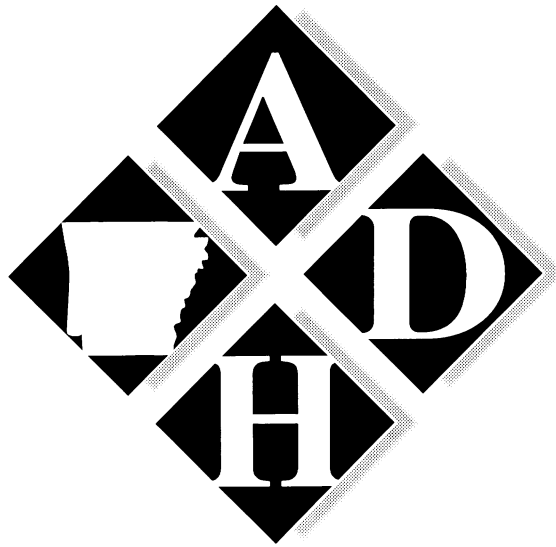


Minimum Standards for a Cross-Connection Control Program



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Division of Engineering
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Cross-Connection Control Program
(Revised December, 1997)

I. Statement of Purpose

These *Minimum Standards for a Cross-Connection Control Program* are intended to describe a program by which the water in the public water system facilities is protected from contamination by backflow, via either backpressure or backsiphonage. It is not intended to require a water utility to implement an isolation type cross-connection control program. In general, the program described in these *minimum standards* is a **containment type** program.

Containment programs do not necessarily insure that the facility being served is in full and complete compliance with the requirements of the *Arkansas State Plumbing Code* regarding cross-connections.

Containment type programs do not generally protect users of water within the facility from cross-connections which occur within the facility plumbing. Internal facility plumbing is under the jurisdiction of the *Arkansas State Plumbing Code*, as well as any local plumbing codes.

II. Definitions

A. **Facility with Backflow Potential** - Any commercial or industrial facility¹ where:

1. There is an auxiliary water supply which is connected to the potable water piping; or
2. There is piping for conveying liquids other than potable water, where that piping is under pressure and is installed in proximity to potable water piping; or
3. There is intricate plumbing which makes it impractical to ascertain whether or not cross-connections exist; or
4. There are cross-connections or potential cross-connections.

¹ Please note that these minimum standards apply to a program which covers commercial and industrial facilities only. The *Rules and Regulations Pertaining to Public Water Systems* do not require that the program address residential facilities at this time.

- B. **Facility with High Hazard Backflow Potential** - Any facility where the substance which could backflow is hazardous to human health.
- C. **Facility with Medium Hazard Backflow Potential** - Any facility where the substance which could backflow is objectionable, but does not pose an unreasonable risk to health.
- D. **Facility with Low Hazard Backflow Potential** - Any facility where the substance which could backflow is objectionable, but does not pose an unreasonable risk to health, and there is no possibility of backpressure in the downstream piping system.

III. **Program**

To be an acceptable cross-connection program, as required by Section VII.E, of the *Rules and Regulations Pertaining to Public Water Systems*, the program must accomplish the following:

- A. The water system or parent organization shall have an ordinance, by-law, regulation or other enabling authority for implementing the cross-connection control program.
- B. All commercial and industrial facilities classified as **High Hazard** shall be separated from the public water system by a reduced pressure principle backflow prevention assembly (**RP**)² or an air gap approved³ by the cross-connection control program. The RP assembly or air gap may be located on the service line on the utility side of the meter, on the service line on the customer side of the meter or within the plumbing system. If the program allows the RP assembly or air gap to be located within the plumbing system, annual inspections (surveys) are required to insure that additional high hazard fixtures have not been installed

²Special consideration may be given when retrofitting existing facilities when the installation of an RP would result in residual pressures less than 15 psi.

³All devices must meet the requirements specified in the *Arkansas State Plumbing Code*.

within the plumbing system, upstream of the backflow prevention assembly.

C. All commercial and industrial facilities classified as **Medium Hazard** shall be separated from the water system by a double check valve backflow prevention assembly (**DC**) approved by the cross-connection program, installed as specified above and shall be inspected (surveyed) every three years, to insure that no high hazard fixtures have been installed within the plumbing system.

D. All commercial and industrial facilities classified as **Low Hazard** shall be inspected (surveyed) every five years, to insure that no medium hazard or high hazard fixtures have been installed within the plumbing system. If such fixtures are found, the facility shall be reclassified to **Medium Hazard** or **High Hazard**, as appropriate.

E. The issuance of a building permit to any commercial or industrial establishment shall cause the facility to be inspected following the completion of work, unless the facility is already separated from the water system by an air gap or RP assembly.

F. **For new or expanded fire protection systems⁴**, fire protection lines shall be separated from the public water system by a **double check valve assembly (DC)**, unless the system utilizes antifreeze or other chemicals within the fire protection lines. In such cases, an **RP type backflow prevention assembly or an air gap**, approved by the cross-connection control program is required.

⁴Special consideration may be given when retrofitting existing facilities when the installation of an RP would result in residual pressures less than that necessary to meet fire protection standards. (See separate *Policy for Cross-Connection Control on Fire Protection Systems*.)

- G. Service lines (including fire service lines) for multi-use developments, where the ultimate hazard is unknown, shall be hydraulically designed to allow for the future installation of RP assemblies, without reducing fire protection ratings.
- H. All backflow prevention assemblies required under the previous paragraphs shall be tested initially and annually thereafter, as required by Chapter 10 of the *Arkansas State Plumbing Code*. The water system or its parent organization may choose to do the testing, or require the water user or owner of the backflow prevention assembly to have the testing done.
- I. Backflow prevention assemblies found to be functioning improperly shall be properly repaired by the water user⁵ or owner of the assembly, or the water system shall discontinue service to the facility as required by Section XVI.A of the *Rules and Regulations Pertaining to Public Water Systems*.

IV. **Records**

The water system shall maintain records which include the following:

- A. A master list of all commercial and industrial establishments connected to the water system.
- B. Name, address and telephone number of the *Responsible Managing Employee* of the water system's cross-connection control program.

⁵Backflow prevention assemblies located on the customer's side of the meter may be repaired only by a licensed plumber certified as a Repair Technician in accordance with the *Arkansas State Plumbing Code*. On the utility side of the meter, repairs must be made only by a certified Repair Technician but he does not necessarily have to have a plumber's license.

- C. For each commercial and industrial establishment:

1. name and address of establishment.
2. date establishment was inspected (surveyed).
3. hazard level determination.
4. backflow prevention method used (air gap, RP, DC or other).
5. date RP or DC was initially tested and test results for the initial test and subsequent annual tests.
6. identification data on each RP or DC⁶ including, make, model, serial number and installation location.

IV. **Non-Limitation of Liability**

Implementation of a program satisfying these minimum standards should not be presumed to release any city, town or water district or association from complying with the appropriate sections of the *Arkansas State Plumbing Law* concerning plumbing code enforcement, inspection or cross-connection control.

⁶Normally, for a containment type configuration only one RP or DC would be necessary to separate the establishment's plumbing system from the public water system. However, if an isolation type configuration is utilized, then it will become necessary to keep records on all RP and DC backflow prevention assemblies within the plumbing system.

This list is provided as a guide to cross-connection control administrators. By no means does this list include all possible **High Hazard** facilities. The list is provided to aid the cross-connection control surveyor or inspector in making a determination of the types of establishments which under normal circumstances would tentatively meet the definition of a **High Hazard** facility. The ADH always recommends an inspection of an existing facility to confirm the hazard level before requiring a backflow preventer. Under special circumstances, specific facilities covered by the categories listed below might qualify as **Medium or Low Hazard** facilities. **For new construction, the facilities listed below should have a RP type backflow prevention assembly designed into the water service line.**

- Agricultural watering station
- Air craft plants and airfields used by crop dusters
- Asphalt plants
- Automobile and truck dealers (using power wash and steam cleaning equipment)
- Auto radiator repair shop
- Autopsy facilities
- Auxiliary water supplies
- Baking facility
- Beverage bottling plants
- Bath house
- Battery manufacturer or processor
- Blood banks
- Bottled water manufacturer
- Breweries
- Buildings with water booster pumps, trap primers or sewer ejectors
- Canneries
- Car washes
- Cemetery
- Chemical, biological or radiological research facilities
- Chemical or plating plants
- Chiropractor's offices
- Cleaners (processing plant)
- Cold storage plants
- Commercial laundries
- Concrete mixing plants
- Concrete products manufacturer
- Crime laboratories
- Dairies and milk distributors
- Dental clinics
- Dockside facilities
- Doctor's (medical) offices
- Farms handling or diluting pesticides, herbicides or insecticides (commercial)
- Film processing facilities
- Food processing plants
- Funeral home
- Golf courses
- Government facilities
- Gravel processing plant
- Hazardous waste processing or storage facilities

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High Hazard Facilities (continued)

- Health clubs and fitness centers
- Hog farms
- Hospitals
- Incineration facilities

Industrial plants
Irrigation systems
Laboratories (chemical, biological or radiological)
Laundries (commercial, excluding laundrymats)
Livestock facilities (where held for sale or slaughter; i.e, cattle, swine, poultry, emus, ostriches)
Lumber processor
Manufacturing plants using water solutions of toxic chemicals
Manufacturing plants using pressurized process water
Marinas
Medical, dental, health or veterinary clinics
Metal plating, etching, passivation or pickling plants
Mining operations
Morgues
Mortuaries
Munitions production plant
Multi-storied buildings (over four floors)
Nursery, shrubbery or garden centers
Nursing or convalescent homes
Oil or gas production, storage, transmission facilities
Packing houses
Paper mill
Pesticide processors or applicators
Plants handling radioactive materials
Power plants
Pressure vessel repair, testing and maintenance facilities
Propane or other LPG handling facility
Radioactive material plants and handling facilities
Railroad yards
Restricted facilities (inspection by water utility personnel not allowed)
Rubber manufacturing plants
Sand or gravel plants
Sanitariums
Schools with chemical or biological laboratories (includes high schools and colleges)
Sewage treatment plants and sewage grinding and pumping stations
Slaughter houses
Sod farms
Steel manufacturing facility
Swimming pools (commercial)
Tank cleaning facilities
Tanneries
Tattoo parlour
Taxidermist
Wastewater treatment facilities
Waterfront facilities
Water treatment plants
Veterinary clinics
Zoos (including safari parks, petting zoos, alligator farms, etc.)