



Cross Connection Control Program

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RAMSEY WATER COMPANY CROSS CONNECTION CONTROL PROGRAM

SECTION I – OVERVIEW

Ramsey Water Company has the responsibility to implement and conduct a cross-connection control program. Legal authority to conduct the program is based upon the requirements of the Indiana Department of Environmental Management, which establishes the guidelines for the protection of the public water supply from potential potable water contamination due to backflow. This Cross Connection Control Program is ongoing in nature and was devised and implemented with the security of the potable water supply and the health of our customers in mind. The relevant State and Local regulations can be found in Appendix C.

1.1 Purpose

The purpose of these operating policies is to:

- A. Protect the public potable water supply served by Ramsey Water Company from the possibility of contamination or pollution by containing within the customer's internal distribution system or the customer's private water system, such contaminants or pollutants that could backflow or back siphon into the public water system.
- B. Promote the elimination or control of cross connections, actual or potential, between the customer's internal plumbing and the public water supply.
- C. Provide a continuing cross connection control program that will systematically and effectively prevent the contamination or pollution of the public potable water supply.
- D. Ensure compliance with relevant Federal, State, and Local regulations regarding cross connection control.

It is prohibited for any person, firm, or corporation at any time to make or maintain or cause to be made or maintained, temporarily or permanently, for any period of time, any cross connection between plumbing pipes or water fixtures being served with water by Ramsey Water and any other source of water supply. It is also unlawful to maintain any sanitary fixture or other appurtenances or fixtures, which by reason of their construction may cause or allow backflow of water or other substances into the water supply system and/or the service of water pipes or fixtures of any consumer of Ramsey Water.

1.2 Authority

Upon presentation of credentials, a representative of the Ramsey Water Company shall have the right to request entry at any reasonable time to examine any property served by a connection to the public water system of Ramsey Water, for cross connections. On request, the owner, lessee, or occupant of any property so served shall furnish to the inspection agency any pertinent information regarding the piping system or systems of such property and the use or storage of any chemical or biological materials that could pose a risk to the public if introduced into the public water supply. The refusal of access or refusal of requested pertinent information shall be deemed evidence of the presence of cross connections.

1.3 Causes of Backflow

There are two forms of backflow: backsiphonage and backpressure. Backflow cannot be totally eliminated, as it is normally caused by accident or unexpected circumstances. However, most causes of backflow can be controlled by good design, proper protection and professional maintenance. Below are examples of the two causes of backflow.

1.3.1 Backsiphonage - Backsiphonage is the result of reduced or negative pressure in the water supply pipe. The principal causes of backsiphonage are:

- 1) Water line repair or break, which is at a lower elevation, creates a negative pressure when water in the line flows to the lower point in the system.
- 2) Undersized piping. When water is withdrawn from a pipe at a very high velocity, the pressure in the pipe is reduced. The pressure differential can cause contaminated water to flow into the pipe through a siphoning effect.
- 3) Reduced pressure in public water system infrastructure due to high water withdrawal rates such as fire flow, water main flushing, mainline water system breaks, or peak system use for turf irrigation (by nature, a seasonal event).

1.3.2 Backpressure - Back Pressure may occur where a potable water system is cross connected to a non-potable system of piping, and the pressure in the non-potable system exceeds that of the potable system. The principal causes of back pressure are:

- 1) Booster pump system designed to recirculate water without backflow prevention devices.
- 2) Potable water connections to boilers and other pressure systems without backflow prevention devices.
- 3) Connections with another system that may, at times, have higher pressure.
- 4) Water stored in tanks or plumbing systems, which due to their higher elevations, would create sufficient pressure to cause backflow if pressure were lowered in the public water system.
- 5) Incorrect new construction, or existing system refit, that unintentionally creates a potential cross connection scenario.

SECTION II – DEFINITIONS

Airgap Separation (AG): The term “airgap separation” means a physical break between a supply pipe and a receiving vessel. The airgap shall be at least double the diameter of the supply pipe measured vertically above the flood rim of the receiving vessel, in no case less than one inch, or a maximum of six (6) inches.

Approved Backflow Prevention Assembly (Device): The term “approved backflow prevention assembly” means a Reduced Pressure Principle Backflow Prevention Assembly, Double Check Valve Assembly, Pressure Vacuum Breaker or Atmospheric Vacuum Breaker that is testable and is approved by one of the following: the Research Foundation for Cross Connection Control of the University of Southern California (USC) or those acceptable under the Indiana Plumbing Code pursuant to the fire prevention and building safety commission rule 675 IAC 16-1.2.

ASSE: American Society of Safety Engineers

Auxiliary Supply: The term “auxiliary supply” means any water supply on or available to the premises other than the approved public water supply.

Backflow: The term “backflow” shall mean the undesirable reversal of the normal flow of water or mixtures of water and other liquids, gases, or other substances into the distribution system of the public water supply due to backpressure and/or backsiphonage.

Backpressure: Any elevation of pressure in the downstream piping system (by pump, elevation of piping, or steam and/or fluid pressure) above the supply pressure at the point of consideration which may cause or tend to cause, reversal of the normal flow.

Backsiphonage: Backflow resulting from a negative or reduced pressure in the water distribution supply.

Containment: The term “containment” means that protection of the public water system is maintained by the application of a proper backflow prevention assembly on the line feeding the building so that any contamination is contained within the premises and does not enter the pipelines of a public water system. The approved backflow assembly must be installed after the water service meter and before any branching in the customer’s water line.

Contamination: The term “contamination” means an impairment of the quality of potable water by sewage, industrial fluid, waste liquids, compounds or other materials to a degree which creates an actual or potential hazard to the public health.

Cross-Connection: The term “cross-connection” means any physical arrangement or potential arrangement, including cross connection control devices not in working order, whereby a public water supply distribution system is directly connected, continuously or intermittently, with any secondary source of supply, sewer, drain, conduit, pool, piping, storage reservoir, plumbing fixture, or other device which contains, or may contain, and is capable of imparting to the public water supply, contaminants, contaminated water, sewage, or other waste or fluid of unknown or unsafe quality. Bypass arrangements, jumper connections, removable sections, swivel or changeover assemblies, or other assemblies through which backflow could occur, shall be considered cross-connections. The term “direct cross-connection” shall mean a cross-connection that is subject to backpressure and backsiphonage, and indirect cross connections cannot be subject to backpressure, but only backsiphonage (i.e. a hose submerged in a tank).

Cross-Connection Hazard: The term “cross-connection hazard” means any customer facility which, because of the nature and extent of activities on the premises or the material used in connection with the activities or stored on the premises, would present an immediate or potential danger or health hazard to customers of the public water supply should backflow occur.

CSA: The Canadian Standards Association.

Double Check Valve Assembly: The term “double check valve assembly” means an assembly composed of two independently acting, resilient seat check valves located between two tightly closing shutoff valves together with suitable test cocks to test the tightness of the two main valves. This assembly shall only be used to protect against a non-health hazard (a pollutant). These devices are approved as an assembly. Any modification of the assembly must be approved by the certification authority.

Hazard, Degree of: The term “degree of hazard” is a qualification of what potential and actual harm may result from cross-connections within a water using facility. Cross-connections can be categorized as either a pollutant (non-health or low hazard) hazard or a contaminant (health or high hazard) hazard and is directly related to the type and toxicity of fluids that could feasibly enter the public water supply and is determined by the applicable state regulations and the Ramsey Water Company.

Hazardous Substance: The term “hazardous substance” shall mean a contaminant (i.e. cause illness or death) to the public water supply.

Internal Protection: The term “internal protection” means the appropriate type or method of backflow prevention within the consumer’s potable water system at the point of use, commensurate with the degree of hazard.

Land Irrigation Facility: Refers to land irrigation systems buried below ground with either stationary or retractable sprinkler outlets.

Non-residential customers: Refers to all customers except for residential customers.

Pollution: The term “pollution” means an impairment of the quality of the water to a degree that does not create a hazard to the public health but does adversely and unreasonably affect the aesthetic qualities of such waters for domestic use.

Premises: The term “premises” means any and all areas on a water user’s property which are served or have the potential to be served by the public water system.

Pressure Vacuum Breaker: The term “Pressure Vacuum Breaker” means an assembly consisting of an internally loaded check valve and an internally loaded air inlet valve. The valves are independently acting with the air inlet valve downstream of the check valve. Shut-off valves and test cocks are located at each end of the assembly. This device is approved as an assembly. Any modification of the assembly must be approved by the certification authority.

Primacy Agency: The term “Primacy Agency” shall mean the State Agency(ies) having authority or jurisdiction over cross connection control.

Public Water Supply or System: The term “public water supply or system” shall mean the water system operated as a public utility under applicable local authority to supply water for domestic purposes. For the purposes of this document, the phrase shall refer to Ramsey Water Company.

Qualified Backflow Assembly Installer: The installer must be a plumber licensed by the applicable State and/or Municipality, a plumber working under the direct supervision of a licensed plumber, or a certified backflow prevention inspector/tester who meets all applicable Local and State requirements to install backflow assemblies. The licensed plumber shall be knowledgeable of installing a backflow device in accordance with IDEM rule 327, IAC 8-1(7).

Qualified Backflow Assembly Inspector Tester: The inspector/tester must be certified in the State of Indiana as a backflow prevention inspector/tester.

USC: The University of Southern California, specifically the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California.

Residential Customer: Refers to an individual single-family home used solely for residential purposes.

Reduced Pressure Principle Backflow Prevention Assembly (RP): The term “reduced pressure principle backflow prevention assembly” means an assembly consisting of an automatic differential-pressure valve located between two or more independently acting, spring-loaded resilient seat-check valves. These check valves are in turn, located between two tightly closing shut-off valves. Four test cocks are suitable located for testing the tightness of the main check valves. These devices are approved as an assembly. Any modification of the assembly must be approved by the certification authority.

Service Connection: The term “service connection” refers to the point of connection of a user’s piping to the public water supply.

Water Customer: The term “water customer”, or “customer”, means any person obtaining water from a public water supply system owned or operated by the Ramsey Water Company.

SECTION III – RESPONSIBILITY

3.1 RAMSEY WATER COMPANY

Ramsey Water Company has a responsibility to provide safe drinking water to all customers. This responsibility begins at the source of supply and ends at the point of delivery to the customer's water system. Ramsey Water has no responsibility over water systems on private property and takes no legal responsibility for their safe operation. Ramsey Water Company has established this Cross Connection Control Program to protect the public water supply within these boundaries and to be consistent with the Indiana Department of Environmental Management (IDEM) and the **Indiana Department of Health (IDOH)** guidelines as well as the needs of its customers. This program is carried out in accordance with the IDEM regulations 327 IAC 8-10 and **IDOH** regulations 170 IAC 6 and, is a continuing program. The responsibilities of the Ramsey Water Company, in accordance with these regulations are as follows:

The Ramsey Water Company has established and operates the Cross Connection Control Program to:

- 1) Protect the Ramsey Water Company's potable water distribution system from contamination or pollution due to the backflow of contaminants or pollutants through a water service connection.
- 2) Eliminate or control cross connections between the customers' potable and non-potable water system(s), plumbing fixtures, piping systems or any other type of connections in which pollutants or contaminants may enter the public water supply.
- 3) Provide for the maintenance of a continuing program of cross connection control which systematically and effectively prevents contamination or pollution of the Ramsey Water potable water system.
- 4) Manage a list of all cross-connection control devices within their distribution system and retain the last three (3) test reports for each device.

3.2 Customer

The customer's responsibility for cross connection control and backflow prevention begins at the water meter, where water is delivered from the public water system into the customer's water plumbing system. The customer has the primary responsibility of preventing pollutants and contaminants from entering their potable water system or the Ramsey Water distribution system. The customer, **at their own expense**, shall install, operate, test, and maintain approved backflow assemblies as directed by Ramsey Water. Customers shall maintain accurate records of annual tests and repairs of backflow prevention devices and shall make available, at request by Ramsey Water, copies of these records. All reduced pressure principle backflow preventers (RP), double check valve assemblies (DCVA), pressure vacuum breakers (PVB), atmospheric vacuum breakers (AVB), and air gaps shall be tested immediately after installation, repair or replacement and annually thereafter, beginning one year from the date of installation by a State of Indiana certified backflow prevention device technician.

In the event of accidental pollution or contamination of the Ramsey Water potable water system, due to backflow on or from the customer's premises, the owner shall promptly take steps to confine further spread of pollution or contamination within their premises. They will immediately notify Ramsey Water or 911 of the hazardous condition.

3.3 State and Federal Agencies

The Environmental Protection Agency (EPA), Indiana Department of Environmental Management (IDEM) and Indiana State Department of Health (ISDH) establish the guidelines and regulations to ensure that all public water supplies are safe and provide an adequate drinking supply. Included in these regulations are the requirements and responsibilities of public water suppliers and its customers in protecting the public water supply from contamination due to backflow. The ISDH and IDEM are also responsible for approving the Cross Connection/Backflow Prevention Program, providing technical assistance, clarification of regulations, and assisting with enforcement.

3.4 Backflow Prevention Device Installer and Tester

3.4.1 Backflow Prevention Device Installer

The installer's responsibility is to properly install the approved backflow prevention devices in accordance with the manufacturer's installation instructions, the Uniform Statewide Building Code, IDEM regulation 327 IAC 8-10-7 and any additional instructions offered by Ramsey Water. Approved backflow prevention devices and assemblies are those that meet the requirements 327 IAC 8-10 and are approved by the American Society of Safety Engineers (ASSE), the Canadian Standards Association (CSA) or the USC-FCCC (University of Southern California Foundation for Cross Connection Control and Hydraulic Research). Flow orientation, access, and installation of backflow preventers shall be provided in accordance with USC-FCCC guidelines, 327 IAC 8-10-7 and as specified by the installation instructions of the approved manufacturer.

Thermal expansion and/or water hammer downstream of the assembly can cause excessive pressure. To avoid possible damage to the system and assembly, the installer will use water hammer arresters, surge protectors, relief valves and expansion tanks as appropriate. Backflow prevention assemblies must not be installed in locations subject to flooding or freezing.

3.4.2 Backflow Prevention Device Tester

A backflow prevention device tester is a person who has successfully completed training in the testing and inspection of cross connection control devices from an IDEM-approved training provider and is registered as such with the Indiana Professional Licensing Agency. The tester is responsible for the following:

- 1) Testing the devices in accordance with the procedures outlines in Section 9 of the USC "Manual of Cross-Connection Control, Tenth Edition" or the latest edition incorporated by reference into the 327 IAC 8-10 regulation.
- 2) Having the test gauge inspected and calibrated annually in accordance with the procedures outlined in Section 10 of USC's "Manual of Cross Connection Control".
- 3) Placing an inspection tag on each backflow device after each test. The tag must be water-proof and tamper-proof and include the name of the inspector, date of inspection, and the registration number, model number, serial number and size of the backflow device.
- 4) Submitting a device test report and an electronic picture of the device and tag to Ramsey Water within 30 days of inspection. If the assembly fails, Ramsey Water shall be notified within 48 hours. Test reports shall be submitted electronically.

- 5) Ensuring the backflow assembly was installed in the approved orientation and in accordance with 327 IAC 8-10-7. If the assembly was not installed properly or was modified in an unapproved manner, the device must be recorded as a failed test with the deficiencies noted on the test form.

All testers performing backflow assembly testing for new installations, annual testing of existing assemblies, or repaired assembly testing, shall furnish the test results and pictures electronically to Ramsey Water at backflow@ramseywater.com

All reduced pressure principle backflow preventers (RP), double check valve assemblies (DCVA), pressure vacuum breakers (PVB), atmospheric vacuum breakers (AVB), and air gaps shall be tested immediately after installation, repair or replacement and annually thereafter, beginning one year from the date of installation by a State of Indiana certified backflow prevention device technician.

SECTION IV – BACKFLOW PROTECTION REQUIREMENTS

4.1 General Provisions

- 1) Unprotected cross-connections with the public water supply are prohibited. Piping installed to bypass a cross-connection control device constitutes a cross connection unless the bypass piping is also fitted with a similar cross connection control device.
- 2) Customer's plumbing or facility meeting the definition of a cross-connection or cross-connection hazard shall have an approved backflow protection assembly installed in a location that will prevent contaminants or pollutants from the customer's premises from entering the public drinking water supply.
- 3) This program is designed for the protection of the public water supply distribution system and requires the water customer to install, at the customer's expense, an approved backflow prevention assembly of type and location as approved by Ramsey Water. When backflow protection is deemed necessary for the protection of the public water supply, the installation of the backflow assembly will be required as a condition for continued service for existing customers and before a new service will be granted. The installation of all backflow prevention assemblies required by this program must be performed by a Qualified Backflow Assembly Installer.
- 4) Ramsey Water Company will require backflow protection on residential customers when the following conditions exist:
 - a. The premise has an auxiliary water supply;
 - b. The premise has an underground sprinkler or irrigation system;
 - c. The premise has a private fire protection system that contains antifreeze, fire retardant or other chemicals and/or has a connection whereby water can be pumped into the system from any other source;
 - d. The premise, upon inspection by a Ramsey Water representative and/or an IDEM representative, is found to have cross-connections that pose a risk to the safety of the public water supply;
 - e. The premise has a reported history of cross-connections being established or re-established.
- 5) Wherever backflow protection is determined to be required on a water supply line entering a water customer's premises, all such water supply lines from Ramsey Water Company's mains entering such premises, shall be protected by an approved backflow prevention assembly.
- 6) Temporary connections to the public water supply are prohibited unless authorized by Ramsey Water in writing. If a temporary connection is permitted the proper metering and backflow prevention assembly, as approved by Ramsey Water, will be required.

4.2 Cross Connection Hazard Facilities

Customer facilities that meet the definition of a cross-connection hazard must install an air gap or reduced pressure principle backflow preventer (RP) on each water service connection to the Ramsey Water supply. The device shall be installed after the meter and before any branching into the customer's plumbing. Listed below are facilities that are defined to be cross connection hazards. This is not an inclusive list as Ramsey Water has the right to designate additional customers as cross-connection hazards after inspection of said facility.

HAZARD FACILITIES

- 1) Aircraft and missile manufacturing plants.
- 2) Automotive plants, including those plants that manufacture motorcycles, automobiles, trucks, recreational vehicles, and construction and agricultural equipment.
- 3) Beverage bottling plants, including dairies and breweries.
- 4) Canneries, packing houses, and reduction plants.
- 5) Car washes.
- 6) Chemical, biological, and radiological laboratories, including those in high schools, trade schools, colleges, universities, and research institutions.
- 7) Hospitals, clinics, medical buildings, autopsy facilities, morgues, dental, other medical facilities, and mortuaries.
- 8) Metal and plastic manufacturing, fabricating, cleaning, plating, and processing facilities.
- 9) Plants manufacturing paper and paper products.
- 10) Plants manufacturing, refining, compounding, or processing fertilizer, film, herbicides, natural or synthetic rubber, pesticides, petroleum or petroleum products, pharmaceuticals, radiological materials, or any chemical that could be a contaminant to the public water supply.
- 11) Commercial facilities that use herbicides, pesticides, fertilizers, or any chemical that could be a contaminant to the public water supply.
- 12) Plants processing, blending, or refining animal, vegetable, or mineral oils.
- 13) Commercial laundries and dye works, excluding coin-operated laundromats.
- 14) Sewage, storm water, and industrial waste treatment plants and pumping stations.
- 15) Waterfront facilities, including piers, docks, marinas, and shipyards.
- 16) Industrial facilities that recycle water.
- 17) Restricted or classified facilities (federal government defense or military installations), or other facilities closed to or restrict access to Ramsey Water.
- 18) Customers who have a cross connection that has resulted in a contaminant being introduced into the public water supply.

4.3 Commercial Fire Sprinkler Systems

Fire protection systems, because of their varying degree of hazard, must be separated from the potable water supply by a backflow prevention device. Ramsey Water shall be the approving authority for the type and location of the backflow device. Some hazards relating to fire systems are:

- 1) The growth of offensive microorganisms that can cause taste and odor problems.
- 2) The leaching of heavy metals from pipes and fittings such as zinc, cadmium, iron, or lead into water that stands in pipelines for long periods of time.
- 3) The additions of corrosion inhibitors or antifreeze compounds to protect the piping systems.
- 4) Dry systems containing compressed air.
- 5) A loss of pressure (backsiphonage) on the public water supply main or an increase in pressure (backpressure) on the consumer's system which would allow water from these systems to enter the public water supply.

If a backflow event occurs from these systems, the hazard could vary from a non-health to a high health hazard.

BACKFLOW PROTECTION REQUIRED FOR FIRE SPRINKLER SYSTEMS

Customers with fire sprinkler systems that do not use chemical additives shall install **either** a double check valve assembly (DCVA) **with an equally sized Fire-Rated Flow Meter, or a double detector check valve assembly (DDCVA)** to prevent any stagnant water from backflowing into the public water supply distribution system. Customers with fire sprinkler systems that do use chemical additives must install a reduced pressure principle backflow preventer (RP) to prevent any chemical additive from backflowing into the public water supply distribution system. Fire sprinkler systems with an auxiliary connection must also be properly protected with an RP. The device must be installed in a location that isolates the fire protection system from the public water supply and as close as possible to the connection with the supply.

Note: Existing fire suppression systems being retrofitted with a DCVA or RP assembly will generally reduce the available fire flow and pressure. Customers must consult a fire protection engineer to ensure that a complete and thorough engineering analysis and hydraulic recalculation is performed to ensure proper system performance prior to the installation, exchange and/or replacement of any fire sprinkler or fire suppression system backflow device. Any retrofitted fire sprinkler or fire suppression system will require recertification to verify adequate capacity and/or code compliance.

4.4 Irrigation Systems

Irrigation systems include but are not limited to agricultural, residential, and commercial applications. The ISDH and IDEM classify lawn sprinkler systems and irrigation systems as a high hazard for several reasons. Sprinklers, bubbler outlets, emitters, and other equipment are exposed to substances such as fertilizers, fecal material from pets or other animals, pesticides, and other chemical and biological contaminants. Sprinklers may remain submerged under water after use or storms and can also have various design and operational configurations. They may be subject to various onsite conditions such as additional water supplies, chemical injection, booster pumps, and elevation changes. All these conditions must be considered when determining backflow protection. Some hazards relating to irrigation systems are:

- 1) Fertilizers: Ammonia salts, ammonia gas, phosphates, potassium salts.
- 2) Herbicides: 2,4-D, dinitrophenol, 2,4,5-T, T-pentachlorophenol, sodium chlorate, borax, sodium arsenate, methyl bromide.
- 3) Pesticides: TDE, BHC, lindane, TEPP, parathion, malathion, nicotine, MH, and others.
- 4) Fecal matter: Animal (domesticated and non-domesticated).

TYPE OF PROTECTION REQUIRED – IRRIGATION SYSTEMS

For those irrigation systems connected to the Ramsey water supply, the appropriate protection is a reduced pressure principle backflow preventer (RP) or pressure vacuum breaker (PVB). Atmospheric Vacuum Breakers (AVB) are not considered adequate protection for irrigation systems. The appropriate device must be installed in a location that isolates the irrigation system from the Ramsey Water supply.

4.5 Booster Pump Connections

Booster pumps used in customer facilities to increase the water pressure or recirculate water through the internal plumbing system can create a backsiphonage and/or back pressure event in the public water supply distribution system. Booster pumps pull water into the suction side of the pump and can cause the public supply pressure to drop below the minimum pressure at which Ramsey Water is required to maintain per the IDEM regulations. When the distribution pressure drops below this minimum pressure, unprotected cross

connections can allow contaminants to backflow into the drinking water supply. Booster pumps that are used to recirculate water through a customer's plumbing may create pressures that exceed the Ramsey supply pressure. When the pressure on the customer's system exceeds that of the supply pressure, contaminants can enter the public water supply through backpressure.

TYPE OF PROTECTION REQUIRED – BOOSTER PUMPS

4.5.1 Fire Suppression Booster Pumps:

Whenever a fire suppression system in a customer's facility has a booster pump installed only for fire suppression, it shall have an audible alarm or visual alarm to provide warning when flow occurs. Additionally, each booster pump used solely for fire suppression shall have a control valve installed on the pump discharge to automatically throttle the flows as necessary to maintain a minimum suction pressure of ten (10) psi gauge pressure. Customers with fire suppression booster pumps that are in lower pressure zones may be required to maintain a suction pressure greater than 10 psi. Customers within the lower pressure zones will be notified in writing by Ramsey and a minimum suction pressure will be provided at that time.

These suction pressures for fire suppression booster pumps are less than the minimum pressure Ramsey Water is required to maintain under all normal flow situations; therefore, the pressures listed above shall only apply to situations in which the fire suppression pump is in use for an emergency event. For the safety of all customers, customers shall notify Ramsey when the pump suction pressure drops below 20 psi gauge, or the minimum normal operating pressure for that pressure zone. If the booster pump is in use for a non-emergency, the protection requirements under 4.5.3 All Other Booster Pumps shall apply.

4.5.2 Recirculating Booster Pumps:

Whenever a booster pump is used to recirculate water throughout a customer's plumbing system, a reduced pressure principle backflow preventer (RP) or double check valve assembly (DCVA) shall be installed on the customer service line, after the meter and before any connections to the recirculating system. Should the pressure within the circulating system exceed that of the Ramsey Water supply, the RP or DCVA will prevent any backpressure of contaminants or pollutants into public water supply. The DCVA assembly can only be installed at facilities deemed as a low health hazard. All other customers shall be required to install an RP. The protection requirements under 4.5.3 All Other Booster Pumps also apply to the Recirculating Booster Pumps.

4.5.3 All Other Booster Pumps:

All other booster pumps connected to the Ramsey drinking water supply shall have a control device installed to prevent operation of the booster pump, or else to automatically throttle flow to or from the booster pump as necessary to maintain a minimum of twenty (20) psi gauge pressure on the supply side of the pump. Customers with booster pumps located in lower pressure zones may be required to maintain a suction pressure greater than 20 psi. Customers within the lower pressure zones will be notified in writing by Ramsey Water and a minimum suction pressure will be provided at that time.

4.6 Water Filling Stations

Water filling stations are provided throughout the Ramsey Water distribution system for customer convenience. When the hose attached to a water filling station is submerged below the fill line of a tank, a cross-connection is created that is subject to backsiphonage. Any and all contaminants in the tank, including water that does not meet the state and federal drinking water requirements, can siphon into the drinking water supply if not

properly protected.

TYPE OF PROTECTION REQUIRED – WATER FILLING STATIONS

All water filling stations will have an iron gap style air gap installed at the top of the fill station. No customer shall remove this device or submerge the hose outlet below the tank overflow level at any time. Additionally, no customer shall connect the filling hose directly to the tank top, bottom, side or in anyway. For added protection, each station shall also be equipped with an RP on the drain back line. No customer shall connect to or tamper with this device in any way.

4.7 Auxiliary Sources of Supply

Auxiliary sources of water connected to the Ramsey Water Company drinking water supply are considered a cross connection as these auxiliary sources may or may not be required to maintain water quality to the same safety standards as state and federal regulations. Customers that use tanks only to store water supplied by Ramsey Water for fire suppression are the only auxiliary source of supply that may be connected to public drinking water supply. No other auxiliary sources shall be physically connected on the customer service line to or into the facility.

Customers may have secondary sources of supply available on the premises, such as private wells, but this system shall not be connected in any way to the plumbing supplied by Ramsey Water. Some plumbing systems are too complex to verify complete separation. Additionally, customers can knowingly or unknowingly interconnect these systems with no notification to Ramsey Water. For these reasons, additional backflow protection is required.

TYPE OF PROTECTION REQUIRED – AUXILIARY SOURCES OF SUPPLY

Tanks used to store water for fire suppression shall have an air gap constructed at the tank inlet or install a reduced pressure principle backflow preventer (RP) on the water line to the tank, to prevent stagnant water or any chemical additives from backflowing into the Ramsey drinking water supply.

Customers with auxiliary sources available, shall provide Ramsey Water with sufficient evidence that the auxiliary source is in no way connected to the plumbing which is supplied by the public water supply. Additional, these customers must install an RP after the meter and before any branching in the plumbing.

4.8 Livestock Waterers

Livestock and other automatically filled animal watering devices pose a risk to the public water supply if not properly protected. The water stored in these open containers is contaminated from the animals drinking and can also be contaminated with fecal matter and other animal wastes. Some waterers are equipped with internal backflow prevention devices that are not testable and/or do not meet the requirements of 327 IAC 8-10.

Due to the high health risk potential of waterer devices, Ramsey Water requires all livestock waterers to have an approved high hazard backflow protection device installed in a location that isolates the waterer from the potable water supply. The type and location of the device shall be determined by a Ramsey Water staff member after inspection of the connection. The approved backflow prevention assemblies for high hazard contaminants are air gap, RP, PVB or AVB. For connections that are subject to backpressure, the customer must install an RP or construct an air gap. Many common top-fill automatic cattle waterers employ the use of an air-gap and are compliant with these regulations.

4.9 Hose Connections

Hose connections to the public water supply are the most common cross connection. Customers can use the hose for variety of uses, including but not limited to, filling pools, spraying fertilizers, cleaning out containers, and filling tanks. If the end of the hose is submerged below the overflow rim or directly connected to any tank, vessel or mixing apparatus, a cross connection is created. Once the cross connection is created, any fluids at the end of the hose have the potential to backflow into the drinking water supply.

TYPE OF PROTECTION REQUIRED – HOSE CONNECTIONS

Customers shall maintain an air gap between the hose outlet and the end use. Proper hose use and storage with an air gap will eliminate the potential for backflow. Ramsey Water requires all hose-connections maintain an air gap between the hose outlet and overflow rim of at least two (2) times the diameter of the hose/line size. Hoses should be disconnected in colder conditions to avoid freezing of lines/fittings. Ramsey Water is not liable or responsible for damage(s) caused by failure to disconnect hoses.

In order to guard against possible cross connections, Ramsey Water retains the right to inspect all customers' plumbing installations. If after inspection, a direct cross connection is found without a proper air gap, the customer must immediately incorporate an air gap of at least two (2) pipe diameter of the supply line (or a minimum of 1 inch above the flood rim) in all potential cross-connections on premises. This account may be flagged by Ramsey Water as required to maintain proper air gaps(s) on certain plumbing fixtures and will be subject to the inspection requirements in 6.2. If any cross-connection is discovered on the premises during three (3) separate site inspections, the customer will be required to install an approved, testable device at each hose connection or on the customer line, just passed the meter. If customer refuses to incorporate either proper air gaps, or approved backflow prevention device(s), the service will be subject to disconnection.

4.10 Thermal Expansion Protection

The installation of a backflow prevention device on the customer service line can create a closed system within the customer's internal plumbing. Plumbing fixtures and devices connected to the water supply that can cause or are meant to heat the water, may result in pipe failure. As water is heated, its volume expands and the pressures inside the plumbing will increase. Backflow protection devices are designed to only allow fluids to flow in one direction, therefore, the excess pressure created in the closed system has no place to escape and can cause pipes and connections to fail.

Customers required to install backflow prevention devices for the protection of the public water supply should have their plumbing systems evaluated for thermal expansion. To avoid possible damage to the system and assembly, the customer must install water hammer arresters, surge protectors, relief valves and expansion tanks, as appropriate. If customers are not familiar with the plumbing fixtures that can cause thermal expansion, a licensed plumber should be consulted.

Ramsey Water is not liable for any damages to customer's plumbing for failure to install appropriate thermal expansion protection. Customers are financially responsible for plumbing evaluations and installation of appropriate devices.

4.11 Other Cross Connections and Protection Requirements

- 1) Cooling Towers – Potable water inlet shall have a reduced pressure principle backflow assembly or an air gap separation of twice the inside diameter of the inlet line or a minimum of two inches above the

flood rim.

- 2) Boilers – Boiler systems connected to the public water supply shall have installed at the water connection to the boiler a reduced pressure principle backflow preventer (RP).
- 3) Tall Buildings (over 3 stories) – Apartment and office buildings that do not meet the definition of a cross connection hazard shall install at the service connection and before any branching a double check valve assembly (DCVA). Customers that meet the definition of a cross connection hazard shall install after the meter and before any branching a reduced pressure principle backflow preventer (RP).
- 4) Chemical Dispensing Devices – Chemical dispensers automatically dilute and dispense chemical solutions and create a cross-connection with the public water supply. To prevent chemicals from backflowing into the potable water, customers must install an RP or PVB on the water line connected to any chemical dispensing device. The type of device will be determined by Ramsey Water after an evaluation of the connection. Connections subject to backpressure must have an RP installed at the chemical dispenser connection.
- 5) Carbonators (Beverage Machines) – All carbonators connected to the public water supply shall have an RP installed at the water connection to the carbonator with no copper piping after the RP device.
- 6) Dialysis Machine (in home use) – Dialysis machines are considered a high hazard cross connection as the water comes in contact with bodily fluids. For this reason, backflow protection with a high hazard rating shall be installed before the connection to any in home dialysis machine. Connections subject to backpressure must be protected with an RP. Connections subject to backsiphonage only shall be protected with a PVB or AVB.
- 7) Film Processing Machines – Film processing machines connected to the water supply shall have installed on the water supply line an RP if the connection is subject to backpressure or a PVB or AVB if subject to backsiphonage only. This includes processing machines for photography and x-ray film.
- 8) Others as specified by the Ramsey Water. The type of protection and location of the assembly will be determined by Ramsey staff after inspection.

SECTION V – BACKFLOW PREVENTION ASSEMBLIES

5.1 Approved Backflow Prevention Assemblies

The Ramsey Water Company requires that all backflow prevention assemblies installed to protect the Ramsey distribution system be testable devices approved under 327 IAC 8-10. Each device or assembly must also be constructed and installed in accordance with the requirements set out in 327 IAC 8-10-7 and be certified by ASSE, CSA or USC.

The five types of assemblies/devices approved for backflow protection and the type of protection for which they are rated are provided in the table below. There is one other assembly recognized by IDEM, however, Ramsey Water Company does not recognize spill resistant vacuum breakers as adequate backflow protection due to the subjective nature of the test verification procedure. Backflow prevention devices that do not meet all the construction and installation criteria found in 327 IAC 8-10 are not considered adequate backflow protection. The installation summaries provided in the table are not complete. For complete installation requirements, please refer to 327 IAC 8-10-7 in the Appendix.

Assembly	Hazard Rating	Backflow Rating	Installation Summary
Air Gap (AG)	Low to high hazard	Backpressure and Backsiphonage	Vertical separation of two (2) times pipe diameter between the water line and over-flow rim of receiving vessel. No less than one (1) inch but no more than six (6).
Reduced Pressure Principle Backflow Preventer (RP)	Low to high hazard	Backpressure and Backsiphonage	Relief port must be a minimum of 12 inches above floor level with no plugs or piping connected to port and in a location where leakage from relief valve will be noticed. SHALL NOT BE INSTALLED BELOW GRADE LEVEL.
Double Check Valve Assembly (DCVA)	Low hazard only	Backpressure and Backsiphonage	A location that allows access to the device for maintenance and testing and not subject to flooding, freezing or excess heat.
Pressure Vacuum Breaker (PVB)	Low to high hazard	Backsiphonage only	A minimum of 12 inches above floor level, the highest downstream piping or shutoff and the highest downstream discharge point.
Atmospheric Vacuum Breaker	Low to high hazard	Backsiphonage only	A minimum of 6 inches above downstream piping, NO shutoffs of any kind downstream, and must not operate under continuous pressure for more than 12 hours in any 24 hour period.

5.2 Backflow Prevention Assembly Installation

- 1) Backflow prevention assemblies shall be located in an area that provides a safe environment for testing and maintenance. The area should be easily accessible, not subjected to flooding or freezing and free from dirt/debris, extreme cold, heat, and electrical hazards. Also, if water which may be discharged from these assemblies could cause damage, it should be piped via an air gap to a drain or other suitable location.
- 2) If an uninterrupted supply of water is required to a facility, backflow assemblies must be installed in parallel to allow testing and maintenance.

- 3) A pressure loss through a backflow prevention assembly will be experienced by the customer. The pressure reduction varies with the size and type of assembly installed. The customer will be responsible for providing any increase in pressure required as a result of the pressure loss through the backflow prevention assembly.
- 4) Installation of a backflow prevention assembly will create a closed system. Pressure may build up as a result of heating or other means and will not be alleviated through this assembly. Customers should be advised of this and the need for a temperature/pressure relief valve or expansion tank within their system.
- 5) The need for replacement of existing backflow prevention assemblies that do not meet the current approval and installation requirements will be determined by the Ramsey Water Company on a case by case basis.
- 6) Backflow devices must be installed in accordance with the 327 IAC 8-10-7 as well as any additional instructions required by Ramsey Water Company. Improperly installed assemblies, devices installed in systems subject to a hazard level or type of backflow for which the device is not approved, or unapproved modifications to assemblies shall be considered unprotected cross connections and should be noted as a failed test upon inspection even if the device is able to meet the pressure requirements of the test.

5.3 Backflow Prevention Assembly Testing and Maintenance

The testing and maintenance of backflow prevention assemblies is required for all Reduced Pressure Principle Backflow Protection Assemblies (RP), Double Check Valve Assemblies (DCVA), Pressure Type Vacuum Breakers (PVB), Atmospheric Vacuum Breakers (AVB) and/or Air Gaps installed to protect the Ramsey public water supply.

- 1) The owner(s) of any premises on which, or on account in which, a backflow prevention device or assembly is installed, shall be responsible for having the assemblies tested by a registered Indiana Backflow Assembly Tester. A backflow prevention assembly shall be tested after installation, relocation or repair, and annually thereafter, unless more frequent testing is required by applicable state/local regulations. No assembly shall be placed in service unless it is functioning as required and the assembly shall be serviced, overhauled, or replaced whenever it is found to be defective.
- 2) The Ramsey Water Company will notify affected customers by mail when annual testing of an assembly is needed. The absence of a notification or reminder letter does not void the requirement of the annual inspection.

5.4 Backflow Prevention Assembly Relocation, Repair, or Replacement

- 1) Relocation: An assembly may be relocated following confirmation by Ramsey Water that the relocation will continue to provide the required protection and satisfy installation requirements. Removal and reinstallation of the assembly must be done by a Qualified Backflow Assembly Installer. A test is required immediately following the relocation or reinstallation of the assembly to ensure the device is operating properly and tester must submit the results to the Ramsey within thirty (30) days of the test.

- 2) Repair/Replacement: An assembly may be removed for repair or replacement, provided the service line is shut off and water use is discontinued until the repair/replacement is completed and the assembly is tested and found to be operating correctly. Alternatively, the service connection may be equipped with other temporary backflow protection, approved by Ramsey Water, if continuous service is required. Repair or replacement of the assembly must be commensurate with the degree of hazard and type of backflow present. A test is required following the repair or replacement of the assembly.

5.5 Backflow Test Report Form

Ramsey Water Company does not require backflow testers to submit their reports on any specific form. However, any test form submitted must have the minimum information as required by IDEM. The state form can be found on the IDEM website. Listed below is the minimum information required to be completed and submitted on any backflow test report form.

- 1) Customer information including name, address and company name (if applicable).
- 2) The location of the device within the premises. If the device is located at a different address than listed for the customer, the device address must be included here.
- 3) Indication of the test being performed on a new or existing assembly. If it is a replacement assembly, the serial number of the device being replaced must also be noted.
- 4) Type of service the device is protecting: domestic, fire or irrigation.
- 5) Type of assembly being tested: RP, DC, PVB, SVB, Air Gap or AVB.
- 6) Type of protection the assembly is providing: containment or isolation.
- 7) Device/assembly information: serial number, size, manufacturer and model number
- 8) Test Measurements:
 - a. Date & time of the test
 - b. Applicable pressure readings and measurements for the device/assembly and/or verification the individual checks and reliefs hold tight or leaked, whichever applies.
 - c. Clear indication of the pass or failure of the device.
- 9) Tester Information:
 - a. Name, email address and company (if applicable)
 - b. Phone number
 - c. Signature and backflow registration number
 - d. Certification that the tester is familiar with the information contained in the form and that the information provided is true, complete and accurate.
 - e. Calibration date of test equipment

SECTION VI- ADMINISTRATIVE PROCEDURES

The Administrative Procedures section details the procedures and policies Ramsey Water Company will use to implement and enforce this Cross-Connection Control Program including customer notifications, schedules for notifications, compliance, termination of service and customer fees. The goal of these procedures is to ensure all cross connections within the Ramsey public water supply are eliminated or adequately protected from backflow in a manner that is consistent between all customers.

6.1 New Customers

All new construction plans and specifications for industrial and commercial facilities shall be reviewed by the Ramsey Water Company to determine the likelihood of a potential cross connection hazard. Backflow prevention requirements, in accordance with this policy will be made at that time or after a survey of the constructed facility. New facilities are to include existing facilities that have a change in ownership. The Ramsey Water Company reserves the right to inspect the customer's plumbing before service is rendered. Customers determined to need a backflow prevention assembly will be informed by letter of the type of assembly to be installed. The approved backflow protection device must be installed and tested before water service is provided.

6.2 Water System Surveys/Inspections

- 1) Surveys of non-residential customer's water systems shall be conducted on a periodic basis, or each time there is a change in the water customer occupying the premises. This survey can be a physical inspection of the facility plumbing or a survey form for the customer to complete and return by mail.
- 2) The survey method will be determined by Ramsey Water and will be designed to assess each facility for potential backflow hazards, recent changes to the facility that may impact the backflow hazards, availability of auxiliary water supplies as well as any existing backflow prevention assemblies currently installed at the facility.
- 3) The survey will be used to determine the following:
 - a. If the customer meets the requirements for the installation of a backflow prevention device as described in Section IV, "Backflow Protection Requirements".
 - b. The need for an upgrade in the level of backflow prevention at the facility.
 - c. The need for a follow-up inspection of the facility.
 - d. The need for the existing backflow prevention assembly to be entered into the Ramsey Water data management system.
- 4) If it is unclear from the questionnaire whether the customer's facility is considered a cross connection, an inspection of the facility plumbing may be required. Customers will be notified by a representative of Ramsey Water in advance if an inspection is necessary.

6.3 Customer Notification - Install Backflow Protection

- 1) The Ramsey Water Company will notify the water customer by mail of the need to install a backflow assembly. The customer will be given thirty (30) days from the date of the letter to install the assembly, unless applicable regulations require a different time frame, or a different time frame is agreed upon between the customer and Ramsey Water.

- 2) If the water customer does not install the backflow assembly or contact Ramsey Water Company within thirty (30) days of the first letter being sent, a second notice will be sent to the water customer requiring the assembly to be installed within fifteen (15) days.
- 3) If no action is taken by the end of the additional fifteen (15) days, termination procedures shall be conducted in accordance with all applicable customer service rules and regulations for such action.
- 4) Final inspection and approval of the installation by Ramsey Water may be necessary in some cases.

6.4 Customer Notification - Annual Testing and Maintenance

- 1) Ramsey Water Company will send letters thirty (30) days in advance of the annual due date to notify each affected water customer when it is time for the backflow prevention assembly installed on their service connection to be tested. The absence of the reminder letter does not void the requirement of the annual inspection. The customer will be required to have the assembly tested by the annual due date unless applicable regulations require a different time frame.
- 2) Customers who fail to have the device tested within the time limits stated in the first notice or by the annual test date, will receive a second notice, allowing the customer an additional fifteen (15) days to have the device tested.
- 3) If no action is taken, termination procedures shall be conducted in accordance with all applicable customer service rules and regulations for such actions.

6.5 Customer Notification - Assembly Failure

According to Ramsey Water CCC/BF Policy 3.4.2 (4) the backflow tester must notify Ramsey Water of a failed assembly within 48 hours. Repair and replacement procedures outlined in 5.4 (2) shall be followed to maintain compliance with Ramsey Water CCC/BF policy.

6.6 Customer Notification – Upgrade of Backflow Prevention Assembly

- 1) If a water customer's backflow prevention assembly is determined by Ramsey Water to be insufficient for the level of protection required, Ramsey Water will send a notice to the water customer requesting the assembly be replaced with an approved backflow prevention assembly of a type specified by Ramsey Water. The customer will be given thirty (30) days to replace and test the assembly, unless applicable regulations require a different time frame.
- 2) Customers who fail to have the replacement assembly installed and tested within the time limits stated in the first notice will receive a second notice allowing an additional fifteen (15) days to have the approved device installed and tested.
- 3) If no action is taken, termination procedures shall be conducted in accordance with all applicable customer service rules and regulations for such actions.

6.7 Extensions for Installation, Testing or Upgrade of Backflow Device

Extensions for the installation, testing and/or upgrading of a backflow device due to financial hardship or other extenuating circumstances may be granted on a case by case basis. Any extension will be granted from Ramsey Water Company to the customer in writing and will include a date in which the extension expires.

6.8 Dispute Resolution

If a customer disagrees with the Company's requirements to install a backflow prevention device, the customer has the option, at their expense, to have their plumbing system inspected by a qualified backflow assembly installer/tester. In order to have the Company withdraw the requirements to install a backflow prevention device, the qualified backflow assembly installer/tester must provide the Company a letter stating the customer's plumbing system is in compliance with the Indiana Department of Environmental Management (IDEM), local requirements and does not possess an actual or potential cross-connection that may allow or cause contamination to the public water supply. Ramsey Water Company will review this additional information but reserves the right to make the final decision to protect its water supply.

SECTION VII – WATER SERVICE TERMINATION

7.1 General

When Ramsey Water encounters a water customer connection that represents a clear and immediate hazard to the public water supply, and the hazard cannot be immediately abated, Ramsey Water shall immediately institute the procedures for discontinuing water service. Ramsey will notify the water customer of the reasons for discontinuing water service and the corrective action to be taken by the water customer before the service can be restored. This will be done in accordance with all applicable customer service rules and regulations.

7.2 Basis for Termination

Conditions for water use that creates a basis for water service termination shall include, but are not limited to, the following items:

- 1) Refusal to install a required backflow prevention assembly,
- 2) Refusal to test a backflow prevention assembly, will result in termination of customers service in accordance to rules and regulations.
- 3) Refusal to repair a faulty backflow prevention assembly, will result in immediate termination of service, due to failure to comply with sections 5.4.
- 4) Refusal to replace a faulty backflow prevention assembly, will result in immediate termination of service, due to failure to comply with sections 5.4.
- 5) Direct or indirect connection between the public water system and a sewer line, will result in immediate termination of service.
- 6) Unprotected direct or indirect connection between the public water system, and a system or equipment containing contaminates, will result in immediate termination of service.
- 7) Unprotected direct or indirect connection between the public water system and an auxiliary water system, will result in immediate termination of service.
- 8) A situation that presents an immediate health hazard to the public water system, will result in immediate termination of service.

7.3 Water Service Termination and Reconnect Procedures

Termination procedures will be conducted in accordance with all the applicable customer service rules and regulations for such actions. Customers will be subject to all and any disconnect and/or reconnect fees. A final inspection and approval of all corrective actions taken by the customer must be made by a Ramsey Water Company staff member before water services can be restored.

SECTION VIII – INCORPORATED BY REFERENCE

The following text and regulations are incorporated by reference into the Ramsey Water Company Cross Connection Control Policy:

- 1) Ramsey Water Company user agreement and by-laws.
- 2) The Indiana Department of Environmental Management regulation 327 IAC Article 8.
- 3) University of Southern California Foundation for Cross Connection Control and Hydraulic Research “Manual of Cross-Connection Control, Tenth Edition”.
- 4) Indiana State Department of Health regulations 170 IAC 6.
- 5) Environmental Protection Agency Cross Connection Control Manual 2003 or latest edition.

APPENDIX Legal Authority/State and Local Backflow Regulations

170 IAC 6-1-20 WATER QUALITY STANDARDS

Sec. 20. Quality. (A) Water furnished by any water utility for human consumption or for domestic use shall be of such quality as will have the approval, or comply with the requirements, of the Indiana State Board of Health.

(B) (1) Public water supplies within the distribution pipe systems shall be adequately protected against pollution from back siphonage or cross connections with other systems on customer's property by proper installation of protective devices in accordance with the rules of the Indiana State Board of Health. Such protective devices shall be installed and maintained at the cost and expense of the customer, subject however, to the inspection test and approval of the utility before being placed in service, and at such times thereafter as recommended by the Indiana State Board of Health.

(2) Public water supplies shall also be adequately protected against any unnecessary and avoidable pollution at their own sources, and at all times after being taken therefrom, until delivery to the customer, to conform in all cases to the requirements of the Indiana State Board of Health. (*Indiana Utility Regulatory Commission; No. 34805: Standards of Service For Water Utilities Rule 18; filed Nov 28, 1977, 3:00 pm: Rules and Regs. 1978, p. 693; readopted filed Jul 11, 2001, 4:30 p.m.: 24 IR 4233; readopted filed Apr 24, 2007, 8:21 a.m.: 20070509-IR-170070147RFA*)

327 IAC 8-10 CROSS CONNECTIONS; CONTROL; OPERATION

327 IAC 8-10-1 Definitions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 1. In addition to the definitions in IC 13-11-2 and 327 IAC 1, the following definitions apply throughout this rule:

(1) "Air gap" means an unobstructed vertical distance through atmosphere between the:

(A) discharge end of a pipeline supplied from a public water supply; and

(B) overflow rim of the receiving portion of the customer water system.

(2) "Atmospheric vacuum breaker backsiphonage prevention assembly" means an assembly containing:

(A) an air inlet valve;

(B) a check valve seat; and

(C) an air inlet port.

(3) "Backflow" means the flow of water or contaminants into the public water supply distribution system from a source other than the public water supply.

(4) "Booster pump" means a pump installed on a pipeline to increase water pressure or flow.

(5) "Commissioner" means the commissioner of the Indiana department of environmental management, or the commissioner's authorized representative.

(6) "Cross connection" means any physical arrangement, including cross connection control devices not in working order, whereby a public water supply distribution system is directly connected, either continuously or intermittently, with any secondary source of supply, sewer, drain, conduit, pool, piping, storage reservoir, plumbing fixture, or other device that contains, or may contain, and is capable of imparting to the public water supply, contaminants, contaminated water, sewage, or other waste or liquid of unknown or unsafe quality.

(7) "Cross connection control device" means any device or assembly, approved by the commissioner for construction on or installation in water supply piping, that is capable of preventing contaminants from entering the public water supply distribution system.

(8) "Cross connection control device inspector" means a person who has:

(A) successfully completed training in testing and inspection of cross connection control devices from a training provider approved by the commissioner;

(B) received a registration number from the commissioner; and

(C) not been notified by the commissioner that the registration number has been revoked in accordance with section 11(b) of this rule.

(9) "Cross connection hazard" means any customer facility that, because of the nature and extent of activities on the premises or the materials used in connection with the activities or stored on the premises, would present an immediate or potential danger or health hazard to customers of the public water supply should backflow occur.

(10) "Customer" means any person who receives water from a public water supply.

(11) "Customer service line" means the pipeline from the public water supply to the:

(A) first tap, fixture, receptacle, or other point of customer water use; or

(B) secondary source of supply or pipeline branch in a building.

(12) "Customer water system" means all piping, fixtures, and appurtenances, including secondary sources of supply, used by a customer to convey water on his or her premises.

(13) "Double check valve assembly" means a device or assembly composed of two (2) tightly closing shutoff valves surrounding two (2) independently acting check valves, with four (4) test cocks, one (1) upstream of the four (4) valves and one (1) between each of the four (4) check and shutoff valves.

(14) "Downstream" means the direction of flow when only the public water supply is supplying water through the customer water system and backflow is not occurring.

(15) "Pressure vacuum breaker" means a device or assembly containing an independently operating internally loaded check valve and an independently operating loaded air inlet valve located on the downstream side of the check valve for relieving a vacuum or partial vacuum in a pipeline.

(16) "Public water system" means a public water supply for the provision to the public of water for human consumption through pipes or other constructed conveyances, if the system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The term includes any collection, treatment, storage, and distribution facilities under control of the operator of the system, and used primarily in connection with such the system and any collection or pretreatment storage facilities not under the control that are used primarily in connection with the system.

(17) "Reduced pressure principle backflow preventer" means a device composed of two (2) tightly closing shutoff valves surrounding two (2) independently acting pressure reducing check valves that, in turn, surround an automatic pressure differential relief valve, and four (4) test cocks, one (1) upstream of the five (5) valves and one (1) between each of the four (4) check and shutoff valves. The check valves effectively divide the structure into three (3) chambers. Pressure is reduced in each downstream chamber allowing the pressure differential relief valve to vent the center chamber to atmosphere should either or both check valves malfunction.

(18) "Registration number" means a unique number assigned to a person by the commissioner demonstrating that the person:

(A) has fulfilled the education and examination requirements as described in section 11 of this rule; and

(B) is recognized by the state as a cross connection control device inspector.

(19) "Secondary source of supply" means any well, spring, cistern, lake, stream, or other water source, intake structure, pumps, piping, treatment units, tanks, and appurtenances used, either continuously or intermittently, to supply water other than from the public water supply to the customer, including tanks used to store water to be used only for firefighting, even though the water contained therein is supplied from the public water supply.

(20) "Spill resistant vacuum breaker" means an assembly containing an independently operating, internally loaded check valve, and an independently operating, loaded air inlet valve, located on the discharge side of the check valve. The assembly is to be equipped with a properly located, resilient seated test cock, a properly located bleed or vent valve, and tightly closing, resilient seated shutoff valves, attached at each end of the assembly.

(21) "Supplier of water" means any person who owns or operates a public water supply.

(22) "Training provider" means an organization that conducts or presents a cross connection control device inspector course approved by the commissioner in conformance with section 12 of this rule.

(23) "Upstream" means the direction of flow opposite to downstream.

(Water Pollution Control Division; 327 IAC 8-10-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 714; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2515; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; filed Mar 6, 2000, 7:56 a.m.: 23 IR 1629; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

327 IAC 8-10-2 Cross connection prohibited; bypass

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3; IC 13-18-4-1

Affected: IC 13-18-2

Sec. 2. No customer shall cause or allow the construction or maintenance of a cross connection. Piping installed to bypass a cross connection control device constitutes a cross connection unless the bypass piping is also fitted with a similar cross connection control device.

(Water Pollution Control Division; 327 IAC 8-10-2; filed Sep 24, 1987, 3:00 pm: 11 IR 715; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

327 IAC 8-10-3 Booster pump connection

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 3. No customer shall cause or allow the installation or maintenance of a booster pump in a public water system unless a device is installed to control operation of the booster pump when pressure to pump suction drops as follows:

(1) Wherever a fire suppression system has a booster pump installed only for fire suppression, it shall have an audible or visual alarm to provide warning when flow occurs and a control valve shall be installed on the booster pump discharge to automatically throttle the flow as necessary to maintain a minimum of ten (10) pounds per square inch, gauge, pump suction pressure.

(2) For all booster pumps other than those described in subdivision (1), a control device shall be installed to either prevent operation of the booster pump, or else to automatically throttle flow to or from the booster pump as necessary to maintain a minimum of twenty (20) pounds per square inch, gauge, pump suction pressure. The supplier of water may require that the control device be calibrated to maintain a higher than twenty (20) pounds per square inch, gauge, pump suction pressure, where necessary to provide a minimum pressure of twenty (20) pounds per square inch, gauge, throughout the pressure zone of the public water system distribution system to which the customer is connected.

(Water Pollution Control Division; 327 IAC 8-10-3; filed Sep 24, 1987, 3:00 p.m.: 11 IR 715; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2516; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR- 327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

327 IAC 8-10-4 Cross connection hazards; notice; exemptions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 4. (a) Wherever a cross connection hazard as specified by subsection (c) is designated:

(1) an air gap shall be constructed or a reduced pressure principle backflow preventer shall be installed, in accordance with section 7 of this rule, on the customer service line for:

(A) any new facility;

(B) any modified customer service line; or

(C) any existing facility where a higher capacity meter is installed; and

(2) neither an air gap nor a reduced pressure principle backflow preventer shall be required to be incorporated into customer service lines that both are utilized solely for fire suppression and are fitted with an audible alarm that will activate when water is detected to be flowing in the customer service line.

(b) Customers who have a cross connection that has resulted in a contaminant being introduced into a public water system or a customer water system:

(1) shall immediately construct an air gap or install a reduced pressure principle backflow preventer on the customer service line in accordance with section 7 of this rule; or

(2) is exempt from the requirements of subdivision (1) because the affected customer service line is both utilized solely for fire suppression and is fitted with an audible alarm that will activate when water is detected to be flowing in the line.

(c) The following customer facilities are designated cross connection hazards:

(1) Aircraft and missile manufacturing plants.

(2) Automotive plants, including those plants that manufacture motorcycles, automobiles, trucks, recreational vehicles, and construction and agricultural equipment.

(3) Beverage bottling plants, including dairies and breweries.

(4) Canneries, packing houses, and reduction plants.

(5) Car washes.

(6) Chemical, biological, and radiological laboratories, including those in high schools, trade schools, colleges, universities, and research institutions.

(7) Hospitals, clinics, medical buildings, autopsy facilities, morgues, other medical facilities, and mortuaries.

(8) Metal and plastic manufacturing, fabricating, cleaning, plating, and processing facilities.

(9) Plants manufacturing paper and paper products.

(10) Plants manufacturing, refining, compounding, or processing fertilizer, film, herbicides, natural or synthetic rubber, pesticides, petroleum or petroleum products, pharmaceuticals, radiological materials, or any chemical that could be a contaminant to the public water supply.

(11) Commercial facilities that use herbicides, pesticides, fertilizers, or any chemical that could be a contaminant to the public water supply.

(12) Plants processing, blending, or refining animal, vegetable, or mineral oils.

(13) Commercial laundries and dye works, excluding coin-operated laundromats.

(14) Sewage, storm water, and industrial waste treatment plants and pumping stations.

(15) Waterfront facilities, including piers, docks, marinas, and shipyards.

(16) Industrial facilities that recycle water.

(17) Restricted or classified facilities (federal government defense or military installations), or other facilities closed to the supplier of water or to the commissioner.

(d) Customer facilities not designated as a cross connection hazard by subsection (c) may be designated a cross connection hazard by written notification from the commissioner to the customer and to the customer's public water system. The notice shall specify the nature of the customer activity that necessitates designation of the customer's facility as a cross connection hazard, and the date by which the customer shall install a cross connection control device in accordance with section 7 of this rule, on the customer service line to the facility so designated.

(e) The commissioner may issue a letter exempting a customer from the requirements of subsection (a) if the customer can show to the satisfaction of the commissioner that the activities taking place at the customer's facility, and the materials used in connection with these activities or stored on the premises, cannot endanger the health of customers of the public water system should backflow occur. An exemption shall remain valid for no more than three (3) years from the date of issuance. If the commissioner finds that the customer facility has become a cross connection hazard, the commissioner will void the exemption and so notify the customer.
(*Water Pollution Control Division; 327 IAC 8-10-4; filed Sep 24, 1987, 3:00 p.m.: 11 IR 716; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2516; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA*)

327 IAC 8-10-5 Secondary sources of supply; installation of air gaps or other devices

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 5. (a) Customers shall construct an air gap or install a reduced pressure principle backflow preventer or a double check valve assembly in accordance with section 7 of this rule on the customer service line to:

- (1) tanks used only to store water from the public water supply for fire suppression that are constructed to maintain the bacteriological quality of the water, in compliance with 327 IAC 8-2; or
- (2) secondary sources of supply that:
 - (A) use well water as the only private source of supply;
 - (B) are constructed to maintain the bacteriological quality of the water, in compliance with 327 IAC 8-2; and
 - (C) produce, without treatment, water meeting the drinking water quality standards enumerated in 327 IAC 8-2.

(b) Customers shall construct an air gap, or install a double check valve assembly or reduced pressure principle backflow preventer in accordance with section 7 of this rule for a fire sprinkler system, to prevent stagnant water from backflowing into the drinking water supply. For a fire sprinkler system with a chemical additive, customers shall install a reduced pressure principle backflow preventer to prevent the chemical additive backflowing into the drinking water supply.

(c) No secondary source of supply of a type other than those enumerated in subsections (a) and (b) shall be physically connected on the customer service line to or into the facility.

(*Water Pollution Control Division; 327 IAC 8-10-5; filed Sep 24, 1987, 3:00 p.m.: 11 IR 716; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2517; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR- 327100414FRA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR- 27130176BFA*)

327 IAC 8-10-6 Land irrigation facility buried below ground; installation of air gaps or other devices

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 6. Customers shall construct an air gap, or install a reduced pressure principle backflow preventer or pressure type vacuum breaker in accordance with section 7 of this rule, on the water line connecting the public water supply to any land irrigation facility buried below ground that has a sprinkler outlet located less than six (6) inches above grade and is constructed after July 19, 1985.

(*Water Pollution Control Division; 327 IAC 8-10-6; filed Sep 24, 1987, 3:00 p.m.: 11 IR 717; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2518; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR- 327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA*)

327 IAC 8-10-7 Construction and installation requirements for air gaps or other devices

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 22-13-2

Sec. 7. (a) The discharge pipe of an air gap shall terminate a minimum of:

- (1) two (2) pipe diameters of the discharge pipe or six (6) inches, whichever is less, above the maximum recorded flood level or above the flood level rim of the receiving vessel, whichever is higher; or
- (2) three (3) pipe diameters of the discharge pipe or six (6) inches, whichever is less, above the maximum recorded flood level or above the flood level rim of the receiving vessel, whichever is higher, where:
 - (A) a side wall, rib, or similar obstruction is spaced closer than three (3) diameters from the piping affecting the air gap; or
 - (B) two (2) intersecting walls are located closer than four (4) pipe diameters from the piping affecting the air gap.

(b) Only those models of double check valve assemblies, reduced pressure principle backflow preventers, and pressure vacuum breakers that have been listed by the "List of Approved Backflow Prevention Assemblies", by the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California, February 7, 2012, or those acceptable under the Indiana plumbing code under the fire prevention and building safety commission rules at 675 IAC 16-1.2 [675 IAC 16-1.2 was repealed filed Jun 30, 1999, 2:53 p.m.: 22 IR 3414] and 675 IAC 16-1.3, shall be installed.

(c) Reduced pressure principle backflow preventers shall be installed horizontally or vertically as listed by the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California, February 7, 2012, with:

- (1) no plug or additional piping affixed to the pressure differential relief valve port; and
- (2) the pressure differential relief valve port a minimum of twelve (12) inches above floor level.

Additionally, the device must be installed at a location where any leakage from the pressure differential relief valve port will be noticed, and that allows access to the valve for maintenance and testing from floor level, without use of a ladder or other similar temporary apparatus. The device must not be installed below ground grade level and must not be subject to flooding, excessive heat, or freezing.

(d) All double check valve assemblies shall be installed at a location that allows access to the device for maintenance and testing from floor level, without use of a ladder or other similar temporary apparatus, and that will not subject the device to flooding, excessive heat, or freezing.

(e) Pressure vacuum breakers and spill resistant vacuum breakers shall be installed as near as possible to the irrigation facility, at a location that allows access to the device for maintenance and testing from floor or ground level, without use of a ladder or other similar temporary apparatus, and that will not subject the device to flooding, excessive heat, or freezing. Additionally, the device must be installed between two (2) tightly closing shutoff valves, with its center line or datum point a minimum of twelve (12) inches above:

- (1) floor level;
- (2) the highest downstream piping or shutoff valve; and
- (3) the highest downstream overflow rim or discharge point.

(f) Atmospheric vacuum breaker backsiphonage prevention assemblies must be installed at a location that allows access to the device for maintenance and testing from floor or ground level, without use of a ladder or other similar apparatus, and that will not subject the device to flooding, excessive heat, or freezing. Additionally, the device must be installed as follows:

- (1) A minimum of six (6) inches clearance above the overflow rim or downstream piping.
- (2) Absolutely no means of shutoff on the discharge side of vacuum breaker.
- (3) Must not be under continuous pressure for more than twelve (12) hours in any twenty-four (24) hour period.

(Water Pollution Control Division; 327 IAC 8-10-7; filed Sep 24, 1987, 3:00 p.m.: 11 IR 717; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2518; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR- 327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828- IR-327130176BFA)

327 IAC 8-10-8 Inspection of devices; time limits

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 8. (a) The customer shall install and maintain in working order at all times any cross connection control device or booster pump control device required by this rule.

(b) To ensure that each cross connection control device required by this rule is in working order, the customer shall have each device inspected or tested by a cross connection control device inspector at the time of construction or installation, and at the following intervals, in the following manner:

- (1) Air gaps shall be inspected at intervals not exceeding one (1) year to ensure that they continue to meet the requirements of section 7 of this rule.
- (2) Reduced pressure principle backflow preventers shall be tested at intervals not exceeding one (1) year to ensure that:
 - (A) both check valves are drip-tight under all pressure differentials; and
 - (B) the pressure differential relief valve will maintain pressure in the center chamber at least two (2) pounds per square inch below that of the inlet chamber.
- (3) Double check valve assemblies shall be tested at intervals not exceeding one (1) year to ensure that both check valves are drip-tight under all pressure differentials.
- (4) Pressure vacuum breakers and spill resistant vacuum breakers shall be tested at intervals not exceeding one (1) year to ensure that the air inlet opens fully when water pressure is at or below atmospheric pressure.
- (5) Atmospheric vacuum breaker backsiphonage prevention assemblies must be inspected at intervals not exceeding one (1) year to ensure proper operation of the air inlet valve. Removal of canopy may be necessary to determine free movement of air inlet valve.

(c) The customer shall permit access to the customer's premises by the inspector, the customer's public water system, or the commissioner, at reasonable times, and upon presentation of identification, for inspection of the customer water system or testing of cross connection control devices installed in accordance with this rule.

(d) Those customers granted an exemption in accordance with section 4(e) of this rule shall report to the commissioner and to the supplier of water any proposed change in process, plumbing, or materials used or stored at the exempted facility at least fourteen (14) days prior to making the change. Failure to do so shall void the exemption.

(Water Pollution Control Division; 327 IAC 8-10-8; filed Sep 24, 1987, 3:00 p.m.: 11 IR 717; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2518; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

327 IAC 8-10-9 Inspectors; reports of inspection or test

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-16-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 9. (a) All cross connection control device inspectors shall do the following:

- (1) Be registered with the commissioner in accordance with section 11 of this rule.
- (2) Submit reports of all inspections as required by subsection (b).
- (3) Annually test and calibrate testing equipment for accuracy.
- (4) Install an inspection tag upon completion of testing, calibration, or repair, of any cross connection control device. The inspection tag must have at least the following information:
 - (A) The name of the inspector.
 - (B) The date of the inspection.
 - (C) The registration number, model number, serial number, and size of the cross connection control device.

The inspection tag must be waterproof and protected against tampering.

(b) The inspector shall report to the public water system, the customer and, if requested, the commissioner, on a form provided by the commissioner, the results of inspections or tests conducted under section 8(b) of this rule on the following:

- (1) Air gaps.
- (2) Reduced pressure principle backflow preventers.
- (3) Double check valve assemblies.
- (4) Pressure vacuum breakers.

Reports shall be submitted to the public water system and to the customer within thirty (30) days of the inspection or test.

(Water Pollution Control Division; 327 IAC 8-10-9; filed Sep 24, 1987, 3:00 p.m.: 11 IR 718; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2519; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

327 IAC 8-10-10 Noncompliance; retention of reports; access

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 10. (a) Because cross connections may cause disease through transmission of contaminants via the public water system, the commissioner shall order the public water system to remove the customer service meter or otherwise sever the public water system connection to any customer which the commissioner finds or has reason to believe is in violation of any provision of this rule.

(b) The supplier of water shall retain the three (3) most recent reports of tests conducted on air gaps, reduced pressure principle backflow preventers, double check valve assemblies, and pressure vacuum breakers installed in accordance with this rule. The supplier of water shall permit access to these files at reasonable times and upon presentation of identification by the commissioner.

(c) If so requested, the public water system shall submit to the commissioner copies of any report required to be retained by subsection (b).

(Water Pollution Control Division; 327 IAC 8-10-10; filed Sep 24, 1987, 3:00 p.m.: 11 IR 718; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2519; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

327 IAC 8-10-11 Registration of inspectors; list of registered inspectors; list of approved devices

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 4-21.5; IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 13-18-11-8

Sec. 11. (a) Upon reviewing and finding the information certified by the training provider acceptable, the commissioner shall issue a registration number to each person whose training provider has certified that the applicant has met the following requirements of education and examination:

- (1) The information supplied by the applicant must be reviewed and acceptable to the training provider.
- (2) Each applicant must attend forty (40) hours of education and successfully complete a written and oral examination for cross connection device inspectors administered by a training provider.

(b) The commissioner may revoke the registration of any cross connection control inspector, following a hearing under IC 4-21.5, when it is found that the inspector has violated any of the provisions set out in this rule or IC 13-18-11-8.

(c) The commissioner shall maintain a list entitled "Indiana Registered Cross Connection Control Device Inspectors, All Inspectors", which is comprised of cross connection control device inspectors registered in Indiana.

(d) The commissioner shall maintain a list entitled "Indiana Registered Cross Connection Control Device Inspectors, Active Inspectors", which is comprised of cross connection control device inspectors:

- (1) that are registered in Indiana in accordance with subsection (a); and
- (2) who have requested their inclusion on this list in writing to the commissioner during the previous two (2) years.

(e) The commissioner shall maintain a list entitled "List of Approved Backflow Prevention Assemblies, February 7, 2012, by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California", which is comprised of a listing of cross connection control devices from the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California.

(f) The commissioner shall make the following lists as described in this section available to the public upon request:

- (1) Indiana Registered Cross Connection Control Device Inspectors, All Inspectors.
- (2) Indiana Registered Cross Connection Control Device Inspectors, Active Inspectors.
- (3) List of Approved Backflow Prevention Assemblies, February 7, 2012, Foundation for Cross Connection Control and Hydraulic Research, University of Southern California.

(Water Pollution Control Division; 327 IAC 8-10-11; filed Sep 24, 1987, 3:00 p.m.: 11 IR 718; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2519; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR- 327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828- IR-327130176BFA)

327 IAC 8-10-12 Approval of an organization as a training provider of cross connection control device inspectors; record keeping

Authority: IC 13-13-5-1; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18

Affected: IC 4-21.5; IC 13-11-2; IC 13-18-11-8

Sec. 12. (a) The commissioner shall approve an organization as a training provider of cross connection control device inspectors if the training provider's proposed course meets the following requirements:

- (1) The proposed course instruction and examination have a total duration of at least forty (40) hours.
- (2) The proposed course deals with matters directly related to the cross connection control devices that include, but are not limited to, the following:
 - (A) Cross connection identification, degree of hazard, prevention, control devices, and practices.
 - (B) Backflow prevention assembly field test procedures and gage accuracy verification, Section 9 from the "Manual of Cross Connection Control", Tenth Edition, published October 2009, by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California.
 - (C) Cross connection control device inspection, repair, and maintenance.
 - (D) Content, intent, and related policy of this rule.
 - (E) Responsibilities of the customer, public water system, and cross connection control device inspector.
- (3) Each instructor of the proposed course must be recognized by Indiana as a cross connection control device inspector and qualified by academic work or practical experience directly related to cross connection control device inspection to teach the assigned subject.
- (4) Includes both a written and oral examinations proctored by different instructors and meets the following requirements:
 - (A) A written examination that tests the student's comprehension of the material discussed in subdivision (2).
 - (B) An oral examination that tests the student's ability and competency to perform inspections, test procedures specified under subdivision (2)(B), and troubleshooting on cross connection control devices.
- (5) The organization submits a written request to the commissioner for approval as a training provider of cross connection control device inspectors. The request shall contain the following:
 - (A) The:
 - (i) name, address, and telephone number of the organization;
 - (ii) name of the course;

- (iii) specific topics on which there are to be presentations;
- (iv) time devoted to each topic; and
- (v) dates and locations where the course will be offered.

(B) All instructors':

- (i) names;
- (ii) registration numbers;
- (iii) educational backgrounds;
- (iv) professional experiences; and
- (v) current professional affiliations.

(C) Information to demonstrate fulfillment of the requirements of subdivision (2) to the satisfaction of the commissioner.

(D) A written class outline.

(b) The commissioner's approval of an organization as a training provider of cross connection control device inspectors shall be valid for a duration of five (5) years.

(c) All training providers must maintain records on the following:

- (1) The dates of all courses.
- (2) The names of all individuals attending the course.
- (3) The duration of the course.
- (4) All instructors' names.
- (5) The program content.

These records shall be maintained for five (5) years.

(d) Training providers must submit to the commissioner a record of individuals attending courses within thirty (30) days of the conclusion of the course. These records shall be maintained for a five (5) year period. The records shall contain the following:

- (1) The name of the course.
- (2) The name, address, and current phone number of the individual attending the course.
- (3) The date of the course.
- (4) Performance on the written and oral examinations required by subsection (a)(4).

(e) The commissioner may revoke the approval of a training provider, following a hearing under IC 4-21.5, when it is found that the training provider has violated any of the provisions set out in the approval of the training provider's cross connection control device inspectors course, in this rule, or IC 13-18-11-8.

(Water Pollution Control Division; 327 IAC 8-10-12; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2520; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

327 IAC 8-10-13 Incorporation by reference

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 13. (a) The following materials, including titles and names and addresses of where they may be located for inspection and copying, are incorporated by reference into this rule:

- (1) "List of Approved Backflow Prevention Assemblies, February 7, 2012, by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California", Foundation for Cross Connection Control and Hydraulic Research, University of Southern California, Kaprielian Hall 200, Los Angeles, California 90089-2531 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.
- (2) Backflow Prevention Assembly Field Test Procedures and Gage Accuracy Verification, Section 9 from the "Manual of Cross Connection Control", Tenth Edition, 1993, published October 2009, by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California, Kaprielian Hall 200, Los Angeles, California 90089-2531 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(b) The technical standards presented in subsection (a) are continuously revised on a twenty-four (24) month cycle. The commissioner shall commence rulemaking efforts to update the documents incorporated by reference in this section.

(Water Pollution Control Division; 327 IAC 8-10-13; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2521; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1938; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)