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Cross Talk

Spring 2010

Opening the faucet at home and having running water flow out may seem like a simple process, but what goes into making the water safe involves the cooperation of the health agency, water supplier, consumer, backflow prevention assembly tester and repair technician. All have responsibilities to ensure the water people drink is safe. The *Manual of Cross-Connection Control, Tenth Edition* helps in defining what those responsibilities are and outlines them in Chapter Four, Elements of a Program.

Some general responsibilities are outlined here, although jurisdictions may vary with different responsibilities for different entities

To carry out an effective cross-connection control program the local **health agency** is generally responsible for enforcing the laws, rules, regulations and policies regarding internal protection or protection within a facility or property.

Responsibilities elements of a program

A state health agency's primary responsibility is to ensure that the water supplier operates the public potable water system free of

actual or potential sanitary hazards. Second they must ensure that the water supplier of the public water system meets Federal and State drinking water standards. And third, the agency must ensure that the water sup-



plier provides an approved water supply at the point of delivery to the consumer's water system and also require the consumer to install, test and maintain an approved backflow prevention assembly on the service connection if needed.

It is local health agency's responsibility to ensure that the consumer's potable water system is maintained free of sanitary hazards. In general, on site cross-connection control and backflow prevention requirements are ad-

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Foundation Membership

The Foundation's Membership Program provides many benefits to the Members of the Foundation. These include: a twenty-five percent discount on manuals, twenty percent discount on Foundation Training Courses for ALL EMPLOYEES of the Member company/organization, the *List of Approved Backflow Prevention Assemblies* with access to the up-to-the-minute version on the Foundation's website.

Below is a list of those who have become members of the Foundation since the last *Cross Talk*:

200psi Fire Protection	Kimley-Horn and Associates, Inc.
ABPA-North Texas Chapter	Mitch Prather
AHR Enterprises	Okahara & Associates, Inc.
American Samoa Power Authority	Pacific Backflow Prevention
Andrew Love - Backflow Testing	Preferred Plumbing, Heating, AC
Aquarian Backflow, Inc.	Ralph Beall
Arthur Brown Plumbing Co.	Ram Construction & Concrete, Inc.
Benjamin C. Ward	San Carlos, City of
Cave Creek, Town of	San Joaquin County Utility Maintenance
Cisco Fire Sprinklers	San Mateo, City of
Community Hospital of the Monterey Pen.	Satellite Learning, LLC.
Cook Testing	Scott Bradley Backflow Assembly Testing
Crowder Backflow Services, Inc.	Solano Irrigation District
D & D Cross Connection Control Program	Therma
Dorvin D. Leis Co. Inc.	US Army Public Health Command (Prov)
First Call Backflow Services	VA Hospital
Fresno, City of	Vincent Pangelinan
Gonzales Backflow & Plumbing Services	Yosemite National Park Utilities Branch
Green Mountain Water and Sanitation	
Horns Backflow and Plumbing	

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the new **Field Test Kit Standard**

The Foundation is regularly asked whether or not it approves gages. And, up until the end of last year the Foundation did not have a standard to test gages against. On the other hand, the Foundation put together a list of gages, which may be found on the Foundation's website, that complied with the generalized guidelines found in Section 9 of the *Manual of Cross-Connection Control, Ninth Edition*. Although, with the release of the *Tenth Edition* earlier this year, the Foundation has developed a Standard for field test kits.

The gages listed on the website were never approved by the Foundation since there was never a standard for gages. With the publication of the Tenth Edition however, there is a standard for "Field Test Kits."

Field Test Kits are the gages used for testing backflow preventers along with all of the proper plumbing and hoses needed to perform the field tests. The Standard for Field Test Kits, found in Chapter Ten is for two, three and five-valve field test kits.

The general design requirements include: the case, the display, the range/resolution, operating parameters, external calibration adjustment, the plumbing of the field test kit and markings. There are also design requirements, material requirements and the evaluation of the design and performance of the field test kit. Aside from conforming to the general design requirements the evaluation of the field test kit includes:

- **Accuracy Test**
The accuracy of the field test kit is tested at various line pressures. Must maintain accuracy of ± 0.2 psid for increasing and decreasing differential readings.
- **Hydrostatic Test**
The field test kit must withstand a hydrostatic pressure of twice the maximum working water pressure (MWWP) for ten minutes without any leakage, damage,



permanent deformation or impairment of operation.

- **Accuracy Rated Temperature and Pressure Test**
The accuracy of the field test kit is tested at rated temperature and pressure.
- **Pressurizing fatigue test**
The field test kit must maintain required accuracy after the pressurizing fatigue test without leaking. Each side of the gage is pressurized and then depressurized at a specific rate up to rated pressure. This is repeated 1000 times for each side of the gage. Then the field test kit is tested for accuracy.
- **Flow Test**
To determine if the field test kit can handle a specified amount of flow through it.
- **Pressure Dissipation Test**
To determine the time required to dissipate pressure from the field test kit gage. Pressure should be dissipated from the MWWP to 1 psi in five seconds or less.

It should be noted that field test kits might not become listed immediately. Now that

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Testing a Double Check V

An orientation key has been a part of the *List of Approved Backflow Prevention Assemblies* for the better part of ten years. The key is used to illustrate the different orientations in which backflow preventers found on the List may be installed. The Standard found in the *Manual of Cross-Connection Control, Tenth Edition* allows for backflow preventers to be installed in orientations other than horizontal if so approved. It is important to note that the field test procedures for backflow prevention assemblies installed in different orientations, other than horizontal, remain essentially the same.

Many double check valve assemblies and double check detector assemblies have been approved in the vertical orientation. Although the field test procedures, in the *Tenth Edition*, illustrate the assemblies in the horizontal orientation, the field test procedure is essentially the same for an assembly installed in the vertical orientation.

Minor differences in the field test procedure relate to the height of the sight tube and the level of the field test kit throughout the procedure.

The *Tenth Edition* manual in Chapter 9.3.3.1 states:

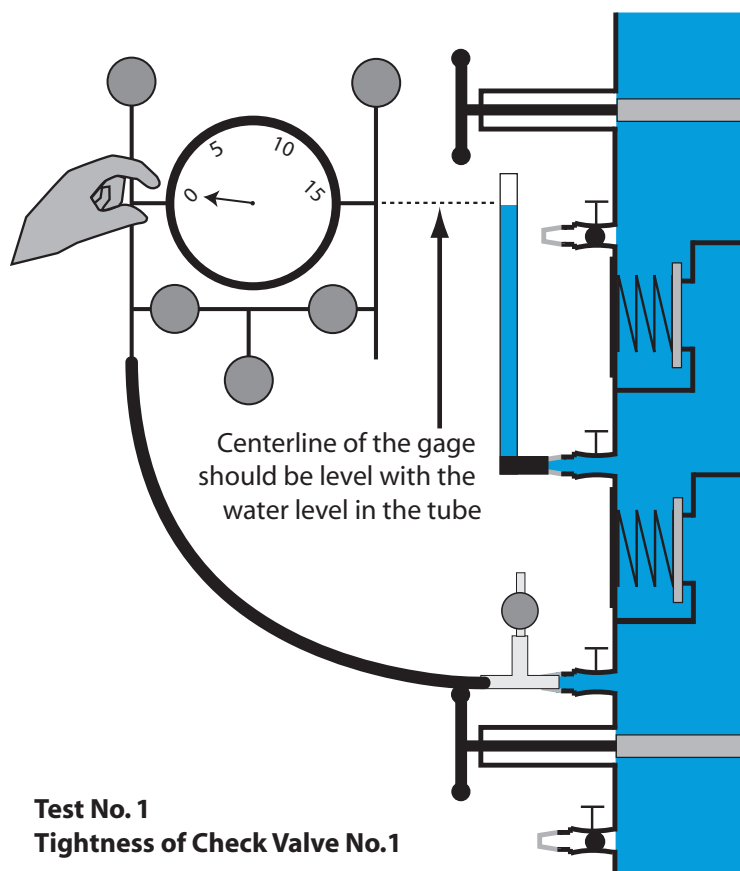
During this field test it is important to keep the field test kit and unused hoses at the appropriate elevation. A visible downstream reference point is needed for this field test. If the downstream test cock is at the highest point of the body, then this can be used as

the reference point. However, if the downstream test cock is below the top of the body, then a vertical pipe or tube must be attached to the downstream test cock so that it rises above the top of the body

However, while testing the first check valve it is only necessary for the tube to be extended above the highest portion of the region between the check valves. If it is difficult to determine where this is, the tester should simply make sure the tube extends to the elevation of the number four test cock. This will assure

that the tube is above the highest point between the check valves.

In some cases the tester will need a longer sight tube than used in testing horizontal assemblies to obtain a good reference point. As with testing the double check valve assemblies in the horizontal orientation, it is important for the tester to hold the gage at the same level as the water in the sight tube.



If the field test kit is not held at the same level as the water in the site tube, erroneous readings may be recorded. It has been observed that some testers hold the field test kit level with the end of the sight tube, not the level of the water in the sight tube. When the test cock is opened to the sight tube, air bubbles may come out and displace some of

Valve Assembly Vertically

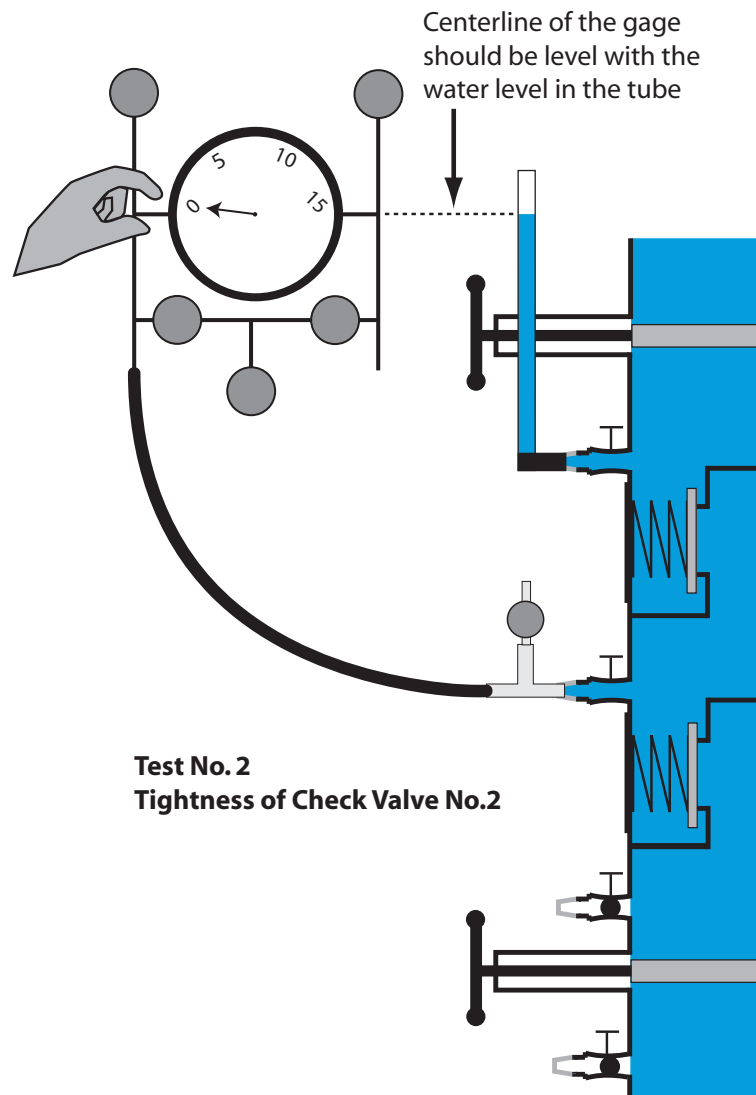
the water, causing the water level to stabilize below the end of the sight tube. The tester must carefully observe the level of the water.

To record the correct differential pressure reading the field test kit must be held at the same elevation as the test cock on the downstream side of the check valve being tested. If a tube is attached to the downstream test cock, then the field test kit must be maintained at the same height as the water in the tube. If this is not done properly, then values, which are either too high or too low, may be recorded.

Following these instructions while testing the assembly vertically will produce correct results. However, with some of the assemblies this may require a cumbersome length of tubing when testing the first check of a double check with the flow vertically upward. The tube, in order to get to the highest point of the body, would need to reach a point above the downstream shutoff valve.

While testing the second check valve, the sight tube is located on the number four test cock and the water level should be at the elevation of the number two shutoff valve. For testing purposes, the sight tube should be higher than the level of the seal in the downstream shutoff valve. However, this may be difficult to determine. The tester should consider having the elevation of the end of the sight tube above the downstream side of the number two shutoff valve to assure the level of the tube extends beyond the sealing surface in the shutoff valve.

For more information please contact the Foundation office. ■



the new Field Test Kit Standard: continued

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a standard has been published, manufacturers of field test kits may submit them to the Foundation for approval. The manufacturer may, however perform some tests of their own first, or make some modifications to existing field test kits to ensure that they will meet the standard published in the *Tenth Edition*. So, it may be some time before the Foundation has approved field test kits.

As soon as any field test kits are approved they will be published on the *List of Approved Backflow Prevention Assemblies and Field Test Kits*. Which will include the current *List of Approved Backflow Prevention Assemblies* with an additional section to include field test kits. ■

Responsibilities | elements of a program: continued

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dressed in state and local plumbing codes and enforced by the local plumbing and building official. In some states, the health agency has the authority to regulate on site cross-connection control requirements while the plumbing and the building official are only involved at the time of construction.

establish a water service connection, an approved backflow prevention assembly may be required to protect the public water supply.

The water supplier's responsibility begins at the source, then onto the public water distribution system, following to the point of delivery to the consumer's water systems. The water supplier must then exercise reasonable vigilance to ensure the consumer takes proper steps to protect the public potable water system. To ensure proper precautions are taken, the water supplier is required to determine the degree of hazard to the potable water system. If the supplier determines that a backflow prevention assembly is required to protect the public system, then the supplier will require the consumer to provide and install an approved backflow prevention assembly at each service connection, testing them immediately upon installation. The consumer will also need to properly repair and maintain such assemblies and provide records of each test, maintenance and repair, including materials or replacement parts.



The **water supplier** has the responsibility to maintain their public water system in compliance with all federal and state drinking water standards.

A water supplier's cross-connection control program should include an ordinance or rules of service to give the water supplier authority to implement such a program. Under such regulations, most states and territories give the water supplier primary responsibility to prevent unapproved water sources, or any other substance, from entering the public water supply system. These regulations prohibit the water supplier from installing or maintaining a water service connection to a consumer's water system within its jurisdiction where a health, system, plumbing or pollutorial hazard exists, or will probably exist, unless backflow protection is provided. In order to



The consumer has the responsibility of preventing pollutants and contaminants from entering the public potable water system.

The consumer's responsibility starts at the point of delivery from the public potable water system and includes all its water systems. The consumer must install, operate, test and maintain approved backflow prevention assemblies as directed by the authority having jurisdiction. The consumer must maintain



accurate records of tests and repairs for the backflow prevention assemblies and provide the administrative authority with copies of them. The records should be on forms approved by the administrative authority and include the list of materials or replacement parts used. After any repair, overhaul, re-piping or relocation of an assembly, the consumer must have the backflow preventer tested to ensure a proper operating condition. A certified backflow prevention assembly tester and/or a repair technician must test, maintain and repair these assemblies.

When directed to perform a field test, a **certified backflow prevention assembly tester** will have the following responsibilities:

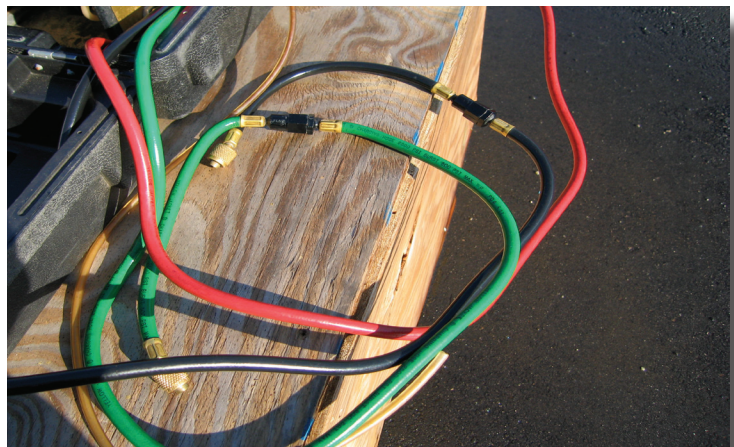
The tester is responsible for performing accurate field tests and reporting the results of such tests to the consumer and responsible authorities. The tester should be equipped with and be capable of using all the necessary tools, field test kit and other equipment to properly field test backflow prevention assemblies. A certified tester

will perform and be responsible for the accuracy of all tests and reports.

The **repair technician** is responsible for installing, repairing, overhauling and maintaining backflow prevention assemblies and making reports of such repairs to the consumer and the administrative authority. The report should include a list of all materials or replacement parts used.

The technician should be equipped with and be capable of using all the tools and other equipment necessary to repair, maintain and overhaul backflow prevention assemblies. It's the technician's responsibility to ensure that original manufactured replacement parts are used in the repair or maintenance of the backflow prevention assembly. The technician must not change the design, material or operational characteristics of an assembly during repair or maintenance. A repair technician will perform the work and accurately report such work. The technician must have all state and local licenses and permits needed to repair, maintain and overhaul backflow prevention assemblies. Depending upon the jurisdiction, the tester and the repair technician may or may not be the same person.

More information regarding running an effective cross-connection control program may be found in Chapter Four of the *Tenth Edition* manual. ■



Training Courses

Tester Course

Los Angeles, CA
7-11 June 2010

Los Angeles, CA
12-16 July 2010

Stockton, CA
1-12 August 2010

Los Angeles, CA
18-22 October 2010

Specialist Course

Los Angeles, CA
26-30 July 2010

SOLD OUT

Upcoming Events

Inland County Backflow
Prevention Group
San Bernardino, CA
15 September 2010

ABPA Western Region
Backflow Conference
Las Vegas, NV
27-28 September 2010

CA-NV AWWA
Fall Conference
Sacramento, CA
5-8 October 2010

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