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RESOLUTION NO. 2016-89

In the matter of providing an effective means for
Protecting the public water system from contamination
Due to backflow of contaminants through the water
Service connection into the public water system.

Northwestern Water
and Sewer District
May 26, 2016

Trustee Miller moved the adoption of the following Resolution:

WHEREAS, Section 6109.13 of the Ohio Revised Code requires protection of the public water system from contamination through any connection whereby water from private, auxiliary or emergency water system may enter the public water system; and

WHEREAS, Section 3745-95 of the Ohio Administrative Code requires protection of the public water system from contamination due to backflow of contaminants through the water service connection; and

WHEREAS, The Ohio Environmental Protection Agency requires the maintenance of a continuing program of cross-connection control which will systematically and effectively prevent the contamination of all potable water systems; and

WHEREAS, in order to accomplish these goals it is necessary to introduce restrictions that go beyond usual plumbing code requirements; therefore be it

RESOLVED, By the Board of Trustees of the Northwestern Water and Sewer District:

Section 1. That if, in the judgement of the President and Superintendent, an approved backflow prevention device is necessary for the safety of the public water system, the President or Superintendent will give notice to the water consumer to install such an approved device immediately. The water consumer shall, at his own expense, install such an approved device at a location and in a manner approved by the District and shall have inspections and tests made of such approved devices as required by the District and the Ohio Environmental Protection Agency.

Section 2. That no person, firm or corporation shall establish or permit to be established or maintain or permit to be maintained any connection whereby a private, auxiliary or emergency water supply other than the regular public water supply of the
Northwestern Water and Sewer District may enter the supply or distributing system of said municipality, unless such private, auxiliary or emergency water supply and the method of connection and use of such supply shall have been approved by the President of the District and by the Ohio Environmental Protection Agency.

Section 3. That it shall be the duty of the District to cause surveys and investigations to be made of properties served by the public water supply where actual or potential hazards to the public water supply may exist. Such surveys and investigations shall be made a matter of public record and shall be repeated as often as the President or Ohio Environmental Protection Agency shall deem necessary.

Section 4. That the President of the Northwestern Water and Sewer District, or his or its duly authorized representative shall have the right to enter at any reasonable time any property served by a connection to the public water supply or distribution system of the District for the purpose of inspecting the piping system or systems thereof. On demand the owner, lessees of occupants of any property so served shall furnish to the President any information which he may request regarding the piping system or systems or water use on such property. The refusal of such information, when demanded, shall, within the discretion of the President be deemed evidence of the presence of improper connections as provided in this resolution.

Section 5. That the President of the District is hereby authorized and directed to discontinue, after reasonable notice to the occupant thereof, the water service to any property wherein any connection in violation of the provisions of this resolution is known to exist, and to take such other precautionary measures as he may deem necessary to eliminate any danger of contamination of the public water supply distribution mains. Water service to such property shall not be restored until such conditions shall have been eliminated or corrected in compliance with the provisions of this resolution.

and be it further

RESOLVED, That this Northwestern Water and Sewer District Board of Trustees hereby finds and determines that all formal actions relative to the passage of this resolution were taken in open meetings of this Board, and that all deliberations of the Board and of its committees, if any, which resulted in formal action, were taken in meetings open to the public, in full compliance with applicable legal requirements, including Section 121.22, Ohio Revised Code.
Trustee Schuie seconded the resolution and the roll being called on its adoption, the vote resulted as follows:

YES 8   NO 0   ABSTAIN 0

Chairman

Secretary

Attest: Sean O'Brien
Clerk of the Board
BACKFLOW PREVENTION

SECTION 1. CROSS-CONNECTION CONTROL - GENERAL POLICY

A. **Purpose**

The purpose of these Rules and Regulations is:

1. To protect the public potable water supply from contamination or pollution by isolating within the consumer’s water system contaminants or pollutants which could backflow through the service connection into the public water system.

2. To promote the elimination or control of existing cross-connections, actual or potential, between the public or consumer’s potable water system and non-potable water systems, plumbing fixtures and sources or systems containing process fluids.

3. To provide for the maintenance of a continuing program of backflow prevention and cross-connection control which will systematically and effectively prevent the contamination or pollution of the public and consumer’s portable water system.

B. **Application**

These rules and regulations shall apply to all premises served by the public water system of the Northwestern Water and Sewer District.

C. **Policy**

The Superintendent of Operations shall be responsible for the protection of the public water system from contamination due to backflow of contaminants through the water service connection. If, in the judgment of the Superintendent of Operations, or his authorized representative, an approved backflow prevention assembly is necessary at the water service connection to any consumer’s premises for the safety of the water system, the superintendent of water or his authorized representative shall give notice to the consumer to install such approved backflow prevention assembly at each service connection to his premises. The consumer shall immediately install such approved assembly or assemblies at his own expense, and failure, refusal or inability on the part of the consumer to install such assembly or assemblies immediately shall constitute grounds for discontinuing water service to the premises until such device or devices have been installed.
SECTION 2. DEFINITIONS

A. The following definitions shall apply in the interpretation and enforcement of these rules and regulations:

1. **Air Gap Separation**
   The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the flood level rim of the receptacle.

2. **Approved**
   A backflow prevention device or method has been accepted by the supplier of water and the director as suitable for the proposed use.

3. **Auxiliary Water System**
   Any water system on or available to the premises other than the public water system and includes water supplied by the system. These auxiliary waters may include water from another source such as wells, lakes, or streams; or process fluids; or used water. They may be polluted or contaminated or objectionable or constitute a water source of system over which the supplier of water does not have control.

4. **Backflow**
   The flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable water supply from any other source other than the intended source of the potable water supply.

5. **Backflow Prevention Assembly**
   Any assembly, device, method, or type of construction intended to prevent backflow into a potable water system.

6. **Consumer**
   The owner or person in control of any premises supplied by or in any manner connected to the public water system.

7. **Consumer’s Water System**
   Any water system, located on the consumer’s premises, supplied by or in any manner connected to a public water system. A household plumbing system is considered to be a consumer’s water system.

8. **Contamination**
   An impairment of the quality of the water by sewage or process fluids or waste to a degree which could create an actual hazard to the public health through poisoning or through spread of disease by exposure.

9. **Cross-connection**
Any arrangement whereby backflow can occur.

10. **Degree of Hazard**
   A term derived from an evaluation of the potential risk to health and the adverse effect upon the potable water system.

11. **Director**
   The Director of Environmental Protection or his duly authorized representative.

12. **Double Check Valve Assembly**
   Assembly composed of two single, independently acting, check valves including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the water-tightness of each check valve.

13. **Health Hazard**
   Any condition, device or practice in a water system or its operation that creates, or may create, a danger to the health and well-being of users. The word “severe” as used to qualify “health hazard” means a hazard to the health of the user that could reasonably be expected to result in significant morbidity or death.

14. **Interchangeable Connection**
   An arrangement or device that will allow alternate but not simultaneous use of two sources of water.

15. **Non-potable Water**
   Water not safe for drinking, personal, or culinary use.

16. **Person**
   The state, any political subdivision, public or private corporation, individual, partnership, or other legal entity.

17. **Pollution**
   The presence in water of any foreign substance that tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such water for domestic use.

18. **Potable Water**
   Water which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the environmental protection agency.
19. **Process Fluids**
Any fluid or solution which may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration such as would constitute a health, pollution, or system hazard if introduced into the public or a potable consumer’s water system. This includes, but is not limited to:

a. Polluted or contaminated waters;
b. Process waters;
c. Used waters originated from the public water system which may have deteriorated in sanitary quality;
d. Cooling waters;
e. Contaminated natural waters taken from wells, lakes, streams, or irrigation systems;
f. Chemicals in solution or suspension;
g. Oils, gases, acids, alkalis, and other liquid and gaseous fluids used in industrial or other processes, or for firefighting purposes.

20. **Public Water System**
The meaning ascribed to such term in Section 6109.01 and 6109.02 of the Ohio Revised Code.

21. **Reduced Pressure Principle Backflow Prevention Assembly**
An assembly containing a minimum of two independently acting check valves together with an automatically operated pressure differential relief valve located between two check valves. During normal flow and at the cessation of normal flow, the pressure between these two checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valves at less than the supply pressure. The unit must include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks.

22. **Service Connection**
The terminal end of a service line from the public water system. If a meter is installed at the end of the service, then the service connection means the downstream end of the meter.

23. **Supplier of the Water**
The owner or operator of a public water system.

24. **System Hazard**
A condition posing an actual or potential threat of damage to the physical properties of the public water system or a potable consumer’s water system.
25. Potential Hazard
   Condition through which an aesthetically objectionable or degrading material not
dangerous to health may enter the public water system or a potable consumer’s
water system.

26. Used Water
   Any water supplied by a supplier of water from a public water system to a
consumer’s water system after it has passed through the service connection and
it no longer under the control of the supplier.

SECTION 3. WATER SYSTEM

A. The water system shall be considered as made up of two parts: the public water
system and the consumer’s water system.

B. The public water system shall consist of the source facilities and the distribution
system, and shall include all those facilities of the water system under the control
of the Superintendent of Operations up to the point where the consumer’s water
system begins.

C. The source shall include all components of the facilities utilized in the production,
treatment, storage and delivery of water to the public distribution system.

D. The public distribution system shall include the network of conduits used for
delivery of water from the source to the consumer’s water system.

E. The consumer’s water system shall include those parts of the facilities beyond
the service connection which are utilized in conveying water from the public
distribution system to points of use.

SECTION 4. CROSS-CONNECTIONS PROHIBITED

A. No water service connection shall be installed or maintained to any premises
where actual or potential cross-connections to the public potable or consumer’s
water system may exist unless such actual or potential cross-connections are
abated or controlled to the satisfaction of the Superintendent of Operations.

B. No connection shall be installed or maintained whereby water from an auxiliary
water system may enter a public water system and the method of connection and
use of such system shall have been approved by the Superintendent of
Operations and by the Director of the Ohio Environmental Protection Agency as
required by Section 6109.13 of the Ohio Revised Code.
SECTION 5.  SURVEY AND INVESTIGATIONS

A. The consumer’s premises shall be open at all reasonable times to the Superintendent of Operations, or his authorized representative, for the conduction of surveys and investigations of water use practices within the consumer’s premises to determine whether there are actual or potential cross-connections to the consumer’s water system through which contaminants or pollutants could backflow into the public potable water system.

B. On request by the Superintendent of Operations, or his/her authorized representative, the consumer shall furnish information on water use practices within his premises.

C. It shall be the responsibility of the water consumer to conduct periodic surveys of water use practices on his premises to determine where there are actual or potential cross-connections in his/her water system through which contaminants or pollutants could backflow into his/her or the public potable water system.

SECTION 6.  WHERE PROTECTION IS REQUIRED

A. An approved backflow prevention assembly shall be installed on each service line to a consumer’s water system serving premises, where in the judgment of the Superintendent of Operations or the Director, actual or potential hazards to the public potable water system exist.

B. An approved backflow prevention assembly shall be installed on each service line to a consumer’s water system serving premises where the following conditions exist:

1. Premises having an auxiliary water system, unless such auxiliary system is accepted as an additional source by the Superintendent of Operations and the source is approved by the Director of the Ohio Environmental Protection Agency;

2. Premises on which any substance is handled in such a fashion as to create an actual or potential hazard to the public potable water system. This shall include premises having sources or systems containing process fluids or waters originating from the public potable water system which are no longer under the sanitary control of the Superintendent of Operations;

3. Premises having internal cross-connections that, in the judgment of the Superintendent of Operations, are not correctable, or intricate plumbing arrangements which make it impractical to determine whether or not cross-connections exist;
4. Premises where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to determine whether or not cross-connections exist;

5. Premises having a repeated history of cross-connections being established or re-established;

6. Others specified by the Superintendent of Operations or the Director.

C. An approved backflow prevention assembly shall be installed on each service line to a consumer's water system serving, but not necessarily limited to, the following types of facilities unless the Superintendent of Operations or the Director determines that no actual or potential hazard to the public potable water system exists:

1. Hospitals, mortuaries, clinics, nursing homes;
2. Laboratories;
3. Piers, docks, waterfront facilities;
4. Sewage treatment plants, sewage pumping stations or storm water pumping stations;
5. Food or beverage processing plants;
6. Chemical plants;
7. Metal plating industries;
8. Petroleum processing or storage plants;
9. Radioactive material processing plants or nuclear reactors;
10. Car washes;
11. Other specified by the Superintendent of Water or the Director

D. An approved backflow prevention assembly shall be installed at any point of connection between the public or consumer’s water system and an auxiliary water system, unless such auxiliary system is accepted as an additional source by the Superintendent of Operations and the source is approved by the Director of the Ohio Environmental Protection Agency.
## BACKFLOW PREVENTION DEVICES PROTECTION AGAINST HAZARDS

<table>
<thead>
<tr>
<th>TYPE OF FACILITY</th>
<th>MINIMUM TYPE OF PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>Air Gap Separation</td>
</tr>
<tr>
<td>Bottling Plants</td>
<td>Reduced Pressure Assembly</td>
</tr>
<tr>
<td>Breweries</td>
<td>Reduced Pressure Assembly</td>
</tr>
<tr>
<td>Canneries</td>
<td>Reduced Pressure Assembly</td>
</tr>
<tr>
<td>Car Wash (with recycling system or soap/wax educators)</td>
<td>Reduced Pressure Assembly</td>
</tr>
<tr>
<td>Chemical Plants</td>
<td>Reduced Pressure Assembly OR Air Gap Separation</td>
</tr>
<tr>
<td>Chemically Treated Boilers or Cooling Systems</td>
<td>Reduced Pressure Assembly OR Air Gap Separation</td>
</tr>
<tr>
<td>Covered Gravity or Pressure Storage Tanks (filled with water from the public system and for domestic use only)</td>
<td>Double Check Assembly</td>
</tr>
<tr>
<td>Dairies</td>
<td>Reduced Pressure Assembly</td>
</tr>
<tr>
<td>Dentist Office</td>
<td>Reduced Pressure Assembly</td>
</tr>
<tr>
<td>Domestic Pumps</td>
<td>Low Pressure Cut-off Controller</td>
</tr>
<tr>
<td>Dry Cleaning Plants</td>
<td>Reduced Pressure Assembly</td>
</tr>
<tr>
<td>Dye Plants</td>
<td>Air Gap Separation</td>
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<tr>
<td>Fertilizer Plant</td>
<td>Reduced Pressure Assembly</td>
</tr>
<tr>
<td>Film Laboratory</td>
<td>Reduced Pressure Assembly</td>
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<tr>
<td>Hospitals or Medical Buildings</td>
<td>Reduced Pressure Assembly OR Air Gap Separation</td>
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<tr>
<td>Irrigation Systems</td>
<td>Reduced Pressure Assembly</td>
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<tr>
<td>Laundries (commercial)</td>
<td>Reduced Pressure Assembly</td>
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<tr>
<td>Machine Tool Plants</td>
<td>Reduced Pressure Assembly</td>
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<td>Marine Facilities</td>
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<tr>
<td>Meat Packing Houses</td>
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<td>Metal Processing Plants</td>
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<td>Metal Plating Plants</td>
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<td>Morgues</td>
<td>Air Gap Separation</td>
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<td>Mortuaries</td>
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<td>Multistoried Buildings</td>
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<td>Nursing Homes</td>
<td>Reduced Pressure Assembly</td>
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<tr>
<td>Oil and Gas Facilities</td>
<td>Reduced Pressure Assembly</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Assembly Method</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>--------------------------</td>
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<tr>
<td>Paper Products Plant</td>
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</tr>
<tr>
<td>Pharmaceutical Plant</td>
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<td>Piers, Docks, or Waterfront Facilities</td>
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<td>Power Generating Facilities</td>
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<td>Radioactive Material Facilities</td>
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<td>Restaurants (with soap educators or commercial disposal)</td>
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<td>Sand/Gravel Plants</td>
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<td>Schools</td>
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<td>Self-draining Hydrants</td>
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<td>Swimming Pools</td>
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<td>Uncovered Tanks or Reservoirs</td>
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<td>Veterinary Establishments</td>
<td>Reduced Pressure Assembly</td>
</tr>
<tr>
<td>Water Haulers</td>
<td>Air Gap Separation</td>
</tr>
</tbody>
</table>
The following guide is a general recommendation for internal isolation protection.

NOTE:

AG….Air Gap
AVB….Atmospheric Vacuum Breaker
DCA….Double Check Assembly
PVB….Pressure Vacuum Breaker
RPA….Reduced Pressure Assembly

*…. AVBs and PVBs may be used to isolate health hazards under certain conditions; that is, backsiphonage situations.

**… Where a greater hazard exists (because of toxicity or other potential health impact), additional area protection with RPAs is required.

<table>
<thead>
<tr>
<th>DESCRIPTION OF CROSS-CONNECTION</th>
<th>HAZARD</th>
<th>ASSEMBLY</th>
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<tbody>
<tr>
<td>Aspirator</td>
<td>Health</td>
<td>AVB or PVB</td>
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<td>Bedpan Washers</td>
<td>Health</td>
<td>AVB or PVB</td>
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<tr>
<td>Autoclaves</td>
<td>Health</td>
<td>RPA</td>
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<td>Specimen Tanks</td>
<td>Health</td>
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<td>Sterilizers</td>
<td>Health</td>
<td>RPA</td>
</tr>
<tr>
<td>Cuspidors</td>
<td>Health</td>
<td>AVB or PVB</td>
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<tr>
<td>Lab Bench Equipment</td>
<td>Health</td>
<td>AVB or PVB</td>
</tr>
<tr>
<td>Sewage Pump</td>
<td>Health</td>
<td>AG</td>
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<tr>
<td>Connection to Plating Tanks</td>
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<tr>
<td>Connection to Salt Water Cooling Systems</td>
<td>Health</td>
<td>RPA</td>
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<td>Tank Vats or Other Vessels Containing Toxic Substances</td>
<td>Health</td>
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<tr>
<td>Dye Vats or Machines</td>
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<td>AG</td>
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<tr>
<td>Cooling Towers with Chemical Additives</td>
<td>Health</td>
<td>AG</td>
</tr>
<tr>
<td>Trap Primer</td>
<td>Health</td>
<td>AG</td>
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<tr>
<td>Steam Generators</td>
<td>Nonhealth**</td>
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<tr>
<td>Heating Equipment</td>
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<td>Commercial</td>
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<tr>
<td>Domestic</td>
<td>Nonhealth**</td>
<td>DCA</td>
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<tr>
<td>Irrigations Systems</td>
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<td>RPA, AVB, PVB</td>
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<td>Swimming Pools</td>
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<td>Public</td>
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<td>Private</td>
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<td>Vending Machines</td>
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<td>Ornamental Fountains</td>
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<td>Degreasing Equipment</td>
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<td>Lab Bench Equipment</td>
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<td>Hose Bibbs</td>
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<td>Trap Primer</td>
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<td>Flexible Shower Heads</td>
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<td>Steam Tables</td>
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<td>Washing Equipment</td>
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<td>Shampoo Basins</td>
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<td>Kitchen Equipment</td>
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<tr>
<td>Aspirators</td>
<td>Nonhealth**</td>
<td>AVB</td>
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SECTION 7.  TYPE OF PROTECTION REQUIRED

A. The type of protection required under Sections 6.A, 6.B and 6.C of these regulations shall depend on the DEGREE OF HAZARD which exists as follows:

1. An approved air gap separation shall be installed where the public water system may be contaminated with substances that could cause a SEVERE HEALTH HAZARD;

2. An approved air gap separation or an approved reduced pressure principle backflow prevention assembly shall be installed where the public water system may be contaminated with any substance that could cause a SYSTEM OR HEALTH HAZARD;

3. An approved air gap separation or an approved reduced pressure principle backflow prevention assembly or an approved double check valve assembly shall be installed where the public water system may be polluted with substances that could cause a POLLUTIONAL HAZARD not dangerous to health.

B. The type of protection required under Section 6.D of these regulations shall be an approved air gap separation or any approved interchangeable connection.

C. Where an auxiliary water system is used as a secondary source or water for a fire protection system, the provisions of Section 7.B for an approved air gap separation or an approved interchangeable connection may not be required, provided:

1. At premises where the auxiliary water system may be contaminated with substances that could cause a system or health hazard, the public or consumer’s potable water system shall be protected against backflow by installation of an approved reduced pressure principle backflow prevention assembly.

2. At all other premises, the public or consumer’s potable water system shall be protected against backflow by installation of either an approved reduced pressure principle backflow prevention assembly or an approved double check valve assembly;

3. The public or consumer’s potable water system shall be the primary source of water for the fire protection system;

4. The fire protection system shall be normally filled with water from the public or consumer’s potable water system;
5. The water in the fire protection system shall be used for fire protection only, with no regular use of water from the fire protection system downstream from the approved backflow prevention assembly;

6. The water in the fire protection system shall contain no additives.

SECTION 8. BACKFLOW PREVENTERS

A. Any backflow preventer required by these rules and regulations shall be of a model or construction approved by the Superintendent of Operations or the Director and shall comply with the following:

1. An air gap separation, to be approved, shall be at least twice the diameter of the supply pipe, measured vertically above the top rim of the vessel, but in no case less than one inch. It shall meet the requirements of OAC Rule 3745-95-04 of the Ohio Environmental Protection Agency.

2. A double check valve assembly or a reduced pressure principle backflow prevention assembly shall be approved by the Superintendent of Operations, and shall meet the requirements of OAC Rule 3745-95-04 of the Ohio Environmental Protection Agency.

3. An interchangeable connection, to be approved, shall be either a swing type connector or a four-way valve mechanism which unseats the plug, turns it ninety degrees and reseats the plug. Four-way valves shall stop valves on each pipe connected to the valve. The telltale port on the four-way valve shall have no piping connected and the threads or flange on this port shall be destroyed so that a connection cannot be made.

B. Existing backflow preventer's approved by the Superintendent of Operations or the Director of the Ohio Environmental Protection Agency at the time of the installation and properly maintained shall, except for inspection, testing and maintenance requirements, be excluded from the requirement of Section 8.A of this regulation providing the Superintendent of Operations is assured that they will satisfactorily protect the public potable water system. Whenever the existing backflow preventer is moved from the present location or requires more than minimum maintenance or when the Superintendent of Operations finds that the maintenance of the backflow preventer constitutes a hazard to health, the backflow preventer shall be replaced by a backflow prevention assembly meeting the requirements of these regulations.
INSTALLING AN APPROVED AIR GAP SEPARATION

AIR GAP SEPARATION

An air gap separation provides a complete physical separation between the potable water system and a non-potable system. The removal of the cross-connection by means of an air gap separation is the preferred means of preventing backflow as long as the air gap has been properly installed and maintained.

MINIMUM AIR GAP

An air gap is measured vertically from the lowest end of a potable water outlet to the flood rim or highest possible water level of the tank or receiving basin into which it discharges.

Where the potable water outlet terminates above the rim of a tank or receiving basin, the minimum air gap must be at least twice the effective opening of the potable water outlet or one inch, whichever is greater, and at least the minimum distance shown in the table below. Effective opening refers to the actual opening size at the discharge location. If not round, the diameter is determined by taking the minimum cross-sectional area at the point of potable water supply discharge and expressing it in terms of the diameter of a circle.

Where the potable water outlet is above the spill rim but adjacent to a sidewall, the minimum air gap shall be as indicated in the following table.

<table>
<thead>
<tr>
<th>EFFECTIVE OPENINGS NOT GREATER THAN 1/2&quot; DIAMETER</th>
<th>MINIMUM AIR GAP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When not affected by near wall</strong> (inches)</td>
<td><strong>When affected by near wall</strong> (inches)</td>
</tr>
<tr>
<td>1&quot;</td>
<td>1.5&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EFFECTIVE OPENINGS GREATER THAN 1/2&quot; DIAMETER</th>
<th>MINIMUM AIR GAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x the diameter of effective openings</td>
<td>3x the diameter of effective openings</td>
</tr>
</tbody>
</table>

* Side walls, ribs or similar obstructions do not affect air gaps when spaced from inside edge of spout opening a distance greater than three times the diameter of the effective opening for a single wall, or a distance greater than four times the diameter of the effective opening for two intersecting walls.
** Vertical wall, ribs, or similar obstructions extending from the water surface to or above the horizontal plane of the spout opening require a greater air gap when spaced closer to the nearest inside edge of spout opening than specified above. The effect of three or more such vertical walls or ribs has not been determined. In such cases, the air gap shall be measured from the top of the wall.

It is critical that the air-gap not be defeated through the addition of a hose or extended piping. It should be noted that once potable water leaves the distribution system, the system pressure within the receiving vessel becomes atmospheric or zero (0 psig). The user may find it necessary to install a pump to re-pressurize a plumbing system downstream of the tank.

INTERCONNECTION OF AUXILIARY AND PUBLIC WATER SUPPLY

SPECIFIC VALVING AND PIPING CONFIGURATIONS, INTERCHANGEABLE CONNECTIONS

Interchangeable connections, also known as swivel or change-over devices, include swing connectors and four-way valves. These devices operate to provide alternate, but not simultaneous, supply from either a potable or non-potable source.

These devices do not offer complete protection against backflow between the two systems which are interconnected. When used, the potable water system must be protected by an approved reduced pressure principle backflow preventer.

Two major types of interchangeable connections are as follows:

**Four-way Valves**

Where four-way valves are used for interchangeable connections, such valves must be of lubricated plug type or the type that operates through a mechanism which unseats the plug, turns it 90 degrees and reseats the plug. The ordinary plug cock, in which there is metal-to-metal contact, is unsatisfactory due to the tendency for the plug to freeze in one position when there are long periods between operation of the valve.

**Swing Connectors**

The swing connector has been used quite frequently in the past as a device to separate the public water supply from a secondary supply. The unit offers low head loss but is difficult and unhandy to change from one position to another, and therefore, is being replaced by the four-way valve.

**INSTALLATION REQUIREMENTS**

1. Four-way valves and swing connectors must have separate shut-off valves on each of the supply lines and downstream of the connection.

2. The tell-tale port of the four-way valve must be able to drain by gravity and therefore, must face down or in a horizontal position with no pipe extensions. The threads or flange on the drain port must be destroyed so that a connection cannot be made to this port.

3. The four-way valve or swing connector, when used in connection with a potable and auxiliary water supply, must have a reduced pressure principle backflow prevention assembly installed on the potable line.
Advantages
1. The four-way valve is simple, compact, and has easy quarter-turn operation.
2. The swing connector has low head loss and a minimum of required maintenance.

Limitations
1. Pressure loss may be high through the backflow preventer, four-way valve, and shut off valves.
TEST CONNECTIONS FOR DOUBLE CHECK BACKFLOW PREVENTER

A double check valve assembly consists of an assembly of two independently acting check valves mounted between two tightly closing shut-off valves and fitted with four properly located test cocks.

The double check valve assembly is very useful, and when properly maintained, reliable means for backflow protection from aesthetically objectionable or degrading materials which are not actually dangerous to health or to the public water system. The assembly has the inherent weakness of failing without giving indication that a failure is occurring.

Design and Construction


These assemblies must receive the approval of the supplier of water, as well as meet the rule requirements of the Ohio EPA as outlined in OAC Rule 3745-95-06. The suppliers of water may develop a list of assemblies acceptable for use in their public water systems.

INSTALLATION REQUIREMENTS

Double check valve assemblies must be located so as to:

1. Permit easy access.
2. Provide adequate space for maintenance, inspection, testing and disassembly.
3. Prevent submergence.
4. Be protected from freezing temperatures by installation within a heated building or heated enclosure. Heated enclosures must meet the ASSE 1060 standard.

Installation above ground level is preferred. Where above ground installations are not reasonably practical, a pit or vault may be used. The pit or vault must be:

1. Installed to ensure water tight construction.
2. Constructed so that it will not flood. Surrounding grade shall slope away from the pit or vault to drain water away from the area.
3. Designed with a sup if subjected to ground water.
4. Provided with an access ladder and adequate natural or artificial light to permit maintenance, inspecting and testing.
5. Protected against sanitary sewage. Pit drains shall not be connected to a sanitary sewer.
TEST CONNECTIONS FOR REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER

The reduced pressure principle backflow prevention assembly consists of two spring loaded check valves operating in a series, and a spring-loaded/diaphragm-activated differential pressure relief valve located in the zone between the check valves. Two tightly closing shutoff valves and four test cocks complete the assembly.

This type of assembly will indicate leakage through one or both check valves or the relief valve by the discharge of water from the relief valve port.

Design and Construction


These assemblies must receive the approval of the supplier of water, as well as meet the rule requirements of the Ohio EPA as outlined in OAC Rule 3745-95-06. The suppliers of water may develop a list of assemblies acceptable for use in their public water systems.

INSTALLATION REQUIREMENTS

Reduced pressure principle backflow assemblies must be:
1. Installed so as to be readily accessible for inspection, testing and maintenance.
2. Provided with adequate space for inspection, testing, maintenance and disassembly.
3. Protected from freezing by installation within a heated building or heated enclosure. Heated enclosures must meet the ASSE 1060 standard.
4. Mounted in a horizontal position except for certain models that have been specifically designed to be installed in a vertical position.
5. Installed above ground level or floor level.
6. Installed so that there is a visible free discharge from the relief port with no extension piping.
7. Provided with adequate floor drainage to handle water discharged from the relief port.

The installation of reduced pressure principle backflow prevention assemblies in pits is specifically prohibited.
Figure 5: An example of a reduced pressure principle backflow prevention assembly installed in a heated enclosure. The relief valve has an air gap device attachment to prevent direct connection to the relief valve opening.

Figure 6: Schematic of reduced pressure principle backflow prevention assembly.
SECTION 9. INSTALLATION

A. Backflow prevention assemblies required by these rules and regulations shall be installed at a location and in manner approved by the Superintendent of Water and at the expense of the water consumer. In addition, any backflow prevention assembly required by Section 7.B and 7.C of these regulations shall be installed at a location and in a manner approved by the Director of the Ohio Environmental Protection Agency as required by Section 6109.13 of the Ohio Revised Code.

B. Backflow prevention assemblies installed on the service line to a consumer’s water system shall be located on the consumer’s side of the water meter, as close to the meter as is reasonably practical, and prior to any other connection.

C. Pits or vaults shall be water-tight construction, be so located and constructed as to prevent flooding and shall be maintained free from standing water by means of either a sump and pump or a suitable drain. Such pump or drain shall not connect to a sanitary sewer not permit flooding of the pit or vault by reverse flow from its point of discharge. An access ladder and adequate natural or artificial lighting shall be provided to permit maintenance, inspection and testing of the backflow prevention device.

D. Reduced pressure principle backflow prevention assembly must be installed above ground level or floor level, whichever is higher.
1. Any backflow preventer must be installed inside the building unless the District approves an alternate location.

2. The backflow preventer must be installed immediately downstream of the water meter; if the water meter is in a pit then the backflow preventer must be installed immediately as the service piping enters the building.

3. The service piping between the meter and the backflow preventer must be void of branches or outlets of any type.

4. The backflow preventer must be installed a minimum of 6" from the wall and 24" from the floor.

5. The backflow preventer must be installed in a horizontal plane.

6. All test cocks must face the center of the room unless they are mounted in the top or bottom of the assembly.

7. The backflow preventer may be no smaller than the water meter size unless a manifold or parallel setting of backflow preventers in installed.

8. If a manifold or parallel setting is installed, then the combined flow rate of the assemblies must equal or exceed the flow rate of a single assembly setting.

9. The backflow preventer must be of a type approved by the Ohio EPA and the District.

10. Water will be spilled during the normal operation of a reduced pressure backflow preventer and during the periodic testing of all backflow preventers; for this reason it is recommended that a floor drain be installed as close as practical to the assembly.

11. The relief valve discharge of a reduced pressure backflow preventer may be piped to a floor drain provided an approved air gap separation is maintained at the point of connection to the relief valve discharge.
SECTION 10.    INSPECTION AND MAINTENANCE

A. It shall be the duty of the consumer at any premises on which backflow preventers required by these regulations are installed to have inspections, tests, and overhauls made in accordance with the following schedule, or more often where inspections indicate a need:

1. Air gap separations shall be inspected at the time of installation and at least every twelve months thereafter;

2. Double check valve assemblies shall be inspected and tested for tightness at the time of installation and at least every twelve months thereafter.

   They shall be dismantled, inspected internally, cleaned and repaired whenever needed.

3. Reduced pressure principle backflow prevention assemblies shall be inspected and tested for tightness at the time of installation and at least every twelve months thereafter.

4. Interchangeable connections shall be inspected at the time of installation and at least every twelve months thereafter.

B. Inspections, tests, and overhauls of backflow prevention assemblies shall be made at the expense of the water consumer and shall be performed by the Superintendent of Operations or a person approved by the Superintendent of Operations as qualified to inspect, test and overhaul backflow prevention assemblies.

C. Whenever backflow prevention assemblies required by these regulations are found to be defective, they shall be repaired, overhauled or replaced at the expense of the consumer without delay.

D. The water consumer must maintain a complete record of each backflow preventer from purchase to retirement. This shall include a comprehensive listing that includes a record of all tests, inspections, repairs and overhauls. Records of inspections, tests, repairs and overhaul shall be submitted to the Superintendent of Operations.

E. Backflow preventer's shall not be bypassed, made inoperative, removed or otherwise made ineffective without specific authorization by the Superintendent of Operations.
AIR GAP SEPARATION REPORT

NORTHWESTERN WATER & SEWER DISTRICT

Location of Device: 

Date Installed: Service No.: 

I hereby certify that the air gap separation described above was inspected by me on and the following findings were made.

Date

Effective diameter of the supply pipe or opening.

Near wall distance, if present.

Height of supply opening above the flood-level rim.

Yes No

Required minimum air gap separation is provided.

Air gap separation is not being bypassed.

No evidence that arrangements have been made to bypass the air gap separation.

Inspector 

signature printed name

CERTIFICATION

I hereby certify that the foregoing report is correct and that the following statement is true:

The air gap separation has been in constant use at the location during the entire prescribed interval between inspections and during that period this device was not bypassed or otherwise made ineffective.

Company Signature

Address Print Name

Title Date

For District use only
NORTHWESTERN WATER & SEWER DISTRICT

Bulk Water Hauler/Air-Gap Separation Inspection Form

Survey Date: __________________________  Survey Time: __________________________

Contact Name: __________________________  Contact Phone: __________________________

Service Address: __________________________

City: __________  Township: __________  County: __________

____________________________________________________________________________

Facility Name: __________________________  Owner: __________________________

Owner Address: __________________________

City: __________  Township: __________  County: __________

____________________________________________________________________________

Equipment Inspected:

☐ Water Storage Tank

☐ Other: __________________________

Fill Pipe Diameter: __________  Distance: __________

Tag Number: __________________________

Inspected by: __________________________  Pass: _____  Fail: _____

Notes:

For District use only
INTERCHANGEABLE CONNECTION INSPECTION REPORT

NORTHWESTERN WATER & SEWER DISTRICT
Interchangeable Connection Inspection Report Form

Address: ________________________________________________________________

Company Name: __________________________________________________________

Contact Name: ___________________________ Phone: _________________________

Location of Interchangeable Connection: ___________________________________

Type of Connection: [ ] 4-Way [ ] Swing

Service No.: ___________________________ Meter No.: _________________________

Type of Inspection: [ ] Initial [ ] Annual

I certify that the interchangeable connection as described above was inspected by me on
the following findings were made.

date

[ ] Yes [ ] No

The interchangeable connection was found to be properly installed in accordance with the requirement of the Ohio Environmental Protection Agency and the plans as approved.

[ ] Yes [ ] No

The interchangeable connection has not been bypassed, removed, or relocated.

[ ] Yes [ ] No

The reduced pressure principle backflow prevention device, installed as part of this interchangeable connection has been tested for tightness and proper operation (test report attached).

Comments: _____________________________________________________________

Inspector

signature ___________________________ printed name _________________________

cert. tester no. ______________________ date __________________________

I certify that the foregoing inspection was performed on the date indicated and that the following statement is true:
The interchangeable connection as described above has been in uninterrupted use during the entire prescribed interval between inspections and that during that period has not been bypassed or otherwise made ineffective.

Company Representative

signature ___________________________ printed name _________________________

title ___________________________ date __________________________

For District use only
ANNUAL TEST & MAINTENANCE REPORT FOR BACKFLOW PREVENTION ASSEMBLIES

NORTHWESTERN WATER & SEWER DISTRICT
Annual Test & Maintenance Report for Backflow Prevention Assemblies

<table>
<thead>
<tr>
<th>Facility Name:</th>
<th>Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Person:</td>
<td>Phone Number:</td>
</tr>
</tbody>
</table>

**Assembly Information**

- Make: 
- Model: 
- Size: 
- Serial Number: 

**Installation Information**

- Containment ☐ Isolation ☐ 
- Meter Pit ☐ Basement ☐ Floor Number: 
- Penthouse ☐ Boiler Room ☐ Room Number: 
- Mechanical Room ☐ Protection Provided: 

**Double Check Assembly**

<table>
<thead>
<tr>
<th>Initial</th>
<th>1st Check</th>
<th>2nd Check</th>
<th>Outlet Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outlet Valve</td>
<td>Pass ☐</td>
<td>Pass ☐</td>
<td>Pass ☐</td>
</tr>
<tr>
<td>Valve</td>
<td>Fail ☐</td>
<td>Fail ☐</td>
<td>Fail ☐</td>
</tr>
</tbody>
</table>

**Reduced Pressure Assembly**

<table>
<thead>
<tr>
<th>Initial</th>
<th>1st Check</th>
<th>2nd Check</th>
<th>Outlet Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Check Valve</td>
<td>Pass ☐</td>
<td>Pass ☐</td>
<td>Pass ☐</td>
</tr>
<tr>
<td>Relief Valve</td>
<td>Fail ☐</td>
<td>Fail ☐</td>
<td>Fail ☐</td>
</tr>
<tr>
<td>Opening Point Date:</td>
<td>2nd Check Valve</td>
<td>Pass ☐</td>
<td>Valve</td>
</tr>
</tbody>
</table>

**Pressure Vacuum Breaker**

<table>
<thead>
<tr>
<th>Initial</th>
<th>Test</th>
<th>Date:</th>
<th>Check</th>
<th>Valve</th>
<th>Air Intake</th>
<th>Pass ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Date</td>
<td>Test Valve</td>
<td>Date:</td>
<td>Check</td>
<td>Pass ☐</td>
<td>Fail ☐</td>
<td></td>
</tr>
</tbody>
</table>

**Re-tests**

<table>
<thead>
<tr>
<th>Initial</th>
<th>Test</th>
<th>Date:</th>
<th>Check</th>
<th>Valve</th>
<th>Air Intake</th>
<th>Pass ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Date</td>
<td>Test Valve</td>
<td>Date:</td>
<td>Check</td>
<td>Pass ☐</td>
<td>Fail ☐</td>
<td></td>
</tr>
</tbody>
</table>

**Repairs & Materials Used**

**Comments:**

**TESTER CERTIFICATION:** I certify that the above data is correct and that the backflow prevention device is in the proper working condition.

- Tester Name: 
- Signature: 
- Phone: 

**FACILITY CERTIFICATION:** I hereby certify that the above backflow prevention device has been in constant use at this location the entire prescribed interval between test periods and during that period this device was not bypassed, made inoperative or removed without proper authorities. I further certify that I have the authority and responsibility to ensure the above.

- Owner/Officer: 
- Signature: 
- Phone: 

RETURN ORIGINAL TO: Northwestern Water & Sewer District, PO Box 348, Bowling Green, OH 43402

Phone: 419-354-9090 or toll free: 1-877-354-9090 Fax: 419-353-4803 Email: twilkins@nwwsd.org
TEST REPORT FOR LOW SUCTION PRESSURE CUT-OFF CONTROLLER ON BOOSTER PUMP

NORTHWESTERN WATER & SEWER DISTRICT
Low Suction Pressure Cut-Off Controller on Booster Pump Report Form

Address: ____________________________
Company Name: ____________________________
Contact Name: ____________________________ Phone: ____________________________
Type of Controller: □ Fire Pump □ Booster Pump
Model No.: ____________________________ Serial No.: ____________________________
Type of inspection: □ Initial □ Annual Date: ____________________________

Yes No
□ Found the sensing line seal intact
□ Found the normal power light (green) on

Manual Start
□ Low suction light (red) comes on when suction pressure reaches 10 psig
□ The alarm sounds after a minimum 30 second delay
□ The pump shuts off immediately after the low suction pressure alarm sounds
□ The pump has automatic restart when the sensing line is recharged

Automatic Start
□ Low suction light (red) comes on when suction pressure reaches 10 psig
□ The alarm sounds after a minimum 30 second delay
□ The pump shuts off immediately after the low suction pressure alarm sounds
□ The pump has automatic restart when the sensing line is recharged

Reset Pump
□ Opened outlet valve at pump discharge
□ Pump restarted in manual start mode
□ Pump restarted in automatic start mode
□ Resealed sensing line valve in open position

I certify that the low pressure cut-off controller test as described above was performed by me on the date indicated above and the findings were as described.
Inspector ______________________________________________________________________
signature ______________________________________________________________________
printed name ______________________________________________________________________
cert. tester no. ______________________________________________________________________
date ______________________________________________________________________

I certify that the inspection was performed on the date indicated and that the following statement is true:
The low suction pressure cut-off controller has been in uninterrupted use during the interval between inspections and during that period has not been tampered with or otherwise made ineffective.

Company Representative ______________________________________________________________________
signature ______________________________________________________________________
printed name ______________________________________________________________________
title ______________________________________________________________________
date ______________________________________________________________________

For District use only
NORTHEASTERN WATER & SEWER DISTRICT
Minimum Pressure Sustaining Valve on Booster Pump Report Form

Address: ________________________________

Company Name: __________________________

Contact Name: ____________________________ Phone: ____________________________

Type of Controller: □ Fire Pump □ Booster Pump

Pressure Sustaining Valve: __________________________ Manufacturer: __________________________

Model No.: __________________________ Serial No.: __________________________

Type of inspection: □ Initial □ Annual Date: __________________________

Yes □ No □

Found the sensing line seal intact
Found the normal power light (green) on

Manual or Automatic Start

□ Minimum pressure sustaining valve indicator showing valve closing to throttle flow and throttling action free from abnormalities

□ Minimum pressure sustaining valve indicator shows closed position at 10 psig
□ The sustaining valve opens fully when the sensing line is recharged and return to full flow is free from abnormalities

Reset Pump

□ Opened outlet valve at pump discharge

□ Pump restarted in manual start mode

□ Pump restarted in automatic start mode

□ Resealed sensing line valve in open position

I certify that the minimum pressure sustaining valve test as described above was performed by me on the date indicated above and the findings were as described.

Inspector __________________________

signature

printed name
cert. tester no.
date

I certify that the inspection was performed on the date indicated and that the following statement is true:
The minimum pressure sustaining valve has been in uninterrupted use during the interval between inspections and during that period has not been bypassed or otherwise made ineffective.

Company Representative __________________________

signature

title

printed name
date

For District use only
SECTION 11.  BOOSTER PUMPS

A. For booster pumps not intended to be used for fire suppression, such booster pump shall be equipped with a low pressure cut-off designed to shut-off the booster pump when the pressure in the service line on the suction side of the pump drops to ten pounds per square inch gauge or less.

B. For booster pumps used for fire suppression installed after August 8, 2008, such booster pump shall be equipped with a minimum pressure sustaining valve on the booster pump discharge, which throttles the discharge of the pump when necessary so that suction pressure will not be reduced below ten pounds per square inch gauge while the pump is operating.

C. For booster pumps used for fire suppression installed prior to August 8, 2008, such booster pump shall be equipped with either a low pressure cut-off designed to shut-off the booster pump when the pressure in the service line on the suction side of the pump drops to ten pounds per square inch gauge or less, or a minimum pressure sustaining valve on the booster pump discharge, which throttles the discharge of the pump when necessary so that suction pressure will not be reduced below ten pounds per square inch gauge while the pump is operating.

D. It shall be the duty of the water consumer to maintain the low pressure cut-off device or minimum pressure sustaining valve in proper working order and to certify to the Superintendent of Operations, at least once every twelve months that the device is operating properly.
SPECIFICATION FOR LOW SUCTION PRESSURE CUT-OFF CONTROLLER FIRE PUMP

The low suction pressure cut-off controller is designed to shut down fire pumps receiving water from a municipal water supply when the water supply pressure reduces to 10 psig at the suction side of the pump. The controller shall be of the type that, failure of electrical power to the controller will initiate alarm.

The controller shall include the following components and requirements:

1. A pressure switch shall be located on the outside of the controller enclosure. The switch must be actuated by adequate water pressure before the fire pump controller can be operated. The pressure switch shall be provided with a tamper-proof seal on the adjustments.

2. A timer shall delay shut down of the fire pump controller for thirty (30) seconds after a low water pressure condition is sensed or detected.

3. The low suction pressure controller electrical power supply shall be obtained from the main fire pump controller circuit or from the fire pump controller supply circuit, incorporating a separate step-down transformer and shall not exceed 120 volts nominal.

4. Supervisory electrical power to the low suction controller shall be provided. It shall be from a separate reliable source and shall not exceed 120 volts nominal.

5. The following visual signs shall be provided on the cover of the controller box and marked as follows:
   A. “Supply Power Normal”—Green Pilot Light
   B. “Supervisory Power Normal”—White Pilot Light
   C. “Low Suction Pressure” (without time delay)—Red Pilot Light

6. The following audible alarm signals shall be provided in the controller:
   A. Low Suction Pressure—(after 30 second delay)
   B. Supply Power Failure
   C. Supervisor Power Failure

7. The audible alarm signal shall be energized through an electro-mechanical device.

8. Controller shall be provided with a manual “Alarm Silence” device, which shall be reactivated upon alarm condition.

9. The controller shall conform to the requirements of the National Electrical Code (NFPA 70) and the Underwriters Laboratories Standard #508.

10. All electrical components shall be UL listed or UL recognized.
11. Supply and Supervisory power to the controller shall be fused within one controller.

12. A terminal strip shall be provided for all field connections.

13. The controller enclosure construction shall be in accordance with Nema Type 12 with provisions for locking, and painted alarm red. The controller shall be marked: “Fire Pump Low Suction Pressure Controller”.

14. The pressure sensing line shall not be less than \( \frac{1}{2} \)” diameter and, if a shut-off valve is included, it shall be sealed and locked in the open position. A test pressure gauge and drain valve shall be provided separate from the panel.
INSTALLING A LOW SUCTION PRESSURE CUT-OFF CONTROLLER
SECTION 12. VIOLATIONS

A. The Superintendent of Operations shall deny or discontinue, after reasonable notice to the occupants, thereof, the water service to any premises wherein any backflow prevention device required by these regulations is not installed, tested and maintained in a manner acceptable to the Superintendent of Operations, or if it is found that the backflow preventer has been removed or by-passed, or if an unprotected cross-connection exists on the premises, or if a low pressure cut-off or minimum pressure sustaining valve required by these regulations is not installed and maintained in working order.

B. Water service to such premises shall not be restored until the consumer has corrected or eliminated such conditions or defects in conformance with these regulations and to the satisfaction of the Superintendent of Operations.
SECTION 13  PROGRAM OUTLINE

NORTHWESTERN WATER AND SEWER DISTRICT
CROSS-CONNECTION CONTROL PROGRAM OUTLINE

Step 1: Cross-Connection Questionnaire completed by water tap applicant, then forwarded to the Northwestern Water and Sewer District,

Step 2: The Northwestern Water and Sewer District reviews the Cross-Connection Questionnaire and based on Ohio EPA Regulations (Chapter 3745-95), and Northwestern Water and Sewer District’s Resolution #95-13, a determination can be made regarding the need for a backflow preventer on the main water service line. (Additional information may be required from the applicant)

Step 3: (a) NO: Backflow prevention IS NOT required. Northwestern Water and Sewer District mails copy of questionnaire and cover letter, to the tap applicant, stating that based on questionnaire results a backflow preventer will not be required, on the main water service line. (Correspondences and Questionnaire filed in No-Action file, at the Northwestern Water and Sewer District) PROCESS COMPLETED

(b) YES: Backflow prevention IS required. Northwestern Water and Sewer District mails copy of questionnaire, Backflow Prevention Requirement Form, and a cover letter, to the tap applicant, stating that based on questionnaire results a backflow preventer will be required on the main water service line. (Correspondences and Questionnaire filed in Action file, at the Division of Water Distribution) CONTINUE TO STEP 5

Step 4: Tap applicant must contact the Northwestern Water and Sewer District within five (5) working days to notify that the correspondence has been received; the information on the questionnaire is correct and understood. If the Northwestern Water and Sewer District is not contacted within five (5) working days, a Northwestern Water and Sewer District employee shall attempt to make contact.

Step 5: The Northwestern Water and Sewer District shall inspect the backflow assembly installation at the time the meter setting is requested. If backflow preventer is not installed, meter will not be set. The inspection by the Northwestern Water and Sewer District will assure the following:
- proper device has been installed
Step 6: Meter setting completed, engineering section shall send a written notification, to the tap applicant, requesting testing of the backflow preventer, within the following time frame:

**COMPLIANCE TIME**

**(First Notice)** Testing must be completed by a certified tester and test report submitted to the Northwestern Water and Sewer District within three (3) days.

**(Second Notice)** Testing must be completed by a certified tester and test report submitted to the Northwestern Water and Sewer District within three (3) days.

**(Final Notice)** Testing must be completed by a certified tester and test report submitted to the Northwestern Water and Sewer District within forty eight (48) HOURS or water service to the premise shall be terminated.

Step 7: The Northwestern Water and Sewer District shall file device data, and notify owner on a 12 month basis that testing of the backflow prevention assembly must be performed.
SECTION 14. DOMESTIC SERVICES

DOMESTIC SERVICES

For any new domestic water service connection to the following list of facilities, regardless of on-site water use, and approved backflow prevention device, of the type designated, shall be installed on each domestic water service to the facility.

It should be noted, however, that this list should be used only as a general guide and that each proposed building will be considered separately by the plans submitted or an on-site inspection. If the building one proposes to construct, or bid, falls into one or more of these broad categories, it will be safe to assume that a backflow preventer will be required to protect the water system from the highest degree of hazard contained within the proposed structure.

Along the right margin you will notice the abbreviation of device required, which are:

A.G.-Air Gap Separation
R.P.-Reduced Pressure Principle Backflow Preventer
D.C.-Double Check Valve Backflow Preventer

Industrial Facility (as defined by water purveyor) .........................RP
Hospitals.........................................................................................RP
Mortuaries......................................................................................RP
Medical clinic, office, etc.................................................................RP
Nursing and Convalescent Homes..................................................RP
Laboratories..................................................................................RP
Sewage Treatment Plants & Pumping Stations..............................RP
Car Washes..................................................................................RP
Lawn Irrigation Systems.................................................................RP
Veterinary Establishment..............................................................RP
Film Laboratory or Processing Plant.....................................................RP
Commercial Leased Property.......................................................RP
Waterfront Facilities, Piers, Docks...............................................RP

Premises having or having access to a secondary source of water......RP

Premise having a steam boiler, cooling system, or hot water heating system where chemical water conditioners are used.................................RP
Premise having submerged inlet to equipment..............................RP
FIRE SERVICES

For any new fire service connection, where one or more of the following conditions exist, an approved backflow prevention device, of the type designated, shall be installed on each fire service line, upon immediate entry to the facility.

It should be noted, however, that this list should be used only as a general guide and that each proposed building will be considered separately by the plans submitted or an on-site inspection. If the building one proposes to construct, or bid, falls into one or more of these broad categories, it will be safe to assume that a backflow preventer will be required to protect the water system from the highest degree of hazard contained within the proposed structure.

Along the right margin you will notice the abbreviation of device required, which are:

- A.G. – Air Gap Separation
- R.P. – Reduced Pressure Principle Backflow Preventer
- D.C. – Double Check Valve Backflow Preventer

Fire system with any domestic water service connected.................DC
(domestic water system may also require backflow protection)

Fire system containing jocky pump............................................DC
(an auxiliary pump with high head and low capacity characteristics to maintain elevated pressure in the fire system)

Fire system containing any additive, such as..............................RP
Corrosion inhibitors or anti-freeze (even propylene glycol)

Premise having or having access to a secondary source of water.....RP
which can potentially be used for fire protection
(any fire system connection to an auxiliary water supply must obtain approval from the Ohio EPA and the Northwestern Water and Sewer District)
### Section 16. BACKFLOW TESTING COMPANIES

#### BACKFLOW TESTING COMPANIES

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<thead>
<tr>
<th>COMPANY NAME</th>
<th>CITY</th>
<th>PHONE</th>
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<tr>
<td>ARBOR INSPECTION SERVICES</td>
<td>ANN ARBOR</td>
<td>734-761-8088</td>
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<td>ROCKWEST PLUMBING</td>
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<td>216-701-6154</td>
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<td>COMPLETE REFRIGERATION, LLC</td>
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<td>EARL MECHANICAL SERVICES INC</td>
<td>WAUSEON</td>
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INSTRUCTIONS FOR CROSS CONNECTION QUESTIONNAIRE

PLEASE READ THIS ENTIRE PAGE BEFORE FILLING OUT THE CROSS-CONNECTION QUESTIONNAIRE.

PURPOSE

The Cross-Connection Questionnaire provides the Northwestern Water and Sewer District with water use information on proposed new water service connections, to the public water system. Based on questionnaire results, Ohio EPA Regulations (3745-95), and the Northwestern Water and Sewer District can determine the degree of hazard a premise presents to the public water system. If contamination of the public water supply exists, the owner must immediately install an approved backflow prevention assembly, at his own expense. The installation of a backflow prevention assembly, on the water service line, allows one-way flow into the premise, and prevents potential contaminants, within the premise, from reaching the public water system. Information on the installation of backflow preventers, and general information on cross-connection control, can be obtained by visiting the Northwestern Water and Sewer District, or by calling (419) 354-9090.

RESULTS OF QUESTIONNAIRE

A notification of Cross-Connection Questionnaire results shall be provided, in writing, to the applicant and/or owner by mail, from the Northwestern Water and Sewer District.

FAILURE TO COMPLETE QUESTIONNAIRE

THE NORTHWESTERN WATER AND SEWER DISTRICT MAY DENY OR DELAY WATER TAP CONNECTIONS TO ANY PREMISE IN WHICH THE CROSS-CONNECTION QUESTIONNAIRE HAS NOT BEEN FULLY OR ACCURATELY COMPLETED.
NORTHWESTERN WATER & SEWER DISTRICT CROSS CONNECTION QUESTIONNAIRE

PROPERTY ADDRESS: _______________________________ ZIP CODE _____________

TAP SIZE: DOMESTIC ______ FIRE METER SIZE:_______ DOMESTIC FIRE ______

PROPERTY OWNER: _______________________________ PHONE: __________________

CONTACT PERSON: ________________________________ PHONE: __________________

BILLING ADDRESS: ________________________________ ZIP CODE _____________

PLUMBING LAYOUT BY: ____________________________ PHONE: __________________

TYPE SERVICE: RESIDENTIAL ____ COMMERCIAL ____ INDUSTRIAL ____

TYPE OF BUSINESS TO OCCUPY PROPERTY (i.e. Medical Office): ______________________________

100% OCCUPIED BY OWNER?   YES____ NO____ NUMBER OF STORIES:__________

ANY EXISTING NWWSD WATER SERVICE? YES____ NO____

IF YES, IS IT TO BE INTERCONNECTED? YES_____ NO____

IS SECOND SOURCE WATER (well, pond, etc.) AVAILABLE TO PROPERTY? YES____ NO____

FIRE SPRINKLER HEADS SUPPLIED FROM DOMESTIC TAP? YES____ NO____

WATER USE: DRINKING/CULINARY ___ SANITARY ___ IRRIGATION ___ PROCESSING COOLING ___ FIRE PROTECTION ___

LAWN IRRIGATION SYSTEM? YES____ NO____ IF YES, ARE PUMPS USED? YES____ NO____

YARD CONNECTIONS, HYDRANTS, ORNAMENTAL FOUNTAINS, HOSE BOXES YES____ NO____

TYPE OF HEATING: GAS ____ ELECTRIC_____ SOLAR____ HEAT PUMP____

BOILERS _____

IF BOILERS: STEAM____ HOT WATER____

CHEMICAL TREATMENT? YES____ NO____.

TYPE OF COOLING: COOLING TOWER? YES____ NO____

IF YES, IS THERE AN AIR GAP AT THE SUPPLY? YES____ NO____

CHILLER: YES ____ NO____

CHEMICAL TREATMENT? YES____ NO____

COMMERCIAL DISHWASHER? YES____ NO____

IF YES, SOAP EDUCTORS? YES____ NO____
GARBAGE DISPOSAL W/PIPE CONNECTION? YES____ NO _____
SWIMMING POOL? YES____ NO_____ FILLED BY HOSE? YES____ NO____
PIPED CONNECTIONS? YES____ NO____ IF PIPED, AIR GAP AT POOL? YES____ NO____ FILTER?
YES____ NO____ OTHER ______________________________ HOT TUB? YES____ NO_____ IF YES,
FILL BY PIPE CONNECTION? YES____ NO _____
WHIRLPOOL OR JACUZZI BATH: YES____ NO ____
IF YES, FILLED BY PIPE CONNECTION: YES____ NO____
PUMP FOR COLD WATER SYSTEM? YES____ NO _____
HOT WATER SYSTEM? YES____ NO_____
AUXILIARY WATER STORAGE? YES____ NO ____
IF YES, TYPE AND CAPACITY IN GALLONS: ELEVATED TANK ____________ PRESSURE
TANK ________________________ RESERVOIR ______________________ FILLED FROM CITY MAIN?
YES____ NO____ IF NO, WHERE FROM ____________ FIRE PROTECTION: TYPE OF SYSTEM
DRY____ SPINKLER? YES____ NO____ WETTED SPINKLER? YES____ NO_____
WET RISER? YES____ NO _____
HOSE CABINETS? YES____ NO_____ ANTI-FREEZE LEGS? YES____ NO____
FIRE HYDRANTS? YES____ NO____ ANY PUMPS USED? YES____ NO ______
AUXILIARY WATER STORAGE? YES____ NO ____
IS AUXILLIARY WATER STORAGE COVERED? YES____ NO _____
IF YES, IS THERE AN AIR GAP? YES____ NO _____
CAN ANTI-FREEZE OR OTHER ADDITIVES BE PUMPED INTO THE SYSTEM? YES____ NO____
ADDITIONAL INFORMATION ____________________________________________
__________________________________________________________________

I hereby certify that I am acting as agent for the owner of the property listed, with full knowledge and consent,
and that all information furnished is complete and correct. As the owner’s agent, I further acknowledge that
incomplete or incorrect information may result in an additional different requirement in-so-far as backflow
prevention devices that the water service connection(s) are concerned. I also certify that only solder/flux
containing 0.2% or less lead will be used on this water service where copper is used. SIGNATURE OF
APPLICANT_____________________________ DATE ___/___/___
PRINT NAME OF APPLICANT ____________________________________________
PRINT COMPANY NAME ________________________________________________
ADDRESS OF APPLICANT _______________________________________________
ZIP CODE _________
PHONE ______________________ ESTIMATED COMPLETION DATE ___/___/___