

## Conflicting RP Test Procedures

The field testing procedures for backflow prevention assemblies which the Foundation recommends are contained in Section 9 of the *Manual of Cross-Connection Control*. However, the Foundation recognizes that there are several other procedures advocated by various agencies across the nation. There is one method for testing the reduced pressure principle backflow prevention assembly which has been widely accepted, yet varies substantially from the Foundation's method. The purpose of this article is to point out the differences in these test procedures and to explain the reasoning behind the procedures which the Foundation recommends.

One main concern of the Foundation in testing the reduced pressure principle backflow prevention assembly is to test the opening point of the relief valve at the point of the first drip. This requires the tester to be very careful in his or her testing procedure not to "dump" the relief valve before the actual test for the relief valve opening point occurs. In order to prevent the relief valve from premature exercising, the number two test cock should not be bled, unless water is flowing through the assembly. If the number two test cock is bled without water flowing through the assembly, there is a strong possibility that the relief valve will open

because of the drop in pressure upstream of the relief valve. In the Foundation's testing procedure the number four testcock is open during the bleeding of the other test cocks. In some of the other testing procedures the test cocks are bled in order of the direction of flow (first, test cock number one, then two, etc.)

In testing the reduced pressure principle backflow prevention assembly, many agencies suggest that the components be tested in the order of: the first check valve, the second check valve, and finally the relief valve. Testing in this order may affect the relief valve opening point reading, particularly testing the second check before the relief valve. Should the second

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## Recertification






One of the main points of a certification program for backflow prevention assembly testers is the recertification. A tester must continue to meet the requirements for testing backflow prevention assemblies in order to remain certified.

In many cases a tester is certified initially, but does not continue to test backflow preventers because he or she either changes jobs or is promoted to a new position. In this case the tester may have no need to maintain certification. However, the testers often desire to keep their certification active whether or not they are actively testing backflow preventers. In order for a tester to maintain certification, the tester *must* be up-to-date on testing methods. This means that he or she should be aware of any changes in the testing procedures which may have taken place since the last recertification *and* the tester must be able to perform according to the new procedures.

The Foundation has participated in various certification programs by providing proctors for the practical exams, which entail testing each of the backflow preventers by the candidate for certification/recertification. The proctors have been surprised by the fact that a large percentage of

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### Highlights

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## New Members

Foundation Membership continues to grow. Many Foundation Members may not be aware of all the benefits of Membership in the Foundation. As a reminder, Foundation Members receive 25% discounts on the purchase of either the *Manual of Cross-Connection Control*, or the Foundation's Film/Video *Working Together for Safe Water*. Members also receive a 20% discount on the Foundation's Training Course. This includes both the *Short Course for the Training of Backflow Prevention Assembly Testers* and the *Short Course for the Training of Cross-Connection Control Program Specialists*. The Foundation's Bulletin, *Cross Talk* is sent to each Member along with each updated version of the "List of Approved Backflow Prevention Assemblies," which may be updated several times each year. Also the Foundation Members are welcome to contact the Foundation's Engineering Staff with any questions they may have regarding their cross-connection control program, specific installations or certain backflow prevention assemblies. Members are encouraged to contact the Foundation Office whenever problems are encountered with a specific model of backflow prevention assembly, or with any noteworthy information. The Foundation would like to welcome the new Members listed below to the Membership of the Foundation.

Arvin Community Services District  
Bruce Hicks & Company, Inc.  
California Institute for Women  
Carlsbad, City of  
Cross-Connection Control Advisory  
Committee of San Diego  
Cupertino, City of  
Frank Bonetti Plumbing, Inc.  
Frank J. Misa & Son, Inc.  
Garden Grove, City of

George Kauffman Plumbing  
Kansas City Board of Public  
Utilities  
Lincoln, City of  
New Nuvordia Consultant  
Oceanside, City of  
Orange, City of  
Plumber's Joint Apprenticeship  
Committee  
Riverview Water District

Running Springs Water District  
Siesta Key Utilities Authority  
Southland Plumbing Company  
Stanford University  
University of California, San Diego  
Warnick, Jeffery L.  
Water Protection Services, Inc.  
Westcott's Plumbing  
Woodford Manufacturing Company

## Contacting the Foundation:

As mentioned in the text of *Cross Talk*, the Foundation Office has a new address, which should be used when contacting the Foundation. The Telephone Number and FAX Number will remain the same until 23 March 1990. For easy reference, this information is listed below.

### Mailing Address:

Foundation for Cross-Connection Control  
and Hydraulic Research  
University of Southern California  
KAP-200 University Park MC-2531  
Los Angeles, California 90089-2531

**Phone Number:** (213) 743-2032

**FAX Number:** (213) 743-0648

The Foundation's FAX Number can be used for FAXing Purchase Orders for Manuals, Videos, or Short Course Registration to assure immediate processing.



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(213) 743-2032  
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## What is a Resilient Seated Valve?

All Foundation Approved backflow prevention assemblies are required to have resilient seated shut-off valves and test cocks. But, what does this mean? A resilient seated valve is a valve (whether test cock or shut-off valve) which has a non metal-to-metal seal.

In the case of two-inch and smaller valves (including all test cocks) this is normally in the form of a fully ported ball valve. In these ball valves the metal ball rotates and seals against a teflon ring. The teflon is the resilient substance in this case. In larger gate valves, the wedge is made of

an elastomer substance (a type of rubber) which seals against the body of the shut-off valve. In both of these cases the resilient surface seals against a metal surface creating a seal of very high integrity. With metal-to-metal seals, a very small particle or piece of debris could lodge between the two metal surfaces holding the valve slightly ajar; this allows water to leak through. With a metal surface sealing against a resilient surface, the resilient surface "gives" slightly forming a seal around the debris. In the later case the seal is still complete even though a small particle may be on the sealing surface.

## Foundation Receives Research Grant

The Foundation has received a major grant from the Taiwan Power Company to study slurry transport in pressure conduit. Although it may not seem that this type of research would be directly beneficial to the cross-connection control field, there will be several benefits realized by this research. The main benefit which directly affects the work of the Foundation is the upgrading of much of the Foundation's Laboratory equipment for this research project. In order to develop empirical formulae, computer data acquisition equipment will be necessary. This in turn will help to automate the evaluation process at the Foundation Laboratory. Thus, the Laboratory Evaluation Phase of the Foundation's Approval Program will be more efficient and be

completed more quickly without jeopardizing the accuracy of the evaluation.

This research will also increase the Foundation's status as a research facility. Currently most of the work of the Foundation is centered around the Approval of backflow prevention assemblies, with various research projects being studied as time permits. With this new grant, it is likely the Foundation will be more involved in various research projects in the future. However, the evaluation of backflow prevention assemblies will remain the highest priority with the Foundation; new research projects will be taken on as they increase the overall effectiveness of the Evaluation Program.

### Tester Course

8 - 12 January 1990  
and

22 - 26 January 1990  
at

The Foundation Laboratory

**Non-Members \$750.00**

**Members \$600.00**

### Specialist Course

4 - 8 December 1989  
and

14 - 18 May 1990  
at

USC Campus

**Non-Members \$800.00**

**Members \$640.00**

Contact the Foundation office for an application for the next USC Training Course or send a hard copy of a purchase order or a check to the Foundation office to reserve a space.

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and Hydraulic Research  
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## Recertification

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those applying for recertification are not capable of testing the backflow preventers. The tester should be aware of the fact that it is necessary to be up-to-date with any new testing procedures, but also the tester must be capable of performing each of the required tests. Candidates for recertification are urged to practice the proper testing procedures *before* the recertification date. If the candidate does not expend the requisite effort in preparing for the recertification exam, he or she must face the possibility of losing his or her certification.



## New Address for Foundation Office

The Foundation is pleased to announce that as the Members of the Foundation read this issue of *Cross Talk* the Foundation office is in the process of moving to new facilities. The office will remain on the Main Campus of the University of Southern California, however, a new building has just been completed which will house the Foundation along with several other University departments. The mailing address of the Foundation has changed. Please make a point of updating your records. The Foundation's new address, currently in effect is:

Foundation for Cross-Connection Control  
and Hydraulic Research  
University of Southern California  
KAP-200 University Park MC-2531  
Los Angeles, California 90089-2531

All correspondence to the Foundation should be sent to this new address.

The University is also in the process of switching over to a new telephone system, which will entail a change of the Foundation's phone number. However, the cut-over date, originally set for January, has been changed to 23 March 1990. As this date approaches and new numbers are confirmed for each University department, the Members of the Foundation will be updated with the Foundation's new number. Until further notice the Foundation's telephone number remains (213) 743-2032, and the Foundation's FAX number is (213) 743-0648.

## Testing the RP

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check valve leak, the relief valve would open before it is tested--thus exercising the relief valve. As a relief valve is exercised the opening point tends to increase. In this case the tester may have missed the relief valve's actual opening point. In actual backflow situations, of course, the relief valve is never exercised before backflow occurs.

With the reduced pressure principle backflow prevention assembly the integrity of the second shut-off valve is "automatically" tested when the opening point of the relief valve is determined. As line pressure is introduced into the zone between the two check valves, the first check pressure differential should drop. If the first check pressure differential does not drop, this indicates the water being introduced into the zone is leaking downstream. The Foundation's test procedures limit opening the low pressure control needle valve to 1/4 turn. If the differential reading on the gauge does not drop, then the downstream shut-off valve has a leak which cannot be compensated for through the gauge without jeopardizing the integrity of the test. In this case an external by-pass hose may be used.

Other testing procedures require a separate test to determine whether or not the shut-off valve is drip tight. As most testers are aware, there are few shut-off valves that maintain drip tight integrity over the years. If the downstream shut-off valve has a slight leak which does not affect the ability to test the assembly, then there is no immediate reason for concern.

### *Working Together for Safe Water* on Film/Video

#### VHS Video:

**Non-Members \$80.00**  
**Members \$60.00**

#### 16mm Film:

**Non-Members \$200.00**  
**Members \$150.00**

Contact the Foundation office for an order form or send a hard copy of a purchase order or a check to the Foundation office to receive a copy of the Film/Video. California residents must add appropriate sales tax.

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*For information on showing Working Together for Safe Water on a local Cable Station, see the article on page 3.*



## Hosting a Training Course Locally

The Foundation's Five-Day Training Courses are offered in Los Angeles throughout the year. The Tester Course is offered twice each January and twice each July; the Specialist course is offered once in the spring and once in the winter. However, the Foundation also presents both of these courses at locations other than Los Angeles along with a hosting agency in the area.

The hosting agency arranges registration for the course, course facilities, and any instructional tools needed at the facility. The Foundation provides all of the course material (a three-ring binder, the *Manual of Cross-Connection Control*, and several pieces of reference material for each student.

The Foundation charges the hosting agency a flat fee, which covers the costs incurred by Foun-

dation to present the course. The hosting agency, in turn, charges each student a fee to cover their costs of hosting the course. In most cases the hosting agency recovers enough from the fees to have some of their own personnel trained at no net cost.

It is also possible to have registration handled through the Foundation office. When this is arranged the students are charged a fee directly from the Foundation, and the hosting agency is not charged a fee. The only responsibilities of the hosting agency in this case are: to secure facilities for the course, and forward a list of prospective students in their area to the Foundation. If a Member agency is interested in hosting one of the Foundation Courses through either of these described methods, the agency should contact the Foundation office at (213) 743-2032 for more information.

## Showing *Working Together* for Safe Water on Cable TV

The Foundation has been requested by different agencies to provide a copy of the Foundation's Film/Video *Working Together for Safe Water* in a format suitable for showing on cable television. Many municipalities or utilities have a weekly segment on a local cable station. These segments are used to educate the public on various aspects of the municipality or utility.

The Foundation does have 3/4-inch video copies of *Working*

*Together for Safe Water* available; these are suitable for airing on cable systems. They are not standard video tapes and are intended for use on professional video equipment, such as is used by cable stations. There is no fee to Members for use of the Foundation video for airing on a cable TV station. However, certain requirements must be met. The Foundation must receive a written request from the sponsoring agency which contains the following:

1. The date and station the video will air on.
2. A commitment not to duplicate the video.
3. A commitment to show the video in its entirety.
4. A commitment to return the video promptly.

For more information on airing *Working Together for Safe Water* on a local cable station, please contact the Foundation office.

### Manual

The Eighth Edition of the *Manual of Cross-Connection Control* is available for order. One complimentary copy was sent to each Member of the Foundation. Should additional copies of the Manual be required, Members are extended a 25% discount from the non-Member rate. Non-Members are extended a 20% discount on orders of 10 or more Manuals. The prices are as follows for each copy of the Manual.

Non-Member - \$37.00 each  
 Non-Member (in quantities of 10 or more) - \$29.60 each  
 Member - \$27.75 each

California residents must add appropriate sales tax. To order additional copies of the Manual please send a check or a hard copy of a purchase order to:

Foundation for Cross-Connection Control  
 and Hydraulic Research  
 University of Southern California  
 KAP-200 University Park MC-2531  
 Los Angeles, California 90089-2531

All Manual orders are processed within 3 days of receipt. There is an extra charge should UPS Blue Label, or Next Day Air shipment be required.

## Calendar of Events

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This calendar lists several activities which the Foundation plans on participating in over the next few months. For more information contact the Foundation office.

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**29 November - 1 December** - Association of California Water Agencies Fall Conference, Monterey, California

**4 - 8 December** - Program Specialist Course, USC Campus, Los Angeles, California.

**11 December** - CA/NV Section AWWA Certification/Recertification for Testers, Tucson, Arizona

**1 January 1990** - "The Rosebowl", Pasadena, California (Ticket Information - (213) 743- GO SC)

**8 - 12 January 1990** - Tester Course, Foundation Laboratory, Los Angeles, California

**22 - 26 January 1990** - Tester Course, Foundation Laboratory, Los Angeles, California

**14 February 1990** - Western States Symposium Association, Buena Park, California (Tentative)



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