

prOVO
PUBLIC WORKS
WATER RESOURCES

Cross Connection Control Policy

Protection for your Water Supply



Policy Signature and Date Page
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Approval Signatures

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This page serves as a formal record of the review, approval, and
acknowledgment of the policy. Please retain this document as
part of the official policy record.



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Policy Purpose

This policy serves as a dynamic framework to enforce and implement Provo City Code Chapter 10.07 Cross-Connection Control and Backflow Prevention. The Cross-Connection Control Coordinator, within the Water Resources Division, will diligently execute this policy to the best of their abilities.

Cross-connections pose a significant risk to the Provo City Water Distribution System and its users. Preventing backflow through the elimination or protection of cross-connections is a top priority for Provo City Water Resources.

Provo City's Cross-Connection Control Program is designed to fully comply with Utah Drinking Water Rule 309-105-12, Utah Plumbing Code, and the Clean Drinking Water Act.

Authority

Federal, state, and local laws, codes, and ordinances establish the City's responsibility for the establishment and enforcement of an on-going cross-connection control program and for the water user's responsibility to install and maintain on-site plumbing systems in compliance with applicable codes and regulations.

Federal Laws:

Federal Public Law 104-182 outlines public water departments' "responsibility of public water system[s] to protect quality of water to consumers." This complies with the US EPA Cross Connection Control Manual, which states the importance of the water purveyor providing water that complies with all EPA standards at the source, and deliver it to the customer without the quality being compromised as a result of its delivery to the customer. The 1974 Safe Drinking Water Act, with the Amendments of 1996, requires "water systems are responsible to protect the quality of water to the last free-flowing tap or point of protection from any contamination".

State Regulations/Codes:

Utah Code Section 19-4-112 (2d) states that there will exist "no cross connection between potable and non-potable water systems."¹ In addition, cross connection control procedures are given in the Utah Administrative Code R309-105-12, stating the importance of implementing cross control prevention practices, and following standard procedures that will protect against a compromise to the potable water supply.²

Local Code:

Provo City Code Chapter 10.07 Cross Connection Control and Backflow Protection (see Appendix A) provides the local authority for enforcing potable water protection by means of cross connections throughout the city. It sets forth requirements for water users, and promotes the reasonable elimination or control of cross connections to assure water system safety. This code provides Provo City Water Resources personnel with the authority to administer the program, enter facilities to conduct hazard assessments, and enforce backflow prevention assembly testing requirements.

1. https://le.utah.gov/xcode/Title19/Chapter4/19-4-S112.html?v=C19-4-S112_1800010118000101

2. <https://adminrules.utah.gov/public/rule/R309-105/Current%20Rules?searchText=drinking%20water>

Annual Backflow Prevention Assembly Testing Policy

Provo Water Resources will endeavor to issue timely notifications to all registered contacts regarding required annual testing of backflow assemblies. However, failure to receive these notifications does not exempt property owners or responsible parties from the obligation to ensure that all backflow assemblies are tested annually as mandated by city code.

General Testing Requirements: Backflow prevention assemblies must be tested within 10 business days of installation, relocation, or repair, and annually thereafter, by a Certified Backflow Technician. Backflow prevention assembly testing at more frequent intervals may be required, as determined by Provo Water Resources. Submitted test reports must follow the format approved by Provo Water Resources.

Notification Process

Initial Notification: Notification letters will be sent via USPS or email at the beginning of the month when testing is due. For instance, an assembly tested in July 2023 will be notified on July 1, 2024, with testing and reporting due by the end of that month.

Second Notification: If testing or reporting is not completed, a second notice will be sent on or around the 1st of the following month.

Third Notification: If compliance is still not met, a third notice will be issued on or around the 15th of the following month. For instance, an assembly due for testing in July 2024 will receive the third notification on or around August 15, 2024.

Fines and Penalties

A fine of \$100 per assembly will be issued on or around the 15th of the month following the due date if testing or reporting remains incomplete. For instance, an assembly tested in July 2023 and due for testing in July 2024 will be issued fines beginning August 15, 2024 if it remains out of compliance.

Continued non-compliance will result in additional fines issued on the 1st and 15th of each subsequent month until assembly(s) are brought into compliance. Fines may be issued at a more frequent interval as determined by Provo Water Resources.

Water Shutoff Notice

A 10-day water shutoff notice will be issued at the beginning of the fourth month of non-compliance. For example, if testing is due in July 2024, the shutoff notice will be sent in early October 2024. Water service will not be restored until full compliance is achieved.

EXAMPLE: Backflow assembly was last tested in July 2023 and is due for annual testing July 2024.

July 1 - First Notification

August 1 - Second Notification (out of compliance)

August 15 - Third Notification and first Non-Compliance Fine issued

September 1 - Second Non-Compliance Fine issued

September 15 - Third Non-Compliance Fine issued

October 1 - Shutoff Notice issued

October 15 - Water services are terminated

Non-Compliance Fines continue until compliance is achieved.

Cross Connection Control Onsite Survey Policy

Cross Connection Control Onsite Surveys, also known as hazard assessments, are critical for identifying and mitigating risks to the public drinking water system. Provo City officers and employees must have access to all premises receiving city water during reasonable hours to conduct these assessments. The presence of the owner or representative is required during the survey, and thorough documentation will be maintained.

Failure to grant access for hazard assessments, address unprotected cross-connections, or comply with backflow prevention requirements may result in water service termination or the imposition of maximum backflow protection measures.

Notification Process

Initial Notification: A post hazard assessment letter will be mailed or emailed as quickly as possible following the onsite assessment. Typically this will be issued with a 30-day notice to bring the water user to compliance.

Second Notification: If compliance is not achieved, a second notice will be issued 30 days following the initial notification.

Third Notification: If compliance is not achieved, a third notice will be issued 45 days following the initial notification.

Fines and Penalties

A fine of \$100 per assembly or cross-connection violation will be issued on or around 45 days following the initial notification if testing or reporting remains incomplete.

A second fine of \$100 per assembly or cross-connection violation will be issued on or around 60 days following the initial notification if testing or reporting remains incomplete.

Continued non-compliance will result in additional fines issued biweekly until assembly(s) or cross-connection violations are brought into compliance. Fines may be issued at a more frequent interval as determined by Provo Water Resources.

Water Shutoff Notice

A 10-day water shutoff notice will be issued 75 days after the hazard assessment, if the facility/residence remains out of compliance. Water service will not be restored until full compliance is achieved.

Backflow Assembly Testing Policy on “Failed” Test Reports

Backflow assembly test reports with a status of “Passed” must be furnished to Provo Water Resources within (30) calendar days of testing. Backflow assembly test reports with a status of “Failed” must be furnished within five (5) business days of testing.

If the assembly fails installation requirements described or has a testing status of “Failed,” the user must arrange repairs with the manufacturer’s specified parts, in accordance with the manufacturer’s suggested procedure, or have the assembly replaced with the same type of backflow assembly. Following repairs or replacement, the assembly must be tested again within ten (10) business days to verify that it is meeting performance standards and has the status of “Passed.” Submitted test reports must follow the format approved by Provo Water Resources.

Notification Process

Initial Notification: A failed backflow assembly test report letter will be mailed or emailed as quickly as possible following the receipt of a failed backflow assembly test. This letter will include the requirement that the backflow assembly is to be replaced or repaired, and then retested with a status of “Passed” within 10 business days after the initial failed test.

Second Notification: If compliance is not met, a second notice will be issued 15 days following the initial notification.

Fines and Penalties

A fine of \$100 per failed backflow assembly test will be issued on or around 30 days following the initial notification if testing or reporting remains incomplete.

A second fine of \$100 per failed backflow assembly test will be issued on or around 45 days following the initial notification if testing or reporting remains incomplete.

Continued non-compliance will result in additional fines issued biweekly until assembly(s) or cross-connection violations are brought into compliance. Fines may be issued at a more frequent interval as determined by Provo Water Resources.

Water Shutoff Notice

A 10-day water shutoff notice will be issued 60 days after the first notification of the failed backflow assembly test report if the facility/residence remains out of compliance. Water service will not be restored until full compliance is achieved.

Selection of Backflow Prevention Methods and Assemblies

When selecting backflow prevention methods and assemblies, it's essential that water users, or their designated professionals, thoroughly evaluate the degree of hazard associated with each cross connection. This assessment should take into account the potential for backpressure or backsiphonage.

Water users must ensure that the applicable plumbing code and city codes are referenced to determine the correct backflow prevention method or assembly for each situation. This process is critical to maintaining compliance and protecting the integrity of the water supply.

Degrees of Hazard

Degree of Hazard - the degree of threat to public health through a cross connection. The two possible degrees are:

- Health Hazard – a hazard arising from a Contaminant; and
- Non-Health Hazard - a hazard arising from a Pollutant.

Below are the definitions for Contaminants and Pollutants:

- Contaminant - any substance introduced into the public drinking water system which creates a threat to the public health such as poisoning, pathogenic organisms, or any other public health concern.
- Pollutant - any substance introduced into the public drinking water system that does not create a threat to the public health, but that does adversely and unreasonably affect the aesthetic quality of the water.

Potential high-hazard locations, such as those with fire protection systems, irrigation systems, carbonated beverage machines, chemical detergent dispensers, or industrial water processes, should be documented to ensure they receive "high priority" during cross-connection control onsite surveys. Additionally, locations with a history of non-compliance should be documented and given the same "high priority" status.

Methods of Backflow Protection

The table below from the 2021 International Plumbing Code, which is currently adopted by the State of Utah with amendments, outlines the degree of hazard, types of backflow, and approved methods of protection for backflow prevention devices and assemblies. This table should be referenced in most situations, except where Sections 608.2 through 608.17.10 of the ICP or any current amendments adopted by the State of Utah specify otherwise.

SECTION 608 PROTECTION OF POTABLE WATER SUPPLY

608.1 General.

A potable water supply system shall be designed, installed and maintained in such a manner so as to prevent contamination from nonpotable liquids, solids or gases being introduced into the potable water supply through cross connections or any other piping connections to the system. Backflow preventer applications shall conform to Table 608.1, except as specifically stated in Sections 608.2 through 608.17.10.

TABLE 608.1 APPLICATION OF BACKFLOW PREVENTERS

| DEVICE | DEGREE OF HAZARD ^a | APPLICATION ^b | APPLICABLE STANDARDS |
|--|-------------------------------|---|---|
| Backflow prevention assemblies: | | | |
| Double check backflow prevention assembly and double check fire protection backflow prevention assembly | Low hazard | Backpressure or backsiphonage Sizes $\frac{3}{8}$ "–16" | ASSE 1015; AWWA C510; CSA B64.5; CSA B64.5.1 |
| Double check detector fire protection backflow prevention assemblies | Low hazard | Backpressure or backsiphonage Sizes 2"–16" | ASSE 1048 |
| Pressure vacuum breaker assembly | High or low hazard | Backsiphonage only Sizes $\frac{1}{2}$ "–2" | ASSE 1020; CSA B64.1.2 |
| Reduced pressure principle backflow prevention assembly and reduced pressure principle fire protection backflow assembly | High or low hazard | Backpressure or backsiphonage Sizes $\frac{3}{8}$ "–16" | ASSE 1013; AWWA C511; CSA B64.4; CSA B64.4.1 |
| Reduced pressure detector fire protection backflow prevention assemblies | High or low hazard | Backsiphonage or backpressure (automatic sprinkler systems) | ASSE 1047 |
| Spill-resistant vacuum breaker assembly | High or low hazard | Backsiphonage only Sizes $\frac{1}{4}$ "–2" | ASSE 1056; CSA B64.1.3 |
| Backflow preventer plumbing devices: | | | |
| Antisiphon-type fill valves for gravity water closet flush tanks | High hazard | Backsiphonage only | ASSE 1002/ASME A112.1002/CSA B125.12; CSA B125.3 |
| Backflow preventer for carbonated beverage machines | Low hazard | Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{8}$ " | ASSE 1022 |
| Backflow preventer with intermediate atmospheric vents | Low hazard | Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{4}$ " | ASSE 1012; CSA B64.3 |
| Backflow preventer with intermediate atmospheric vent and pressure-reducing valve. | Low hazard | Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{4}$ " | ASSE 1081 |
| Dual-check-valve-type backflow preventer | Low hazard | Backpressure or backsiphonage Sizes $\frac{1}{4}$ "–1" | ASSE 1024; CSA B64.6 |
| Hose connection backflow preventer | High or low hazard | Low head backpressure, rated working pressure, backpressure or backsiphonage Sizes $\frac{1}{2}$ "–1" | ASME A112.21.3; ASSE 1052; CSA B64.2.1.1 |
| Hose connection vacuum breaker | High or low hazard | Low head backpressure or backsiphonage Sizes $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1" | ASME A112.21.3; ASSE 1011; CSA B64.2; CSA B64.2.1 |
| Laboratory faucet backflow preventer | High or low hazard | Low head backpressure and backsiphonage | ASSE 1035; CSA B64.7 |
| Pipe-applied atmospheric-type vacuum breaker | High or low hazard | Backsiphonage only Sizes $\frac{1}{4}$ "–4" | ASSE 1001; CSA B64.1.1 |
| Vacuum breaker wall hydrants, frost-resistant, automatic-draining-type | High or low hazard | Low head backpressure or backsiphonage Sizes $\frac{3}{4}$ ", 1" | ASME A112.21.3; ASSE 1019; CSA B64.2.2 |
| Other means or methods: | | | |
| Air gap | High or low hazard | Backsiphonage or backpressure | ASME A112.1.2 |
| Air gap fittings for use with plumbing fixtures, appliances and appurtenances | High or low hazard | Backsiphonage or backpressure | ASME A112.1.3 |
| Barometric loop | High or low hazard | Backsiphonage only | (See Section 608.14.4) |

Record Keeping:

Physical or electronic documentation of all activities should be kept to ensure thorough application of the cross connection control program including, but not limited to:

1. Inspection and testing results
2. Records of cross connection control surveys or inspections
3. Inventories and locations of assemblies and high hazard air gaps should be entered into the Provo City Public Works GIS portal
4. Test histories and inspection records of inventoried sites
5. Any backflow incidents, and any corrective actions taken
6. All compliance and enforcement actions

Training

At least one member of the Public Works department shall be designated as the Cross Connection Control Coordinator and trained and certified as a backflow tester. The Cross Connection Control Coordinator should be familiar with cross connection hazards, be familiar with locations where potential hazards exist within the City, and be familiar with the approved methods for preventing the occurrence of a backflow.

Public Education

The City recognizes that it is beneficial to have water users educated on what cross connections are, how they can be prevented, what types of protection are available, and the concerns associated with thermal expansion*. Some educational strategies are:

□ Hold public meetings and send notices to customers to educate the community about the need for the program and how it may affect them.

□ Inform water customers with newsletters, brochures, press releases, and the use of web sites.

□ Encourage the installers of the backflow assembly devices to educate their customers of the hazards associated with cross connections.

□ Make educational materials available to the public at public facilities and on the City Website.

□ During site and building inspections explain cross connection control to the owner or resident of the inspected facility or building.

□ Provide notices to owners of a scheduled cross connection control onsite survey dates and any required corrective action.

*An event that occurs when expanding water, such as in a water heater, has nowhere to go because the backflow device creates a "closed system," and may result in rupture or, in worst cases, explosion of the water container.

Enforcement Response Plan

If in the judgment of the City an approved backflow prevention assembly is required at the customer's water service connection or within the customer's private water system for the safety of the water system or, if violations of the City's Cross-Connection Control program exist, the designated agent of the City shall:

1. Give notice in writing to water user to immediately install or repair such approved backflow prevention assembly(s) at specific locations(s) on their premises. Upon receiving such notice, the customer shall immediately install or repair such approved assembly(s) at the customer's own expense.
2. Discontinue service of water to any premises if an unapproved cross connection is found or if a City-approved backflow prevention assembly is not installed, tested, and maintained, or if it is found that a backflow prevention assembly has been removed, bypassed, or if any unprotected cross connection exists on the premises. Non-compliance fines will also be issued if compliance is not achieved.
3. Failure, refusal, or inability on the part of the customer to install, have tested, or maintain said assembly(s) shall constitute grounds for discontinuing water service to the premises until such requirements have been satisfactorily met.
4. Once discontinued, the City shall not restore water service until such conditions or defects are corrected in conformance with the state and city statutes relating to plumbing, safe drinking water supplies and the regulations adopted pursuant thereto.

Backflow Incident Response Plan

1. Purpose

The purpose of this Backflow Incident Response Plan is to establish a clear, organized, and efficient procedure for responding to incidents involving backflow into the public water supply. This plan aims to minimize potential health risks, ensure the safety of the water supply, and comply with all relevant local, state, and federal regulations.

2. Scope

This plan applies to all backflow incidents within the jurisdiction of Provo City. It includes actions to be taken by City personnel and any other relevant stakeholders to mitigate and manage backflow events.

3. Incident Identification

3.1 Monitoring

- Continuous monitoring of water pressure and quality is conducted by the City's Water Resources Department to detect any anomalies that may indicate a backflow event.
- Public complaints or reports of unusual water quality (e.g., discoloration, taste, or odor) are also potential indicators of a backflow incident and should be investigated immediately.

3.2 Initial Response

- Upon detection or notification of a suspected backflow incident, the first responder (typically a Water Resources Department employee) will immediately notify the Incident Response Team (IRT).

4. Incident Response Team (IRT)

4.1 Composition

The IRT will typically consist of the following personnel:

- Water Superintendent
- Cross Connection Control Coordinator
- Public Information Officer
- Legal Counsel (if required)
- Emergency Services Public Information Officer (if required)

4.2 Roles and Responsibilities

- Water Superintendent: Oversees the response, coordinates actions, and ensures compliance with regulations.
- Cross Connection Control Coordinator: Leads the technical assessment and determines the source and extent of the contamination.
- Public Works Public Information Officer: Manages communication with the public, media, and other stakeholders.
- Legal Counsel: Advises on legal obligations and potential liabilities.
- Emergency Services Public Information Officer: Coordinates with emergency services if the incident escalates.

5. Immediate Actions

5.1 Isolation of Affected Area

- Shut off water supply to the affected area to prevent further contamination.
- Isolate the suspected source of contamination by closing valves and employing backflow prevention devices.

5.2 Water Quality Testing

- Conduct immediate water quality tests to identify contaminants and determine the severity of the incident.
- Samples should be taken from multiple points within the affected area to ensure accuracy.

5.3 Notification of Affected Parties

- Notify affected residents and businesses of the backflow incident, advising them to avoid using tap water for drinking, cooking, or bathing until further notice.
- Issue a boil water advisory or alternative safety instructions based on the nature of the contamination.

5.4 Documentation

- Document all actions taken during the response, including timelines, communications, and test results.

6. Remediation and Recovery

6.1 Source Identification and Elimination

- Identify the source of the backflow and take corrective actions to eliminate it, such as repairing or replacing faulty backflow prevention devices.

6.2 System Flushing and Disinfection

- Flush and disinfect the water system in the affected area to remove any contaminants.
- Continue water quality testing to ensure the system is safe before restoring service.

6.3 Post-Incident Inspection

- Conduct a thorough inspection of the backflow prevention devices and other related infrastructure to prevent future incidents.

7. Public Communication

7.1 Ongoing Updates

- Provide regular updates to the public on the status of the incident, actions being taken, and when normal water service is expected to resume.
- Use multiple communication channels, including the city website, social media, press releases, and direct notifications.

7.2 Final Notification

- Once the incident is fully resolved and water service is safe to use, issue a final notification lifting any advisories and thanking the public for their cooperation.

8. Incident Review and Reporting

8.1 After-Action Review

- Conduct an after-action review to evaluate the response, identify lessons learned, and implement improvements to the response plan.

8.2 Reporting

- Prepare a detailed incident report documenting the cause, response actions, outcomes, and any recommendations for future prevention.
- Submit the report to relevant authorities, including state regulators, as required.

9. Training and Preparedness

9.1 Regular Training

- Conduct regular training exercises for the IRT and other relevant personnel to ensure preparedness for backflow incidents.

9.2 Public Awareness

- Promote public awareness about the importance of backflow prevention and how residents can help protect the water supply.

10. Policy Review and Updates

10.1 Annual Review

- The Backflow Incident Response Plan shall be reviewed annually and updated as necessary to reflect changes in regulations, technology, or best practices.

This plan provides a comprehensive framework for managing backflow incidents, ensuring a rapid and effective response to protect public health and safety.

Appendix A: City Ordinance for Cross Connection Control and Backflow Prevention

Chapter 10.07 Cross Connection Control and Backflow Prevention

10.07.010 Purpose and Policy

(1) This Chapter sets forth uniform requirements for users of the publicly owned Provo City Water Distribution System to protect the public drinking water supply by requiring compliance with the Utah Public Drinking Water Rules (UPDWR) and the International Plumbing Code, which require cross connection control protection of all public drinking water systems in the State of Utah. Compliance with this Chapter will be considered reasonable diligence for the prevention of contaminants or pollutants that could backflow into the public drinking water system.

(2) This Chapter also serves to:

(a) promote the reasonable elimination or control of cross connections in the plumbing fixtures and piping system(s) of the user, as required by the state and plumbing regulations to assure water system safety; and

(b) provide for the administration of a continuing program of cross connection control which will systematically examine risk and work to prevent the contamination or pollution of the drinking water system.

(3) This Chapter applies to Provo City residents and to persons outside the City who are, by contract or agreement with the City, users of the Provo City Water Distribution System.

(4) Cross connections pose inherent risks, potentially allowing hazardous substances to contaminate public drinking water systems through backpressure or backsiphonage conditions. To mitigate this risk, the installation of approved backflow prevention assemblies and devices, in addition to the use of approved air gaps, is mandated to protect the City's drinking water supply. Cross connections may be allowed under specific conditions, contingent upon meeting the backflow protection requirements outlined in this Chapter.

10.07.020 Administration

Except as otherwise provided herein, the Provo City Cross Connection Control Coordinator administers, implements, and enforces the provisions of this Chapter. Any powers granted to, or duties imposed upon, the Provo City Cross Connection Control Coordinator may be delegated by the Provo City Water Resource Director to a qualified Provo City employee.

10.07.030 Definitions

Unless the context specifically indicates otherwise, the following terms and phrases, as used in this Chapter, have the following meanings:

Air Gaps - The physical separation between the discharge end of a water supply and the flood rim of an open or non-pressure receiving vessel.

Backflow - the undesirable reversal of flow of water or mixtures of water and other liquids, gases, or other substances into the distribution pipes of the potable water supply from any source.

Backflow prevention assembly - A backflow preventer that is testable and repairable inline and is approved by the State of Utah to prevent backflow.

Backflow prevention device -A backflow preventer that is not testable and has specific installation requirements to operate properly.

Backpressure - the phenomenon that occurs when the customer's pressure is higher than the supply pressure. This could be caused by an unprotected cross connection between a drinking water supply and a pressurized irrigation connection, a boiler, a pressurized industrial process, elevation differences, air or steam pressure, use of booster pumps, or any other source of pressure.

Backsiphonage - a form of backflow due to a reduction in system pressure that causes a sub-atmospheric pressure to exist at a site in the water system.

Certified Backflow Technician - an individual that has successfully completed a Division of Drinking Water approved backflow certification course with a written and practical examination and has maintained this certification in accordance with R309-305, Certification Rules for Backflow Technicians.

Containment (Meter or Point of Connection Protection) - the practice of installing approved backflow prevention assemblies/devices at the service connection of users to protect the public drinking water system from any backflow from the user's plumbing system.

Contaminant - any substance introduced into the public drinking water system which creates a threat to the public health such as poisoning, pathogenic organisms, or any other public health concern.

Cross Connection - any actual or potential connection between a potable water system and any other source or system through which it is possible to introduce into the public drinking water system any used water, industrial fluid, gas, or substance other than the intended potable water.

Degree of Hazard - the degree of threat to public health through a cross connection. The two possible degrees are:

- Health Hazard – a hazard arising from a Contaminant; and
- Non-Health Hazard - a hazard arising from a Pollutant.

Isolation (Plumbing Code Compliance) - the practice of installing approved backflow prevention assemblies/devices at each point of cross connection or system outlet as required by Plumbing Code and its amendments as adopted by the State of Utah.

Plumbing Code – the International Plumbing Code, as adopted and amended by the State of Utah.

Pollutant - any substance introduced into the public drinking water system that does not create a threat to the public health, but that does adversely and unreasonably affect the aesthetic quality of the water.

Provo Water Resources – the Provo City Division of Water Resources.

Public Drinking Water System – the Provo City Water Distribution System.

Service Connection - the terminal end of the City's drinking water system where the City transfers jurisdiction and sanitary control of the water. If a water meter is present, then the service connection exists at the downstream end of the meter.

UPDWR – the Utah Public Drinking Water Rules, as promulgated and amended by the state Drinking Water Board.

User - the owner or operator of a non-City owned plumbing system(s) having a service connection from the drinking water system.

10.07.040 Prohibited Actions

(1) It is unlawful at any place supplied with water from the public drinking water system to do any of the following:

(a) To install, maintain, or use any existing or potential physical connection or arrangement of piping or fixtures that may allow any fluid or substance other than potable water in the public drinking water system to come in contact with potable water in the public drinking water system, unless the water supply is protected as required by the UPDWR, the Plumbing Code, and this Chapter; any such cross connection now existing or hereafter installed is unlawful and must be immediately protected or eliminated; or

(b) To install any connection, arrangement, or fixtures without using a backflow prevention device or assembly designed to prevent a violation of Subsection (1)(a) of this Section;

(c) To install any backflow prevention device or backflow prevention assembly without approval for installation by Provo Water Resources with respect to each application; or

(d) To install any backflow prevention device or assembly without meeting the requirements of the Plumbing Code.

10.07.050 Cross Connection Protection Determinations

(1) The control or elimination of cross connections, the criteria for determining the degree of hazard, and prescribing appropriate levels of protection must be in accordance with the Plumbing Code and the UPDWR. Water service to any premises is contingent upon the user providing appropriate cross connection control in accordance with this Chapter.

(2) Provo Water Resources has the authority to make individual determinations regarding necessary backflow prevention requirements and to institute more rigorous standards or mandates pertaining to backflow prevention measures where circumstances dictate that is necessary to meet the purposes of this Chapter. Such standards may pertain to isolation or containment methods and may surpass the criteria outlined in the Plumbing Code. The determination of such requirements may be based on various factors, including the nature of the business or type of connection, the level of associated hazards, and any history of non-compliance with regulatory directives.

(3) Determinations and enforcement is the responsibility of Provo Water Resources. Water service may be refused or terminated to any premises where an unprotected cross connection may allow contaminants or pollutants to backflow into the public drinking water system.

10.07.060 Secondary Meter (Containment) Protection

(1) Dual check valves, or any such backflow prevention device currently approved in the Provo City Standards for backflow prevention in meter boxes, are required as a secondary line of protection for the public drinking water system. These devices are not considered a primary backflow prevention device or assembly as defined in this Chapter.

(2) Existing meters without secondary backflow prevention devices must be brought up to current Provo City Standards and replaced with meters containing backflow prevention devices or to have the existing meters retrofitted to include backflow protection devices. Provo City is not responsible or liable for any damages arising from the inherent risks of closed water systems and related thermal expansion downstream of backflow prevention.

10.07.070 System (Containment) Protection

The City reserves the right to require containment backflow protection for an entire Homeowners' Association (HOA) or at any junctions between private water lines and municipal water lines. The respective Homeowners' Association (HOA) or private utility owners bears the responsibility for all costs associated with the procurement and installation of backflow prevention devices or assemblies at locations designated by Provo Water Resources. It is the responsibility of the HOA or private utility owners at any premises where backflow preventers are installed to have certified inspections, operational tests, and necessary repairs completed at the user's expense.

10.07.080 Right of Entry

(1) Officers and employees of Provo City, duly identified, must be granted access, during reasonable hours of the day, to all premises or buildings receiving drinking water from the public drinking water system. Such access is granted for the express purpose of conducting cross-connection hazard assessment surveys or any other examinations or tests deemed reasonably necessary for the enforcement of this Chapter.

(2) During cross-connection hazard assessment surveys, the owner or representative is required to accompany the City representative while on premises, and appropriate documentation will be conducted during the assessment. The user is responsible for all expenses resulting from an illegal or faulty cross connection, or modifications made to an existing backflow preventer.

(3) Water service may be refused or terminated, or maximum backflow protection may be required, to any premises where:

(a) access to perform surveys is denied;

(b) unprotected cross connections are located on the premises;

(c) a backflow preventer is not installed, tested, and maintained as required by the UPDWR, the Plumbing Code, and this Chapter; or

(d) a backflow preventer has been removed or bypassed.

10.07.090 Backflow Assembly Testing and Reporting Requirements

(1) It is the ultimate responsibility of the user of water from the public drinking water system to furnish backflow assembly test reports to Provo Water Resources.

(2) Backflow prevention assemblies required by this Chapter must be tested within ten (10) business days of installation, relocation, or repair and annually thereafter by a Certified Backflow Technician. Backflow prevention assembly testing at more frequent intervals may be required, as determined by Provo Water Resources. Backflow assembly test reports with a status of "Passed" must be furnished to Provo Water Resources within (30) calendar days of testing. Backflow assembly test reports with a status of "Failed" must be furnished within five (5) business days of testing.

(3) If the assembly fails installation requirements described or has a testing status of "Failed," the user must arrange repairs with the manufacturer's specified parts, in accordance with the manufacturer's suggested procedure, or have the assembly replaced with the same type of backflow assembly. Following repairs or replacement, the assembly must be tested again within ten (10) business days to verify that it is meeting performance standards and has the status of "Passed."

(4) Submitted test reports must follow the format approved by Provo Water Resources.

10.07.100 Responsibilities

(1) Responsibility: City

(a) Provo City is responsible for the protection of the public drinking water system against foreseeable conditions leading to the possible contamination or pollution of the public drinking water system due to the backflow of contaminants or pollutants into the drinking water supply.

(b) Drinking water system surveys/inspections of the user's water distribution system(s) will be conducted or caused to be conducted by individuals deemed qualified by and representing Provo Water Resources. Survey records must indicate compliance with the UPDWR and the Plumbing Code. All such records will be maintained by Provo Water Resources.

(2) Responsibility: User

(a) Any user must comply with this Chapter as a term and condition of connection to, and the continued supply of, water from the public drinking water system. User's acceptance of service is deemed to show user's awareness of the user's responsibilities as a water system user.

(b) Any user of water from the public drinking water system, excluding Provo City, must pay all costs of purchase, installation, certified operational tests, and repairs of backflow prevention devices or assemblies required to comply with this Chapter. Failure to comply with this Chapter is grounds for discontinuation of service.

(3) Responsibility: Building Official

(a) The building official's responsibility to enforce the applicable sections of the plumbing code begins at the point of service (downstream or user side of the meter) and continues throughout the length of the user's water system.

(b) The building official will review all plans to ensure that unprotected cross connections are not an integral part of the user's water system. If a cross connection cannot be eliminated, it must be protected by the installation of an air gap or an approved backflow prevention device/assembly, in accordance with the Plumbing Code.

(4) Responsibility: Certified Backflow Technician, Surveyor, or Repair Person

Whether employed by the user or a utility to survey, test, repair, or maintain backflow prevention assemblies, any Certified Backflow Technician, Surveyor, or Repair Person has the responsibility to:

(a) Ensure that acceptable testing equipment and procedures are used for testing and repairing backflow prevention assemblies;

(b) Record all testing and repairs and submit report forms to the user and the City within 30 days of work performed;

(c) Report to the City any failed backflow assembly test within 5 days of work performed;

(d) Ensure that replacement parts are equal in quality to parts originally supplied by the manufacturer of the assembly being repaired;

(e) Refrain from modifying the design, material, or operational characteristics of the assembly during testing, repair, or maintenance, in accordance with legal obligations;

(f) Perform all tests of the mechanical devices/assemblies and assume responsibility for the competence and accuracy of all tests and reports;

(g) Ensure the Backflow Technician license is current, and the testing equipment being used is in proper operating condition and gauge calibrated in the past 12 months; and

(h) Be equipped with, and competent to use, all necessary tools, gauges, and other equipment necessary to properly test, and maintain backflow prevention assemblies.

10.07.110 Backflow Preventer Installation

(1) In the case of a user requiring backflow prevention assembly installation, repair, or relocation, the task must be performed by individuals holding the appropriate licensure from the Utah Division of Professional Licensing.

(2) An approved backflow preventer must be installed on the service line of the identified user's water system, at or near the property line or immediately inside the building being served; but, in all cases, before the first branch line leading off the service line. The type of backflow preventer assembly or device installed at this point of containment will be determined by Provo Water Resources. In accordance with the Plumbing Code, this Chapter acknowledges the potential requirement for additional backflow preventer assemblies or devices for isolation, and installation of such necessity may also be required by this Chapter. The determination of the minimum containment protection in all instances rests with Provo Water Resources.

(3) Backflow prevention assemblies must be installed with 12 inches of surrounding clearance and safely and readily accessible to Certified Backflow Technicians, repair persons, and the City. No backflow prevention assemblies may be installed so as to create a safety hazard (i.e., installation over an electrical panel, steam pipes, boilers, or other unsafe location).

(4) Backflow assembly test reports for all new installations must be submitted to the Cross Connection Control Coordinator within ten (10) days of installation. In instances involving backflow assemblies for irrigation systems installed outside of the seasonal period, backflow assembly test reports must be submitted within ten (10) business days following the commencement of water flow for the season.

10.07.120 Approval of Backflow Assemblies in New Construction

For new construction, the Public Works Department will not consider the installation of assemblies to be complete, and will not sign the Certificate of Occupancy, until:

(a) the installation has been inspected by the Cross Connection Control Coordinator or other qualified Provo City employee and deemed acceptable based on the manufacturer's installation criteria;

(b) the backflow assembly has been tested by a Certified Backflow Technician and has a status of "Passed;" and

(c) a Backflow assembly test report has been submitted to the Provo City Cross Connection Control Coordinator for official recordkeeping.

10.07.130 Recordkeeping

Provo Water Resources is responsible to maintain Cross Connection Control Surveys and backflow preventer assembly test reports. These records will be stored electronically with appropriate security measures as determined by Provo Water Resources.

10.07.140 Notification of Violation

(1) The installation, maintenance, or use of unprotected cross connections is a direct violation of this Chapter. Furthermore, failure to submit mandated backflow assembly test reports as stipulated by this Chapter is also a violation.

(2) When the Provo City Cross Connection Control Coordinator finds that a user has violated, or continues to violate, any provision of this Chapter, the Provo City Cross Connection Control Coordinator may serve upon that user a written notice of violation. Within ten (10) days of receipt of such notice, the violation must be fully rectified. Corrective action does not relieve the user of liability for any violations occurring before correction of the violation. Nothing in this Chapter limits the authority of the City Cross Connection Control Coordinator to take any action, including emergency actions or any other enforcement action, without first issuing a notice of violation.

10.07.150 Termination or Refusal of Water Services

(1) Provo Water Resources may deny or immediately discontinue service to the premises ten (10) days after notification of deficiencies, excepting that water service may be discontinued immediately if an immediate threat to the water supply exists, by providing a physical break in the service line.

(2) Restoration of water service is contingent upon the correction of the specified conditions or defects, as determined by Provo Water Resources, and subject to payment of all applicable fees, including, but not limited to, noncompliance fees, service shut-off fees, and service restoration fees as shown on the Consolidated Fee Schedule.

10.07.160 Civil Penalties

(1) Any user who has violated, or continues to violate, any provision of this Chapter, or any cross-connection standard or requirement is civilly liable to Provo City, and to third persons other than Provo City, for all damage proximately caused by the violation, in addition to reasonable attorneys' fees, court costs, and other expenses associated with enforcement activities, including sampling and monitoring costs.

(2) In the event that a user discharges pollutants or contaminants that cause Provo City to be fined by the EPA, local health department, or the State of Utah for such violations, the user is fully liable for the total amount of such fines and civil penalties assessed against Provo City and administrative costs incurred.

(3) In determining the amount of civil liability, the Court must take into account all relevant circumstances, including, but not limited to, the extent of harm caused by the violation, the magnitude and duration of the violation, any economic benefit gained through the user's violation, corrective actions by the user, the compliance history of the user, and any other factor as justice requires.

(4) Filing a suit for civil penalties is not be a bar against, or prerequisite for, taking any other action against a user.

10.07.170 Remedies Nonexclusive

The remedies provided for in this Chapter are not exclusive. Provo City may take any, all, or any combination of the actions described in this Chapter against a noncompliant user. Enforcement of cross connection violations will generally be in accordance with Provo Water Resources' Enforcement Response Plan, a section of the Cross Connection Control Program Guidelines. However, the City may take other action against any user when the circumstances warrant. Further, the City may take more than one (1) enforcement action against any noncompliant user.

10.07.180 Charges and Fees

The City may adopt charges and fees in the Consolidated Fee Schedule, including:

- (1) Fees for noncompliance;
- (2) Fees for backflow test report submittals;
- (3) Fees for review and response to backflow incidents;
- (4) Fees to recover administrative and legal costs associated with the enforcement activity taken by the City to address noncompliance; and
- (5) Other fees as the City may deem necessary to carry out the requirements contained herein.

Appendix B: Approved Backflow Prevention Assemblies

Provo City utilizes the University of Southern California Foundation for Cross Connection Control and Hydraulic Research (FCCCHR) List of Approved Backflow Assemblies' as the standard for selecting backflow assemblies. The most current list is available at the following link:

<https://fccchr.usc.edu/list.html>

Examples of backflow prevention assemblies and devices

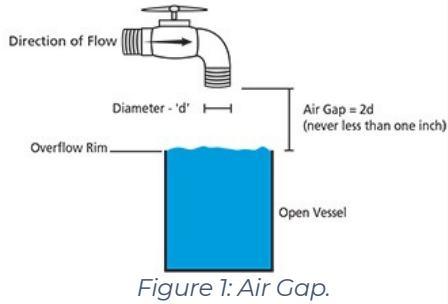


Figure 1: Air Gap.

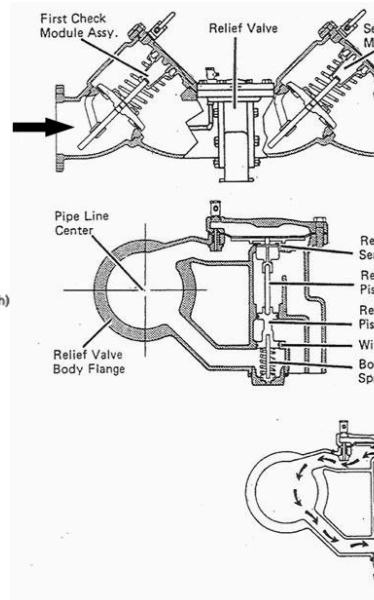


Figure 2: Reduced Pressure Principle Backflow Preventer.

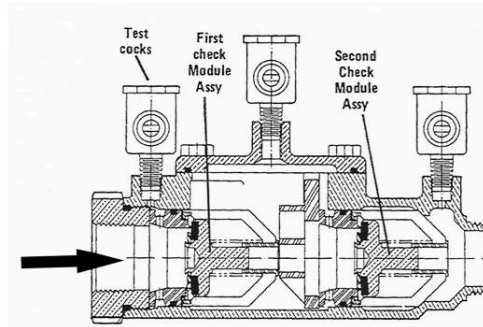


Figure 3: Double Check Backflow Preventer.

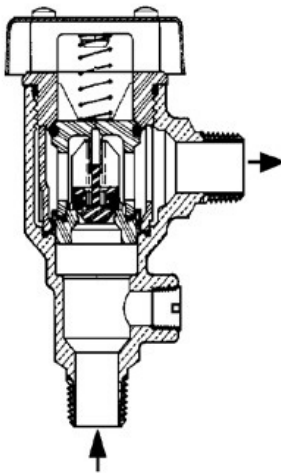


Figure 4: Atmospheric Vacuum Breaker.

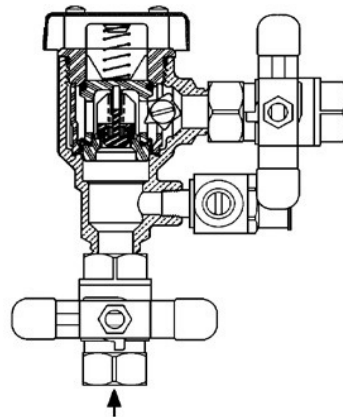


Figure 5: Pressure Vacuum Breaker and Spill Resistant Vacuum Breaker.

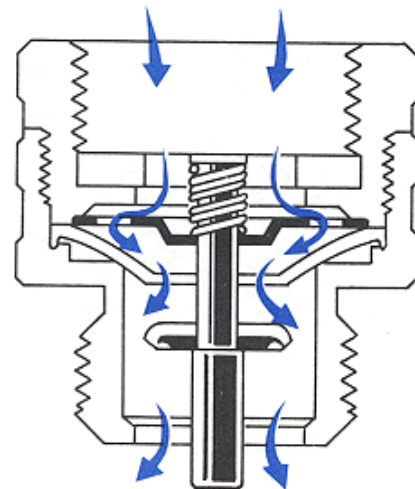


Figure 6: Hose Bib Vacuum Breaker.

Appendix C: Notice Letters*

Cross Connection Control Site Survey - Second Notice

Re: Urgent: Compliance Deadline Passed for Backflow Prevention Measures

Dear @Resident Name,

This is a second notice regarding the backflow prevention measures required at @Single Line Property Address. As previously communicated, a site survey was conducted to assess all water connections and determine the necessary backflow prevention measures for cross-connections. A follow-up letter was sent detailing the specific actions required to bring your location into compliance, and a copy of that letter is enclosed for reference. Failure to meet cross-connection control requirements poses a severe risk of contaminating the drinking water system, compromising public safety, and endangering the health of everyone consuming water within the building.

As of today, the deadline for completing these actions has passed, and we have not received a response or confirmation of the necessary changes. As a result, non-compliance fines of \$100 per assembly or violation will begin to accrue until all issues are resolved. Continued failure to comply will result in the discontinuation of water service to the premises without further notice.

We urge you to take immediate action to address these compliance requirements. If you need further clarification on the action items or wish to schedule another onsite visit, please contact us. We are more than happy to assist you in meeting these requirements and ensuring compliance.

Please provide an update on your progress or contact us to arrange further assistance as soon as possible.

Thank you for your prompt attention to this matter.

@Director Name

Cross Connection Control Coordinator | 801.852.6788 | backflow@provo.org

*All notice letters are examples; wording may change slightly as updates are made.

Cross Connection Control Site Survey - Shutoff Notice

Re: Immediate Action Required: Water Service Discontinuation Due to Non-Compliance

Dear @Resident Name,

This letter serves as official notice that, due to the continued non-compliance with backflow prevention requirements under Provo City Code 10.07 at @Single Line Property Address, water service to the premises will be discontinued on @Inline Dynamic Text.

Despite our previous communications, including the second notice dated @Inline Dynamic Text, the necessary backflow prevention measures have not been completed.

As outlined, failure to address these requirements poses a significant risk of contamination to the drinking water system, jeopardizes public safety, and endangers the health of individuals consuming water within the building.

Since the deadline has passed and no response has been received, non-compliance fines of \$100 per assembly or violation have been accruing and will continue until all issues are resolved. The discontinuation of water service is a direct consequence of ongoing non-compliance.

To prevent further action, immediate steps must be taken to complete the required measures and achieve compliance. Once compliance is confirmed, please provide updated test reports and documentation.

If you need additional clarification on the requirements or wish to schedule an onsite visit for further assistance, please contact us immediately. We are available to help you resolve these issues and restore water service.

Thank you for your urgent attention to this matter.

@Director Name

Cross Connection Control Coordinator | 801.852.6788 | backflow@provo.org

Failed Test - First Notice

Re: Backflow Assembly Repair

Dear @Resident Name,

Compliance with Utah State Code, International Plumbing Code, and Provo City Code 10.07 requires that the backflow prevention assemblies at @Single Line Property Address be tested annually by a Certified Backflow Prevention Assembly Tester possessing a valid Certification issued by the State of Utah, Department of Environmental Quality, Division of Drinking Water.

Our records show that the assemblies listed below have failed their recent field tests. This notice requires that you arrange for the necessary repairs or replacements, followed by a retest. Once the assembly passes the field test, the tester must submit the new inspection report through the AquaResource portal within 10 business days of the original failed test. Failure to comply may result in the discontinuation of water service to the premises without further notice.

Provo City Code | Chapter 10.07.090 | Backflow Assembly Testing and Reporting Requirements

If the assembly fails installation requirements described or has a testing status of "Failed," the user must arrange repairs with the manufacturer's specified parts, in accordance with the manufacturer's suggested procedure, or have the assembly replaced with the same type of backflow assembly. Following repairs or replacement, the assembly must be tested again within ten (10) business days to verify that it is meeting performance standards and has the status of "Passed."

Non-compliant backflow assemblies, including those with overdue tests or other issues, will incur a recurring fine of \$100 per assembly until compliance is achieved.

@Backflow List

Please feel free to reach out if you have any questions or concerns about meeting this deadline.

Thank you for your prompt attention to this matter.

@Director Name

Cross Connection Control Coordinator | 801.852.6788 | backflow@provo.org

Failed Test - Second Notice

Dear @Resident Name,

Re: Backflow Assembly Repair

This is your second notice. Compliance with Utah State Code, International Plumbing Code, and Provo City Code 10.07 requires that the backflow prevention assemblies at @Single Line Property Address be tested annually by a Certified Backflow Prevention Assembly Tester, certified by the State of Utah, Department of Environmental Quality, Division of Drinking Water.

Failure to meet cross-connection control requirements poses a severe risk of contaminating the drinking water system, compromising public safety, and endangering the health of everyone consuming water within the building.

Our records indicate that the assemblies listed below have failed their recent field tests. Immediate action is required. You must arrange for the necessary repairs or replacements and have the assemblies retested without delay. The tester must submit the new inspection report through the AquaResource portal within 10 business days of the original failed test. Failure to comply will result in the discontinuation of water service to the premises without further notice.

Provo City Code | Chapter 10.07.090 | Backflow Assembly Testing and Reporting Requirements

If the assembly fails installation requirements described or has a testing status of "Failed," the user must arrange repairs with the manufacturer's specified parts, in accordance with the manufacturer's suggested procedure, or have the assembly replaced with the same type of backflow assembly. Following repairs or replacement, the assembly must be tested again within ten (10) business days to verify that it is meeting performance standards and has the status of "Passed."

Non-compliant backflow assemblies, including those with overdue tests or other issues, will incur a recurring fine of \$100 per assembly until compliance is achieved.

@Backflow List

If you have any questions or require assistance in meeting this deadline, please contact us immediately.

Thank you for your prompt attention to this matter.

@Director Name

Cross Connection Control Coordinator | 801.852.6788 | backflow@provo.org

Failed Test - Shutoff Notice

Re: Immediate Action Required: Water Service Discontinuation Due to Non-Compliance

Dear @Resident Name,

This letter serves as official notice that water service to @Single Line Property Address will be discontinued on @Inline Dynamic Text due to your failure to comply with backflow prevention requirements outlined in our previous communications.

As noted in our second notice dated @Inline Dynamic Text, the backflow prevention assemblies listed below failed their recent field tests. Despite being given 10 business days to arrange for necessary repairs or replacements and submit a new inspection report through the AquaResource portal, our records show that the required compliance has not been achieved.

Provo City Code | Chapter 10.07.090 | Backflow Assembly Testing and Reporting Requirements

If the assembly fails installation requirements described or has a testing status of "Failed," the user must arrange repairs with the manufacturer's specified parts, in accordance with the manufacturer's suggested procedure, or have the assembly replaced with the same type of backflow assembly. Following repairs or replacement, the assembly must be tested again within ten (10) business days to verify that it is meeting performance standards and has the status of "Passed."

Non-compliant backflow assemblies fail to adequately protect the drinking water system, thus increasing the risk of contamination, compromising public safety, and endangering the health of anyone consuming water within the building. Due to this significant risk, water service to the premises will be discontinued as outlined in our previous notices.

Please note that non-compliance will continue to incur a recurring fine of \$100 per assembly until the necessary repairs or replacement, retesting, and submission of inspection reports are completed. **Water service will only be restored once full compliance is verified.**

@Backflow List

Immediate action is required to avoid further penalties and service disruption. If you have any questions or need assistance in resolving this issue, please contact us immediately.

Thank you for your urgent attention to this matter.

@Director Name

Cross Connection Control Coordinator | 801.852.6788 | backflow@provo.org

Associated Organizations

Rural Water Association of Utah

Intermountain Section of the American Water Works Association

Rural Community Assistance Corporation

Chapter of the American Backflow Prevention Association

Division of Drinking Water

University of Southern California Foundation for Cross Connection Control and Hydraulic Research (FCCCHR)