Part XX
CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION

§2001 PURPOSE

This part outlines the requirements to protect the public water supply from the possibility of contamination through actual or potential cross-connections between public water systems and non-potable water systems due to backflow.

§2002 RESPONSIBILITY

Public water system owners and operators shall be responsible for protecting public water systems from backflow by complying with these regulations. These regulations shall not diminish the duty of owners and operators to comply with applicable statutes and regulations and industry standards and to provide adequate system design and performance.

§2003 CROSS-CONNECTION CONTROL HAZARD ASSESSMENT

A. To evaluate the potential for backflow into public water systems, each community water system shall conduct an initial field and/or office hazard assessment of the premises within its service area and each non-community water system shall conduct an initial field hazard assessment of its water distribution system. The hazard assessment shall consider:

   1. The existence of actual or potential cross-connections;

   2. The type and use of materials handled; and

   3. The degree of piping system complexity and accessibility.

B. Subsequent to the initial hazard assessment described in §2003 (A), the community water system shall:

   1. Conduct an assessment of the premises of each new water user connected to the public water system; and

   2. Re-evaluate the premises of an existing water user if changes within the water user's premises or any backflow incidents occur.

C. Subsequent to the initial hazard assessment described in §2003 (A), the non-community water system shall re-evaluate its water distribution system if any changes or any backflow incidents occur.

D. Each hazard assessment shall be performed by a person who is currently certified as a cross-connection control program specialist by the California-Nevada Section of the American Water Works Association or an organization with equivalent certification requirements acceptable to the Director, unless the Director approves an alternative person based on its review of system size, types of water users, treatment, distribution system, and any previous hazard assessment.

§2004 SELECTION OF THE TYPE OF BACKFLOW PROTECTION

A. Based on the results of the hazard assessment conducted pursuant to §2003, the public water system owner or operator shall ensure that the minimum backflow protection, if any, required pursuant to Table 2000.1 is installed. A community water system shall ensure that the protection is installed at the water user's service connection. A non-community water system shall ensure that protection is installed in the distribution system.

   1. The types of backflow protection that may be used are listed according to increasing level of protection as follows: *Pressure vacuum breaker assembly*, *Double check valve assembly*, *Reduced pressure principle assembly*, and *Air gap separation*. For roadway right-of-way irrigation systems where there is no potential for backpressure, a pressure vacuum breaker assembly shall be considered more protective than a double check valve assembly.

   2. If more than one of the hazard criteria listed in Table 2000.1 applies to the premises of a water user, the greatest degree of protection required by the criteria shall be installed.

B. If permitted as indicated in Table 2000.1, the public water system owner or operator may allow protection at one level lower than specified in Table 2000.1, subject to the Director's approval based on a review that includes the hazard involved, the public water system's cross-connection control program, the rationale and justification for proposing the lower level of protection, and the public water system's compliance history related to cross-connection control.

C. If an assessment of a premise(s) could not be made pursuant to §2003 to determine the type of hazard present, the public water system owner or operator shall ensure that an air gap separation is installed.

D. If a hazardous situation exists on a water user's premises or in the public water system's distribution system that is not described in Table 2000.1, the public water system owner or operator shall consult with and obtain the concurrence of the PWSSP as to the appropriate type of backflow protection to be installed.

TABLE 2000.1 HAZARD CRITERIA AND APPROPRIATE TYPES OF BACKFLOW PROTECTION

Hazard	**Required Level of Protection**
1. Auxiliary Water Supplies	
A. Auxiliary supply that is interconnected with a piping system connected to the public water system (PWS)	Air gap separation[1]
B. Auxiliary supply that is not interconnected with a piping system connected to the PWS, but has piped water conveyed under pressure in a piping system less than 200 feet from the piping system connected to the PWS	Reduced pressure principle assembly[1]
2. Fire Protection Systems	
A. Fire protection system interconnected with a piping system connected to the PWS and an onsite auxiliary water supply for fire fighting	Air gap separation[1]
B. Fire protection system supplied by the PWS with an interconnection to onsite storage facilities and pumps, or combined fire and industrial water	Reduced pressure principle assembly[2]
3. Marina or port facilities	
A. Residential	Reduced pressure principle assembly[1]
B. Nonresidential	Reduced pressure principle assembly[2]
4. Premises with multiple service connections to the PWS	Reduced pressure principle assembly[1]
5. Recycled Water or Graywater	
A. Recycled water supply system that is:	
i. Interconnected to a piping system connected to PWS	Air gap separation[2]
ii. Not interconnected to a piping system connected to PWS	Reduced pressure principle assembly[2]
B. System that produces, or collects and distributes graywater and is:	
i. Interconnected to a piping system connected to the PWS	Air gap separation[2]
ii. Not interconnected to a piping system connected to the PWS	Reduced pressure principle assembly[2]
6. Sewage and Hazardous or Potentially Hazardous Substances	
A. Waste water treatment processes, handling and/or pumping equipment interconnected to a piping system connected to the PWS	Air gap separation[2]
B. Waste water treatment processes, handling and/or pumping equipment not interconnected to a piping system connected to the PWS, except for a single-family residence that has a sewage lift pump	Air gap separation[1]
C. Premises handling a substance in any manner in which the substance may enter a piping system connected to the PWS	Air gap separation[1]
D. Recreational vehicle dump station that is not interconnected to a piping system connected to the PWS	Reduced pressure principle assembly[1]
E. Piped irrigation system interconnected to a piping system connected to the PWS, into which fertilizers, herbicides, or pesticides are, or are intended to be, injected into the irrigation water	Reduced pressure principle assembly[2]
F. Piping system conveying a fluid not from an approved water supply that is:	
1. Interconnected to a piping system connected to the PWS	Air gap separation[1]
2. Not interconnected to a piping system connected to the PWS	Reduced pressure principle assembly[1]

7.	Roadway right-of-way irrigation system interconnected to a piping system connected to the PWS, and there is no potential for back pressure	Pressure vacuum breaker assembly[1]
8.	Water storage facility not under control of the PWS	Air gap separation[1]

[1]The public water system owner or operator may allow protection at one level lower than that designated, pursuant to §2004 (B).

[2]The public water system owner or operator shall not allow a lower level of protection than that designated.

§2005 STANDARDS FOR TYPES OF BACKFLOW PROTECTION

A. The public water system owner or operator shall ensure that each air-gap separation meets the requirements in section 603.2.1 of the Uniform Plumbing Code.

B. The public water system owner or operator shall ensure that each installed pressure vacuum breaker, double check valve, and reduced pressure principle backflow prevention assembly:

1. Meets the requirements in this part;

2. Meets the applicable American Water Works Standards, as follows:

a. C512 - Air Release, Air/Vacuum, and Combination Air Valves for Waterworks Service;
b. C511 - Reduced Pressure Principle Backflow Prevention Assembly; or
c. C510 - Double Check Valve Backflow Prevention Assembly; and

3. Is approved through laboratory and field evaluation tests performed by the Foundation for Cross-Connection Control and Hydraulic Research (University of Southern California, Kaprielian Hall 200, Los Angeles, CA 90089-2531; http://www.usc.edu/fccchr/) or an entity with equivalent testing requirements acceptable to the Director.

§2006 INSTALLATION CRITERIA FOR BACKFLOW PROTECTION

A. For air-gaps, the following shall apply:

1. The receiving water container shall be located on the water user’s premises at the water user’s service connection unless an alternate location has been approved by the public water system owner or operator in consultation and concurrence of the PWSSP.

2. All piping between the water user’s service connection and the discharge location of the receiving water container shall be above finished grade and be accessible for visual inspection unless an alternative piping configuration is approved by the public water system owner or operator in consultation and concurrence of the PWSSP.

B. A reduced pressure principle backflow prevention assembly shall be installed such that the lowest point of the assembly is a minimum of twelve inches, and a maximum of 36 inches, above finished grade, unless an alternative is approved by the public water system owner or operator in consultation and concurrence of the PWSSP.

C. A pressure vacuum breaker assembly shall be installed a minimum of twelve inches above all downstream piping.

D. A reduced pressure principle or double check valve backflow prevention assembly shall have a minimum side clearance of twelve inches, except that a minimum side clearance of 24 inches shall be provided on the side of the assembly that contains the test cocks.

E. Backflow protection shall be located at the water user’s service connection unless one or more alternative locations have been approved by the public water system owner or operator in consultation and concurrence of the PWSSP. The public water system owner or operator shall obtain access to the water user’s premises and shall ensure that the on-site protection meets the standards specified in §2005 and the requirements of this part for installation, testing and inspections.

F. Each backflow prevention assembly and air gap separation shall be accessible for field testing and maintenance.

§2007 FIELD TESTING AND REPAIR OF BACKFLOW PREVENTION ASSEMBLIES, AND AIR GAP INSPECTION

A. The public water system owner or operator shall require that all backflow prevention assemblies installed pursuant to this part be field tested following installation, repair, or relocation and at least annually thereafter. All required field testing shall be performed by persons who

are currently certified in the testing of backflow prevention assemblies by California-Nevada Section of the American Water Works Association, the American Backflow Prevention Association, or an organization with equivalent certification requirements acceptable to the Director and have obtained a registration number from the Director. A registration number can be obtained through application to the PWSSP. An application fee, as determined by the Director, shall be charged for the registration number.

B. Air-gap separations installed pursuant to §2005 (A) and §2006 (A) shall be visually inspected by the public water system owner or operator at least annually to determine compliance with these regulations.

C. The public water system owner or operator shall ensure that backflow prevention assemblies that fail the field test are repaired or replaced within 30 days.

§2008 ADDITIONAL CROSS-CONNECTION CONTROL REQUIREMENTS FOR COMMUNITY WATER SYSTEMS

In addition to the applicable requirements in this part of the regulations, each community water system shall implement a cross-connection control program that includes operating rules of service or ordinances adopted to enable the public water system owner or operator to:

A. Comply with the requirements of these regulations, and

B. Discontinue a water user’s service if the requirements in these regulations are not met.

§2009 RECORDKEEPING

A. Each public water system owner or operator shall maintain records of the following for a minimum of three years:

1. Most current hazard assessment, conducted pursuant to §2003;

2. Locations and types of backflow protection and associated hazards;

3. Results of all backflow prevention assembly field testing and air gap inspections; and

4. Repairs made to, or replacement or relocation of, backflow protection.

B. Each public water system owner or operator shall submit summaries of the information in §2009 (A) to the Navajo Nation Public Water Systems Supervision Program at the end of each calendar year. The summaries shall also be available to the Director on request for a minimum of three years.

§2010 NOTIFICATION

Each public water system owner or operator shall notify the Navajo Nation Public Water Systems Supervision Program of any known incident of backflow into the public water system within 24 hours of discovery of the incident. The public water system owner or operator shall also submit, within 5 working days, a written report of the incident describing the nature and severity of the backflow, the actions taken by the public water system owner or operator in response to the incident, and the action plan intended to prevent such incidents in the future.