

47th Annual Water Distribution Workshop

“How to Properly Conduct Backflow Survey’s”

**Gary Espenschied
Backflow Coordinator - OTCO Inc**

Why do we need to conduct a backflow survey?



Case Histories - Northwest Ohio

Ammonia backflowed from a liquid fertilizer plant into the public water system. This plant had a device that mixed anhydrous ammonia under pressure with city water to produce an ammonia solution. A decrease in city water pressure permitted the ammonia solution to enter the city water main. Blue water from the ammonia corrosion of the copper service lines was noted at residences in the area and alerted the residents to the condition.

Case Histories - Northwest Ohio

- ▶ A toxic boiler compound in a low-pressure boiler at an elementary school backflowed through the school's potable water system into the public water system. The problem developed when a water main ruptured which reduced the supply pressure and allowed the higher pressure in the boiler to force the toxic solution through a faulty check valve.

Case Histories - Northeast Ohio

- ▶ Routine sampling indicated a bacterial contamination in the public water system. As many as 25000 residents in the area were placed on a boil advisory for up to a month before the contamination was identified. Over 2000 inspections were made, over 1700 microbiological samples analyzed, water mains flushed, and storage tanks were cleaned

Backflow Prevention Survey Is It Your Duty

- ▶ 3745-95-02 (A): No person shall maintain a water service unless cross-connections are controlled or abated
- ▶ 3745-95-03 (A): Supplier of water shall conduct periodic surveys and investigations
- ▶ 3745-95-08 (A): The supplier of water shall discontinue service if entry is denied
- ▶ 3745-95-06 (C): It shall be the duty of the supplier of water to see that operational tests of backflow preventers are conducted

Backflow Prevention Survey Where Do I Start

- ▶ Create a priority list of premises to be surveyed
- ▶ Set up a training program for those who will be performing the surveys
- ▶ Create a database to manage the survey information

Backflow Prevention Survey

Preparing For The Survey

- ▶ Schedule a time and date
- ▶ Check the number of services and meters
- ▶ Take a survey form or notepad
- ▶ Safety glasses, hard hat, steel toe shoes, flashlight, laser pointer, measuring tape
- ▶ Explain backflow to the owner
- ▶ Ask for a maintenance man to go with you

Backflow Prevention Survey Survey Technique

- ▶ New Building
 - ▶ Contractor submits plans
 - ▶ Supplier reviews plans
 - ▶ Supplier performs final inspection

- ▶ Existing Building
 - ▶ Supplier conducts on-site survey
 - ▶ 1. Plumbing in Sight - walk the pipe
 - ▶ 2. Plumbing Hidden - rely on plant personnel
 - ▶ 3. Plumbing Unfamiliar - ask

Backflow Prevention Survey

What Do I Look For

- ▶ Evaluate the “Degree of Hazard” at each cross-connection
- ▶ Determine if a cross-connection is protected by the Ohio DOC required isolation device
- ▶ Is there a fire protection system
- ▶ Is there an auxiliary water system
- ▶ Is ethylene glycol being used in a system

Backflow Prevention Survey Documentation

- ▶ Write down who accompanied you on the survey and his/her phone number
- ▶ Keep a written list of the location and types of cross-connections observed
- ▶ Make a simple drawing of the plumbing and the cross-connection locations

Backflow Prevention Survey Finish The Job

- ▶ Redo your notes and drawings after you return
- ▶ Send written notification to the owner of the backflow requirements at the premises
- ▶ Advise the owner about the Ohio DOC thermal expansion requirement
- ▶ Enter the requirement in your database
- ▶ Ensure that the requirement is satisfied

Ohio EPA OAC 3745-95-03

Surveys & Investigations

- ▶ (A) The supplier of water shall conduct or cause to be conducted an initial assessment and periodic surveys or investigations of water use practices within a consumer's premises to determine whether there are actual or potential cross-connections to the consumer's water system through which contaminants or pollutants could backflow into the public water system or determine where in the judgment of the supplier of water, a pollutional, system, health or severe health hazard to the public water system exists.
- ▶ To meet this requirement, the supplier of water shall conduct or cause to be conducted an on-site investigation of all premises at least every five years to identify changes in water use practices at the consumer's property so that new or increased hazards to the water supply are identified and mitigated.

OAC 3745-95-03 Continued

- ▶ (1) In lieu of conducting an on-site investigation of all premises every five years, the supplier of water can document, in writing, an alternate, on-going, methodology to identify changes in water use practices that may represent a new or increased hazard to the public water supply. An on-site investigation is required when a potential new or increased hazard is suspected to confirm the degree of risk and how it will be addressed. Information obtained through a water use survey questionnaire or in coordination with the local building, zoning, health, fire protection and other licensing agencies may be used as an indicator of when an on-site investigation should be conducted. Other triggers, such as a request to the supplier of water for a new or additional service line, or an additional or larger meter should warrant an on-site investigation.

- (2) In lieu of conducting an on-site investigation of each residential premise, the supplier of water may institute an on-going educational campaign to inform consumers of common backflow hazards created during residential water use and provide a reporting mechanism for suspected cross-connections. An education campaign may use local media and advertising resources, but must also include information delivered, either electronically or hard copy, to each residential service connection at least annually.

OAC 3745-95-03 Continued

- ▶ (B) The supplier of water, or the supplier's authorized representative, shall have the right to enter premises served by the public water system at all reasonable times for the purpose of making surveys and investigations of water use practices within the premises.
- ▶ (C) On request by the supplier of water, or the supplier's authorized representative, the consumer shall furnish the supplier, or the supplier's authorized representative, information on water use practices within the consumer's premises.
- ▶ (D) Paragraph (A) of this rule does not relieve the consumer of the responsibility for conducting, or causing to be conducted, periodic surveys of water use practices on his premises to determine whether there are actual or potential cross-connections in the consumer's water system through which contaminants or pollutants could backflow into a public water system or a potable consumer's water system.
- ▶ Effective: 10/26/2015

Backflow Prevention Survey Quick List

- ▶ Create a priority list
- ▶ Notify the owner
- ▶ Take the necessary equipment
- ▶ Explain backflow to the owner
- ▶ Ask for a maintenance man
- ▶ Look for cross-connections
- ▶ Ask questions
- ▶ Document
- ▶ Notify
- ▶ Follow-up