to protect public health.



# Contamination by cross connection does occur

- 💧 Case Histories, CT Cross Connection Control Manual, Chap. 8, p. 82



# Questions & Thank You

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