

Golden Heart Utilities/College Utilities Cross-Connection Control Program

Program Summary

Golden Heart Utilities (GHU)/College Utilities (CUC) administers a program of surveying, inspection, record keeping, and testing of approved backflow prevention assemblies for customer service lines connected to the GHU/CUC water distribution systems. This backflow and cross connection control program is ongoing in nature and was devised and implemented with the security of the potable water supply and the health of our citizens in mind. Accordingly, this program was created and is administered by GHU/CUC, in conjunction with the Alaska Department of Environmental Conservation. This program, and its terms and conditions, are in place to illustrate the requirements for installation of approved backflow assemblies, and the related responsibilities for regular maintenance, inspection, and testing. A vital part of this program is the annual inspection and testing of all backflow assemblies by a certified tester with the test results being forwarded to the GHU/CUC Customer Service Department. The property owner is responsible for the proper installation, maintenance, inspection, and testing of the assemblies and to ensure compliance with the GHU/CUC Backflow Prevention and Cross Connection Control Program requirements.

I. Purpose

To protect the public potable water supply served by the GHU/CUC Water Department from the possibility of contamination or pollution by isolating, within its customers' premise plumbing system, such contaminants or pollutants which could backflow into the public water system.

Approved backflow prevention assemblies shall be installed in any premises where, in the judgment of the Utility, the nature and extent of activities, or the materials used or stored on the premises, could present a hazard to the potable water supply in the event a cross-connection were to be made; even though such cross-connection has not been made. Such circumstances include, but are not limited to:

- Premises having an auxiliary water supply, such as a well.
- Premises having intricate plumbing arrangements which make it impractical to ascertain whether or not cross-connections in fact exist.
- Premises where entry is restricted so that inspection for cross-connections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross-connections do not exist.
- Premises having a repeated history of cross-connections being established or re-established.
- Premises on which any substance is handled under pressure, so as to permit entry into the water supply. This shall include the handling of process waters and cooling waters.
- Premises where materials of a toxic or hazardous nature are handled in such a way that if back siphonage should occur, a health hazard might result.

- The following facilities, when connected to a potable water supply, require backflow prevention assemblies unless the Utility determines that no hazard exists:
 - Hospitals;
 - Mortuaries;
 - Clinics;
 - Laboratories;
 - Metal plating industries;
 - Sewage treatment plants;
 - Food or beverage processing plants;
 - Chemical plants;
 - Petroleum processing plants;
 - Radioactive material processing plants, nuclear reactors, or other facilities where radioactive materials may be utilized;
 - Manufacturing facilities;
 - Car wash facilities;
 - Water systems not within the definition of potable water supply;
 - Fire sprinkler systems;
 - Medical/dental facilities;
 - Irrigation systems;
 - Laundries and dry cleaners;
 - High rise or other buildings above system pressure which require booster pumps;
 - Sand gravel and concrete plants or other material processing plants;
 - Greenhouses;
 - Bulk water fill stations; and
 - Veterinary clinics

II. Authority

The Federal Safe Drinking Water Act of 1974, and the statutes of the State of Alaska Drinking Water Regulations Chapter 18 AAC 80.025(a)(b), state that the water purveyor has the primary responsibility for preventing water from unapproved sources, or any other substances, from entering the public potable water system.

III. Responsibility

A. GHU/CUC

The Utility is responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow of contaminants or pollutants through water service connections. If, in the judgment of the Utility, an approved backflow assembly is required for the water service connection to any customer's premises, the Utility shall give notice in writing to said customer to install an approved backflow prevention assembly in each service connection to their premises. The customer shall install such approved assembly, or assemblies, at their own expense, and failure or refusal, or inability on the part of the customer to install said assembly or assemblies shall constitute a ground for

discontinuing water service to the premises until such assembly or assemblies have been properly installed.

B. Customer

The customer shall be responsible for preventing pollutants and contaminants from entering the GHU/CUC water system. The customer, at their own expense, shall install, operate, test, and maintain approved backflow assemblies as directed by GHU/CUC. Customers shall maintain accurate records of annual tests and repairs of backflow prevention assemblies and shall forward a copy of these records to the GHU/CUC Customer Service Department, P.O. Box 80370, Fairbanks, AK, 99708, or in person at 3691 Cameron Street, Suite 201, Fairbanks, Alaska. These records shall be maintained on forms provided by the GHU/CUC Water Distribution Department and can be downloaded at www.akwater.com. In the event of accidental pollution or contamination of the GHU/CUC potable water supply, due to backflow on or from the customer's premises, the owner shall promptly take steps to confine further spread of pollution or contamination within their premises. They will immediately notify GHU/CUC at 479-3118 of the hazardous condition.

C. Alaska Department of Environmental Conservation

The ADEC is responsible for approving the Cross-Connection/Backflow Prevention Program, providing technical assistance, clarification of regulations, and assisting with unique situations.

D. Backflow Prevention Assembly Installer/Tester

The installer/tester's responsibility is to make proper installation of approved backflow prevention assemblies, in accordance with the manufacturer's installation instructions, the Uniform Plumbing Code, and GHU/CUC construction standards. The installer/tester shall test the assembly to ensure they are in proper working order. All testers, performing backflow assembly testing for new locations, annual testing of existing assemblies, or repaired assembly testing, shall furnish the test results along with the information listed to the GHU/CUC Customer Service Department. This will be accomplished using the GHU/CUC test sheet:

1. Address where assembly is located;
2. Owner address and telephone number;
3. Description of usage, location, and size;
4. Date of installation;
5. Type of assembly;
6. Manufacturer;
7. Model Number;
8. Assembly tester name, company, certification number; address, and a current calibration date for testing equipment (testing gauges must be calibrated annually).

Note – All of the referenced data fields can be found on the official GHU/CUC Backflow Assembly Test Form which is available on line for download at www.akwater.com.

IV. Definitions

A. ABPA

American Backflow Prevention Association

B. ADEC

The Alaska Department of Environmental Conservation

C. Approved

Accepted by Utility Engineering as meeting AWWA standards, and are approved by ASSE or ABPA and the USC-FCCC (University of Southern California Foundation for Cross Connection Control and Hydraulic Research), and as suitable for the proposed use.

D. ASSE

The American Society of Sanitary Engineering

E. Auxiliary Water Supply

Any water supply located on, or available to the premises, other than the Utility's public potable water supply.

F. AWWA

The American Water Works Association

G. Backflow

The flow of water or other liquids, mixtures or substances, under positive or reduced pressure in the distribution pipes of a potable water supply from any source other than its intended source.

H. Backflow Preventer

A certified assembly or means designed to prevent backflow. Most commonly categorized as air gap, reduced pressure principle assembly, double check valve assembly, pressure vacuum breaker, atmospheric vacuum breaker, hose bibb vacuum breaker, residential dual check, double check with intermediate atmospheric vent, and barometric loop.

1. Air Gap (AG)

A physical separation sufficient to prevent backflow between the free-flowing discharge end of the potable water system and any other system. Physically defined is a distance equal to twice the diameter of the supply side pipe diameter but never less than one (1) inch.

2. Atmospheric Vacuum Breaker (AVB)

A device which prevents backsiphonage by creating an atmospheric vent when there is either a negative pressure or subatmospheric pressure in a water system.

3. Barometric Loop

A fabricated piping arrangement rising at least thirty five (35) feet at its topmost point above the highest fixture it supplies. It is utilized in water supply systems to protect against backsiphonage.

4. Double Check Valve Assembly (DCVA)

An assembly of two (2) independently operating spring loaded check valves with tightly closing shut off valves on each side of the check valves, plus properly located test cocks for the testing of each check valve.

5. Double Check Valve with Intermediate Atmospheric Vent

An assembly having two (2) spring loaded check valves separated by an atmospheric vent chamber.

6. Hose Bibb Vacuum Breaker

A device, which is permanently attached to a hose bibb, and which acts as an atmospheric vacuum breaker.

7. Pressure Vacuum Breaker (PVB)

An assembly containing one or two independently operated spring loaded check valves and an independently operated spring loaded air inlet valve located on the discharge side of the check or checks. Assembly includes tightly closing shut-off valves on each side of the check valves and properly located test cocks for the testing of the check valve(s).

8. Reduced Pressure Principle Backflow Preventer (RP)

An assembly consisting of two (2) independently operating approved check valves with an automatically operating differential relief valve located between the two (2) check valves, tightly closing shut-off valves on each side of the check valves plus properly located test cocks for the testing of the check valves and the relief valve.

9. Residential Dual Check

An assembly of two (2) spring loaded, independently operating check valves without tightly closing shut-off valves and test cocks. Generally employed immediately downstream of the water meter to act as a containment device.

I. Backpressure

A condition in which the owners system pressure is greater than the suppliers system pressure.

J. Backsiphonage

The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply system from any source other than its intended source caused by the reduction of pressure in the potable water supply system.

K. Containment

A method of backflow prevention, which requires an approved backflow prevention assembly at the water service entrance.

L. Contaminant

A substance that will impair the quality of the water to a degree that it creates a serious health hazard to the public leading to poisoning or the spread of disease.

M. Cross-Connection

Any actual or potential connection between the public water supply and a source of contamination or pollution.

N. Utility

GHU/CUC Water Department.

O. Fixture Isolation

A method of backflow prevention in which a backflow preventer is located to correct a cross connection at an in-plant location rather than at a water service entrance.

P. Owner

Any person who has legal title to, or license to operate or habitate in, a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present.

Q. Person

Any individual, partnership, company, public or private corporation, political subdivision or agency of the State, agency or instrumentality of the United States or any other legal entity.

R. Pollutant

A foreign substance, that if permitted to get into the public water system, will

degrade its quality so as to constitute a moderate 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 effect such water for domestic use.

S. Water Service Entrance

That point in the owner's water system beyond the sanitary control of the Utility; generally considered to be the outlet end of the water meter and always before any unprotected branch.

T. Certified Backflow Assembly Tester

A person certified by ASSE or ABPA to test backflow prevention assemblies.

V. Administration

The Utility will operate a cross-connection control program, to include the keeping of necessary records, which fulfills the requirements of the ADEC Cross-Connection Regulations and is approved by the ADEC.

VI. Requirements

A. Utility

1. On new installations, the Utility will provide onsite evaluation and/or inspection of plans in order to determine the type of backflow preventer, if any, that will be required.
2. For premises existing prior to the start of this program, the Utility will perform evaluations and inspections of plans and/or premises and inform the Owner by letter of any corrective action deemed necessary, the method of achieving the correction, and the time allowed for the correction to be made. Ordinarily, one year (365) days will be allowed, however, this time period may be reduced depending upon the degree of hazard involved and the history of the assembly(ies) in question.
3. In the event the Owner fails to comply with the necessary correction, the Utility will inform the Owner by letter, that the water service to the Owner's premises will be terminated. In the event that the Owner informs the Utility of extenuating circumstances as to why the correction has not been made, a time extension may be granted by the Utility.
4. If the Utility determines at any time that a serious threat to the public health exists, the water service will be terminated immediately.

5. The Utility shall have on file, a list of Private Contractors who are certified backflow assembly testers. All charges for these tests will be paid by the Owner of the building or property.

B. Owner

1. The Owner shall be responsible for the elimination or protection of all cross-connections on their premises.
2. The Owner, after having been informed by a letter from the Utility, shall at their expense, install, maintain, and test, or have tested, any and all Utility required backflow preventers on their premises.
3. The Owner shall correct any malfunction of the backflow preventer which is revealed by periodic testing.
4. The Owner shall inform the Utility of any existing cross-connections of which the Owner is aware but has not been found by the Utility. The Utility reserves the right to inspect the owner's premises for possible cross connections.
5. The Owner shall not install a bypass around any backflow preventer unless there is a backflow preventer of the same type on the bypass. Owners who cannot shut down operation for testing of the assembly(ies) must supply additional assemblies necessary to allow testing to take place.
6. The Owner shall install backflow preventers in a manner approved by the Utility.
7. The Owner shall install only approved backflow preventers.
8. The Owner shall be responsible for the payment of all fees for permits, annual or semi-annual assembly testing, and retesting in the case that the assembly fails to operate correctly.
9. The Owner shall be responsible for water quality beyond the outlet end of the containment assembly and should utilize fixture outlet protection or whatever methods are necessary for that purpose.

VII. Degree of Hazard

The Utility recognizes the threat to the public water system arising from cross-connections. All threats will be classified by degree of hazard and will require the installation of approved reduced pressure principle backflow prevention assemblies or double check valve assemblies.

VIII. Periodic Testing

- A. Backflow assemblies shall be tested and inspected upon initial installation and at least annually thereafter.
- B. Periodic testing shall be performed by the Utility's certified tester or by a private contractor who is a certified ASSE or ABPA backflow assembly tester. This testing will be done at the owner's expense.
- C. Any backflow preventer which fails during a periodic test must be repaired or replaced. When repairs are necessary, upon completion of the repair the assembly will be re-tested at owner's expense to insure correct operation. High hazard situations will not be allowed to continue unprotected if the backflow preventer fails the test and cannot be repaired immediately. In other situations, a compliance date of not more than thirty (30) days after the test date will be established. The owner is responsible for spare parts, repair tools, or a replacement assembly. Parallel installation of two (2) assemblies is an effective means of the owner insuring that uninterrupted water service during testing or repair of assemblies and is strongly recommended when the owner desires such continuity.
- D. Backflow prevention assemblies will be tested more frequently than specified in A. above, in cases where there is a history of test failures and the Utility feels that due to the degree of hazard involved, additional testing is warranted. Cost of the additional tests will be borne by the owner.

IX. Records

The Utility will initiate and maintain the following:

- 1. Master files on customer cross-connection tests and/or inspections.
- 2. Master files on customer cross-connection surveys.
- 3. A list of private contractors that are certified backflow assembly testers.

X. Fees and Charges

XI. References:

- AWWA M14 recommended practice for backflow prevention and cross-connection control;
- 2009 Uniform Plumbing Code; and
- State of Alaska Drinking Water Regulations, Chapter 18, AAC 80.025.
- College Utilities Corporation/Golden Heart Utilities, Inc. Service Line Standards