

inside: **charter members** | **direction of flow** | **hosting a course ... and more**

Cross Talk

Winter 2013

One Day Update Seminars

Beginning in April, the USC Foundation will be hosting one-day seminars to offer backflow prevention assembly testers and cross-connection control program specialists an opportunity to be refreshed on current

April 29, 2013. The seminar will refresh attendees on the field test procedures and diagnostics for backflow prevention assemblies according to the Tenth Edition of the *Manual of Cross-Connection Control*. All attendees at the update seminar will be eligible for 0.6 CEU's the equivalent of 6 contact hours.

The April one-day seminar is ideal for students who are familiar with field-testing backflow preventers, but may need some review or to become familiar with changes



field test procedures and cross-connection control topics. Additionally, all attendees will be eligible for continuing education units (CEU's).

The USC Foundation will be hosting its first one-day update seminar in Los Angeles on

in the Tenth Edition of the *Manual of Cross-Connection Control*. USC Foundation staff will be on hand to guide students and answer any questions regarding the field test procedures found in the Tenth Edition manual.

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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 any employee 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.

Members are encouraged to call the Foundation with technical questions. The Foundation's Engineering Staff is available to assist Members with the various aspects of field testing backflow preventers, installing backflow preventers and administering their cross-connection control program.

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

Al's Testing

B & B Plumbing & Installations

Cottage Grove, City of

DS Wagner Construction

First-In

General Dynamics Electric Boat

Green Tech & Health

GRZ Mechanical, LLC.

City of Hope

Milton Lynn Kurten

New Jersey Alliance of Master Plumbers

Pedro Murillo Ramirez

Rutland, City of - Water Department

The Dalles, City of

TriMet Transit District

WSH Company, Inc.

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Charter Members

For over 45 years the USC Foundation membership program has allowed the USC Foundation to maintain its strong leadership in backflow prevention and cross-connection control. With constant support from its members the USC Foundation has developed training courses and tools which are valuable for anyone interested in backflow prevention or cross-connection control. And, for that support the USC Foundation would like to acknowledge those water utilities that have been there from the start.

- | | |
|-----------------------------------|-----------------------------------|
| City of Burbank | City of Redlands |
| California Domestic Water Company | Rowland Water District |
| City of El Monte | San Bernardino Water Department |
| City of El Segundo | City of San Diego |
| City of Inglewood | San Gabriel County Water District |
| Irvine Ranch Water District | San Gabriel Valley Water Company |
| City of Manhattan Beach | City of Signal Hill, |
| City of Monrovia | City of Torrance, |
| Newhall County Water District | Vallecitos Water District |
| City of Oxnard | City of Vernon |
| Park Water Company & Subsidiaries | Walnut Valley Water District |
| City of Pasadena | Yorba Linda Water District |



Presentation of the first check by SCWUA

On March 1967 the Board of Directors of the Southern California Water Utilities Association (SCWUA), Inc., made up of public and private water utilities, presented USC with a \$10,000 check. With this check the SCWUA implemented an agreement with the University for the continuing operation of the USC Foundation.

The SCWUA check helped setup the USC Foundation membership program. The membership program helps fund the day-to-day operations of the USC Foundation along with providing for partial funding of research projects that benefit the water distribution industry as a whole.

Above is the list of those water utilities, which have supported the USC Foundation from the start and continue to support its membership program.

It is important to note that the USC Foundation is a self-funded division of the University of Southern California. The money that is raised through its membership program helps to develop tools like the new *Field Testing Backflow Preventers*, *Instructional Video*. Therefore, it is important to the USC Foundation to maintain support for its membership program.

With its first set of members, 45 years ago, the USC Foundation has grown to include agencies across the United States. Water and health agencies across the nation have joined the USC Foundation membership program for its exclusive benefits like the *List of Approved Backflow Prevention Assemblies* and its discounts on training courses and training tools.

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Direction of Flow

The direction of flow test on the second check of the reduced pressure principle assembly (RP) has been an area of discussion since the development of the field test procedures found in the *Manual of Cross-Connection Control, Ninth Edition*. With a direction of flow test, a tester may be able to determine more accurately whether a backflow prevention assembly is operating properly. However, the test is not found in the field test procedures in either the older Ninth Edition or the current Tenth Edition of the manual.

However, the direction of flow test is found in the Appendix chapter of each manual. The USC Foundation occasionally receives enquiries regarding the decision not to include the test as part of the field test procedure.

The decision whether or not to include the direction of flow test in the field test procedures for the RP was made after much discussion by the Manual Review Committee for the Ninth Edition. The decision to exclude it, from the field test procedure, was made in order to allow each administrative authority to decide independently whether they wanted to make it a requirement in their area of jurisdiction.

The direction of flow test provides the backflow prevention assembly tester with more information than the current backpressure test found in the field test procedure for the RP. For example, with the direction of flow test, the tester may be able to determine if the backflow preventer is currently meeting the design criteria, set forth in the Standards found in the Tenth Edition manual, of holding at least 1.0 psid in the direction of flow.

The direction of flow test is located in Appendix A of the Tenth Edition Manual (A.2.2). The requirement for this test states, "The static pressure drop across check valve No. 2 shall be at least 1.0 psid. If shutoff valve No. 2 is found to be leaking this test cannot be performed accurately."

Therefore, the direction of flow test provides a higher level of assurance that the assembly is operating the way it was designed to operate.

Also, under certain laboratory conditions, it is possible to create a leak across a check valve such that the check valve will pass the backpressure test and yet fail the direction of flow test.

This is done by fouling the check valve just slightly, perhaps by using an object with high degree elasticity like a rubber band. During the direction of flow test the reading may be lower than the 1.0 psid requirement if the loading of the check valve is not high enough to force the check valve to close against the "debris." With the backpressure test, however, the force exerted on the backside of the check valve may actually force the check valve to seal around the debris or fouling object.



It is normally assumed that if the check valve holds in the direction of flow, it would also hold against a backpressure. This is true unless the backpressure is high enough to force a leak through the elastomer disc or actually damage the disc. However, this is highly unlikely because of the USC Foundation laboratory tests performed on the assemblies before they are ever approved or even released to the field evaluation phase of the USC Foundation's Approval Program.

One of the laboratory tests, as noted in the Standards found in the Tenth Edition manual (10.1.2.2.3.1), requires the second check valve to be subjected to a backpressure of twice the maximum working water pressure of the assembly without any damage, permanent deformation or impairment of operation. Any evidence of leakage is cause for rejection.

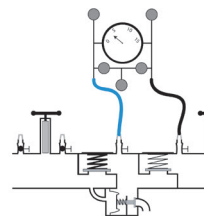
9.2.3.2: Test No. 1, step c, Three needle valve field test kit procedure

Some backflow prevention assemblies may contain a type of test cock that is not a field test kit. There is no handle or screwdriver slot for the field test kit to be attached.

- Attach hose from the low side of the field test kit to the No. 3 bleed valve on the low side of the field test kit by opening the bypass valve one turn, then open low side bleed needle valve.
- Maintain the bypass needle valve and low side bleed needle valve closed. Attach hose from the high side of the field test kit to the No. 2 side bleed needle valve to bleed all air from the high side of the assembly. Proceed to Test No. 1, step b.

A.2.2 Check Valve No. 2: Direction of flow

LIMITATION: A direction of flow value may be obtained for check valve No. 2 in step right. Any leak in shutoff valve No. 2 will invalidate the test. If shutoff valve No. 2 is drip tight and the direction of flow value for check valve No. 2 is greater than 0.0 psid, then the ability of the assembly to adequately backflow prevent is not affected.



Purpose: To determine the static pressure drop across check valve No. 2.

Requirement: The static pressure drop across check valve No. 2 shall be at least 1.0 psid. If the assembly is found to be leaking this test cannot be performed accurately.

Steps:

- With the field test kit attached as in 9.2.1.2 (9.2.2.2 or 9.2.3.2) Test No. 1, this implies that the shutoff valve No. 2 is leaking. The test cannot be performed accurately. Proceed to Test No. 3, step b.
- If reading remains steady, then proceed to step b below.

So, aside from certain laboratory conditions, the direction of flow test seems like it should be a part of the field test procedures, but it is not.

The field test procedures published in the Tenth Edition manual by the USC Foundation are just that, field test procedures.

Therefore, it is important to take into account what is actually occurring in the field as opposed to a laboratory setting. Probably the most common problem, which arises for the field tester, is a leaking shutoff valve.



In the field, the tester must be able to perform the test on the backflow preventer realizing that shutoff valves may be leaking. The tester, therefore, either has to repair the leak or compensate for the leak in such a manner that allows for an accurate field test.

When testing the RP, the tester may come across a leaking No. 2 shutoff valve. If the leak is slight, the tester may be able to perform the field test by compensating for the leak. However, if the tester is using the direction of flow test for the second check valve, it is necessary to determine if the No. 2 shutoff valve is leaking before performing the test. Otherwise, the test results could be false.

Remember, Appendix A.2.2 of the Tenth Edition manual states, "If shutoff valve No. 2 is found to be leaking this test cannot be performed accurately."

A check valve that is leaking (i.e., 0.0 psid) at a static condition may actually show an acceptable reading of 1.0 psid or greater should there be water flowing through the assembly.

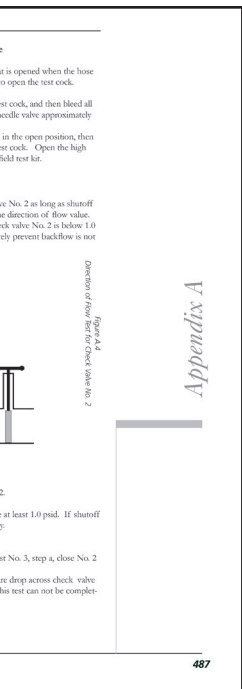
Most testers are quite aware of the fact that shutoff valves frequently leak, at least a small amount. It is desirable to obtain an acceptable field test in situations where one or both of the shutoff valves have slight leaks.

If it is necessary to repair each shutoff valve before proceeding with the testing of the backflow preventer, many testers would be spending most of their time repairing and replacing shutoff valves instead of testing and repairing backflow preventers. Since the purpose of the shutoff valves is for testing and maintenance, it is acceptable for the shutoff valves to leak slightly as long as the tester can accurately determine the condition of the components preventing backflow.

The Manual Review Committee recognized that the direction of flow test for the second check of the RP required a drip tight No. 2 shutoff valve. To possibly fail an RP due to a drip leak in a shutoff valve was not considered appropriate for a field test. None of the field test procedures contained in the Manual require that the shutoff valves hold drip tight to perform an accurate field test.

Therefore, the USC Foundation decided not to include the direction of flow test in the field test for the second check of the RP. Making it a requirement would amount to testers spending most of their time verifying and repairing No. 2 shutoff valves to meet the drip tight requirement. Since, it is possible to detect a leaking No. 2 shutoff valve and compensate for the leak allowing an acceptable field test, the backpressure test was included as part of the field test for the reduced pressure principle assembly.

But, realizing many administrative authorities will want to use the direction of flow test in order to get as much data as possible in order to ascertain the condition of the assembly; the direction of flow test is included in Appendix A (A.2.2) of the Tenth Edition Manual.



Hosting a Specialist Training Course

Education is crucial for anyone interested in becoming involved in backflow prevention or cross-connection control. Therefore, the USC Foundation continues to make available training courses in administering a cross-connec-

tion control program. Many of these courses are made available throughout the year in the Los Angeles area. However, the USC Foundation understands that some students may not be able to travel to the Los Angeles area and in those instances the USC Foundation encourages members to think about hosting a USC Foundation training course.



tion control program. Main topics discussed are: Rules & Regulations, Policies & Procedures, Record Keeping, Plan Checks, Public Relations and Site Surveys. Much of the course is dedicated to the site survey to help the attendee assess the degree of hazard at any water using facility. The course includes a short survey of a facility as part of the examination.

Meeting Place:
The meeting place should be a room large enough to accommodate approximately 30 course participants. The room should have a whiteboard with pens, along with being suitable for multimedia presentations.

Course Materials:
The USC Foundation will provide, for each student, a binder containing a syllabus, a time schedule for the week and several reference materials. Also provided, for each student, will be a current copy of the Manual of Cross-Connection Control. In addition, the contact for the hosting agency should provide the USC Foundation office with local and state regulations so that the instructors can adjust the course to the legal requirements of the region.

Hosting a course provides an opportunity for those involved with cross-connection control and backflow prevention in various parts of the country to be trained by the USC Foundation Staff as cross-connection control specialists. The USC Foundation staff has offered training courses in Texas, Hawaii, South Carolina, Indiana, Nevada, Louisiana and other areas.

Field Survey:
The hosting organization needs to locate facilities, which will be suitable for field surveys on Tuesday afternoon and Thursday morning of the class. The facilities should be located nearby the classroom and should have several water uses. There should be at least three separate and diverse water uses located at the facility.

There is no cost for the hosting agency to host a USC Foundation training course. And, the hosting organization will receive complimentary registration for two attendees.

The USC Foundation will provide a "certificate of completion" for each student of the class who successfully completes the course. Also, continuing education units (CEU's) are given to students who attend every day of the course. Specialist course students receive 3.7 CEU's the equivalent of 37 contact hours.

The following are the main items to consider in the decision to host a USC Foundation Specialist training course:

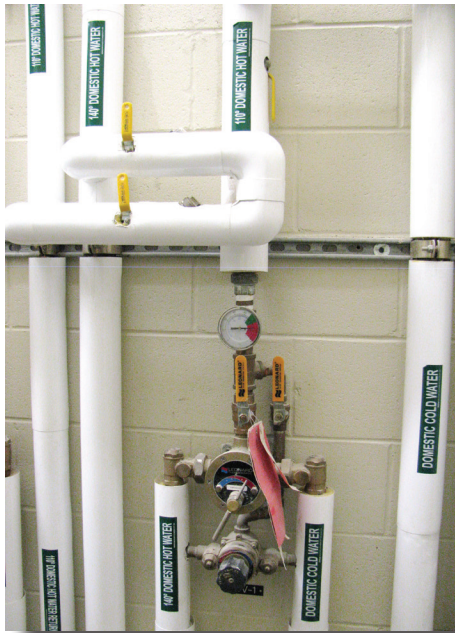
The Specialist Course

The USC Foundation's Course for the *Training of Cross-Connection Control Program Specialists* is designed to train the attendees in the various aspects involved in administering a

Before the site is finalized and the proper permission is sought for the surveys, the host-

ing organization contact should call the USC Foundation office and discuss the facility with one of the course instructors. In many cases a course instructor will preview the proposed survey locations in advance of the class to verify their suitability for this portion of the class.

On Thursday morning of the class, the students will then be required to survey the locations to determine the uses of water, whether there are any actual or potential cross-connections and ultimately determine the degree of hazard and appropriate backflow protection. A separate location is necessary for an instructor led pre-survey, on Tuesday afternoon.



Hosting a USC Foundation Specialist course is surprisingly easy and can be beneficial for any USC Foundation member. Hosting a course gives any member the opportunity to have employees involved with cross-connection control and backflow prevention informed about the latest developments in the field.

Registration will be handled directly by the USC Foundation office. Prior to the announcement of the course, the hosting agency may be asked to recommend local accommodations for those not in the immediate area. Course attendees must submit a registration application with payment. The USC Foundation will then mail a confirmation letter to all course participants.

The USC Foundation office is currently in the process of scheduling courses for 2014. If any USC Foundation member is interested in hosting one of the Specialist training courses, please visit the USC Foundation's website or contact the office to obtain a detailed hosting outline or discuss the possibility with one of the USC Foundation's instructors. ■

charter members: continued

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In addition to its members nationally, the USC Foundation also includes international members from countries around the world seeking to receive the latest information regarding backflow prevention and cross-connection control.

With the continued support of the members the USC Foundation will continue to develop new training courses and training tools for the considerable future. ■

seminars: continued

continued from **page 1**

Discussions will include the differences between the Ninth and Tenth Edition field test procedures and diagnostic scenarios that may be causing a backflow preventer to fail during the field test procedure.

The one-day seminar is not meant to be a replacement for the USC Foundation week long tester training courses. For those students new to testing backflow preventers, the USC Foundation continues to recommend the week long tester training course.

In the future the USC Foundation's one-day seminars will cover topics such as establishing a cross-connection control program, site surveys, hydraulics and rules/regulations to name a few.

Attending the one-day seminar may also help fulfill a student's requirements for CEU's. Many students who attend a USC Foundation training course follow it up by taking a certification exam from a local health/water department or from a national organization. Many of these certification organizations require that the student complete a number of contact hours to maintain their certification year after year. As mentioned above, students at the one-day seminar will be eligible for 0.6 CEU's, the equivalent of 6 contact hours.

Registration for the one-day seminar may be found on the USC Foundation's website or students may contact the USC Foundation office for more information. ■

Training Courses

Tester Course

Los Angeles, CA
22-26 April 2013

Los Angeles, CA
15-19 July 2013

Specialist Course

Los Angeles, CA
18-22 March 2013

Los Angeles, CA
29 July - 2 August 2013

One-Day Update Seminar

Los Angeles, CA
29 April 2013

Social Media

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facebook.com/uscfccchr



Upcoming Events

Nebraska ABPA
Region 12 Conference
Kearney, NE
6 March 2013

CA/NV AWWA
Spring Conference
Las Vegas, NV
25-28 March 2013

CEHA 62nd Annual
Educational Symposium
Los Angeles, CA
1-4 April 2013

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