



BACKFLOW PREVENTER TESTING AND REPAIR SOP

SOP #341

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SOP VERSION CONTROL

Revision No	Revision Date	Page No(s)	Description	Approved by

STAFF ACKNOWLEDGEMENT

I certify that the requirements of this SOP have been communicated to me and that I am trained in its use. A copy of this page will be distributed to the employee training record file.

Name	Date

APPROVAL SIGNATURES

Prepared by: Arcadis U.S., Inc. Date: 01/31/2018

Approved by: _____ Date: _____

1 DEFINITIONS AND ACRONYMS

AWWA	American Water Works Association
CCRM	Cross Connection Rules Manual
MDEQ	Michigan Department of Environmental Quality
PPE	personal protective equipment

2 KEY PERSONNEL AND RESPONSIBILITIES

- Cross-Connection Control / Backflow Prevention Program Administrator:
 - Oversee cross-connection and backflow prevention control program
 - Generate work orders for inspection, testing, maintenance, and repair of backflow prevention assemblies
- Operator or contractor with valid Michigan journey or master plumbing license with documented training that complies with the requirements of the cross-connection and backflow prevention program for testing, repair, and maintenance of backflow prevention assemblies:
 - Complete work orders generated by the Cross-Connection Control / Backflow Prevention Program Administrator
 - Follow up field work by recording maintenance or repair in established database, or return of field documents to the utility

3 SCOPE/PURPOSE

The purpose of this SOP is to outline the procedures for regular testing and as-needed repair of backflow prevention devices. Refer to the Michigan Department of Environmental Quality (MDEQ) Cross Connection Rules Manual (CCRM), latest edition for guidance on backflow prevention rules promulgated by the State of Michigan.

This SOP does not cover the comprehensive cross-connection program, which should be maintained in parallel for an up to date record of existing backflow prevention assemblies within the distribution system including the following information. (Refer to AWWA M14, latest edition for more detail.)

- Location of backflow preventer
- Description of hazard isolated
- Type, size, make, model, static line pressure, and serial number

4 HEALTH AND SAFETY

Backflow prevention assemblies are often located on customer property and may be installed in hazardous areas including confined spaces. Prior to any work, the area should be evaluated for hazardous conditions and personal safety by the operator/maintainer. Additionally, the following PPE should be worn:

- City employee identification or a City-approved contractor identification card
- Hard hat or bump cap (as needed for overhead hazards)
- Safety glasses
- Steel-toed boots
- Work gloves

In the event that a confined space entry is required, refer to the appropriate safety standard for air monitoring and support personnel.

5 PROCEDURE

Equipment Required:

- Use only equipment approved by the manufacturer of the backflow prevention assembly.
- All field test kits must be calibrated prior to use and must be recalibrated as needed according to the manufacturer's recommendations to ensure that the instruments are operable and accurate when used.

Procedure:

1. All backflow assemblies are to be tested in accordance with the MDEQ CCRM and AWWA M14. Testing must occur under the following circumstances:
 - a. At the time of installation or relocation, including assemblies re-installed seasonally.
 - b. After any repairs.
 - c. At a minimum of every 3 years, or in accordance with the approved cross-connection control program.
2. Individual testing procedures will depend on the make, model, and type of the backflow preventer. Use only tools approved by the manufacturer of the assembly to service and test the unit.
3. If a repair is required, obtain the repair information from the manufacturer of the backflow assembly and complete according to their recommendations. Document the repair type and completion date.
4. Prior to testing or repair of a device, provide notice to the property owner of date and approximate time of inspection.

5. Reference AWWA M14 for field test procedures for a variety of backflow prevention assemblies.

6 DATA RECORDING AND MANAGEMENT

Following the test, generate a report including the following records (AWWA M14, MDEQ CCRM):

- Assembly owner's name and mailing address (if customer-owned)
- Assembly location building address and physical location within the building
- Type of device including manufacturer's name, model number, serial number, and size of assembly
- Description of application (i.e. equipment or system served)
- Initial test results (pass-fail of first check and second check, relief valve discharge, air inlet opening, static line pressure)
- Test equipment manufacturer, model number, serial number, and calibration information.
- Repair history, repairs made during test, repair parts used, and/or cleaning performed
- Final test results after repair, as applicable
- Printed name, signature and certification number of the tester
- Date and time of test

Upon the receipt of results from an assembly testing event, the Cross-Connection Control / Backflow Prevention Program Administrator should review the results and order repairs or investigate inconsistencies as necessary.

7 REFERENCES

American Water Works Association. (2015). *M14 Backflow prevention and Cross-Connection Control Recommended Practices, Fourth Edition*. Denver, CO: AWWA.

Michigan Department of Environmental Quality. (2008). *Cross Connection Rules Manual, Fourth Edition*. Lansing, Michigan: Michigan Department of Environmental Quality.