Eugene Water & Electric Board
Springfield Utility Board
Rainbow Water District

Backflow Assembly Tester Handbook

Rely on us.

Created 1994 Updated 2011

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Backflow Assembly Tester Requirements and Performance Standards

AS an Oregon Department of Human Services certified Backflow Assembly Tester, providing services under the authority of the local Water Purveyor, you have an obligation to meet the needs and program requirements of both the customers you serve, and the administrative authority having jurisdiction, the Water Purveyor.

The following requirements and performance standards were developed in concert with local testers to provide a foundation for ensuring that customer needs, program requirements, and minimal ethical standards are met.

Objectives

The purpose of these requirements and performance standards is to create a consistent method for:

Monitoring compliance with Oregon Human Services backflow assembly testing requirements by:

- Protecting public health
- Insuring safe drinking water for the customers of EWEB, SUB and Rainbow Water Districts

The Oregon Human Services Administrative Rule 333-061-0070 outlines cross connection control responsibilities for public water systems. These rules require Water Purveyors to conduct an active program for systematically identifying and controlling cross connections.

Backflow assemblies installed pursuant to these rules (333-061-0070) are required to be tested in conformance with procedures established by the Foundation for Cross Connection Control, 9th Edition. Enforcement authority for these requirements is placed with the local Water Purveyor.

EWEB, SUB and Rainbow Water District, have worked together since 1984 to build consistency and an acceptable level of performance into the local backflow assembly testing program. As a result of these efforts, there are local requirements for:

- Notification
- Timely repair
- Procedures for handling failed assemblies left in service

Tester performance can range from exemplary to unsatisfactory. As local programs, and the number of installed assemblies grow, so have the number of identified problems. Recognizing that this trend increases the possibility of contamination, the three utilities have elected to institute a program where tester performance will be closely monitored.

Each requirement listed below has been assigned a priority number, showing how often a tester may fail to meet those requirements before action is taken. Results will be combined within the three utility service areas. All testers must meet the minimum requirements listed in this section. Requirements that are directly linked to public health, are given a priority one (1) deficiency violation that will result in;

1. Letter to OHD requesting certification revocation
2. Removal from local tester lists
3. Non-acceptance of test slips
4. Customer notification

Requirements that directly effect the Water Purveyors ability to meet the Human Services regulations, track or process compliance, or work effectively with a customer, is a priority two (2) deficiency, two deficiencies in any twelve month period would result in;

1) Letter to OHD requesting revocation of certification
2) Removal from local tester list
3) Non-acceptance of test slips
4) Customer notification

Priority One Requirements

The following are included in, but not limited to *Priority One Deficiencies.*

Any unethical practice associated with backflow assembly testing, installation or reporting. This includes, but is not limited to:

- Falsifying a test report
- Incompetent assembly testing
- Allowing another person to use their certification
- Failure to report or correct assembly installations that do not meet OHD or local installation standards
- Other acts deemed unethical by the local authority pursuant to (OAR/Business Practices, OAR/Contractor Laws).

Priority Two Requirements

The following are included in, but not limited to, *Priority Two Deficiencies*

Any function related to backflow assembly test reporting, testing notification or failed assembly notification, or other functions deemed unsatisfactory by the local authority.

Listed below are specific functions with level of violation in parenthesis

Notification

New Assemblies (Priority 2)- Minimum 24-hours with date and approximate time.

Notice for tests on new assemblies shall be made not less than 24-hours in advance. Notice can be made before the 24-hour minimum requirement. Each of the Water Purveyors will have one or more methods for logging test notices on a 24-hour basis. Notice for new assembly tests shall include:

1) Name
2) Certification number
3) Name of firm or party authorizing the test

4) Assembly to be tested

5) Address of installation

6) Date and approximate time of test

Discussion:

Backflow assemblies are required to be tested when they are installed. The initial test on a new installation serves as the Water Purveyor's record, that the assembly has been installed, and provides the information necessary to set up a file for tracking compliance and subsequent testing. Usually, the initial test is the best opportunity for the Water Purveyor to inspect and approve the installation. There are often many people involved in a new assembly installation (owner, installer, testers, plumbing inspector, Water Purveyor) however; the Water Purveyor usually works more closely and more consistently with the tester. It is therefore necessary, and a professional responsibility of the tester, to provide the information to the Water Purveyor.

Annual Tests: (Priority 2)-Including other tests that are not initial tests of new assemblies:

- 24-hour minimum notice
- 1-month maximum notice
- Date and time to be provided upon request

Notice on tests done after new assembly test can be made a maximum of one month in advance (the tester may call or fax the Water Purveyor listing the scheduled work for that month). Minimum notice for these tests is 24 hours. Water Purveyors will have a method for logging test notices on a 24-hour basis. In the event that the Water Purveyor wishes to witness a particular test, the Water Purveyor may request a date and approximate time for that test. Notice shall include:

- Your name
- Certification number
- Name of firm authorizing test
- Address of installation (and when requested)
- Date and approximate time of test

Example:

"This is Steve West, certification number A-463, this month I will be testing assemblies for ABC Co. at 3511 W 11th, John's Plating Co., at 650 Seneca, Big Timber Mill at etc. etc.

Test Reports

Accuracy (Priority 2)- Test reports filed with the Water Purveyor shall be complete, legible and accurate.

Test reports shall be filled out completely and accurately. Questions regarding the name or address of a particular installation can be directed to the Water Purveyor.

a) Complete

b) Correct documentation of repairs (flushing etc.)

c) Correctly showing test after repairs (when appropriate).

d) Correct documentation of replacement

e) Correct name, address, location

f) Correct make, model, size and serial number

g) Legible

h) Identification of improper installations

Discussion:

Test reports are public documents and also serve as a legal record. Complete and accurate test reports are essential to the Water Purveyor's effort to protect public health and the testers professional responsibility. As an agent of the owner, the tester assumes the owner's responsibility for compliance with the State of Oregon regulations. A complete and accurate test report is, proof that a test was performed and that the assembly will prevent backflow. Test reports that are not complete or accurate, may be returned to the tester/owner, and will not be an acceptable test until the correct information is supplied.

Timeliness:

Test reports are due (priority 2)- Ten (10) working days after initial test for commercial tests, and as required by the Water Purveyor for "agency" tests. Test reports for passing tests on assemblies tested commercially must be turned in within (10) working days of the test date or before the 10-day limit. Test reports for agency (i.e., in house testing performed by firms employees e.g., City of Eugene) must be turned in at intervals determined by the Water Purveyor.

Failed Assemblies:

Temporary repair ten (10) working days from initial test (priority 2)- Assemblies that fail an initial test, but can temporarily be repaired (e.g., flipping a disc) may be left in service for ten (10) working days. To be acceptable, a temporary repair must allow the assembly to function as designed. Test reports for assemblies with temporary repairs, are due (turned in) ten (10) working days from the date of initial test.

Discussion:

Repair parts for virtually any assembly are available and can be shipped overnight if necessary. As professionals, testers should carry parts to repair most 2" and smaller assemblies the same day. When an assembly fails the initial test and you are not prepared to repair it the same day, a temporary repair should, if possible, be made until repair parts can be obtained.

Assemblies not repaired (priority 1)-Notice to the Water Purveyor within 24 hours of initial test.

Example:

"This is Steve West, certification A-463, I am testing a 6" Reliant Model 2 RP at Big Plating Co., at 1155 W 11th Ave. the relief valve will not stop running. I suspect a damaged diaphragm and cannot affect a temporary repair. I have contacted Reliant Corp. and Everything Under the Sun Parts Co.; the earliest I can obtain a relief kit is two weeks'. (The Water Purveyor will now take action and inform the owner and the tester of the action).

Notices for assemblies that fail, and are not repaired, should be made as soon as possible, however, they must be made within 24 hours after the initial test. Once notice is given, the water purveyor can take action to assist in timely repair of the assembly or discontinue service to the customer, where appropriate as required by OAR 333-061-0070.

Each of the Water Purveyors will have one or more method of logging notice on a 24-hour basis. Notice for assemblies not repaired, shall include;

- Name
- Certification number
- Name of firm authorizing test
- Address of installation
- Assembly not repaired
- Description of repairs needed

Unethical Practices Priority 1

The Oregon Administrative Rules state "The division may refuse or revoke certification if it finds, after the opportunity for a hearing, under ORS 183, that the assembly tester";

1. Is incompetent in performing assembly testing
2. Has falsified a test report
3. Has allowed any other person to use their certification number
4. Other acts deemed unethical by the local authority (i.e., knowingly testing a customer's assembly twice in 1 year).

To be competent in assembly testing, a tester shall consistently complete and submit accurate test reports for each assembly tested, and shall be responsible for such reports. Evidence that a test report has been altered, falsified or forged will be investigated and forwarded to the Department of Human Services. Proof of such activity, shall be cause for immediate action. If duplication of tests does occur, a letter is automatically sent (by EWEB) to the customer stating that their assembly has been tested more then the required one (1) time per year (the customer should not be responsible for paying for 2 tests in one year).

License and Insurance:

All commercial testers are required to be a registered contractor as required by ORS 701 or a licensed landscape contractor as required by ORS 671. All commercial testers will provide, for the benefit of their customers

1. General liability coverage ($1,000,000.00) as outlined in ORS 701/671
2. Proof of tester certification
3. CCB or LCB contracting license
4. Current year gauge calibration

Documentation verifying the above requirements must be on file with the local Water Purveyor before test slips will be accepted (this includes out of area testers).

The tester assumes liability every time he/she performs a field test on a backflow assembly. Under normal circumstances, the tester is sent into a facility to test the backflow assembly and identify corrections or problems with the installation. The owner of the facility is relying on the testers knowledge and expertise in testing the backflow assembly. The owner also relies on the tester to reduce any potential liability by adequately maintaining the assembly and ensuring that the assembly is protecting the water supply. In most jurisdictions, there are both State and local regulations that require the assembly to undergo periodic testing. Failure to test and properly maintain a backflow assembly can create serious risk and increase an owner's liability.

Tester Safety

One does not have to go back too many years to find a time when tester safety was not a topic in tester certification courses. Now, all certification courses and update courses include emphasis on safety, and any tester who has spent much time in the field, can testify that safety concerns come into play virtually every time an assembly is tested. As professionals in the water works industry, it is important for all of us to be familiar with the safety issues that relate to the testing of backflow assemblies and to take the time to do our work safely.

Just because we have been to a job site before, does not mean the situation or conditions will be the same. As many of us in the Eugene-Springfield area were alarmed to discover, it was this assumption that proved fatal to one local backflow assembly tester and another employee in a 1986 confined space entry accident. Conditions change, equipment wears, piping and water use is altered, and a year is a long time between visits. We test backflow assemblies because we expect, that over time, they will break down and the same thing can happen in relation to safety. A new ground wire can be added to plumbing, that test port that was bumped can break off under pressure, assembly enclosures can develop atmospheric hazards, and the disruptions we create in setting up for a job can prove hazardous to passers by, or to water users.

The following pages include material that is now part of tester certification courses. It is not inclusive, but attempts to give an overview of some important safety concerns

for testers. Just as we look at the worst case in assessing the potential for backflow to occur, so must we recognize the worst case in assessing the potential for an accident to occur. With our own health and safety on the line, taking time to do the job safely, is truly a small investment.

All testers should be familiar with and practice all City, State and Federal (OSHA) codes and requirements.

Any tester working under a BSA (Business Service Agreement) with EWEB, must meet all OSHA safety requirements

Safety-Copyright ASSA Cross Connection Control Committee

The safety procedures and information in this section are general suggestions for testing and repairing backflow assemblies. The ultimate responsibility lies with each tester to work safely. The PNWS/AWWA Cross Connection Control Committee assumes no responsibility for any injury or damage to persons or property resulting from the use of this information.

Tools

Each tool is manufactured to perform a certain job. Use of the wrong tool, may result in injuries to the worker and damage to equipment repaired. Therefore, always use the correct tool for the job you are performing. When repairing backflow assemblies, always consult the manufacturer's manual for the proper tools and procedures to follow.

Assemblies and Springs

Safety precautions must be taken when the cover of a check valve is removed to clean or repair a backflow assembly. Some disc modules are held in place by spring pressure. Larger assemblies have very heavy covers and their springs may have too much tension on them. Special care must be taken to keep your hands and fingers from being pinched or cut, while removing or reassembling these check valves. Always close both shut-off valves and release any pressure from the assembly, before removing it's cover.

The #1 check valve spring is stronger in reduced pressure backflow assemblies, creating enough pressure drop across the check valve for proper operation of the relief valve. On some older assemblies, the access cover is also the spring retainer. Use caution when removing the bolts on covers. It is recommended that two continuous threaded rods be used to slowly remove the covers. On newer assemblies, the check

assembly retains the springs. When the bolts on their cover are removed, the tension is released from the spring and may be easily removed without danger to the repairperson.

Remember, all replacement parts must meet the manufacturer's specifications to maintain the assembly's approval date.

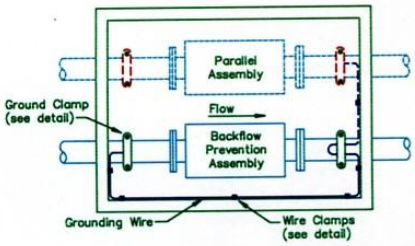
Overhead Installations

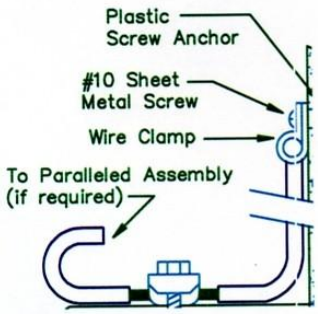
Assemblies installed more than five (5) feet above floor or ground level must have a platform under them for the tester or maintenance person to stand on. This platform must meet all applicable safety standards and codes.

Some older installations may be over chemical vats, electrical systems, or ceilings. Water discharging from those assemblies could cause property damage or present a hazard to the tester or maintenance person, **USE CAUTION!!**

Grounding and Electrical Hazards

In many areas, it is common practice to ground the electrical systems to the water piping system. When the grounding rod fails or the system shorts, an electrical charge may develop on the water piping system. During the removal or testing of an assembly, you may become a better ground then the piping, particularly if you are standing in water. Under these circumstances, you will receive the electrical charge





List of Materials

Pipe Size	Ground Clamp	Ground Wire	Clamp
1 2 2 3 4 6 8 10 12	3 3 4 5 6 3907 3908 3909	AG#4, one conductor, solid weatherproof wire	Nylon 1/4" hole with plastic screw anchor (#12-C Red-Cap Nolub Industries) #10 sheet metal screw or equal

1. Cable clamps to be evenly spaced but not greater than 3′ on center.
2. If parallel assemblies are installed in the same vault, bond customer's side together as shown.
3. Clean and wire brush pipe where it meets
4. For parallel assembly installations remove insulation and run continuous wire through ground clamp.

Confined Space Entry Job Site Procedures (Provided by SAIF Corp)

1. Obtain permission from your supervisor
2. Obtain confined space entry permit
3. Check integrity of all safety equipment
4. Test for oxygen deficiency, combustible gas and toxic gas

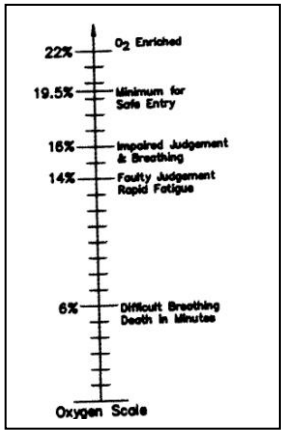
If atmosphere is safe to enter, go on as follows

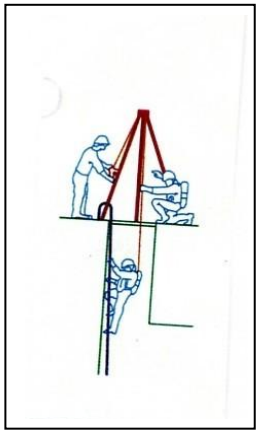
1. Continue to monitor atmosphere
2. Ventilate confined space
3. Put on safety harness with life line attached
4. Two people are standing by topside, monitoring the person in the hole

DID YOU FOLLOW ALL OF THE ABOVE STEPS? IF NOT.....DO NOT ENTER!!!

If Atmosphere is contaminated or there is an oxygen deficiency, go on as follows:

5. Contact your supervisor immediately
6. Atmosphere shall be monitored before and during entry
7. Ventilation shall be provided before and during entry
8. A self contained breather apparatus will be worn
9. A safety harness shall be worn with a lifeline attached
10. At least two people will be topside to do rescue operations. One will be equipped with an SCBA and safety harness with lifeline attached.





Confined spaces can pose hazards that you cannot see, smell, hear or feel. Every year hundreds of people are injured because of the difficulty in recognizing the potential dangers. Awareness of the hazards involved and proper work procedures would eliminate many occupational injuries and fatalities.

Definition

Every partial or complete enclosure (pit, manhole, tank, tunnel, vault, etc.) where there may be deficient oxygen content or dangerous concentrations of air contaminants (toxic or combustible) must be considered a confined space. Some characteristics of confined spaces include:

- Difficult entry and exit
- Access is small or seldom opened or both
- Physical design obstructs direct visual and/or audible contact between the occupant and outside attendant

Hazards

- 0^2 deficiency-atmospheres containing less than 19.5% oxygen
- Normal fresh air contain 20.9% oxygen
- Common causes;
  - Rust
  - Bacterial
  - Action
  - Burning
  - Dilution with other gases
- Combustible gases and vapor-atmospheres that may explode or ignite if a source of ignition are present in or introduced into the environment. Examples: *methane, ether, natural gas*

- Toxic gases and vapors-atmospheres containing contaminants that even in low concentration, can cause serious injury or death. This category includes
    - Asphyxiates (methane or carbon monoxide)
    - Irritants (hydrogen sulfide, sulfur dioxide or nitrogen dioxide)

Before Entry

- Entry permit-written procedures approved by the current safety manager should be maintained on file. They should be followed whenever a vessel or confined space is entered. These entry procedures often take the form of an entry permit that provides a checklist of precautions to be taken. The permit should be valid for only a limited time, preferably not more than eight (8) hours.

- Employees should not enter any vessel or confined space without the express permission of his/her immediate job boss or supervisor. The operating supervisor should be responsible for proper preparation of equipment for entry. This may include depressurizing, draining, purging or banking of the vessel or space. The workers in the area should not be expected to discover the hazard potentials. Operating supervisors should be responsible for completion of the work permit, showing the safety equipment required, special precautions to be observed, the number of employees permitted to enter, and the duration of the permit. Employees are responsible for following all steps of the entry procedure exactly as ordered.

Entry Procedures

Atmospheres "immediately dangerous to life" are defined as those that contain less than 16.5% oxygen by volume, or high toxicity concentrations of contaminants. Entry allowed only under the following conditions.

- Use of a supplied air or self-contained breathing apparatus
- Use of a safety belt with lifeline attached, where practical
- Another person equipped with safety belt and lifeline attached, should be stationed at the opening with adequate help available to remove the person if necessary
- Failure of the person within the enclosure to respond to an agreed upon signal, shall require immediate rescue action. All respirator users must be thoroughly trained in fitting and use

Oxygen Deficient Atmosphere

- The atmosphere in any confined space that has been sealed or unventilated should be considered "immediately dangerous to life" NO PERSON SHOULD ENTER UNLESS:
- All procedures in section 1 are followed
- The atmosphere has been tested immediately before entry with a reliable oxygen meter
- Mechanical ventilation, providing at least one complete change of fresh air, has been provided immediately before entry and is continued during entry. A standby equipped, with the same, shall be stationed at the opening

Toxic Atmospheres

No person shall enter a confined space that contains toxic materials or gases unless:

- The rules in section 1 are followed
- The atmosphere has been tested with appropriate instrumentation to decide contaminant concentrations are below permissible exposure limits

- If the concentrations of vapors are at or above 20% of the lower explosive limit, the space shall be ventilated to bring the concentration below that level. The ventilation must continue always, while the employees are inside. Additional testing may be necessary if there is a possibility of explosive or toxic materials being released from residues, or work going on in the confined space. If such conditions arise, the area should be evacuated until it has again, been made safe for the employees therein.

Contact City, State and/or Federal Agencies for current OSHA safety requirements

Test Equipment

A testers work is only as good as his or her test equipment, and this philosophy is demonstrated in the Oregon Administrative Rules with the requirement of annual gauge calibration. The condition of the gauge is as important as the test procedures we perform with it. It should be noted that both are critical to protecting public health. Much of the information presented earlier in this handbook, focuses on the backflow prevention equipment. Following is information on gauge care compiled by Ramon Johnson for use in the tester certification courses.

Backflow Assembly Test Kits

1. Always bleed water from gauges when finished testing
2. Leave all needle valves open
3. When gauge must be subjected to cold weather, blow compressed air alternately into high and low hoses with bleed valves open
4. Install filters on all hoses and clean filters frequently. The majority of internal gauge damage is caused by debris inside the test gauge
5. Periodically flush hoses and filters
6. Handle gauges with care, a test gauge is a precision instrument and can be damaged by rough treatment
7. **DO NOT OVER TIGHTEN NEEDLE VALVES WHEN CLOSING**

8. If it takes excessive pressure to close needle valves, there is something wrong with the valve and/or seat

9. Do not carry tools and fittings in gauge case; many costly gauge repairs have been caused by loose wrenches banging around in a test kit

10. When possible, keep gauges from being placed directly in the dirt when testing below grade assemblies. A small box or homemade stand can help accomplish this and aid in testing procedures

Backflow Assembly Test Procedures

Preliminary steps before all tests

1. The backflow assembly tester must observe all safety procedures during the field test and maintenance of the backflow assembly. Safety procedures may include such things as, but not limited to;

    a. Confined space

    b. Electrical hazards

    c. Personal safety

    d. Pedestrian and vehicular traffic

    e. Tools

2. The tester must inspect the condition of his/her test gauge. Visual inspection must include;

    a. Gauge needle zero out when not pressurized

    b. Check for gauge leakage

    c. Drip tight needle valves and fittings

    d. Damage to gauge or hoses

3. Before beginning the field test procedures on all backflow assemblies the tester must;

    a. **Notify** the owner of their intention to test the assembly

b. **Identify** the assembly as the proper assembly to be tested

c. **Inspect** the assembly for required components needed to complete the test

d. **Observe** the assembly for any indication the assembly is not functioning properly

Reduced Pressure Backflow Assembly Test Procedures

Test #1-Relief valve opening point

1. Open test port #4 to establish flow through the assembly, (leave test port 4 open through entire bleed procedure). Open and close test ports 1, 2 and 3 individually to remove any dirt or debris

2. Install test fittings in test ports

3. Connect high side hose to test port #2

4. Connect low side hose to test port #3

5. Open (leave open) test port #3 slowly, bleeding air from hose and gauge through the low side bleed needle valve (leave low side bleed needle valve open)

6. Open test port #2 slowly, open high side bleed needle valve to bleed all air from hose and gauge

7. Close the high side bleed needle valve, allow gauge to reach upper end of scale then close the low side bleed needle valve

8. Close #2 shutoff; observe the apparent pressure drop across #1 check

9. Open the high side control needle valve approximately 1 turn, open the low side control needle valve no more than ¼ turns. Record the value when the first discharge of water is determined from the relief valve

10. Close the low side control needle valve only, (high side control valve is open)

Test #2-Tightness of #2 check valve

1. Open the bypass control valve to vent air through the bypass hose, close the bypass control needle valve

2. Connect the bypass hose to the #4 test port and open the #4 test port

3. Re-establish the zone by bleeding water through the low side needle valve side until gauge needle exceeds the apparent pressure value. Close low side needle valve

4. Open the bypass needle valve

5. When gauge needle stays steady above the relief valve opening point, record the #2 check as holding tight

6. Leave bypass control needle valve open, (high side control valve is open)

Test #3-Tightness of #1 check valve

1. Re-establish the zone by bleeding water through the low side needle valve until gauge needle exceeds the apparent pressure value. Close low side needle valve

2. Record value as the static pressure drop across the #1 check

3. Close all test ports, remove gauge and drain hoses

4. Open the #2 shutoff slowly to restore service

Double Check Valve Backflow Assembly Test Procedures

Test #1-Tightness of the #1 check valve

1. Bleed water through all four-test ports, one at a time to remove dirt or debris
2. Install test fittings in test ports
3. Connect bleed valve to high side hose of gauge and attach to test port #2
4. Connect vertical sight tube to test port #3 (not needed if test port #3 is highest point on check valve boxy)
5. Open test port #2, open high side bleed needle valve to remove air from gauge and hose, close high side bleed needle valve
6. Open test port #3 to fill sight tube, close test port #3
7. Close #2 shutoff
8. Align centerline of gauge with water level in sight tube
9. Close #1 shutoff
10. Slowly open test port #3, record value when water stops flowing from sight tube and gauge needle becomes steady
11. Close test ports, remove gauge and sight tube, open #1 shutoff

Test #2-Tightness of the #2 check valve

1. Connect bleed valve, high side hose to test port #3
2. Connect vertical sight tube to test port #4 (not needed if test port #4is highest point on check valve body)
3. Open test port #3, open high side bleed needle valve to remove air from gauge and hose, close high side bleed needle valve
4. Open test port #4 to fill sight tube, close test port #4
5. Align center line of gauge with water level in sight tube
6. Close #1 shutoff

7. Slowly open test port #4, record value when water stops flowing from sight tube and gauge needle becomes steady

8. Close test ports, remove gauge and sight tube, open #1 shutoff

9. Open #2 shutoff slowly to restore service

Pressure Vacuum Breaker Test Procedures

Test #1-Air inlet valve opening point

1. Remove air inlet valve canopy
2. Bleed water through test ports to remove dirt and debris
3. Install test fittings in test ports
4. Connect high side hose of gauge to test port #2, open test port #2
5. Open high side needle valve on gauge to remove air from hose and gauge, close high side needle valve
6. Close #2 shutoff valve, raise gauge to critical level (center line) of the assembly
7. Close #1 shutoff valve
8. Open high side needle valve (no more than ¼ turn) observing gauge value when air inlet begins to open
9. Record observed value as air inlet opening value
10. Lower gauge to observe air inlet has opened fully
11. Record gauge value as air inlet value when air inlet began to open
12. Close test port #2, remove gauge, open #1 shutoff only

Test #2-Check valve closing point

1. Connect bleed valve (optional) to high side hose and attach to test port #1
2. Open test port #1 and high side needle valve on gauge to remove air from hose and gauge. Close high side needle valve
3. Raise gauge to critical level (center line) of assembly
4. Close #1 shutoff
5. Open test port #2
6. Record gauge value as #2 check value when water has stopped flowing from test port #2 and gauge needle has stabilized
7. Close test ports and remove equipment

8. Open shutoff #1, slowly open shutoff #2 to restore service
9. Replace air inlet canopy

Spill Resistant Pressure Vacuum Breaker Test Procedures

Test #1-Air inlet valve opening point

1. Remove air inlet canopy
2. Bleed water through test port and vent valve to remove dirt and debris
3. Install test fittings in test ports
4. Connect the bleed valve (optional) to the high side hose, attach to test port
5. Open test port and high side needle valve to bleed air from hose and gauge, close high side needle valve
6. Close #2 shutoff, raise gauge to critical level (center line) of the assembly
7. Close #1 shutoff
8. Slowly remove vent valve to lower pressure inside assembly to atmospheric (record value if air inlet opens)
9. Slowly open high side bleed needle valve (no more than ¼ turns) observing gauge value when air inlet begins to open
10. Record observed value as the air inlet opening value
11. Lower gauge to observe air inlet has fully opened
12. Reinstall vent valve, open #1 shutoff

Test #2-Check valve closing point

1. Raise gauge to critical level (center line) of the assembly
2. Close #1 shutoff
3. Remove vent valve, record value as check value when water stops flowing from vent valve and gauge needle stabilizes
4. Reinstall vent valve, close test port, remove gauge, open #1 shutoff slowly, open #2 shutoff to restore service

Contact Information

Utilities

EWEB

500 E 4th Ave

Eugene OR 97401

24-hour notification line-541-341-1874

Mike Briesemeister-541-685-7352 or Michael.Briesemeister@EWEB.ORG

Bei Bei Guo-541-685-7527 or BeiBei.Guo@EWEB.ORG

Jesse Roberts-541-685-7423 or Jesse.Roberts@EWEB.ORG

Christina Svetal-541-685-7337 or Christina.Svetal@EWEB.ORG

SUB

202 S 18th St

Springfield OR 97477

Lonnie Binham-541-726-2396

24-hour notification line –541-744-2265

Rainbow Water District

1550 N 42nd St

Springfield OR 97477

Dean Hill-541-746-1676

Oregon Dept. of Human Services

Cross Connection Program Coordinator

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