CROSSTALK
Winter 2017

EXPLAINING SYSTEM PROTECTION & INTERNAL PROTECTION

Backflow incidents occur regularly. Some incidents may never be reported while others can cause significant negative impact and garner national attention. In some of the worse cases, do-not-drink or boil water orders have been put in place for all water customers causing customers to boil the water before using it or use bottled water. The responsibility for ensuring safe drinking water is shared by many administrative authorities but, normally, the specific responsibilities for each entity are clearly defined.

Administrative authorities have the responsibility to administer their cross-connection control programs using system protection, internal protection or a combination of both. Understanding the differences between internal protection and system protection is important to anyone involved in protecting potable water supplies.

Who is responsible for protecting the drinking water comes down to a matter of jurisdiction.

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Foundation for Cross-Connection Control and Hydraulic Research
a Division of the University of Southern California

USC

New Members

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

Adam Feffer

Alex Ayala

Backflow Northwest

Backflow Service Inc

Friday Harbor, Town of

Huntington Park, City of

Jenny Wong

Montezuma Water Company

Randy Garcia

Reab Plumbing Services

Richard Driscoll

Rodney Gaddis

Space Exploration Technologies Inc.

Stephen Echesirim

United Water Conservation District

USA Protection

Vacaville, City of

Water Solutions

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USC Foundation Membership Benefits

Traveler statue in Hahn Plaza

Membership Discounts

- MORE THAN **25%** OFF Manual Orders
- MORE THAN **25%** OFF Training Courses
- **65%** OFF Live Webinars

Additional Benefits

- *Cross Talk* quarterly subscription
- Up to 3 complimentary *Webinars* or *Webinars on Demand*
- Free copy of each new edition of the *Manual of Cross-Connection Control*
- *2017 USC List of Approved Backflow Prevention Assemblies* book (At member's request)
- Email notifications of new updates to the *USC List of Approved Backflow Prevention Assemblies*
- *Special Notices* mailed exclusively to members as published

Cross Talk is published by the
Foundation for Cross-Connection Control and Hydraulic Research,
a Division of the University of Southern California

CERTIFICATION OPPORTUNITIES AT TRAINING EVENTS

Many backflow prevention assembly testers and cross-connection control specialists are required by local administrative authorities to become certified which includes passing a certification exam before beginning to work in the field. While the USC Foundation does not have its own certification program, it works with voluntary 3rd party certification organizations to arrange for their certification exams to be administered at the end of, or following, the USC Foundation training courses. Working with certifying organizations, helps course attendees to meet certification requirements made by local administrative authorities so they may begin working in the field as soon as possible.

For the Foundation's *Course for the Training of Backflow Prevention Assembly Testers*, the Foundation requests that the American Backflow Prevention Association (ABPA) schedule an ABPA tester certification exam the day after the USC Tester course ends. This allows attendees to immediately take the ABPA certification exam while all the information necessary for the certification exam is still fresh in the attendees' minds.

Typically, the ABPA certification exam is administered on the Saturday following the conclusion of the Tester course at the same location as the course. Attendees who are taking the Tester course are more than welcome to apply with ABPA to return on Saturday and take the ABPA exam. APBA requires applicants to apply at least thirty days in advance of the certification exam via ABPA.org. However, it is possible to register online with ABPA for these exams up to 1:00 pm on the Monday morning of the USC Tester Course using a link provided by the ABPA and shared to all attendees in the confirmation letter for the course and on the Monday morning of the course. Please note the ABPA exam is not part of the USC Tester Training Course and it will be administered by ABPA proctors.

As for the Foundation's *Course for the Training of Cross-Connection Control Program Specialists*, the Foundation requests the ABPA and the California-Nevada Section of the American Water Works Association (CA-NV AWWA) to administer certification exams on the last day of the course. The Foundation gives attendees the option to either take the USC exam, ABPA certification exam or CA-NV AWWA certification exam. And, the Foundation accepts the scores from the ABPA and CA-NV AWWA exams and applies that to the attendees overall score for the training course.

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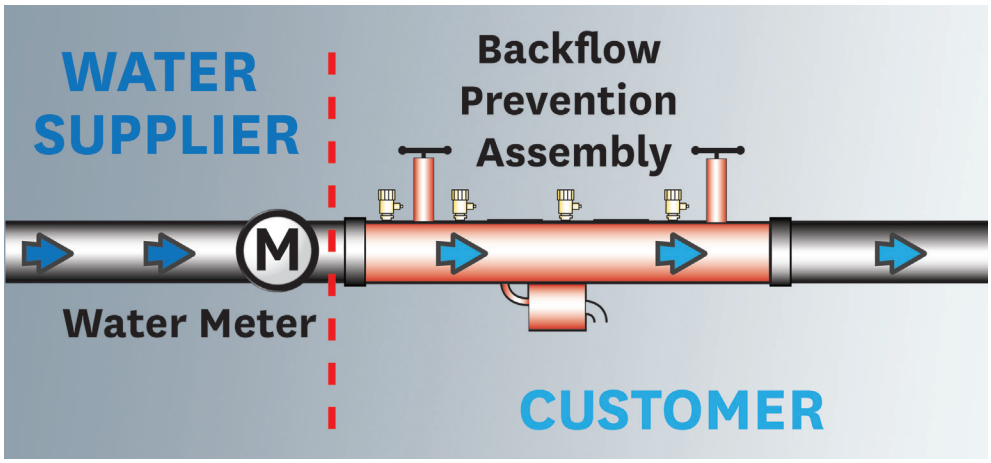
Usually, the water supplier, a private or public water department, has the responsibility of collecting, treating and distributing potable water to their customers. Once the water is delivered to the customer, be it residential or commercial, the water supplier loses control of it as it enters the customer's plumbing system.

In some cases, water suppliers are responsible for system protection, sometimes referred to as "containment." System protection means protecting the water supply up to the service connection or water meter. A system protection program begins with a site survey. The site survey will determine what type of backflow prevention assembly is necessary to protect the water distribution system.

Even though the water supplier in a system protection program is only responsible to protect their own water system, the site survey is necessary to determine what danger the customer may pose to the water distribution system.

Once the water flows through the water meter or service connection and the backflow prevention assembly it may lead to various uses in the customer's plumbing. At each outlet the drinking water must be properly protected from backflow. Each of these points of use must be identified through an internal protection program.



Once the water is delivered to the customer, the water supplier loses control of it.

The responsibility for internal protection in some cases lies with a local health agency, plumbing department or building department. With an internal protection program, the administrative authority protects the internal water system. This is done through backflow protection requirements for each unprotected cross-connection found on the premises. The backflow protection at each point of use then prevents backflow within the customer's plumbing system. For example, contaminated water from chemical mixing tank does not end up in the drinking fountain.

Attendees from the USC Foundation's Specialist course conduct a site survey of a facility on the USC campus

An Internal protection program protects the quality of the water within the facility. Whereas a system protection program prevents any on-site contamination from getting back into the water distribution system by requiring a backflow prevention assembly to be installed at the meter or service connection.

Ultimately, ensuring safe drinking water includes both types of programs, although they

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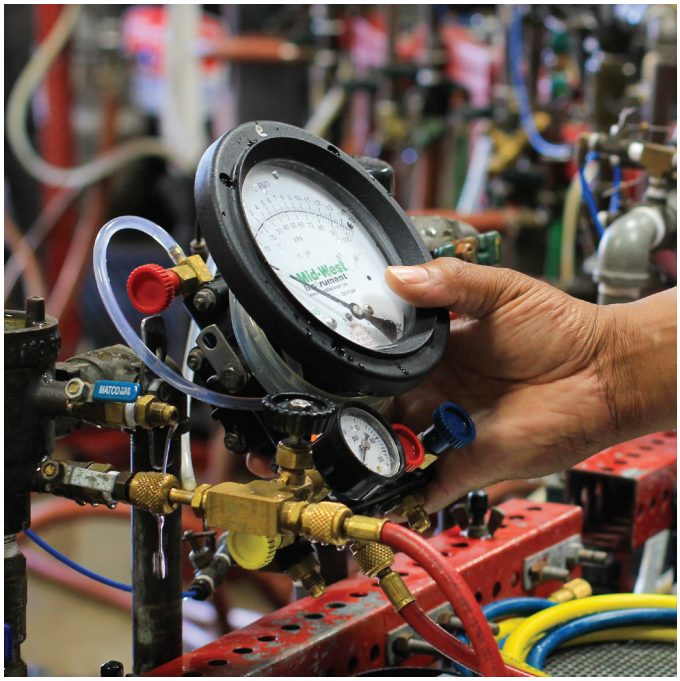
TESTING ASSEMBLIES ANNUALLY

Field testing backflow prevention assemblies identifies whether assemblies are functioning properly. Like any other mechanical device, assemblies are subject to failure. During a field test a tester may discover a leaking shutoff valve or fouled check valve. And, since all assemblies are installed to protect the public from pollutants or contaminants; field testing the assemblies on a scheduled basis becomes critical in maintaining safe drinking water.

The standard practice of care in the backflow prevention industry is the field testing of assemblies on an annual basis. Annual field testing is the general recommendation in the Foundation's *Manual of Cross-Connection Control, Tenth Edition*. And, was supported in the Water Research Foundation report 90928F, Impacts of Cross-Connections in North American Water Supplies, several years ago where 88% of the responding water suppliers required field testing on an annual basis.



The Foundation's annual testing recommendation originates from its Approval Program for backflow prevention assemblies. As part of the program, all assemblies, having passed the laboratory evaluation, are required to successfully complete a one-year field evaluation. During that one year, USC staff field test the assemblies on a nominal 30-day schedule. And, at the end of the one-year field evaluation assemblies are disassembled and inspected for deformations, damage or problems. If the assemblies continue to perform properly after the one-year field evaluation they are added to the *USC List of Approved Backflow Prevention Assemblies*. Therefore, the Foundation is confident in making a recommendation of annual field testing for assemblies.

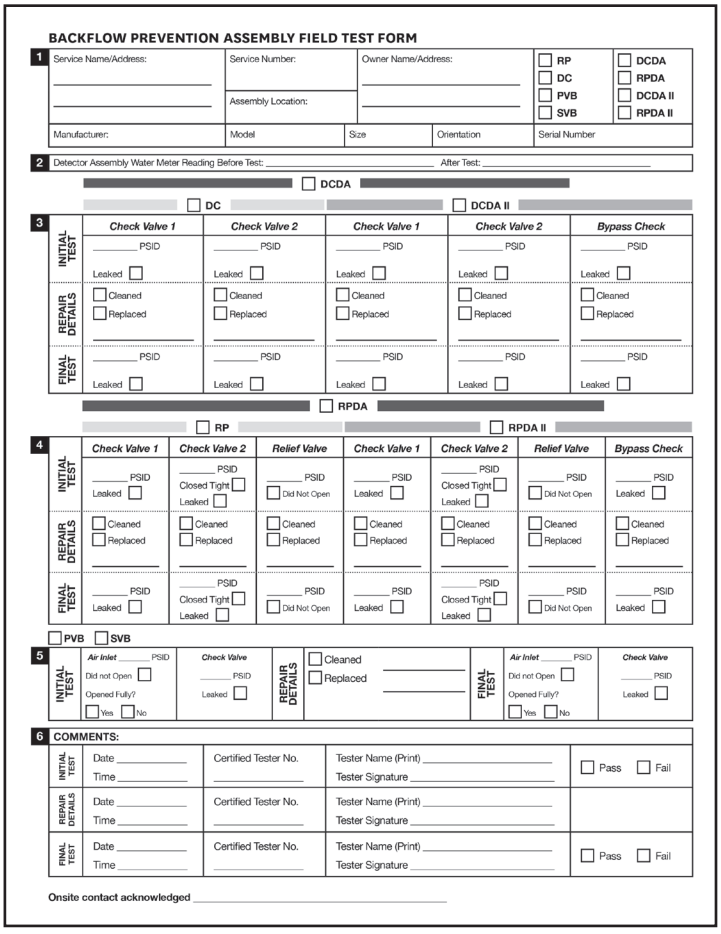
There may be instances where annual testing may not be sufficient. In cases where older assemblies are in service, especially assemblies that used to be USC approved, it may be useful to conduct more frequent field tests. In other cases, a local administrative authority may require more frequent testing for assemblies used in high hazard conditions; instead of annually, tests may be conducted semi-annually or quarterly. Some administrative authorities may require assemblies to be tested more than once each year as part of their normal cross-connection control program. This is fine, but the Foundation never recommends testing less frequently than once every twelve months.

Field testing assemblies upon installation, and on at least an annual basis is key in maintaining safe drinking water. Field testing assemblies regularly helps ensure that, once assemblies are installed, they continue to operate properly, protecting the public health by protecting the drinking water. ■

UPDATE SAMPLE FIELD TEST FORM

With the introduction of the Double Check Detector Assembly-Type II (DCDA-II) and the Reduced Pressure Principle Detector Assembly-Type II (RPDA-II) many backflow prevention assembly testers have had difficulties using existing field test forms to record their readings. Therefore, the USC Foundation has updated its own sample field test form, found in the *Manual of Cross-Connections Control, Tenth Edition*, to accommodate Type II detector assembly field test results.

The Foundation's previous sample field test form did not include a field for bypass arrangements, which are found on all detector assemblies. So, testers typically use two field test forms to record the data for a detector assembly.



BACKFLOW PREVENTION ASSEMBLY FIELD TEST FORM

1 Service Name/Address: | Service Number: | Assembly Location: | Owner Name/Address: | ☐ RP ☐ DC ☐ PVB ☐ SVB | ☐ DCDA ☐ RPDA ☐ DCDA II ☐ RPDA II

Manufacturer: | Model | Size | Orientation | Serial Number

2 Detector Assembly Water Meter Reading Before Test: _____ After Test: _____

☐ DCDA ☐ DC ☐ DCDA II

3

	Check Valve 1	Check Valve 2	Check Valve 1	Check Valve 2	Bypass Check
INITIAL TEST	_____ PSID Leaked ☐	_____ PSID Leaked ☐	_____ PSID Leaked ☐	_____ PSID Leaked ☐	_____ PSID Leaked ☐
REPAIR DETAILS	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced
FINAL TEST	_____ PSID Leaked ☐	_____ PSID Leaked ☐	_____ PSID Leaked ☐	_____ PSID Leaked ☐	_____ PSID Leaked ☐

☐ RPDA ☐ RP ☐ RPDA II

4

	Check Valve 1	Check Valve 2	Relief Valve	Check Valve 1	Check Valve 2	Relief Valve	Bypass Check
INITIAL TEST	_____ PSID Leaked ☐	_____ PSID Closed Tight ☐ Leaked ☐	_____ PSID Did Not Open ☐	_____ PSID Leaked ☐	_____ PSID Closed Tight ☐ Leaked ☐	_____ PSID Did Not Open ☐	_____ PSID Leaked ☐
REPAIR DETAILS	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced	☐ Cleaned ☐ Replaced
FINAL TEST	_____ PSID Leaked ☐	_____ PSID Closed Tight ☐ Leaked ☐	_____ PSID Did Not Open ☐	_____ PSID Leaked ☐	_____ PSID Closed Tight ☐ Leaked ☐	_____ PSID Did Not Open ☐	_____ PSID Leaked ☐

☐ PVB ☐ SVB

5

	Air Inlet _____ PSID	Check Valve			Air Inlet _____ PSID	Check Valve
INITIAL TEST	Did not Open ☐ Opened Fully? ☐ Yes ☐ No	_____ PSID Leaked ☐	REPAIR DETAILS	☐ Cleaned ☐ Replaced _____	FINAL TEST	Did not Open ☐ Opened Fully? ☐ Yes ☐ No	_____ PSID Leaked ☐

6 COMMENTS:

INITIAL TEST	Date _____ Time _____	Certified Tester No. _____	Tester Name (Print) _____ Tester Signature _____	☐ Pass ☐ Fail
REPAIR DETAILS	Date _____ Time _____	Certified Tester No. _____	Tester Name (Print) _____ Tester Signature _____	
FINAL TEST	Date _____ Time _____	Certified Tester No. _____	Tester Name (Print) _____ Tester Signature _____	☐ Pass ☐ Fail

Onsite contact acknowledged _____

For a Double Check Detector Assembly (DCDA) and the Reduced Pressure Principle Detector Assembly (RPDA), a tester uses one form to record the mainline assembly and another form to record the bypass arrangement, which includes another assembly. A Type II detector assembly includes a mainline assembly with a bypass arrangement, which incorporates a water meter and a single check valve assembly.

With the updated form the single check valve, found on the bypass arrangement, may now be recorded alongside the mainline assembly of the Type II detector assembly. The new form also has the additional benefit of containing fields for the mainline and bypass assembly of a DCDA and RPDA.

The Foundation's goal, when updating the sample field test form found in the Tenth Edition manual, was to encompass all the parts of an existing assembly in a clean, simple and legible layout. The result is an updated field test form that accommodates field test results of all types of assemblies on one single page.

The sample field test form found in the Tenth Edition manual and the updated form are meant as a model for others to develop their own field test forms. There are many types of forms for recording field test results in the field today and in some instances, testers use two field test forms to record the readings for detector assemblies. This may even be required by some administrative authorities.

The tester should contact the local administrative authority for field test recording procedures. The updated sample field test form may be found on the Foundation's website by visiting the 'Frequently Requested Documents' page at fccchr.usc.edu/frd. ■

TEXAS SPECIALIST COURSE

The USC Foundation is returning to the state of Texas this summer to offer the *Course for the Training of Cross-Connection Control Program Specialists*. The Specialist course is ideal for anyone responsible for a cross-connection control program in their area. Attendees typically include; water utility personnel, health agency personnel, those from larger water using facilities and private contractors.

The Specialist course, taking place from June 12th through June 16th, is hosted by the Texas Commission on Environmental Quality (TCEQ) in the city of Austin. Even though the course will take place on the TCEQ campus anyone is welcome to register for the course. Members can register for the course at the member rate of $900.

The course covers a series of topics including the elements of a cross-connection control program, regulations, plumbing codes and site survey preparation. Plus, attendees conduct a practice site survey with the help of Foundation staff. Then, on the Thursday of the course week, attendees will have a chance to conduct their own site survey at several active facilities. This survey is part of the exam process for the training course.

Anyone interested in registering for the Texas Specialist course may do so via the Foundation's online store (fccchr.usc.edu). For questions about the course please contact the Foundation office. ■

certification available at training events: continued

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So, an attendee who chooses to take the ABPA exam instead of the USC exam may still receive a Certificate of Completion from USC as long as the attendee's exam score plus the rest of their class score equals a passing grade.

Please note, the certification exams are not part of the registration fee for any of the Foundation training courses. Also, certifying organizations may have additional requirements to take the certification exam. And, all certification exam fees are handled by the certifying organization. For any more questions about certification please contact the certifying entity. ■

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are often handled by different administrative authorities. Chapter Four of the *Manual of Cross-Connection Control, Tenth Edition* discusses the elements of a cross-connection control program in detail. This topic is also covered extensively in the USC Foundation's *Course for the Training of Cross-Connection Control Program Specialists*. ■

Upcoming **Training** Courses

all courses in Los Angeles, CA unless noted

Tester

10-14 July 2017

16-20 October 2017

Specialist

24-28 April 2017

12-16 June 2017
Austin, Texas

24-28 July 2017

30 Oct. - 3 Nov. 2017

Webinars

6 June 2017
Recycled Water Shutdown Test

10 August 2017
Irrigation Systems and Winterizing

14 November 2017
Cross-Connection Control Surveys

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Upcoming **Events**

33rd Annual
Tri-State Seminar
Las Vegas, NV
26-28 September 2017

CA-NV Section AWWA
Fall Conference
Reno, NV
23-26 October 2017

Nebraska Section AWWA
Kearney, NE
7-8 November 2017

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