



1.0 Purpose & Scope

The cross connection control program a combined cooperative effort between plumbing companies, O&M contractors, health officials, water works companies, property owners and certified testers to establish and administer guidelines for controlling cross connections and implementing means to ensure their enforcement so that the public potable water supply will be protected both in the city main and within buildings and outside lawn irrigation. The elements of a program define the type of protection required and responsibility for the administration and enforcement. Other elements ensure continuing education programs.

2.0 Activities & Departments Affected

Implemented and maintained by Building and Property Managers, either directly or through Operation & Maintenance (O&M) contractor or subcontractor. This has the potential to have an adverse impact on tenants, staff, and the general public

3.0 Exclusions

None

4.0 Forms Used & Permits Required: (include reporting requirements)

☐ Federal and State Forms and Permits:

PERMIT / FORM / REPORT	SUBMITTED TO: FEDERAL OR STATE AGENCY	SUBMITTAL FREQUENCY
Backflow Prevention Assembly Test and Maintenance Form ⁽¹⁾ (an acceptable form, not a state form)	Required by the Colorado Department of Public Health and Environment ⁽²⁾ ; kept on file after any backflow prevention device is inspected. <i>[Boulder, Commerce City, Fort Collins, Grand Junction, Longmont, and Louisville have local ordinance in place.]</i>	Yearly (no set date)
No pre-described forms found for Montana ⁽³⁾	If a backflow event has occurred, the operator has a responsibility to notify consumers and to report the event to DEQ. Chapter 11 of Montana Ground Water Manual covers Records Maintenance.	At time of a discovery
North Dakota - No Record keeping is identified, but considered beneficial	The North Dakota Drinking Water Program promotes compliance with the SDWA for public water systems and caution with cross-connection and backflow. The most current "Uniform Plumbing Code" is followed; 602.2, 603.1, 603.3.3.	Annual testing schedule
South Dakota - Record keeping is not specified (USACE)	South Dakota State Plumbing Code simply states to protect water supply system. Local ordinances may apply. [18.20.140]	Annual testing schedule
Utah Backflow Assembly Test	Cross Connection Control Program of Utah ,	Record each



CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION

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PERMIT / FORM / REPORT	SUBMITTED TO: FEDERAL OR STATE AGENCY	SUBMITTAL FREQUENCY
Report (Appendix E)	Yellow copy submitted to the Water Utility; water purveyor maintains the form. Local ordinances do apply.	test, subsequent maintenance and repair.
Wyoming Water suppliers shall establish record keeping and management procedures; as per Chapter 12 , Section 14(i)	For Wyoming Public Water Supplies, records kept on file by the contractor after any installation and maintenance of backflow prevention devices are met.	None Found

Note: (1) Backflow Prevention Assembly Test and Maintenance is in response to meet the requirements set forth in the Safe Drinking Water Act.

(2) The State of Colorado's health department specifies that all backflow devices be tested once every year, by a certified/licensed tester. The tester is required to provide a written copy of the test report to the person responsible for filing and documenting that these devices were tested and repaired (if necessary) each year.

(3) All backflow prevention assemblies in Montana must be tested by a certified backflow assembly tester at the time of installation, repair, or relocation, and at least on an annual schedule thereafter.

☐ **In-house GSA Region 8 and Contractor Forms:**

- Backflow Prevention Assembly Test and Maintenance Form; or similarly titled

5.0 Acronyms, Abbreviations and, Definitions

Acronyms	Meaning
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CO	Contracting Officer
DFC	Denver Federal Center
COR	Contracting Officers Representative
EO	Executive Order
EPA	Environmental Protection Agency
GSA	General Service Administration
ISO	International Standards Organization
O&M	Operations and Maintenance
PBS	Public Building Services
QAP	Quality Assurance Person
SDWA	Safe Drinking Water Act

Definitions:

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

Backflow: The flow of water or other liquids, mixtures, or substances into the distributing

pipes of a potable supply of water from any source or sources other than its intended source. Backsiphonage is one type of backflow.

6.0 Procedure

State Specific Procedures & Requirements [refer to individual State Legal Reviews for details on Statutes, Laws, and Rules]: There are no conservation requirements, except for when mandated by the state or local government during time of water restrictions (e.g., droughts). Pollution prevention and reporting is regulated per state and covered under a separate procedure.

STATE	REQUIREMENT
Colorado	Regulations mandate cross-connection control. A cross-connection control program is required. However, regulations require identifying cross-connections and require the installation, testing, and maintenance of backflow prevention devices. Certification of testers is required. Record keeping is required (USACE). Regulated by the CDPHE through the Water Quality Control Commission .
Montana	Regulations mandate cross-connection control. A cross-connection control plan is not required. Backflow prevention device types, installation methods, and testing are specified in the adopted plumbing code. Tester certification is not required. (USACE). Regulated by the Montana Department of Environmental Quality (DEQ) Water Quality Division .
North Dakota	Regulations mandate cross-control. A program or plan is not specified. Device type is specified. Training and certification of testers is recommended (USACE). Regulated by the North Dakota Department of Health, Environmental Health Section, Water Quality Division .
South Dakota	Cross-connection control is mandated in the State Plumbing Code. The code acts as the state's only requirements and as the guidelines. A cross-connection control program is not required. Backflow prevention device types, installation methods, and testing and maintenance requirements are specified in the code. Tester certification is not required. Record keeping is not specified (USACE). Regulated by the South Dakota DENR Division of Environmental Services through the Ground Water Quality and Surface Water Quality Programs.
Utah	Regulations mandate cross-connection control. A written cross-connection control program approved by the state is required. Suggested elements of the program are provided in the state guidelines. Premises containment is recommended. Plumbing code requires point-of-use isolation by the installation of backflow prevention devices at selected fixtures and outlets. Devices must be installed in accordance with state guidelines and plumbing code. A list of approved devices is maintained by the state. Initial and annual device testing is specified. Program administration, device tester, and instructor certification is required. Record keeping procedures are specified (USACE). Regulated by the Utah DEQ through the Division of Water Quality .
Wyoming	Regulations mandate cross-connection control. A program or plan is not specified. Premises containment and system or equipment point-of-use isolation is specified. Device design and performance standards are not specified. However, device approval is specified. Device installation location is not specified. Device installation method is specified for Pressure Vacuum Breaker



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STATE	REQUIREMENT
	devices and physical air gaps. Testing and maintenance of devices is not specified. Certification of testers is not specified. Record keeping is not specified. (USACE). Water quality is regulated by the Wyoming DEQ through the Water Quality Division . Collectively the Water Quality Regulations are referred to as the Wyoming Water Quality Rules and Regulations (WQRR). Ground water is regulated through the Ground Water Section .

Standardized Procedure:

6.1 Control and Prevention

- 6.1.0 Many states require yearly testing to ensure that the “testable device” is working properly. Test cocks are provided on each “testable device” for this purpose and manufacturers are required to furnish field testing information.
- 6.1.1 For GSA owned properties, the [Property Manager](#) will monitor water usage and watch for noteworthy changes.
- 6.1.2 All “testable” backflow devices in federal buildings should be tested each year by a certified tester, and a copy of the test report provided to the GSA building management team. The [Contracting Officer’s Representative \(COR\)](#) will maintain this report. For GSA owned properties testing can be done in-house by a [GSA mechanic](#), by the [O&M Contractor](#), or by a [backflow consulting – testing and repair company](#). The [Property Manager](#) will select the responsible parties and ensure they are certified within their states’ program guidelines. This applies to both equipment within a building (i.e. boilers, cooling towers, incoming potable water supply to a building, etc.) and testable lawn irrigation devices outside the building. The [O&M Contractor](#) (or other party responsible for testing) will maintain a differential gage calibration report.
- 6.1.3 In buildings GSA leases, GSA has the right to request and view test reports for both lawn irrigation and building equipment devices, filed and maintained in the lessor’s Property Management office. Annual reviews are recommended. These test reports are provided to the [Contracting Officer’s Representative \(COR\)](#) and/or the [Quality Assurance Person \(QAP\)](#) who will review them.
- 6.1.4 The [O&M Contractor](#) (or other party responsible for testing as described in 6.1.2 above) will check with local water companies or state health departments for specific requirements. Each state will have a program that defines the type of protection required and responsibility for the administration and enforcement that the tester will abide by.



6.2 In Case of a Backflow Event (EPA, 2006)

- 6.2.1 The Property Manager informs the Contractor (O&M or Landscaper) of the incident or vice versa if the is Contractor the discovering party.
- 6.2.2 The Property Manager informs the Fire Protection Engineer, the Industrial Hygienist (IH), and the Environmental Programs Group (EPG).
- 6.2.3 The Contractor will stop the pressure differential that caused backflow of contamination, if possible, and identify and remove the cross-connection.
- 6.2.4 The Property Manager, IH, or EPG will contact the appropriate state or local authorities to report the incident.

In areas where public exposure to harmful contaminants is suspected, The Property Manager will provide immediate notice to affected consumers regarding water usage. Public notice should explain the cause of the contamination and corrective actions that are underway and should include any appropriate health effects language. The Property Manager will continue to provide updated public notification as appropriate during and after removal of contamination from the system.

- 6.2.5 The Property Manager will test the water immediately (if possible) and use the results to determine the extent of the contaminants. If the contamination is limited to a small area, skip to 6.2.8
- 6.2.6 The O&M Contractor will develop a plan for systematic cleaning or flushing of the system to minimize the risk of drawing contaminants into uncontaminated areas. The plan should indicate the amount of water and the length of time needed to completely flush the system. The direction of flow should draw clean water through the contaminated site and prevent any contaminated water from entering uncontaminated areas. Depending upon the nature of the contamination, some wastes may be discharged into the sanitary sewer system and some may need special handling or treatment.
- 6.2.7 Throughout the process, the O&M Contractor will continue to sample within and outside the suspected contaminated area to assess the extent of the damage.
- 6.2.8 The Contractor will perform system flushing and, where necessary, cleaning of the customer's system.
- 6.2.9 After flushing and any necessary cleaning, the Property Manager will test the drinking water in affected areas to ensure the contamination has been removed.
- 6.2.10 Once remediation is complete the IH or EPG will ensure that the source of



contamination has been removed or that the risk of contamination has been eliminated using backflow prevention measures that meet local and state requirements.

7.0 Records Management

- Contractor's Daily Quality Control Inspection Form
- Differential Gage Calibration Reports
- Test Result Reports

8.0 References

EPA

- Cross-Connection Control Manual, EPA 816-R-03-002, February 2003
- Cross-Connection Control: A Best Practices Guide, EPA 816-F-06-035, September 2006

Colorado

- Backflow Prevention Education Council of Colorado, Colorado Cross-Connection Control Manual, [latest version]

Montana

- Montana Ground Water Manual Small Water Systems; Chapter 8: Cross Connections and Backflow Prevention, Drinking Water Assistance Program, The Montana Water Center, Montana State University, 1998

Utah

- Cross Connection Control Commission, Division of Drinking Water, Cross Connection Control Program of Utah

U.S. Army, Corps of Engineers, Public Works Technical Bulletin, 420-49-16, Cross-Connection Control at Army Installations, 16 July 2001

9.0 Appendices

Attachment A: Cross-Connection Control and Backflow Prevention Testing Flowchart

Attachment B: Cross-Connection and Backflow Incident Flowchart

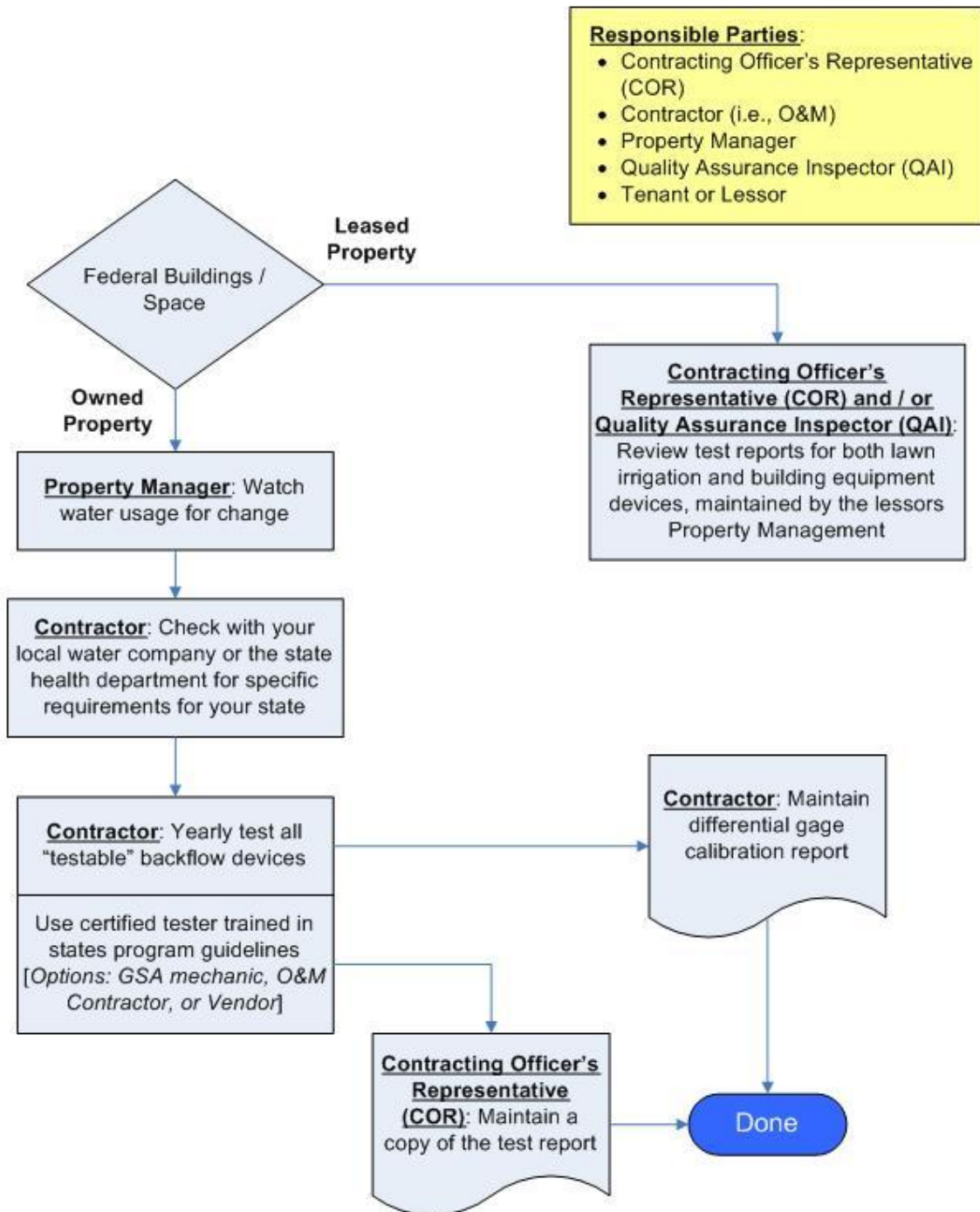
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04/01/2010	Separated and expanded from Grounds Maintenance-Water Use Env. Procedure	Mark Baca, Bruce D. Johnson, Robert J. Melvin, Erik Petroskis
06/21/2012	Emphasize Roles and Responsibilities in section 6, update flowchart	Nick Gutschow

ATTACHMENT A: Cross-Connection Control and Backflow Prevention Testing Flowchart

TESTING

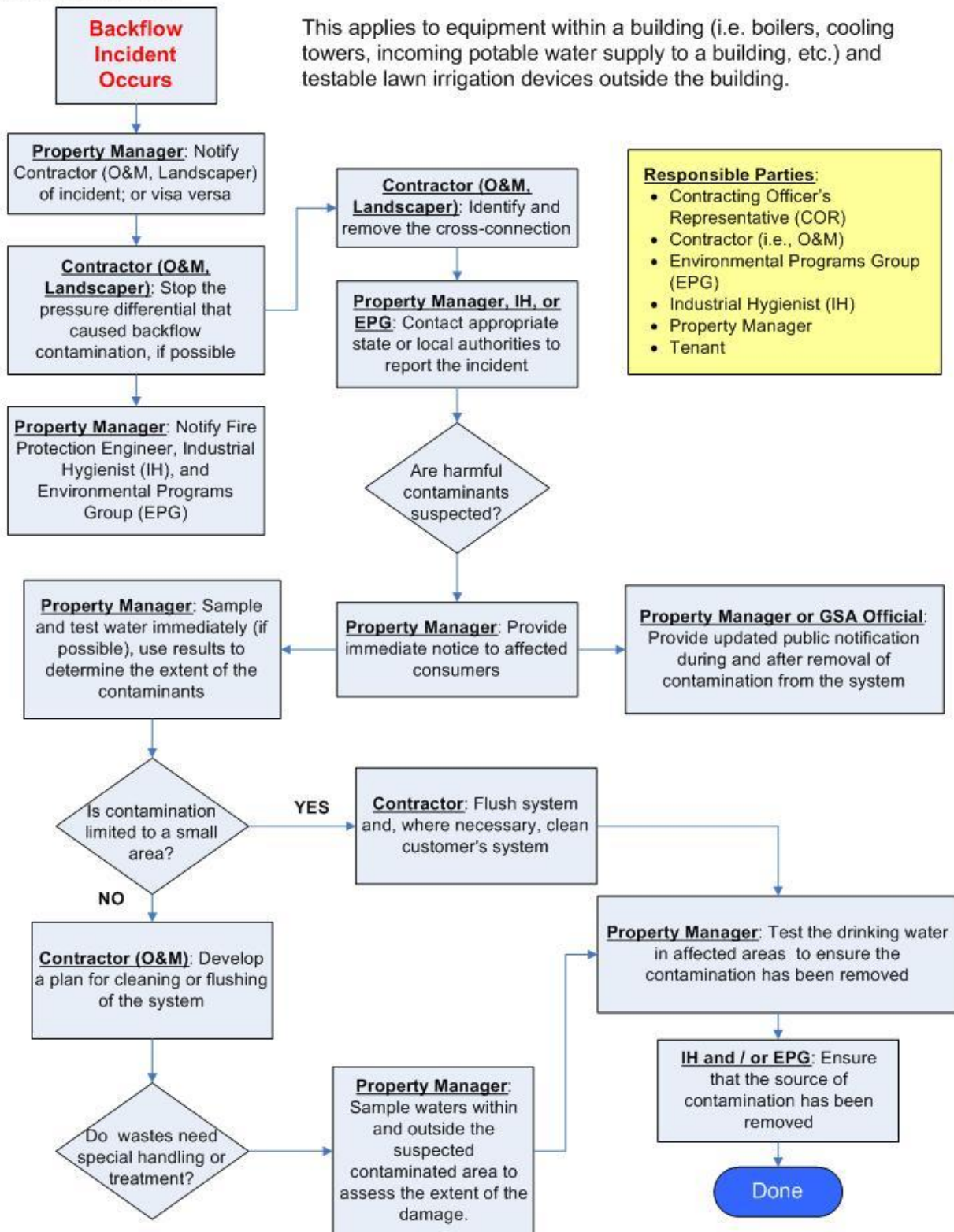
This applies to equipment within a building (i.e. boilers, cooling towers, incoming potable water supply to a building, etc.) and testable lawn irrigation devices outside the building.



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ATTACHMENT B: Cross-Connection and Backflow Incident Flowchart

BACKFLOW INCIDENT



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