



Alternative to the Installation of an Approved  
Backflow Preventer on Service Connections Where  
There is an Auxiliary Water System

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## I. PURPOSE

Under paragraph (C)(2) of Ohio Administrative Code (OAC) rule 3745-95-04 public water systems are not required to install an approved backflow preventer on service connections where there is an auxiliary water system on the real property that is owned or under control of the consumer and adjacent to the premises, provided the system satisfies the conditions of paragraphs (C)(2)(a) through (C)(2)(e). This document is intended to provide guidance and implementation materials to assist public water systems in achieving compliance with this alternative requirement. It is intended that utilization of these procedures and materials will result in compliance with the requirements of OAC rule 3745-95-04(C)(2); ***however, they are provided only as guidance and are not intended to limit a public water system from utilizing other means to achieving compliance.***

## II. BACKGROUND

OAC rule 3745-95-04 became effective May 1, 2003. It provides an alternative to the requirement to install an approved backflow preventer on service connections to premises that have an auxiliary water system on the real property adjacent to the premises that is owned or under control of the consumer but not part of the premises. The provider of water may choose the alternative requirement at their discretion. However, for the alternative to be permitted the supplier of water must address each of the following items: (a) determine, on a case-by-case basis, that a backflow preventer is not required, taking into consideration conditions that exist on the premises and adjacent real property; (b) require the consumer to sign a cross-connection control agreement that specifies penalties for creating a connection between the public water system and the auxiliary water system; (c) conduct inspections at least every twelve months to ensure there is no connection or means of connection has been created; (d) maintain an inventory of consumers with auxiliary water systems; and (e) develop and implement an education program to inform all consumers served by the public water system of the dangers of cross-connections and how to eliminate them.

## **Applicable definitions:**

*“Auxiliary water system” means any water system on or available to the premises other than the public water system. These auxiliary water systems shall include used water or water from a source other than the public water system, such as wells, cisterns or open reservoirs that are equipped with pumps or other prime movers, including gravity.*

*“Premises” means any building, structure, dwelling or area containing plumbing or piping supplied from a public water system.*

*“Real property” as used in OAC rule 3745-95-04(C) is intended to mean the land surrounding or adjacent to, the premises and is owned or controlled by the consumer of water.*

## **III. GUIDANCE**

### **1. OAC rule 3745-95-04(C), effective May 1, 2003, states the following:**

“(C) The following requirements apply to premises that have an auxiliary water system on the real property that is owned or under control of the consumer and adjacent to the premises.

- (1) A physical separation shall be maintained between the public water system or a consumer's water system and the auxiliary water system as required by paragraph (B) of rule 3745-95-02 of the Administrative Code; **and**
- (2) An approved backflow prevention device shall be installed on each service connection serving the consumer's water system, unless the supplier of water does all of the following:
  - (a) Determines, on a case-by-case basis, that the installation of an approved backflow prevention device on a service connection is not required in consideration of factors including, but not limited to, the past history of cross connections being established or re-established on the premises, the ease or difficulty of connecting the auxiliary water system with the public water system on the premises, the presence or absence of contaminants on the property or other risk factors;
  - (b) Requires the consumer to sign an agreement which specifies the penalties, including those set forth in rule 3745-95-08 of the Administrative Code, for creating a connection between the public water system and the auxiliary water system;

- (c) Conducts or causes to be conducted an inspection at least every twelve months to certify that no connection or means of connection has been created between the public water system and the auxiliary water system;
- (d) Maintains an inventory of each consumer's premises where an auxiliary water system is on or available to the premises, or on the real property adjacent to the premises; **and**
- (e) Develops and implements an education program to inform all consumers served by the public water system about the dangers of cross-connections and how to eliminate cross-connections.”

## **2. Additional guidance documents**

To facilitate compliance with OAC rule 3745-95-04(C)(2), four documents have been developed. These documents collectively address all components identified in OAC rule 3745-95-04(C)(2) and are contained as appendixes to this guidance. The supplier of water is encouraged to utilize these materials or equivalent materials in order to develop and implement an acceptable program. Each of the four documents is described below.

### 1. Annual Survey for Auxiliary Water Systems

This survey form provides a means for evaluating the conditions that exist on the premises and the real property. It is intended to assist in achieving compliance with OAC rule 3745-95-04(C)(2)(a), (c) and (d). This survey form is intended for use by an employee or other person acceptable to the supplier of water when surveying properties with auxiliary water systems. The survey form may be used for both the initial and annual surveys. Public water systems may modify this survey form or develop their own survey to suit their needs as long as all of the information required by OAC rule 3745-95-04(C)(2)(a) is included.

If a backflow preventer is deemed necessary on the service connection, the type of backflow preventer required must be determined by the supplier of water based on the degree of hazard. The consumer has the option of permanently eliminating the auxiliary water system or other potential backflow hazard in lieu of installing a backflow preventer and should be encouraged to do so as the option most protective of public health. The survey should be signed and dated by the person conducting the survey.

In accordance with OAC rule 3745-95-06, annual surveys must be maintained by the supplier of water for at least five years. It is recommended that surveys be maintained by the supplier of water for as long as the backflow prevention method is in effect. This is intended to provide a history of the establishment of cross-connections or other backflow hazards.

## 2. Recommended Agreement Language

This document was developed to assist the public water system in meeting the requirements of OAC rule 3745-95-04(C)(2)(b). It provides recommended language for the supplier of water to include for a suitable agreement and includes the penalties, as set forth in OAC rule 3745-95-08, for creating a connection between the public water system and the auxiliary water system. Definitions of specific terms should also be included as well as references to any applicable ordinances, policies, rules, regulations or user agreements established by the supplier of water.

## 3. Backflow Education Program Minimum Requirements

The Cross-Connection Education Program, Recommended Learning Objectives document is intended to provide the supplier of water a framework for developing educational materials for implementing an educational program as required by OAC rule 3745-95-04(C)(2)(e).

The supplier of water is required to develop and implement a backflow education program to educate all consumers on the dangers of cross-connections and how to eliminate cross-connections when the alternative to the installation of an approved backflow preventer is offered. If the supplier of water does not offer this option, a backflow education program is not required, although it is strongly encouraged as a component of all backflow prevention programs.

The method of delivery is not specified by rule but may include: mail, posting on the internet, public meetings, hand delivery, publication in newspaper(s), and inclusion in the consumer confidence report or public service announcements. Educational materials may include brochures, fact sheets, audio and video recordings, posters and presentations.

## 4. Educational Brochure

“Backflow Prevention and Cross-Connection Control, Protecting Our Public Water System” is a brochure the Division of Drinking and Ground Waters (DDAGW) developed as an educational tool for water systems to assist in achieving compliance with the educational program required by OAC rule 3745-95-04(C)(2)(e). The brochure covers the information DDAGW believes customers need to know about backflow prevention and complying with Ohio backflow prevention rules. The brochure is available both in “pdf” and “Microsoft Word” formats on the division’s website. Public water systems are not required to utilize this brochure and may utilize material from other sources or develop their own educational materials.

All program material used by a PWS must be available for review by Ohio EPA Division of Drinking and Ground Waters.

#### **IV. ATTACHMENTS**

- A. Instructions for Completing Annual Survey for Auxiliary Water Systems
- B. Annual Survey for Auxiliary Water Systems
- C. Cross-Connection Education Program Requirements and Recommended Learning Objectives
- D. Recommended Agreement Language
- E. Backflow Prevention and Cross Connection Control, Protecting Our Public Water System.

#### **V. HISTORY**

The Division of Drinking and Ground Waters first issued this guidance on March 16, 2004 and revised on June 11, 2004. The guidance was amended to include new rule language in the guidance and the educational brochure, and was reissued on October 15, 2015.

## **Instructions for Completing Annual Survey for Auxiliary Water Systems**

### **Introduction**

An approved backflow preventer shall be installed on each service connection serving any customer that has an auxiliary water system, unless the supplier of water determines, on a case-by-case basis, that the installation of an approved backflow preventer on a service connection is not required. This decision must take into consideration several risks which are described below. The public water system is required to conduct or cause to be conducted an inspection at least every twelve months to certify that no connection or means of connection has been created between the public water system and the auxiliary water system. "Auxiliary water system" means any water system on or available to the premises other than the public water system.

The "Annual Survey for Auxiliary Water Systems" is intended to be used by public water systems or their representatives during an inspection for documentation purposes and to help evaluate if the alternative to installation of an approved backflow preventer is appropriate. This survey may be used for both the initial and annual surveys. The survey form consists of three sections to help ensure the collection of pertinent information. The instructions provide an explanation for each section of the survey. It is the responsibility of the public water system to make the final determination if the alternative to the installation of an approved backflow preventer will be permitted.

### **Completing the Survey**

The survey is designed to direct the surveyor in such a manner as to address all the risk factors that must be reviewed in accordance with Ohio Administrative Code (OAC) rule 3745-95-04(C)(2)(a). These risk factors include, but are not limited to, the past history of cross-connections being established or re-established on the premises, the ease or difficulty of connecting the auxiliary water system with the public water system on the premises, the presence or absence of contaminants on the adjacent real property or other risk factors.

**The opening paragraph** must be completed to include the water system name, date and address of the premises served by the public water system. You may want to include additional site information such as account number or other identifiers for tracking purposes.

**Potential Contaminant Source Inventory:** A table has been designed to determine if any potential contaminant sources, that represent a backflow hazard, are present on the real property or premises. Real property refers to the land surrounding the premises and is owned or controlled by the consumer of water. "Premises" is defined in the Ohio Administrative Code as any building, structure, dwelling or area containing plumbing or piping supplied from a public water system. If any potential contaminant source, including an auxiliary water system, is connected to the public water system or otherwise contained on the premises, an appropriate backflow preventer is required by OAC rule 3745-95-02, unless the actual or potential cross-connections are abated or controlled to the satisfaction of the supplier of water.

Example Table

Potential Contaminant Source	Present (Y/N) on		Connected to PWS or Auxiliary System (AS)	Comments
	Adjacent Property	Premises		
Feed lot/livestock holding area/barnyard	Y	N	PWS <input type="checkbox"/> AS <input checked="" type="checkbox"/>	Barn with horses
Irrigation system	Y	Y	PWS <input type="checkbox"/> AS <input checked="" type="checkbox"/>	Control valving within the house served by PWS.

In the above example the barn connected to the auxiliary system would not necessitate the need for a backflow preventer on the service line. However, the irrigation system on the premises would require a backflow preventer be installed on the service connection serving the house in accordance with OAC rule 3745-95-02. This is due to the auxiliary water system containing a portion of its plumbing within the premises even though there is no direct connection.

**Auxiliary Water System Information:** Questions #2 and #3 are intended to evaluate the ease or difficulty in establishing a cross-connection between the auxiliary water system and the public water system. There is no minimum separation distance established by the Ohio Administrative Code and must be determined by the public water system on a case-by-case basis. A consistent approach is recommended. Tap-to-tap connections have occurred in the past with the use of a garden hose. This fact may help in establishing minimum separation requirements between the auxiliary water system and the public water system. A drawing should be developed during the initial survey that indicates the location of any auxiliary water system(s) and the distance(s) from the premises. This drawing should be reviewed during subsequent annual surveys to ensure no changes have been made that would necessitate the need for the installation of a backflow preventer.

**Past Problems/Ease of Establishing a Cross-connection:** Questions #4 through #7 are intended to identify past problems and further evaluate the ease of establishing a cross-connection. If any of these questions are answered “Yes” then it is recommended a backflow preventer be required on the service line unless appropriate corrective actions have been taken as determined by supplier of water.

The surveyor has the option of either requiring or not requiring the installation of a backflow preventer as a result of the information collected through the survey. If a backflow prevention method or backflow preventer is required, the type should be determined and documented on the survey form. A space has been provided for the surveyor’s comments. This area can be used to justify the decisions made or to note the required corrective actions necessary to allow the option not to install a backflow preventer.

The supplier of water should maintain records of all surveys for a sufficient length of time to document the history of each auxiliary water system. A minimum of five years is required by Ohio EPA for the annual surveys. The inventory records must be kept indefinitely, as long as they remain applicable.

## Annual Survey for Auxiliary Water Systems

(Name of public water system) hereby certifies that on (date) the factors listed below have been evaluated during an on-site survey at (address) and have been taken into consideration in determining the need for the installation of a backflow preventer. This evaluation encompasses the premises served by the (Name) Public Water System and an auxiliary water system on the real property that is owned or under control of the consumer adjacent to the premises.

1. Check all of the potential contaminant sources that are present and complete the following table<sup>1</sup>:

Potential Contaminant Source	Present (Y/N) on		Connected to PWS or Auxiliary Water System (AS)	Comments (Include description of backflow preventer or method.)
	Adjacent Property	Premises		
Boiler/hot water building heat with chemical treatment			PWS <input type="checkbox"/> AS <input type="checkbox"/>	
Swimming pool			PWS <input type="checkbox"/> AS <input type="checkbox"/>	
Feed lot/livestock holding area/barnyard			PWS <input type="checkbox"/> AS <input type="checkbox"/>	
Irrigation system			PWS <input type="checkbox"/> AS <input type="checkbox"/>	
Herbicide/pesticide mixing			PWS <input type="checkbox"/> AS <input type="checkbox"/>	
Is there a business on the property that utilizes water for anything other than potable purposes? If so, what?			PWS <input type="checkbox"/> AS <input type="checkbox"/>	
Other potential backflow hazard(s).			PWS <input type="checkbox"/> AS <input type="checkbox"/>	
Explain:				

<sup>1</sup> If any potential contaminant source is connected to the PWS without an acceptable isolation device or contained on the premises then an appropriate backflow preventer may be required by OAC rule 3745-95-02. By definition, if there is a connection to the public water system, the potential contaminant source is on the premises.

2. List all auxiliary water systems. Include a drawing of the auxiliary water systems and show the distance auxiliary water systems are from all structures, property lines and locations of any items listed above.

3. What is the minimum distance between the public water system piping and the auxiliary water system?

4. Yes  No  Is there any reason to believe the physical separation has been tampered with or compromised in any way? If yes, describe:

5. Yes  No  Have unprotected cross-connections ever occurred? If yes, describe. Include dates of occurrence.

6. Yes  No  Is there a temporary or permanent means available on the premises for the purpose of cross-connecting the auxiliary water system with the public water system? If yes, describe:

7. Yes  No  Is plumbing from an auxiliary water system inside any buildings, structures, dwellings or areas which are served by the public water system? If yes, describe:



## **Cross-Connection Education Program Requirements and Recommended Learning Objectives**

### **Educational Program Requirements:**

The requirement to develop and implement a cross-connection education program is only required if a public water system decides to offer the alternative to the installation of an approved backflow preventer under Ohio Administrative Code (OAC) rule 3745-95-04. If the alternative is offered then OAC rule 3745-95-04(C)(2)(e) requires that a cross-connection education program be developed and implemented to inform all consumers about the dangers of cross-connections and how to eliminate them.

Recommended learning objectives have been established to assist in the development of a more comprehensive cross-connection educational program. In addition, Ohio EPA-DDAGW has developed an educational brochure that can be used by a public water system to address the recommended learning objectives.

Even if a public water system does not intend to offer the alternative to the installation of a backflow preventer for auxiliary water systems, it is recommended that an outreach effort be made to educate the consumers about the dangers of cross-connections. Education is considered an integral part of any backflow prevention program.

The method of implementation of a cross-connection education program is not specified by rule but may include: mail, posting on the Internet, public meetings, hand delivery, publication in newspaper(s), and inclusion in the Consumer Confidence Report or public service announcements. Educational materials may include brochures, fact sheets, posters, audio and video recordings, and presentations. It is intended that the educational program be implemented in such a manner as to reasonably reach all consumers particularly those that have or potentially have an auxiliary water system available to their property.

### **Recommended learning objectives:**

1. To provide a basic understanding of backflow, the associated dangers and the importance of prevention.
2. To provide the consumer an elementary understanding of common conditions that could result in a backflow hazard and what constitutes a cross-connection.
3. To provide a consumer with sufficient information to make an informed decision as it applies to cross-connections when considering plumbing modifications.
4. To inform the consumer of their rights and the rules, regulations and policies that govern backflow prevention, including the penalties associated with creating a cross-connection.

**Recommended Agreement Language<sup>1</sup>**  
**OAC rule 3745-95-04(C)(2)(b)**  
**Alternative to Installation of an Approved**  
**Backflow Preventer on Auxiliary Water System**

**General Requirements for Consumer Agreement:**

Any agreement intended to achieve compliance with OAC rule 3745-95-04(C)(2)(b) must contain language which specifies the penalties, including those set forth in OAC rule 3745-95-08, for creating a connection between the public water system and the auxiliary water system. Definitions of terms such as premises, real property, consumer's water system, auxiliary water system, cross-connection, etc., should be clearly defined.

**Suggested Language to Include in Consumer Agreement:**

No person shall install or maintain a water service connection to any premises where actual or potential cross-connections to a public water system or a consumer's water system may exist unless such actual or potential cross-connections are abated or controlled to the satisfaction of {the supplier of water}.

- (A) No person shall install or maintain a connection between a public water system or consumer's water system and an auxiliary water system.
  
- (B) Those consumer's that have an auxiliary water system as defined in OAC rule 3745-95-01 shall install an approved backflow preventer on the service line to each premises on the consumer's real property, except:
  - 1) Where {the supplier of water} determines, on a case-by-case basis, that the installation of an approved backflow preventer on a service connection is not required in consideration of factors including, but not limited to, the past history of cross-connections being established or re-established on the premises, the ease or difficulty of connecting the auxiliary water system with the public water system on the premises, the presence or absence of contaminants on the property or other risk factors; and
  - 2) The consumer signs an agreement not to create a connection between the public water system and the auxiliary water system and all associated penalties including but not limited to, discontinuance of service for failure to comply with the conditions of the agreement; and
  - 3) Permits {the supplier of water} or an appointed representative the right to enter upon reasonable notification the consumer's property and premises for the purpose of conducting an inspection at least every twelve months to certify that no connection or means of connection has been created between the public water system and the auxiliary water system.

- (C) Water service will be denied or discontinued, after reasonable notice to the occupant thereof, the water service to any premises wherein any backflow preventer required is not installed, tested and maintained in a manner acceptable to the {the supplier of water}, or if it is found that the backflow preventer has been removed or by-passed, or if an unprotected cross-connection exists on the premises, or if {the supplier of water} personnel, or authorized representative, is denied entry to determine compliance with backflow requirements.
- (D) Water service to such premises shall not be restored until the consumer has corrected or eliminated such conditions or defects in conformance with all applicable rules and regulations, and to the satisfaction of {the supplier of water}.
- (E) Additional provisions established by the supplier of water.

<sup>1</sup>Language equivalent to paragraphs A, C & D are required and paragraph B is recommended. The recommended language may need to be modified or supplemented depending on the public water system ordinances, policies, rules, regulations or user agreements. Any agreement or language developed for the intended use for compliance with OAC rule 3745-95-04(C) should be reviewed and approved by the public water system's legal counsel.

If a potential or actual cross-connection contamination hazard is identified, the customer will be required to eliminate the hazard and/or install an appropriate backflow preventer at the service connection and/or at the hazard.

### Special Conditions

### Auxiliary Water Systems

#### What is an auxiliary water system?

It is any water system on or available to your property other than the public water system. Used water or water from wells, cisterns or open reservoirs that are equipped with pumps or other sources of pressure, including gravity are examples.

#### What protection is required?

- The auxiliary water system must be completely separated from water supply plumbing served by a public water system; and
- An approved backflow preventer must be installed at the service connection (where the public water system connects to the customer's plumbing system).

OR

- The auxiliary water system must be eliminated.

#### Are there exceptions?

At their discretion, the water supplier may waive the requirement for a backflow preventer at the service connection if all the following conditions are met:

- All components of the auxiliary water system, including pumps, pressure tanks and piping, are removed from the premises, which are defined as all buildings, dwellings, structures or areas with water supply plumbing connected to the public water system.

- The possibility of connecting the auxiliary water system to the water supply plumbing is determined by the water supplier to be extremely low.
- No other hazards exist.
- The customer enters into a contract with the water supplier, as described below.

The contract will require the customer:

- To understand the potential hazard of a cross-connection.
- To never create a cross-connection between the auxiliary water system and the public water system.
- To allow an inspector to survey their property for hazards as long as the contract is in effect.
- To face loss of service and other penalties if the contract is violated.

The water supplier must perform an annual inspection of the customer's contract-regulated property to verify the conditions have not changed, which would warrant installation of a backflow preventer. The water supplier must, by law, do everything reasonably possible to protect the water system from contamination.

### Booster Pumps

#### What is the concern?

Booster pumps connected to plumbing systems or water mains can cause backsiphonage by reducing the water mains. The following requirements are in place to help prevent backsiphonage:

- Booster pumps, not used for fire suppression, must be equipped with a low suction cut-off switch that is tested and certified every year;
- Alternately, when a booster pump is necessary for one-, two- and three-family dwellings, it is preferred that the booster pump draw from a surge tank filled through an air gap; and

- Booster pumps, used in a fire suppression system, must be equipped with either a low suction throttling valve on the discharge side or be equipped with a variable speed suction limiting control system. Low-pressure cut-off devices will suffice for fire pumps installed prior to August 8, 2008, until a significant modification is warranted, at which point the minimum pressure sustaining method must be updated. Each of these methods must be tested and certified each year.

### Contacts

#### Need more information?

Questions concerning backflow prevention and cross-connection control may be directed to your local water department or to your local Ohio EPA District Office at the following numbers:

<b>Northwest District</b>	<b>(419) 352-8461</b>
<b>Northeast District</b>	<b>(330) 963-1200</b>
<b>Southwest District</b>	<b>(937) 285-6357</b>
<b>Southeast District</b>	<b>(740) 385-8501</b>
<b>Central District</b>	<b>(614) 728-3778</b>

Questions regarding internal plumbing in the home may be directed to your local plumbing authority or to the Ohio Department of Commerce, Plumbing Administrator, at (614) 644-3153.

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John Kasich, Governor  
Craig W. Butler, Director

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## Backflow Prevention and Cross-Connection Control

### Protecting our Public Water System

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### What is a cross-connection?

Any physical connection created between a possible source of contamination and any drinking water system piping.

### What is backflow?

It is the flow through a cross-connection from a possible source of contamination back into the drinking water system. It occurs when a cross-connection is created and a pressure reversal, either as backsiphonage or backpressure, occurs in the water supply piping.

### Why be concerned?

- ALL cross-connections pose a potential health risk.
- Backflow can be a health hazard for your family or other consumers if contaminated water enters your water supply plumbing system and is used for drinking, cooking or bathing. Chemical burns, fires, explosions, poisonings, illness and death have all been caused by backflow through cross-connections.
- Backflow occurs more often than you think.
- You are legally responsible for protecting your water supply plumbing from backflow that may contaminate drinking water, either your own or someone else's. This includes complying with the plumbing code and not creating cross-connections.

### What causes backsiphonage?

Backsiphonage occurs when there is a loss of pressure in a piping system. This can occur if the water supply pressure is lost or falls to a level lower than the source of contamination. This condition, which is similar to drinking from a glass with a straw, allows liquids to be siphoned back into the distribution system.

### What causes backpressure?

Backpressure occurs when a higher opposing pressure is applied against the public water system's pressure. This condition allows undesirable gases or liquids from another system to enter the drinking water supply. Any pumping system (such as a well pump) or pressurized system (such as steam or hot water boilers) can exert backpressure when cross-connected with the public water system.

### What can I do?

- Be aware of and eliminate cross-connections.
- Maintain air gaps. Do not submerge hoses or place them where they could become submerged.
- Use hose bib vacuum breakers on fixtures (hose connections in the basement, laundry room and outside).
- Install approved, testable backflow preventers on lawn irrigation systems.
- Do not create a connection between an auxiliary water system (well, cistern, body of water) and the water supply plumbing.

### What must be done to protect the public water system?

The public water supplier must determine potential and actual hazards. If a hazard exists at a customer's public water supply service connection, the customer will be required to install and maintain an appropriate backflow preventer\* at the meter and/or at the source of the hazard.

\*Check with your water supplier to verify which backflow preventer is required before purchase or installation.

### Who is responsible?

In Ohio, the responsibility for preventing backflow is divided. In general, state and local plumbing inspectors have authority over plumbing systems within buildings while Ohio EPA and water suppliers regulate protection of the distribution system at each service connection.

Water customers have the ultimate responsibility for properly maintaining their plumbing systems. It is the homeowner's or other customer's responsibility to ensure that cross-connections are not created and that any required backflow preventers are tested yearly and are in operable condition.

### What is the law?

Ohio Administrative Code Chapter 3745-95 requires the public water supplier to protect the public water system from cross-connections and prevent backflow situations. The public water supplier must conduct cross-connection control inspections of their water customers' property to evaluate hazards. Local ordinances or water department regulations may also exist and must be followed in addition to state regulations.

### What are some common backflow hazards that threaten the homeowner and other consumers?

- Hose connections to chemical solution aspirators to feed lawn and shrub herbicides, pesticides or fertilizers.
- Lawn irrigation systems.
- Chemically treated heating systems.
- Hose connections to a water outlet or laundry tub.
- Swimming pools, hot tubs, spas.
- Private and/or non-potable water supplies located on the property.
- Water-operated sump drain devices.
- Feed lots/livestock holding areas or barnyards fed through pipes or hoses from your water supply plumbing.

### What are examples of cross-connection and backflow scenarios?

- Soapy water or other cleaning compounds backsiphon into the water supply plumbing through a faucet or hose submerged in a bucket or laundry basin.
- Pool water backsiphons into the water supply plumbing through a hose submerged in a swimming pool.
- Fertilizers/pesticides backsiphon into the water supply plumbing through a garden hose attached to a fertilizer/pesticide sprayer.
- Chemicals/pesticides and animal feces drawn into the water supply plumbing from a lawn irrigation system with submerged nozzles.
- Bacteria/chemicals/additives in a boiler system backsiphon into the water supply plumbing.
- Unsafe water pumped from a private well applies backpressure and contaminates the public water supply through a connection between the private well discharge and the potable water supply plumbing.

