# Cross Connection Control Program

North Pole Utility
125 Snowman Lane
North Pole, AK 99705
907-488-2281

## 1. Program Summary

The City of North Pole, North Pole Utilities (NPU) administers this Cross Connection Program for managing cross-connection risk in it water system. The NPU Cross Connection Program involves surveying, inspection, record keeping, and testing of approved backflow prevention devices for customer service lines connected to the NPU water distribution systems. This backflow and cross connection control program was adapted from the thorough and comprehensive work of the Golden Heart Utilities/College Utilities Cross Connection Control Program. The purpose of the Program is to protect the NPU water system from contamination through cross connection with other water sources. The program, includes the requirements for the installation of approved backflow devices and the regular maintenance, inspection, and testing of these devices. The Program includes an inspection and testing regime of all regulated backflow devices. The property owner is responsible for the installation, maintenance, inspection, and testing of the backflow prevention devices and to ensure compliance with the Cross Connection Control Program.

## 2. Purpose

To protect the NPU water supply from the possibility of contamination or pollution by isolating, within the customer's premise plumbing system any contaminants or pollutants which could backflow into the NPU water system. Approved backflow prevention devices shall be installed in any premises where, in the sole judgment of the NPU, the nature and extent of activities, the materials used or stored on the premises, or there is a possible threat of cross connection with another water source that could present a hazard to the NPU water system. Such circumstances include, but are not limited to:

a. Premises having an auxiliary water supply, such as a well.
b. Premises having intricate plumbing arrangements which make it impractical to ascertain whether or not cross-connections in fact exist.
c. 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.
d. Premises having a repeated history of cross-connections being established or re- established.
e. 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.
f. Premises where materials of a toxic or hazardous nature are handled in such a way that if back siphonage should occur or a health hazard might result.
g. The following facilities, when connected to a potable water supply, require backflow prevention assemblies unless the Utility determines that no hazard exists:

- Bulk water fill stations
- Car wash facilities
- Chemical plants
- Fire sprinkler systems
- Food or beverage processing plants
- Greenhouses
- High rise or other buildings above system pressure reactors, which require booster pumps
- Hospitals, mortuaries, and clinics, including veterinary clinics
- Irrigation systems
- Laboratories
- Laundries and dry cleaners
- Manufacturing facilities
- Medical/dental facilities
- Metal plating industries
- Petroleum processing or storage plants
- Piers and docks
- Radioactive material processing plants, nuclear or other facilities where radioactive materials may be utilized
- Sand, gravel and concrete plants or other material processing plants
- Sewage treatment plants
- Water systems not within the definition of potable water supply
- Waterfront facilities

## 3. 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.

## 4. Responsibilities

A. North Pole Utility

The NPU is responsible to protect 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 sole judgment of the NPU, an approved backflow assembly is required for a water service connection to any customer's premises, the NPU shall give notice in writing to the customer to install an approved backflow prevention device on each service connection at their premises. The customer shall install such approved device, at their own expense. Failure or refusal to install the required backflow connection device is grounds for discontinuing water service to the premises until the required backflow prevention device has been properly installed.

B. Customer

The customer is responsible for preventing pollutants and contaminants from entering the NPU water system. The customer, at their own expense, shall install, operate, test, and maintain approved backflow device as directed by NPU. The customers shall maintain accurate records

of annual tests and repairs of backflow prevention assemblies and shall forward a copy of these records to:

North Pole Utility
125 Snowman Lane
North Pole AK 99705

The customer can download the necessary forms related to the NPU Cross Connection Control Program at the NPU websites: https://www.northpolealaska.com/utilities.

In the event of accidental pollution or contamination of the NPU 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 NPU at 907-488-8942.

C. Backflow Prevention Assembly Installer/Tester

The customer's is responsible for their installer/tester's work. The installer/tester is responsible to properly install an approved backflow prevention device in accordance with the manufacturer's installation instructions, the most recent edition of the Uniform Plumbing Code and amendments adopted by the City of North Pole, and NPU Service line installation standards. The installer/tester shall test the device to ensure it is in proper working order. All testers, performing backflow assembly testing for new locations, annual testing of existing devices, or repaired device testing, shall furnish the test results along with the information listed below to the NPU on the NPU Cross Connection Device Test Sheet:

1. Address where device 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 – The NPU Cross Connection Device Test Sheet contains all the referenced data field. You can download the form at: https://www.northpolealaska.com/utilities.

**5. 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 owner's system pressure is greater than the supplier's 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. NPU
   North Pole Utility.

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.

**6. Administration**

The NPU 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.

**7. Requirements**

A. NPU

1. On new installations, the NPU 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 NPU 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 device in question.
3. In the event the Owner fails to comply with the necessary correction, the NPU 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 NPU of extenuating circumstances as to why the correction has not been made, a time extension may be granted at the sole discretion of the NPU.
4. If the NPU determines at any time that a serious threat to the public health exists, the water service will be terminated immediately.
5. The NPU will maintain a list of private contractors who are certified backflow assembly testers.

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 NPU, shall at their expense, install, maintain, and test, or have tested, any and all NPU 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 device(s) must supply additional assemblies necessary to allow testing to take place.
6. The Owner shall install backflow preventers in a manner approved by the NPU.
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 device 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.

**8. Degree of Hazard**

The NPU recognizes that there are threats 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 devices or double check valve assemblies appropriate to the threat.

**9. Periodic Testing**

A. Backflow deceives shall be tested and inspected upon initial installation and at least annually thereafter.
B. Periodic testing shall be performed by a certified tester 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 the 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 device. Parallel installation of two (2) devices 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.

1. 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 NPU feels that due to the degree of hazard involved, additional testing is warranted. Cost of the additional tests will be borne by the owner.

## 2. 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.

## 3. Fees and Charges

## 4. Acknowledgement

The NPU's Cross Connection Control Program is adapted from the thorough work done by the Golden Heart Utilities/College Utilities Cross Connection Control Program.

## 5. References:


- AWWA M14 recommended practice for backflow prevention and cross-connection control
- Uniform Plumbing Code
- State of Alaska Drinking Water Regulations, Chapter 18, AAC 80.025
- North Pole Utility Service Line Standards