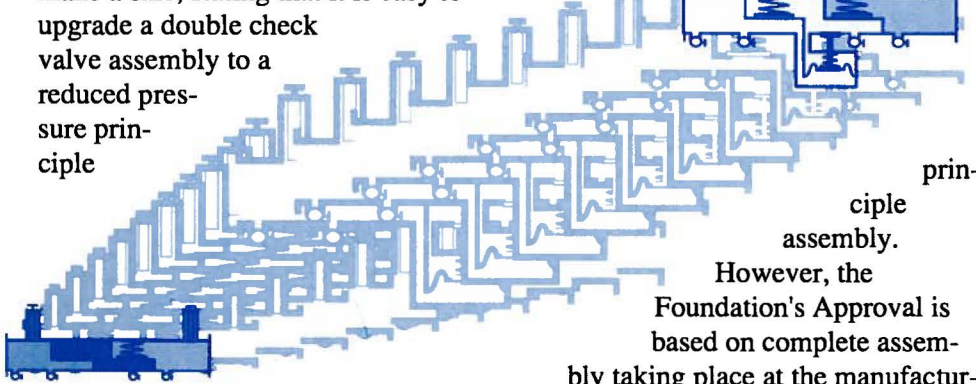


Changing a DC to an RP in the Field

Many Members have inquired about the possibility of upgrading a double check valve assembly to a reduced pressure principle assembly in the field. In fact, some sales personnel have used this point to make a sale, stating that it is easy to upgrade a double check valve assembly to a reduced pressure principle



assembly in the field, should this become necessary in the future. Members should recognize that this is not a practice condoned by the Foundation. The Eighth Edition of the *Manual of Cross-Connection Control* clearly states in Section 10.1.1.6, *In order to ensure proper installations, all backflow prevention assemblies shall be delivered for installation completely assembled by the original manufacturer with all components as approved. Resilient seated shut-off valves and testcocks are considered an integral part of the assembly.* Therefore, any modification conducted in the field, even if conducted by the original manufacturer, invalidates the Foundation's Approval.

It may be true that the design of certain double check valve assemblies is such that a change of certain components may make it operate as a reduced pressure

principle assembly.

However, the Foundation's Approval is based on complete assembly taking place at the manufacturers' plants. Field modifications do not have the same quality control possible as at the manufacturers' assembly plants. With many different agents

Any modification conducted in the field, even if conducted by the original manufacturer invalidates the Foundation's Approval

in separate locations making in-field modifications, it is not practical to expect the same quality assembly as was laboratory and field tested by the Foundation for the original Approval.

continued on page 6

Is a Cross-Connection Control Program Really Necessary

Members across the nation are often faced with a less-than-enthusiastic response to the initiation or upgrading of their cross-connection control program. In most cases, this takes place because of a lack of understanding of what a cross-connection is and how backflow can occur. Elected officials in some regions are simply not very excited about approving a program which may increase costs to businesses or the public in their districts. Although one may see reason for their concern, elected officials, once educated in the basics of cross-connection control, should be more willing to back a cross-connection control program which will protect the health and well-being of the public.

continued on page 4

Highlights

-  Vertical Field Test Sites Needed
-  New Training Courses Scheduled
-  Weather Protecting Assemblies

Welcome!

...New Members

The Foundation continues to see a growth in Membership. This growth allows the Foundation to provide better service while maintaining the Membership fee schedule. Following is a list of the most recent additions to the Foundation's Membership Program. Thank you for your support of the Foundation and welcome to the Membership Program.

Acker, Ayers and Associates
 Apprentice & Journeymen Training Trust
 Arkansas Plumbing Inspector's Assn.
 Aqua-Tech Backflow Prevention, Inc.
 Dennis Buller
 Cis-Co

Community Hospital of Monterey
 ICOM Mechanical, Inc.
 City of Issaquah
 Joint Apprenticeship Committee for Training
 Joshua Basin Water District
 Robert Leon
 Dennis Matte
 Miller Sales, Inc.

North Perry Avenue Water District
 Northfield Mount Herman School
 City of Ottawa
 Paris Utility District
 Pocatello Regional Medical Center
 Sanact
 School District #35, Langley
 Southwest Landscape Services
 Specialized Process Equipment Co.
 Sutter Community Services District
 Tolladay, Fremming & Parson
 Town & Country Plumbing

Tester Course

The Foundation Laboratory

10 - 14 May 1993
 12 - 16 July 1993
 4 - 8 October 1993

Yuba City, CA

22 - 26 March 1993

Las Vegas, NV

12 - 16 April 1993

Incline Village, NV

2 - 6 August 1993

Non-Members \$750.00

Members \$600.00

Program Specialist Course

USC Campus

19 - 23 July 1993

Phoenix, AZ

1 - 5 March 1993

Incline Village, NV

29 March - 2 April 1993

Las Vegas, NV

19 - 23 April 1993

Seattle, WA

21 - 25 June 1993

Non-Members \$800.00

Members \$640.00

Courses may be added throughout the year. Please contact the Foundation office for information on courses in your area or for an application for the next USC Training Course. You may also send a hard copy of a purchase order or a check to the Foundation office to reserve a space. Please be advised that some of these courses fill six to eight weeks in advance.

Foundation for Cross-Connection Control
 and Hydraulic Research
 University of Southern California
 KAP-200 University Park MC-2531
 Los Angeles, California 90089-2531
 (213) 740-2032

A Purchase Order may also be sent via FAX to the Foundation office at (213) 740-8399



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Training Courses Scheduled

The Foundation has scheduled several training courses for 1993. A complete schedule to date can be found on page two.

There has been great response to the article in the October 1992 issue of *Cross Talk* discussing the procedure for hosting a Foundation training course.

It should be noted that several of the courses have been scheduled back to back for those desiring to take both the Tester Course and the Program Specialist Course. This will enable those coming from out of the area to make one flight and complete both courses within a two week period.

In January there is a Tester Course and a Specialist Course scheduled in sequential weeks in Los Angeles. The same is true for the courses scheduled for Las Vegas in April. Additionally, the Tester Course in Yuba City, CA and the Program Specialist Course in Incline Village, NV are scheduled back to back. Yuba City is less than an hour drive outside of Sacramento, and Incline Village is less than two hours driving time from Sacramento. These courses were scheduled this way to help those wishing to attend both courses save on travel expenses.

For those Members wishing to host a course in their area, courses are still being scheduled for the latter part of 1993 and 1994. Please contact the Foundation office for an outline on hosting either of the Foundation training courses. 💧

The List of Approved Assemblies

The Foundation's *List of Approved Backflow Prevention Assemblies* is published exclusively for Foundation Members. The intended use of the List is for Members to use on an internal basis. Although it is not meant for general distribution, it is acceptable for a Member to copy a portion of the List for a customer.

For example, a water agency requires the installation of a reduced pressure principle assembly. If the agency requires Foundation Approval, the agency could give a copy of those pages listing the reduced pressure principle assemblies to the customer which is being required to install the assembly. However, most agencies use the Foundation's List as a basis for creating their own list. Making modifications, additions and deletions to their local list as changes are made to the Foundation's List. This allows a water purveyor to have their list without vacuum breakers, since they are normally not considered acceptable for system protection. Health agencies, on the other hand, may want to include both the atmospheric and pressure vacuum breakers.

In developing their local List, the administrative authority may have additional requirements to deal with. Specifying items such as replaceable seats, specific types of access covers, testcock location, etc. may reduce the number of locally acceptable assemblies.

Copies of the Foundation's *List of Approved Backflow Prevention Assemblies*, should not, however, be distributed to groups of individuals or outside of the Member's immediate jurisdiction. In order to help those Members who base their own list on the Foundation's List plan for distribution of their own list, the Foundation will be publishing the List on a

quarterly schedule beginning in February of 1993. The List will be sent to the Membership in February, May, August, and November. Training facilities are requested not to distribute copies of the List directly to their students. A complimentary "Sample List" is available from the Foundation office to help explain the contents of the List to students.

In the past the List was updated as changes were necessary with no specific schedule. Within the last couple of years new assemblies have been Approved on a regular basis and the List has been published as all of the information necessary was compiled by the Foundation's Engineering Staff. The quarterly schedule will make it easier for the Members to plan their schedules of updating their own local lists and the Foundation Engineering Staff can also plan accordingly knowing that the List will be published on a set schedule.

The latest *List of Approved Backflow Prevention Assemblies* is dated 16 November 1992 and the next List will be dated 1 February 1993. Currently the Foundation Engineering Staff is compiling data to augment the List as of 1 May 1993. The May List will include acceptable shut-off valves for each model of double check valve assembly, double check detector assembly, reduced pressure principle assembly, reduced pressure principle detector assembly, and pressure vacuum breaker assembly on the List at that time. This is the result of many requests from the Members for information regarding the specific shut-off valves which should be delivered with specific backflow prevention assemblies. 💧

Are Cross-Connection Control Programs Necessary

continued from page 1

One argument often used against a cross-connection control program is the fact that a plumbing code has already been adopted for a region and cross-connection control is addressed well enough under the plumbing code. In the Foundation's experience, this argument lacks substance.

During the Foundation's Specialist Courses which have been presented in different locations around the country over the past five years, the course attendees are taken on a survey of a facility in the area of the course. Although these areas have plumbing codes, the Foundation's Engineering Staff, which conducts the courses, has consistently found violation after violation of the adopted plumbing codes. Perhaps a building met the plumbing code when first constructed. But, as modifications are made over the years, cross-connections are inadvertently created. Foundation personnel have surveyed sites and found several cross-connections which were explained to the owner of the facility. On return visits six months to a year later, it is not uncommon to find the original cross-connections corrected while several others have been created as the needs within building changed. An effective ongoing meter protection (or containment) cross-connection control program is the only way to protect the water supply from these types of problems.

The U.S. Environmental Protection Agency, which is charged with enforcing the Federal Safe Drinking Water Act, publishes a cross-connection control recommended practice manual. In this manual it is stated,

Even where extensive "fixture outlet protection," cross-connection control programs are in effect through the efforts of an aggressive and thorough water supply cross-connection control program, the water authorities should also have an active "containment" program in order to address the many plumbing changes that are inherent within commercial and industrial establishments.

It is evident from this that the U.S. Environmental Protection Agency sees a meter protection

Even where extensive "fixture outlet protection," cross-connection control programs are in effect through the efforts of an aggressive and thorough water supply cross-connection control program, the water authorities should also have an active "containment" program

cross-connection control program as an essential element for water authorities keeping their water supplies free from contaminants.

The Foundation maintains that there are a minimum of five basic points for an effective cross-connection control program.

A. Authority The water supplier must have a legal authority, normally in the form of an ordinance, to carry out the cross-connection control program.

B. Backflow Preventers A local list of acceptable backflow prevention assemblies must be established.

C. Certified Testers and Specialists A list of acceptable testers should be established for the required field test and maintenance of the backflow preventers as well as specialists (normally in-house) which can administer the cross-connection control program, including conducting the necessary surveys, notices, record keeping, policies, procedures, etc.

D. Defensible and Detailed Records Records of surveys, installed assemblies, test results and other pertinent information must be maintained by the water supplier.

E. Education and Training It is necessary to educate the water supplier's personnel on the basics of cross-connection control, as well as the general public.

Although there may be many other areas of an effective cross-connection control program, these are considered to be the minimum items needed to carry out an effective program. 💧

Correction to The List

On the 16 November 1992 issue of the *List of Approved Backflow Prevention Assemblies*, The following reduced pressure principle assembly was inadvertently excluded:

Watts 3/4" 009M2QT

AWWA 1993 Annual Conference and Exposition

At the American Water Works Association 1993 Annual Conference and Exposition in San Antonio, Texas, 6-10 June 1993, the Foundation will be one of the presenters during the Cross-Connection Control Technical Session. Scheduled from 9 A.M. to 12 P.M. Monday 7 June 1993, the six presentations will cover the following subjects.

- 💧 **General Concepts of Cross-Connection Control**
- 💧 **Backflow Incident Case Histories**
- 💧 **City of San Antonio Cross-Connection Control Program**

💧 **Potable Water Usage as a Heat Sink**

💧 **Specialized Training in Cross-Connection Control**

💧 **Backflow Prevention Assembly Repair**

The Foundation will be represented by Mr. Paul Schwartz, Chief Engineer who will act as moderator for the program. The AWWA 512 Committee will also be meeting during the conference to discuss modifications for the AWWA Manual M14 which covers cross-connection control. 💧

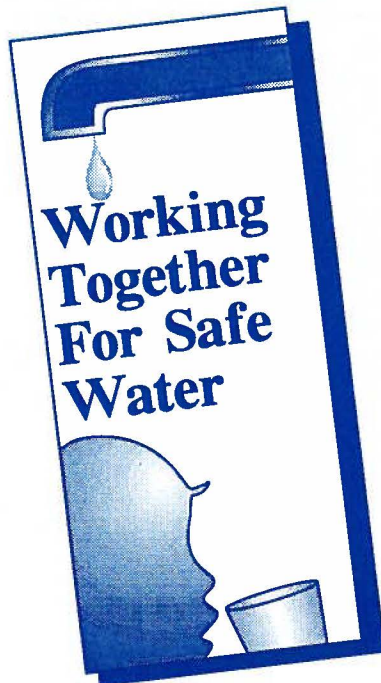
Cross-Connection Control Informational Brochures

The informational brochure entitled *Working Together for Safe Water* is a great complement to the slide presentation *The Essentials of Cross-Connection Control*. You'll be able to explain all the concepts of cross-connection control to your audience using the slide presentation. Then you can hand out the brochure. This gives those in attendance something to take with them which will help them to comprehend fully the topics discussed.

The brochures come with the name, address and telephone number of the ordering agency, so those who desire more information or have questions, can call you directly.

This brochure can be used to explain the basic concepts of cross-connection control, helping water users understand why they may need to install a backflow preventer or comply with periodic testing requirements. To request a sample of the brochure with an order form, contact the Foundation office at:

Foundation for Cross-Connection Control and Hydraulic Research
University of Southern California
KAP-200 University Park MC-2531
Los Angeles, CA 90089-2531
(213) 740-2032
FAX (213) 740-8399



Weather Protection for Backflow Preventers

With the winter upon us it is important to remember to protect backflow prevention assemblies against freezing.

In many situations the water is shut down for the winter season, and the assemblies drained to prevent freeze damage. Care must be taken when draining an assembly to be sure that as much captured water as possible is removed. Just opening the testcock, may depressurize the unit, but water may still be trapped.

Where ball valves are used, the handle should be left at a forty-five degree angle. If the ball valves are left completely closed or opened, a small amount of water can become trapped between the ball and the valve wall. When this water freezes, it expands, cracking the valve wall. When the ball valve is left at a forty-five degree angle, there is no trapped water and, therefore, the risk of freeze damage is greatly reduced.

Those assemblies located in exposed areas, which experience freezing conditions, should be adequately protected. Protective enclosures may be needed in addition to heat sources, such as heat tracing tape.

Changing a DC to an RP in the Field

continued from page 1

Should a Member consider modifying backflow preventers in the field, the acceptance of such assemblies will have to be determined by the local administrative authority, keeping in mind the fact that the Foundation's Approval of such an assembly would be invalidated.

The local administrative authority would have to be sure, not only that the proper components are interchanged, but the unit's identification (name plate) is changed too. This typically will only be done by a manufacturer's representative.

Additionally, Members should be aware that all Foundation Approved assemblies should be delivered completely assembled with both shut-off valves and all testcocks attached. This eliminates the possibility of having the number one testcock of a double check valve

Any deviation from the horizontal upright orientation of a backflow prevention assembly will invalidate the Foundation's Approval, unless the assembly is Approved for such orientation as shown on the Foundation's List of Approved Backflow Prevention Assemblies

assembly or a reduced pressure principle assembly being installed in the incorrect location. It also helps to assure that the correct shut-off valves will be installed as an integral part of the assembly. Special care should be taken to encourage installers to install the assemblies exactly as delivered from the manufacturer. Some installers may find it easier to use old unapproved shut-off valves in place

of the Approved resilient seated shut-off valves, provided with the assembly. Should this take place the Foundation's Approval of the assembly would be invalidated and testers may find it difficult to get a tight seal on the shut-off valves when performing the field test.

The most common question received by the Foundation has to do with the Approval status of assemblies which are modified to one degree or another. To reiterate, any deviation from the horizontal upright orientation of a backflow prevention assembly will invalidate the Foundation's Approval, unless the assembly is Approved for such orientation as shown on the Foundation's *List of Approved Backflow Prevention Assemblies*. 💧

UPDATE- Manual of Cross-Connection Control - Ninth Edition

In recent issues of Cross-Talk the status of the revision work leading to the ninth edition of the *Manual of Cross-Connection Control* has been discussed. The Manual Review Committee has diligently been reviewing all Sections of the Manual, considering comments from testers, administrative authorities, (water, health and plumbing representatives), manufacturers and the general public.

Early estimates were planned for publishing the Ninth Edition in early 1992. However, due to major reviews of Section 9 (Field Test Procedures) and Section 10, (Specifications for Backflow Preventers) completion of the Ninth Edition is now estimated for the spring of 1993.

Vertical Approvals

Laboratory testing of backflow preventers in the vertical orientation is proceeding in the Foundation Laboratory. For Foundation Approval, however, the Field Evaluation must be successfully completed. Currently, field sites are being sought for many sizes of backflow preventers. If any Member, primarily in the Southwest U.S., has the need for a particular size assembly to be installed in the vertical orientation, and is willing to allow the Foundation to use the location as a field test site, the Foundation Laboratory should be contacted with details of the site.

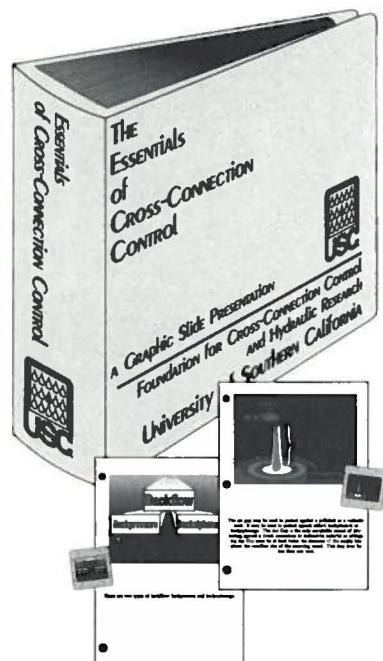
Field sites must be sites which serve non-health hazards. High hazard locations such as hospitals, manufacturing facilities, etc. can not be used for the Field Evaluation Program. The Field Evaluation Program requires three of each size and model backflow prevention assembly to provide twelve consecutive months of trouble free service. However, each of the assemblies must be installed in separate water systems.

Members of the Foundation's Engineering staff must be able to test the assembly once each month with no inconvenience to the water user. Typically, monthly field tests only require the water supply to be shut down for five or ten minutes. However, the water may be off for one to two hours, should an inspection be required. In most cases, the manufacturer seeking Approval will provide the assembly at no charge to the agency providing the field site. Please contact the Foundation Laboratory at (213) 481-3336 for more information. 💧

Training and Educational Tools

Education is a large part of any cross-connection control program. Whether training of personnel in the intricacies of backflow testing or educating department personnel, city council members, or the general public, several tools are available to help convey the concepts of backflow and cross-connection control. Shown below are several items which may be used to help others understand these important concepts. Each of these items may be ordered by mail or by FAXing a purchase order to the Foundation office at (213) 740-8399. Items may also be shipped Second Day Air or Next Day Air, if needed, (there is an additional charge for this service).

The Essentials of Cross-Connection Control ***A Graphic Slide Presentation***

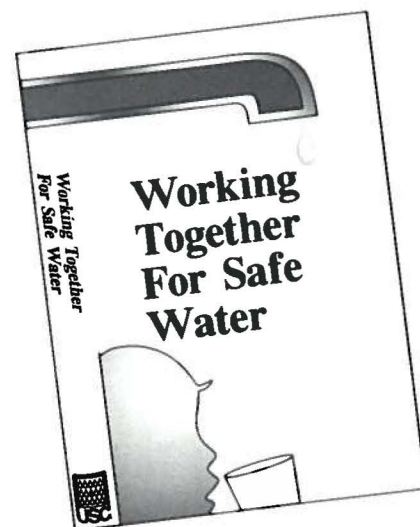


This set of sixty color graphic slides can be used for any length or type of presentation. The slides come with a three-ring binder which includes explanations of each slide. Your own photographic slides can be added at the appropriate points to help explain certain details or to relate theoretical concepts to specific local situations.

For shorter presentations, slides can be removed so you can cover only the information you want to convey in the time allotted.

Member Price
\$100

Non-Member Price
\$135



Working Together for Safe Water ***15 Minute Video***

This video (also available on 16mm film) is ideal for a succinct introduction to the concepts of backflow and cross-connection control. A combination of live footage and animation makes the understanding of all the concepts involved very simple. Not only is backflow explained, but each of the backflow preventers is discussed along with the proper application of each.

Member Price Non-Member Price
\$60 \$80

Informational Brochure

This color Informational Brochure on Cross-Connection Control is designed to explain the basics of backflow and cross-connection control in a concise simple manner. The explanations are easy for anyone to understand. This brochure is folded to fit in a standard envelope for mailing or a return address can be printed on the blank panel for direct mailing. If a return address is not used, the space can be used for imprinting the ordering agency's name, address and phone number so customers can contact the correct person should additional information be required. The imprinting of this information is included in the price of the brochures. See page five for more details.



Quantity	Member Price	Non-Member Price
500	\$115	\$145
1000	\$190	\$240
2500	\$375	\$475

Calendar of Events

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

10 February 1993 - Western States Symposium Association, Culver City, CA

1 - 5 March 1993 - Program Specialist Course, Phoenix, AZ

22 - 26 March 1993 - Tester Short Course, Yuba City, CA

29 March - 2 April 1993 - Program Specialist Course, Incline Village, NV

12 - 16 April 1993 - Tester Short Course, Las Vegas, NV

14 - 16 April 1993 - CA/NV Section American Water Works Association Spring Conference, Burbank, CA

19 - 23 April 1993 - Program Specialist Course, Las Vegas, NV

25 - 28 April 1993 - Annual American Backflow Prevention Association Conference, Phoenix, AZ

10 - 14 May 1993 - Tester Short Course, Foundation Laboratory, Los Angeles, CA

6 - 10 June 1993 - AWWA Annual Conference and Exposition, San Antonio, TX

21 - 25 June 1993 - Program Specialist Course, Seattle, WA



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