



## Division of Drinking and Ground Waters Response to Comments – Backflow Prevention and Cross Connection Control

### Primary Drinking Water Standards

3745-95-01 (Amend) Backflow Prevention and Cross Connection Control Definitions and incorporation by reference

3745-95-02 (Amend) Backflow Prevention and Cross Connection Control

3745-95-03 (New/Rescind) Investigations and Surveys

3745-95-04 (New/Rescind) Where Protection is Required

3745-95-05 (Amend) Type of Protection Required

3745-95-06 (New/Rescind) Backflow Preventers

3745-95-07 (Amend) Booster Pumps

3745-95-08 (Amend) Deny or Discontinue Water Service

3745-95-09 (New/Rescind) Requirements of Yard Hydrants

### Agency Contact for this Package

Zach Winoker, Division of Drinking and Ground Waters (DDAGW)

(614) 644 - 3387, [Zachary.Winoker@epa.ohio.gov](mailto:Zachary.Winoker@epa.ohio.gov)

Ohio EPA issued public notice and requested comments for the public hearing comment period of October 4, 2021 to November, 4th 2021 on the proposed rules. This document summarizes the comments and questions received during the comment period.

Ohio EPA reviewed and considered all comments received during the comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format. The name of the commenter follows the comment in parentheses.

### **General comments:**

**Comment 1:** If a campground has a tap at the road from a public water supply, what type of water system would OEPA consider this campground?" (Ohio Department of Health)

**Response 1:** A campground that does not produce their own finished water, but rather purchases it through a service connection and does not treat water further or resell it, would be exempt, in terms of drinking water, and not regulated by Ohio EPA-DDAGW. Generally, a facility is not regulated as a Public Water System (PWS) if:

1. Consists only of distribution and storage facilities and does not have any collection and treatment facilities.

2. Obtains all its water from, but is not owned or operated by, a public water system.
3. Does not sell water to any person.
4. Is not a carrier which conveys passengers in interstate commerce.

**Comment 2:**

What sections of the new rules would campground operators be required to follow?" (Ohio Department of Health)

**Response 2:**

The entire Chapter of OAC 3745-95 applies to campground operators if their facility is a public water system. As a public water system, the water source, any treatment, pumping and finished water distribution pipes to taps would fall under Ohio EPA's rules for backflow prevention, as applicable. Typically, campgrounds are non-community (do not have year-round residents), so would fall under the sections of each rule that speak to 'non-community and single property community water systems', when the rule is divided between provisions that apply to "non-communities and single property community water systems" and "all other community public water systems". The most common hazards are with water use practices associated with yard hydrants with weep holes and with dump stations. Yard hydrants is covered under OAC Rule 3745-95-09. Dump stations would fall under a contaminant [3745-95-04(A)] that could cause at least a health hazard [OAC Rule 95-05(A)] requiring at a minimum an approved reduced pressure principle backflow preventer, or a properly configured air gap on the service line at the dump station [OAC Rule 3745-95-06(A)].

Even if the campground is exempt from Ohio EPA's public water system rules, the supplier of water selling water to the campground facility may still require the campground to install a containment backflow preventer at the service connection (typically after the meter) to protect the supplier of water's public water distribution system.

**Comment 3:**

"How will OEPA enforce the plugging of the weep holes for the old hydrants?" (Ohio Department of Health)

**Response 3:**

During the sanitary survey process, Ohio EPA would ask for verification of plugging (i.e., work order, invoice, pictures, etc.). Also, the inspector would ask about the PWS's practice of draining lines to prevent freezing (now that weep holes are plugged) or if they have installed heating elements on the hydrant, especially if it operates year-round. Campgrounds with numerous noncompliant yard hydrants have been placed on a compliance schedule for addressing these hydrants, typically with plugging weep holes or replacement with sanitary frost-proof yard hydrants, at a designated percentage of yard hydrants per year. Upon finalization of rule revisions, moving forward, replaced potable-use yard hydrants will have to meet ASSE 1057.

**Comment 4:**

Comments regarding the need to coordinate our agencies' rules and oversight for backflow prevention and cross connection control were relayed. (Ohio Board of Building Standards)

**Response 4:**

Our two agencies have met on three occasions to discuss the basis for the rule changes and jurisdictional considerations as well as future coordination. Ohio EPA has agreed to continue to work with Ohio Board of Building Standards on developing guidance for their staff and the public, as well as assisting them in revising definitions for their rules.

**3745-95-01, Definitions**

**General:**

**Comment 5:**

From the perspective of someone not as familiar with reading your rules, having all of the applicable backflow chapter definitions in this backflow definition rule is much easier than having to switch back and forth between other rules trying to guess whether a term may be defined elsewhere. Additionally, if your agency proposes to change the 3745-81-01 Primary Drinking Water Standards definitions at a future time, the change may or could impact the application of the backflow rules in ways that may not be fully understood or intended. The charging paragraph of rule 3745-81-01 states that those definitions are only applicable to that chapter. This creates confusion in my opinion. We suggest keeping the defined terms that are applicable to this chapter within this chapter. If this is not desired, at the very least, keep the defined term within this chapter and provide a reference that shows where to find it. For example: "Director" see rule 3745-81-01 of the Administrative Code. (Ohio Board of Building Standards, Debbie Ohler)

**Response 5:**

The first sentence of OAC Rule 3745-95-01 states that definitions are found in OAC Rule 3745-81-01 unless defined below. Ohio EPA appreciates the comment but are trying to reduce redundancy in the rules.

**3745-95-01(C)(3):**

**Comment 6:**

This definition is different from the RC 3703.21 definition of "Containment backflow prevention device". The proposed definition blurs the line and creates confusion between the definitions of containment vs. isolation backflow prevention devices. This confusion could result in an owner installing a code compliant isolation backflow prevention device that will not be acceptable to the operator of the public water system. We suggest working with the BBS to ensure that our rules are coordinated to avoid overlap and duplicative regulation. (Ohio Board of Building Standards, Debbie Ohler)

**Response 6:**

Following our joint discussions, Ohio EPA made the following edits to OAC Rule 3745-95-01(C)(3) to provide clarification regarding jurisdiction. Please note that the word “waste” was a typo and has been corrected to “water”.

*“Containment principle backflow preventer” is a backflow preventer required by the supplier of water or by the director, for a public water system regulated by this chapter, that is intended to prevent any liquids, solids, gases or water with contaminants from backflowing into the public water system. For single property community public water systems and for noncommunity public water systems, a containment principle backflow preventer is installed at the actual or potential cross-connection. For all other community public water systems, containment principle backflow preventers are installed on each service connection to a consumer’s water system, unless placement is otherwise specified in this chapter.*

Also, following our discussions, Ohio EPA made the following revision to OAC Rule 3745-95-04(B) to help clarify where the containment principle backflow preventer needs to be installed for a public water system:

*(B) For all other community water systems, an approved backflow preventer shall be installed on each service ~~line~~ connection to the consumer’s water system serving the premises where in the judgement of the supplier of water or the director, a pollutional, system, health, or severe health hazard to the public water system exists including the following:*

The installation location for the containment principle backflow preventer in the definition and the location listed in OAC Rule 3745-95-04(A) and OAC Rule 3745-95-04(B) are specified to help clarify jurisdiction. For single property community water systems and noncommunity water systems containment principle backflow preventers are to be installed “at the cross connection” and for all other community water systems, “on each service connection to the consumer’s water system serving the premises”.

Ohio EPA also included a provision in OAC Rule 3745-95-06(F) which outlines an option to accept *approved isolation backflow prevention devices* required by the plumbing code in lieu of backflow preventers listed in OAC Rule 3745-95-05 to avoid duplication of efforts. Ohio EPA is not proposing to take over jurisdiction of determining acceptable plumbing devices as required by the plumbing code.

In addition, Ohio EPA included a definition of “isolation backflow prevention device” within OAC 3745-95-01(I)(2) to provide clarification for the reference in OAC Rule 3745-95-06(F), as follows:

*“Isolation backflow prevention device”. A device for the prevention of the backflow of liquids, solids, or gases that is regulated by the plumbing code adopted pursuant to section 3781.10 of the Revised Code.*

Ohio EPA is committed to continuing discussions with your agency regarding coordination of our rules for this purpose, which is a mutual goal.

**3745-95-01(S)(1):**

**Comment 7:**

The proposed removal of the definition from this rule means that the definition in 3745-81-01 applies. The definition in 3745-81-01 is much broader and confusing and blurs the lines of what a “service connection” is. The current 3745-95-01 definition is more helpful when trying to ascertain jurisdictional boundaries between the Ohio Plumbing Code and the rules of the OEPA for Public Water Systems. We suggest working with the BBS to develop a definition of “Service Connection” that helps to define jurisdictional boundaries between the Ohio Plumbing Code and the rules of the OEPA. *(Ohio Board of Building Standards, Debbie Ohler)*

**Response 7:**

Please see responses 4, 5, and 6, above. The removal of this definition was to help clarify that backflow prevention requirements apply to single property community public water systems and noncommunity public water systems, in addition to other community public water systems. Ohio EPA is committed to working with BBS to provide clarification on jurisdictional boundaries for implementation.

**3745-95-01(S)(2):**

**Comment 8:**

It was difficult to find a definition of “Community water system” as used in this proposed new definition. A single family dwelling connected to a public water supply seems to meet this definition. Is that what was intended? We suggest adding a definition of “Community water system” or alternatively, add a term for “Community water system” that refers the user to the definition of “Public water system” found in rule 3745-81-01 of the Administrative Code. *(Ohio Board of Building Standards, Debbie Ohler)*

**Response 8:**

A single family dwelling connected to a public water supply, will most likely not meet the population or service connection threshold of the public water system definition. More so, if it did, it would likely meet the exemption provision of a public water system. See Response 1 for more information on the exemption criteria. The intention of the single property community water system definition is not to broaden inclusion but rather carve out a sector to which the rule provisions apply. Ohio EPA has made the following revision to address this comment on OAC Rule 3745-95-01(S)(2):

*“Single property community water system” means a community water system as defined in OAC Rule 3745-81-01(P)(11)(a) that is located on a single property or contiguous properties under the ownership or control of a single person.*

**3745-95-02, Backflow Prevention and Cross Connection Control:**

**3745-95-02 (A):**

**Comment 9:**

The removal of “water service connection” seems to broaden the scope to all backflow prevention devices within a building, including “isolation principle backflow prevention device” that are regulated through the Ohio Plumbing Code. (*Ohio Board of Building Standards, Debbie Ohler*)

**Response 9:**

Ohio EPA has made the following revision to OAC Rule 3745-95-02(A) to add clarification that this provision applies to public water systems:

*No person shall install or maintain an actual or potential cross-connection to or within a public water system unless such actual or potential cross-connections are abated or controlled to the satisfaction of the supplier of water and at minimum, in compliance with this chapter.*

Please also see Response 6 regarding the flexibility to accept an approved isolation backflow prevention device required by the plumbing code.

**3745-95-03, Surveys and Investigations:**

**3745-95-03(B)(2):**

**Comment 10:**

With respect to the cost included in the Business Impact Analysis on this section, to comply with this section our utility will have to develop a survey to reach 23,000 non-residential premises currently in our system once every 5 years. That results to 4,600 surveys per year or on average 18-19 per workday, which need to be reviewed, assessed, and managed. That results in a large amount of work and on-site inspections, especially if the customers fail to respond to the survey as mentioned in (B) (2) (b). For example, if only 50% of the customers respond to the survey, that will result to the need to inspect 11,500 premises in 5 years or 2,300 premises per year or 9-10 per day. If it takes an average of 1 hour to inspect a non-residential premise (including travel time), it will require more than one employee dedicated to work on that task every day. The hourly cost for such an inspection ranges between \$41.95 and \$44.47 (for a Water Customer Service Representative 2, including fringe benefits at 0.6375), resulting in an annual cost between \$96,500 and \$102,300 only for inspection. Additional costs will be applied for management and coordination of the program.

Also, in this section of the Proposed Rule, there is no consideration for existing premises that already have the highest degree of backflow protection through an existing air gap. In that case an additional review or on-site investigation cannot result in any higher level of protection. As long as these premises submit the annual certificate of inspection for the air gap, they should be exempt from the survey and follow up inspection.

According to item (B) (2) (b), new or additional service lines should warrant an online investigation. However, these are addressed under the initial assessment process

mentioned in 3745-95-03 (A) (1) and based on the outcome of the survey questionnaire they may not require an on-site investigation. The two paragraphs of the Rule need to be consistent. (*Jeff Swertfeger, Greater Cincinnati Water Works*)

**Response 10:**

Regarding your discussion on costs:

The requirement to conduct periodic investigations and surveys is not a new requirement and costs associated with implementation are existing costs. Periodic on-site inspections and re-surveys have been a long-standing requirement of Ohio EPA's backflow prevention rules. In the last revision of this rule provision in 2015, clarification on metrics and expectations for frequency was added, with input from an external stakeholder group (including both small and large PWSs). Water use practices change and there must be a means to reassess facilities that may have unaddressed or inadequately addressed hazards and continue protecting the public water supply from contamination. The revisions to this rule aim to clarify what is required during the initial assessment versus the periodic investigation and survey process. The expectation is that every service connection be re-assessed through these onsite inspections or re-surveys, in some minimum manner, every five years. The survey questionnaire is a means offered to collect the necessary information without dedicating staffing hours toward onsite inspections if not needed for a facility. The triggers outlined in OAC Rule 3745-95-03(B)(2)(a) and (b) are indicative of when at least a survey investigation is warranted and establishes best practice to be an onsite investigation. Ohio EPA will consider the costs described and update the BIA as appropriate. The costs represented in the BIA are for the mean costs associated with implementation of this rule and may not represent the costs associated with the smallest or largest public water systems.

Regarding (B)(2)(b) triggers and your comment that if a customer fails to submit a questionnaire, this inaction would trigger an onsite investigation:

The PWS must be able to meet the intent of the rule provision to determine if any new or increased hazards exist for a facility. The rule provides situations that "should" trigger onsite investigations but provides flexibility to the PWS to use their expertise to determine if the trigger represents an increased hazard that necessitates an onsite investigation.

Regarding your comment that there is not an exemption for facilities that have an "air gap":

Facilities with high hazard water use practices still must be re-assessed as modifications to plumbing and changes to water-use practices may occur that can go undetected when just the air gap is "tested" annually. Typically, the backflow tester focuses on the containment backflow preventer and does not inspect other parts of the facilities' water system that could infringe on the air gap protection. It is possible that the air gap could be circumvented with new plumbing line installations. Verification that the air gap is protective of all high hazard water use practices is important.

Ohio EPA edited the language in OAC Rule 3745-95-03(B)(2)(b) to provide consistency between what is required for an initial assessment and for periodic investigations and surveys as follows:

*~~Additionally, o~~Other triggers, such as failure to adequately respond to the water use survey questionnaire, a request to the supplier of water for a new or additional service line, or an additional or larger meter warrants a survey or onsite investigation. Failure to adequately respond to the water use survey questionnaire should warrant an on-site investigation.*

Please note that there was a typo in the rule notice for initial assessments in OAC Rule 3745-95-03(A). The correct language is as follows:

*"The initial assessment ~~shall~~ should include a combination of review of any plans, inspection records, regulatory permitting documentation or survey questionnaire, related to water use practices and backflow prevention needs, and onsite investigations. At a minimum, a survey questionnaire of water use practices ~~should~~ shall be completed and documented. For premises identified under paragraph (B)(5) of rule 3745-95-04 of the Administrative Code, and those identified to have an actual or potential hazard during the survey process, an onsite investigation and documentation of the investigation, is required.*

**3745-95-04; Where protection is required:**

**3745-95-04 (A):**

**Comment 11:**

There needs to be a clarification that the water system supplier to the single property community water systems and the noncommunity water systems, may require the installation of an approved backflow preventer on the service connection supplying the single property community water system and the noncommunity water system. This would give the supplying water system the authority to require backflow at the connection point if it believes the situation warrants it. (*Jeff Swertfeger, Greater Cincinnati Water Works*)

**Response 11:**

OAC Rule 3745-95-04(B) does require a community water system (e.g., public water system owned by a city or village), as the supplier of water, to require a backflow preventer on the service line to the customer (which could be a single property community water system or noncommunity water system) if an actual or potential hazard exists.

**3745-95-04 (C):**

**Comment 12:**

An annual statement from the consumer should be sufficient documentation and a requirement for annual inspection and documentation by the supplier of water is not

necessary. The inspection should only be required if the customer fails to provide verification through a statement. (*Jeff Swertfeger, Greater Cincinnati Water Works*)

**Response 12:**

The rule language requires the supplier of water document, in writing, the condition. The supplier of water can create the document by onsite inspection or cause the inspection to be conducted to verify no connection has occurred. The physical separation is part of the backflow prevention applied for auxiliary water systems. At a minimum, an auxiliary water system is considered a health hazard. When possible, the auxiliary water system should be eliminated or properly abandoned.

There are two protective mechanisms which must be implemented to help ensure the public water systems remain protected from auxiliary systems that remain on the consumer's property. First, auxiliary water system piping must remain physically disconnected from all piping through which the public water system flows. The physical separation must be visually observed and verified in writing every 12 months. Second, a reduced pressure principle backflow prevention assembly must be installed at the meter on the public water system. This assembly must be tested every 12 months and written verification must be maintained by the purveyor of water.

An inter-connection between a public water system or a consumer's water system and an auxiliary water system is prohibited unless the auxiliary water system, the method of connection and the use of such system have been approved by the supplier of water AND by the Ohio EPA. Ohio EPA will consider approval under only three conditions: (1) to augment the quantity of water available from the public water system where the public water system is unable to supply the demand required by the premises; (2) where an uninterrupted supply is necessary to prevent a catastrophic event from occurring, and; (3) to provide a second source of fire protection to protect public safety.

The supplier of water has the authority to specify who is qualified to assess or test backflow preventers. Ohio EPA strongly recommends a qualified individual trained in backflow prevention, or a certified backflow prevention tester make these inspections in lieu of the customer. Ohio EPA indicates criteria to be used in assessing a qualified individual in Ohio EPA's backflow prevention manual, which is Ohio EPA's guidance document on best engineering practices for backflow prevention and cross connection control. The Ohio Department of Commerce (ODOC) is the state's licensing agency for backflow prevention device testers and Ohio EPA recommends that an ODOC certified tester provide for testing of containment assemblies under the public water system's jurisdiction. Individuals should meet the criteria for eligibility to take the certification exam which includes holding a minimum of a Class 1, Ohio EPA Water Treatment Operator, or Water Distribution System Operator, license and have five years' experience in water distribution, or as specified under the ODOC rules. The certified tester could both test the reduced pressure principle backflow preventer as well as document that no connection or means of connection

exist between the consumer's auxiliary water system and the premises supplied by the public water system.

Ohio EPA has made the following revision to OAC Rule 3745-95-04(C):

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

*(1) The supplier of water shall document, in writing, through an onsite inspection conducted or caused to be conducted by the supplier of water, every twelve months, that there is no connection or means of connection between the public water system or a consumer's water system and the auxiliary water system as prohibited by paragraph (B) of rule 3745-95-02 of the Administrative Code.*

**Comment 13:**

There needs to be a clarification that the water system supplier to the single property community water systems and the noncommunity water systems, may require the installation of an approved backflow preventer on the service connection supplying the single property community water system and the noncommunity water system. *(Jeff Swertfeger, Greater Cincinnati Water Works)*

**Response 13:**

See response 11.

**3745-95-04 (D):**

**Comment 14:**

"Our first suggested change relates to the current language of OAC 3745-95-04(A) and (D). Currently that section of the Ohio Administrative Code requires an approved backflow preventer on each service line to a consumer's water system "...where, in the judgment of the supplier of water or the director, a polluttional, system, health or severe health hazard to the public water system exists." Subsection (D) requires backflow preventers to be installed on each service line in the case of a connection to "Chemical plants," among other facilities. OCTC and its members fully support this requirement. However, we have recently discovered that municipalities are interpreting this requirement, and certain language in Ohio EPA's Backflow Prevention Manual, to require that the approved backflow preventer must be installed outside a chemical plant facility in instances where the water meter for the service line is located outdoors. We have confirmed with Ohio EPA personnel that this is not the case. Therefore, we suggest the addition of the following sentence to the language of OAC 3745-95-04(D):

"An approved backflow preventer may be installed within a facility listed below in instances where the water meter is located outside a facility, so long as the placement of the backflow preventer within a facility will not bypassed by any

internal water connection to a source of chemical contamination.”

We believe that the addition of this sentence will clarify the intent and current interpretation of this rule. In the alternative, Ohio EPA should consider defining the term "service line," as used in OAC 3745-95-04(D) so that it is clear that it is not necessary to install an approved backflow preventer at the service connection, but can be installed elsewhere on the service line to a consumer's water system. (*Ohio Chemical Technology Council, Christopher Schraff*)

**Response 14:**

The definition of “service connection” that applies is found in OAC Rule 3745-81-01. The intent is that the “containment principle backflow preventer” required by the supplier of water be installed prior to runs of plumbing within the premises or between areas or buildings supplied by the public water system, so that any actual or potential contaminants are contained to the premises on a property served by the public water system. The proposed rescinded definition of service connection in OAC Rule 3745-95-01 had the verbiage “typically installed at the meter”. This phrase has been removed for purposes of clarifying that the backflow prevention requirements apply to all types of public water systems. Two main criteria that are important include – the PWS maintains authority over the backflow preventer and the backflow preventer is located such that it ‘contains” any contamination to the property/premises being supplied by the public water system and cannot be bypassed (i.e., positioned such that future connections into the service line would not be feasible or possible prior to the backflow preventer).

**Comment 15:**

The proposed changes appear to broaden the scope of the OEPA’s rules, overlapping with the isolation backflow prevention device requirements of the Ohio Plumbing Code for protection of the water distribution system within a building. We suggest working with the BBS to develop a definition of “Service Connection” that helps to define jurisdictional boundaries between the Ohio Plumbing Code and the rules of the OEPA. Work with the BBS to ensure that our rules are coordinated to avoid overlap and duplicative regulation. (*Ohio Board of Building Standards, Debbie Ohler*)

**Response 15:**

When a PWS is a single property community water system or noncommunity water system, Ohio EPA has oversight of the distribution system which includes ensuring that backflow does not occur from water use practices and cross connections within the plumbing. Ohio EPA added a provision in OAC Rule 3745-95-06(F) that Ohio EPA may accept plumbing code compliant backflow preventers in lieu of backflow preventers required by OAC Rule 3745-95-05 (i.e., air gap, reduced pressure principle backflow preventer, and double check backflow preventer). Ohio EPA is not proposing to take over the jurisdiction of what plumbing code requires for plumbing applications but providing a means for Ohio EPA to offer an exemption from a typical containment backflow preventer required for a hazard associated with the water use application. Ohio EPA would instead accept the backflow

preventer recognized by the Ohio plumbing code. To this clarification, as Ohio EPA and BBS discussed during our joint October 28, 2021 meeting regarding Ohio EPA's backflow prevention rule changes, it would be helpful to come up with an agreed upon list of acceptable backflow prevention for building applications. Ohio EPA is in the process of developing this list.

**3745-95-05 Type of Protection required:**

**3745-95-05 (A)(1):**

**Comment 16:**

That section currently requires that: "An approved air gap separation shall be installed where a public water system may be contaminated with substances that could cause a severe health hazard." While air gap separation provides an additional protection against backflow of chemicals into a public water system, air gap separation systems also have disadvantages. As noted in USEPA's "Cross Connection Control Manual":

- (1) In a continuous piping system, each air gap requires the added expense of reservoirs and secondary pumping systems.
- (2) The air gap may be easily defeated in the event that the "2D" requirement was purposely or inadvertently compromised.
- (3) At an air gap, we expose the water to the surrounding air with its inherent bacteria, dust particles and other airborne pollutants or contaminants. In addition, the aspiration effect of the flowing water can drag down surrounding pollutants into the reservoir or holding tank.
- (4) Free chlorine can come out of the treated water as a result of the air gap and the resulting splash and churning effect as the water enters the holding tanks. This reduces the ability of the water to withstand bacteria contamination during long term storage.

USEPA's Cross-Connection Control Manual does not recommend the use of air gap separation in all situations where cross contamination might occur as the result of chemical usage. To the contrary, USEPA notes the availability of a variety of backflow prevention devices to address the potential of cross contamination from chemicals and other substances.

Chemical manufacturers often employ a range of backflow protections and warning systems within their facilities to prevent chemical tanks and containers from overflowing and backing up into a public water supply connection.

If, as we understand, air separation gaps are currently required as an additional layer of protection to the public water supply, we would request that you consider allowing equivalent, additional protections to public water supply as an alternative to the current requirement for air separation gaps. Therefore, we would propose the following language be added to OAC 3745-95-05(A)(1):

"In lieu of air gap separation, a facility may employ alternative systems which prevent the backflow of substances into a public water supply, so long as the facility employs at least two prevention systems which have been demonstrated to prevent

backflows and at least one such system contains alarms or automatic shutoff devices to prevent any tank or container from reaching the level of the internal water connection.”

The language we propose would require that, if an alternative protection is employed in lieu of air gap separation, an additional protective system would be required in place of air gap separation, which we believe would afford alternative protection in lieu of an air gap separation requirement. We believe that the addition of this sentence will afford chemical facilities the flexibility to design and install backflow prevention systems which achieve equivalent or greater protection to that afforded by an air gap separation requirement and will help to avoid expensive retrofits of air gap separation in instances where alternative protections already exist. (*Ohio Chemical Technology Council, Christopher Schraff*)

**Response 16:**

Ohio EPA does not permit exemptions to the air gap application when an actual or potential cross connection represents a severe health hazard to the public water supply. An air gap must be used to mitigate the water use practice to prevent the contaminants representing a severe health hazard from contaminating the public water supply. Properly designed and installed air gap separations provide the maximum degree of protection against backflow, for both protecting the consumer’s water supply as well as the public water system, without the use of mechanical or electrical devices that can fail.

**Comment 17:**

Finally, chemical facilities which have connections to a public water supply solely for fire suppression currently are being required to place reduced pressure principle backflow prevention assemblies on these fire system connections in light of the current wording of Ohio EPA's rules. But these fire suppression connections are used infrequently, and the threat of contamination originates principally from the use of fire suppressing foam during a fire event. Given that these fire connections are infrequently used, and present a lower, temporary risk of cross contamination, we would suggest that Ohio EPA's rules allow backflow prevention assemblies other than reduced pressure systems on fire hydrants and similar connections which are dedicated to fire suppression. We would like to work with Ohio EPA to develop language which would allow greater flexibility as to the type of backflow prevention valve which could be used on such systems. (*Ohio Chemical Technology Council, Christopher Schraff*)

**Response 17:**

When additives can be used within a fire suppression system that is supplied by a public water system, the application of a reduced pressure principle backflow preventer (RP) is appropriate. An RP is required on the public water supply line serving a fire protection system containing any additive or that can be connected to an auxiliary water supply, since both represent at least a health hazard, in accordance

with OAC Rule 3745-95-05. During an emergency, fire departments may tie into a facility's fire protection system to augment the public water supply with an auxiliary source or use fire-fighting foams to address the fire. Backpressure from these pumping systems can cause unwanted chemicals and unsanitary water to enter the consumer's water system as well as the public water system, or fluctuating water pressures caused by high water demand from fire-fighting efforts can create backsiphonage conditions which can draw contaminants into the water supply. The potential cross-connection that exists warrants the RP to prevent backflow from occurring.

**Comment 18:**

CRC respectfully requests that Ohio EPA revise OAC 3745-95-05 and or OAC 3745-95-06 to allow a regulated entity to implement an alternative to air gap separation by adopting one of two potential revisions:

Add the following language to 3745-95-05 (A)(1):

"In lieu of air gap separation, a facility may employ an alternate system which prevent the backflow of substances into a water supply, as long as the facility employs at least 2 prevention systems which have been demonstrated to prevent backflows and at least one such systems employs alarms or automatic shutoff devices to prevent any tank or container from reaching the level of internal water connection" (Capital Resin Corporation, James Bull)

**Response 18:**

See response 16.

**3745-95-05 (D):**

**Comment 19:**

If an irrigation system is connected to the consumer's water system, this situation is already covered in the Ohio Plumbing Code as a required isolation principle backflow prevention device. We suggest working with the BBS to ensure that our rules are coordinated to avoid overlap and duplicative regulation. (*Ohio Board of Building Standards, Debbie Ohler*)

**Response 19:**

This section of the rule allows an exemption to the required containment principle backflow preventer for a potential health hazard listed in OAC Rule 3745-95-05(B) if a testable, pressure vacuum breaker (PVB) is installed on the service line to the residential, water-only, irrigation system. Ohio EPA is not prohibiting the plumbing code from dictating the appropriate device. However, if a customer of a public water system does not have a testable PVB installed on the service line to the irrigation system, or a reduced pressure principle backflow preventer on the service line to the consumer's water system, per OAC Rule 3745-95-05, one would have to be installed. This section of the rule is not a new proposal, but an existing rule provision. This provision was discussed with external stakeholder groups in a previous revision of this rule and found to be beneficial in reducing the burden on the customer and public

water system to accept a PVB in lieu of a reduced pressure principle backflow preventer on the service line, while still protecting the public water supply.

**3745-95-06 Backflow Preventers:**

**3745-95-06 (A)(1):**

**Comment 20:**

CRC respectfully requests that Ohio EPA revise OAC 3745-95-05 and or OAC 3745-95-06 to allow a regulated entity to implement an alternative to air gap separation by adopting one of two potential revisions:

Clarify the proposed amendment to insert OAC 3745-95-06 (A)(1)(c) would allow use of a backflow preventer device or assembly as an alternative to air gap on a case-by-case basis:

(c): “on a case-by-case basis, the director may accept an alternative configuration to meet the physical separation requirement of the air gap standard, including a reduced pressure backflow prevention device, if the alternative configuration is protective of human health and acceptable to the supplier of water” (Capital Resin Corporation, James Bull)

**Response 20:**

See response 16. Also, the alternative configuration that is mentioned in OAC 3745-95-06(A)(1)(c) is not to eliminate any air break between the discharge point and the flood level rim of a receiving receptacle, but to allow a modification that may not strictly follow the standard’s definition of an air gap, as referenced in OAC Rule 3745-95-01.

If an air gap is used as an isolation backflow preventer (installed at the fixture), the supplier of water *may* consider it as mitigating the risk and *may* lessen the degree of protection required on the service line to the consumer’s water system for containment principle backflow prevention. Ohio EPA’s backflow prevention manual does address this scenario. The context described is regarding water primed sewage pumps at wastewater treatment plants. However, other factors may be present that still warrant an air gap. The supplier of water has the authority to determine the appropriate containment principle backflow preventer that is necessary to protect their public water system.

**3745-95-06 (C)(6):**

**Comment 21:**

An annual statement from the consumer should be sufficient documentation and a requirement for annual inspection and documentation by the supplier of water is not necessary. The inspection should only be required if the customer fails to provide verification through a statement. (*Jeff Swertfeger, Greater Cincinnati Water Works*)

**Response 21:** See Response 12.

**3745-95-06(F):**

**Comment 22:** The Ohio Plumbing Code addresses isolation principle backflow prevention requirements. If these devices could be considered sufficient protection for some single property community water systems and noncommunity water systems, why wouldn't all public water systems have this option? (*Ohio Board of Building Standards, Debbie Ohler*)

**Response 22:** The size of community water systems varies from a very small public water system such as a nursing home to large municipalities serving thousands of people. Certain isolation devices may be appropriate for limited applications but are not able to be universally applied. Ohio EPA recognizes that certain plumbing applications have specifically designed backflow prevention devices to mitigate the hazard posed by the water use practice (e.g., ice machine, beverage dispenser, soap dispenser, medical devices, threaded hose bib). These types of backflow prevention devices are not appropriate for other applications or have limitations that impact how they could be used on a service line to a consumer's water system versus a single fixture. Also, if OEPA recognized that the end use is an actual or potential severe health hazard or if an auxiliary water system is involved, the backflow preventer applied must be in accordance with those listed in OAC Rule 3745-95-05.

There is a distinct difference between a municipal public water system serving private water customers, where the PWS has no authority within the building as to water use practices versus a PWS that is both the supplier of water and consumer having authority over the water use practices within the building. A public water system serving a political subdivision (such as a city or village), will require a backflow preventer listed in OAC Rule 3745-95-05, as these backflow preventers are universally accepted for the degree of hazard that are or may be present due to water use practices for a facility; the protection offered is against both backpressure and backsiphonage; and the backflow preventers are testable to ensure they are operating properly.

**3745-95-07: Booster Pumps**

**3745-95-07(A):**

**Comment 23:** Removing the "water service" qualifier removes clarity. What type of connection are you trying to address (water, sanitary, electric, etc.)? (*Ohio Board of Building Standards, Debbie Ohler*)

**Response 23:**

OAC Chapter 3745-95 applies to public water systems. The connection is to a public water system. Ohio EPA made the following edits to OAC Rule 3745-95-07(A) to provide clarification:

*(A) No person shall install or maintain a cross connection to any premises where a booster pump has been installed, unless an approved method is in place and is operational to maintain a minimum suction pressure as prescribed in the following:*

- (1) For booster pumps not intended to be used for fire suppression, no person shall install or maintain a cross connection to any premises where a booster pump has been installed on the service line to or within such premises, unless such booster pump is equipped with a low pressure cut-off designed to shut-off the booster pump when the pressure in the service line on the suction side of the pump drops to ten pounds per square inch gauge or less.*
- (2) For booster pumps used for fire suppression, also referred to as fire pumps, no person shall install or maintain a cross connection to any premises where a fire pump has been installed on the service line to or within such premises, unless the pump is equipped with one of the following:*

**3745-95-09: Requirements of Yard Hydrants**

**3745-95-09 (A)(2):**

**Comment 24:**

Retroactively requiring yard hydrant weep holes to be sealed will likely introduce freezing issues. The OEPA suggested solutions (heat trace, insulation, or replacement) are expensive options and possibly ineffective (insulation doesn't stop freezing-it just delays it). *(Ohio Board of Building Standards, Debbie Ohler)*

**Response 24:**

Yard hydrants that are used to provide potable water to consumers must remain safe for human consumption. Weep holes present a pathway for contaminants to enter the potable water supply. Therefore, yard hydrants with weep holes must not be installed to deliver water for human consumption. If freeze prevention is necessary, other sanitary alternatives are available. Ohio EPA is offering a list of options to address freezing issues while maintaining the sanitary quality of the water. The public water system will have to choose the option that is best for their application. For existing non-compliant yard hydrants, OEPA and the PWS will enter into an agreement regarding a corrective action schedule for the PWS to attain compliance.

**3745-95-09(C):**

**Comment 25:**

This seems confusing. Paragraph (A) seems to prohibit weep holes. Paragraph (B) allows weep holes and requires the reduced pressure principle BFP. Paragraph (C) allows weep holes as long as the consumer's water system is protected by a reduced pressure principle BFP. Is this an exception to paragraph (A)? The situation that you describe in paragraph (C) may be covered by the Ohio Plumbing Code as an isolation principle backflow prevention device. *(Ohio Board of Building Standards, Debbie Ohler)*

**Response 25:**

The distinction between the three paragraphs is based on three factors: If the yard hydrant is for potable use or nonpotable use; if the yard hydrant has weep holes or is a sanitary yard hydrant; and if the hydrant is installed within a public water system or on a consumer's water system that is supplied by a public water system. Paragraphs (A), (B) and (C) each address different combinations of these variables. A potable use hydrant is not permitted to have weep holes if within a public water system. A nonpotable use yard hydrant can have weep holes, but then the hazard must be mitigated with the use of a reduced pressure principle backflow preventer, if within a public water system. A public water system supplying a private customer's water system that is equipped with a yard hydrant with weep holes, will recognize this hazard and will require a containment principle backflow preventer.

Regarding OAC Rule 3745-95-09 paragraph (C) *"For yard hydrants with weep holes installed on a consumer's water system, the public water system shall be protected by a reduced pressure principle backflow preventer."*, in OAC Rule 3745-95-01, OEPA defines consumer water system as: *"Consumer's water system" means any water system, located on the consumer's premises, supplied by or in any manner connected to a public water system. A household plumbing system is considered to be a consumer's water system.*" By referencing this definition, this paragraph's application is clarified.

Regarding your final comment on if the backflow preventer is covered as an "isolation device by plumbing code":

If the plumbing code requires a reduced pressure principle backflow preventer on the service line to the yard hydrant, the public water system may consider this backflow preventer as mitigating the hazard associated with a yard hydrant with weep holes installed on a consumer's premises. OEPA would suggest BBS work with us to consistently apply the requirement for installation of a reduced pressure principle backflow preventer on a service line to a yard hydrant with weep holes to protect both the public water system and the consumer from the sanitary risk and also require sanitary yard hydrants when for human consumption.

**Comment 26:**

What brought on the rule change for 3745-95-09 (C)? What recorded issues have been linked to consumer's water systems that constitute a need for this change? (Kelly Porter, Belmont County Water)

**Response 26:**

OAC Rule 3745-95-09(C) requirements regarding consumer's water systems have not changed. The rule was reorganized in attempt to clarify the requirements for a yard hydrant that is located on or within a public water system and when within a private consumer's water system that is connected to a public water system. A yard hydrant with weep holes is recognized as an actual or potential health hazard, therefore the appropriate backflow preventer is a reduced pressure principle backflow preventer.

**End of Response to Comments**