Protecting Water Systems Through Backflow Prevention

1 hour

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Description

According to the EPA there are approximately 155,000 public water systems in the United States. It is the responsibility of these public water utilities to provide safe drinking water to over 90 percent of the United States. Water main breaks and fire-fighting efforts among other events can cause a condition called backsiphonage or backflow. This creates a condition where non-potable water from a building can contaminate the public water supply system.

Anyone associated with the design, construction, maintenance of water systems needs to be aware of the potential for backflow and understand how to prevent it. Upon completing this course, you will be able to recognize examples of potential backflow situations and how to prevent backsiphonage and/or backpressure. You will also be able to differentiate types of backflow preventers and the importance of regular testing and maintenance.

Intended Audience: Water Treatment and Water Distribution Operators

Objectives

After successfully completing this course, you will be able to:

- Differentiate between backflow and backsiphonage and the conditions where each occur.
- Rank the effectiveness of four backflow devices.
- Select the appropriate backflow device given the potential hazard.
- Describe in detail how backflow devices operate.

Outline

Introduction **(2 minutes)**

- Course Overview

Providing Safe Drinking Water **(5 minutes)**

- The Importance of Safe Drinking Water
- Backflow Policies
- Key Terms

Backpressure, Back-Siphonage, and Cross Connection **(10 minutes)**

- Backpressure vs. Back-Siphonage
- Cross Connection
- What Do Codes Say?
- Applying Backflow Prevention Devices

Methods of Protection **(15 minutes)**

- Air Gap
- Barometric Loop
- Atmospheric Vacuum Breaker

- Hose-Bibb Vacuum Breaker
- Pressure Vacuum Breaker Assembly

Backflow Assemblies **(5 minutes)**

- Double Check Valve Assembly
- Reduced Pressure Zone

Eliminating Cross-Connections **(5 minutes)**

- Cross-Connection Control Program
- Public Awareness

Maintaining Minimum System Pressure **(5 minutes)**

- Distribution System Capacity and Maintenance
- Redundant Equipment
- Pressure Transient (Surge) Control

Case Studies **(5 minutes)**

- Fire, Domestic, and Landscape Irrigation

Sanitary Sewer Protection **(5 minutes)**

- Sanitary Sewer Protection
- Testing and Maintenance
- Testing Specific Devices

Conclusion **(3 minutes)**

- Summary