News of the Tennessee Backflow Prevention Association

c/o Dale Phelps Gatlinburg Utilities PO Box 5 Gatlinburg, TN 37738

Phone: 423-436-4681 Fax: 423-430-3800



TBPA

Your Association working for safe, clean drinking water in Tennessee

Fourth Annual Tennessee Backflow Prevention Conference

By the Tennessee Backflow Prevention Association

Thursday March 25, 1999 8:00 AM - 4:00 PM

Holiday Inn Holidome Murfreesboro, Tennessee

Registration Fee: \$50.00

Contact: Becky Thompson 615-207-7721 David Kellogg 615-451-5922

SEMINAR TOPICS:

Public Education Mary Howell, Backflow Management, Inc.

ASSE 1060 Enclosure Specifications Gerald Pruitt, P.E., Hydrocowl

Fire Protection Systems Pat Meyer, Tennessee Fire Sprinkler **Contractors Association**

Backflow Software Mary Howell, Backflow Management, Inc.



WINTER '98/'99



NEXT MEETING

4th Annual Tennessee Backflow Prevention Conference

Thursday March 25 Murfreesboro Holiday Inn Holidome

MEETING DIRECTIONS IN CONFERENCE BROCHURE

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Above Ground Installations

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Test & Repair Tips 7

Inspectors Column

Plan Now To Attend the Fourth Annual **Tennessee Backflow Conference**

Murfreesboro, Tennessee will be the place to be on March 25, 1999 as the Tennessee Backflow Prevention Association will meet at the Fourth Annual Tennessee Backflow Conference. The Murfreesboro Holiday Inn Holidone will be the location of the one-day seminar and equipment trade show. Prominent national expert speakers and local Tennessee experts will provide excellent presentations on current backflow prevention industry topics. More info on back page. Don't miss out - register now!

TBPA INFO-The TBPA is pleased to announce the appointment of Mr. Grady Gentry as West Tennessee Director. A resident of Dyersburg, Grady has been involved in backflow prevention for many years and is very active in the ABPA and

TBPA. Thanks, Grady!

Important TBPA items that will be discussed and addressed at the Conference include the election of Officers and Middle Tennessee Director, and the proposal to select a standard test procedure for certification training. Please provide your input to the TBPA Board and Chapter membership concerning these very important items.

President's Message

David Kellogg, President Tennessee Backflow Prevention Association

I would like to take this opportunity to invite everyone to our Fourth Annual Tennessee Backflow Prevention Association Conference to be held this year in Murfreesboro, Tennessee. Part of the mission of the Tennessee **Backflow Prevention** Association is to provide "-education, state-wide training, standardized certification, technical assistance, and resources to our membership". One of the items up for consideration at this years Conference is a proposal to

establish a standard testing procedure to be used by all training organizations for certification (and therefore all certified testers). The first step toward an official certification program begins with this standard testing procedure. The test procedures currently under consideration were published in the Fall Issue of the Tennessee Backflow News. A vote of the membership will be held, following an open forum discussion period, at the Annual Conference. The test procedures approved by the membership will be submitted to the State of Tennessee, Department of Environment and

Conservation - Division of Water Supply, with a recommendation from the TBPA, for consideration for adoption as a state-side standard test procedure. This is only one of the many steps that must be taken to fulfill the mission of the Tennessee Backflow Prevention Association. Please contact any of the Board of Directors with your comments or questions. As always, membership participation is essential for the success of this organization, so attend a Chapter meeting or contact us with your ideas or suggestions.



News of the Tennessee Backflow Prevention Association

Tennessee Backflow Prevention Association



Name	Affiliation	Phone #	Fax#
David Kellogg, President	City of Gallatin	615-451-5922	615-452-0568
Bob Deal, Vice-President	Hixon Utility District.	423-877-3513	423-875-3116
Becky Thompson, Treasurer	Madison Suburban Utility District	615-868-3201	615-868-5595
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Grady Gentry Director, West	Grady's Backflows Dyersburg, TN	901-286-4271	901-286-1557
BIII Love, Director, Middle	City of Murfreesboro	615-848-3225	615-895-1241
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John Hall, Director At-Large	Tennessee Associa- tion of Utility Districts	615-896-9022	615-896-8608
Larry Stinnett, Director-At-Large	Backflow Specialty Company, Inc. Powell, TN	423-947-5722	423-947-5722
M.C. Sorrels	ABPA Region 3 Director	704-283-8554	704-283-8010
Paul Causey	ABPA Administrative Director	409-862-7606 ABPA Headquarters	409-862-7607 ABPA Headquarters

TBPA/ABPA MEMBERSHIP FORM

Tennessee Backflow Prevention Association

CHECK ONE: RENEWAL:

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The Tennessee Backflow News is published quarterly by the Tennessee Backflow Prevention Association, whose members have a common interest in protecting the drinking water from contamination through cross connections. Your ideas, experience and expertise are invited and needed by the TBPA to insure a balanced approach to backflow prevention in the State of Tennessee. Your participation and support will continue to help shape the future of this industry in Tennessee.

Opinions expressed in articles, letters or advertisements in this publication are not necessarily those supported by the TBPA. The content of this newsletter is not to be considered as legal or professional advice. Dues are \$42 annually, and are payable to the TBPA Treasurer. Annual dues include \$15 for Tennessee and \$27 for National ABPA dues. National membership is required for Tennessee membership.

The TBPA Treasurer address is:

Tennessee Backflow Prevention Association Becky Thompson, TBPA Treasurer c/o MSUD, PO Box 175 Madison, TN 37116-0175

All other info requests and inquiries, including newsletter items and advertisements can be directed to:

and quarterly Tennessee Backflow News

Tennessee Backflow News

bership required for state TBPA membership

Pre-payment of dues required to process application.

Membership is non-transferable. National ABPA mem-

Tennessee Backflow Prevention Association Attn: Dale Phelps, Secretary c/o Gatlinburg Utilities PO Box 5, Gatlinburg, TN 37738-0005

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TRN Feb-99

MEMBER#

Installations ... continued

(Continued from page 8)

LIABILITY

Every major conference held in 1997 for backflow prevention included legal liability topics and for a good reason. With the introduction of OSHA's Permit Required Confined Space Compliance Program (29CFR 1910.146), above ground installation of water systems proves to be an excellent alternative to the potential liability created with pit or vault installations. The permitrequired confined space rules are very complex and there are differing opinions as to what is or isn't covered by OSHA. There are extensive requirements for training and program development, costly equipment requirements, and enormous fines and penalties for those found to be in violation. In recent death and injury legal cases, the list of defendants includes water utility managers and board members, installing contractors, design engineers, and equipment manufacturers. Although many of the problems are due to employee negligence, the defendants will share the responsibility because of the inadequately designed requirements, practices and procedures of the utility. Improper systems installation and management are "implied" to be acceptable by the water purveyor if approved for service or if proper specification to the contrary does not exist. A reply "because we've always done it that way", is certainly insufficient protection of water utility managers and engineers from liability in the case of injury or damage due to improperly installed equipment.

WHAT'S THE SOLUTION?

Water purveyors and engineers should specify and require design and installation to industry technical standards and manufacturers recommendations.

For backflow prevention assemblies, water purveyors should look to the manufacturers of backflow preventers for recommendations on proper installation of the equipment for best possible performance for which the equipment was designed. Other independent technical research and standards organizations such as the University of Southern California's Foundation for Cross-Connection Control and Hydraulic Research and the American Society of Sanitary Engineering (ASSE) lead the industry in development of technical standards for proper operation and installation orientation of backflow prevention assemblies. ASSE has recently completed development of a technical standard for protection of above ground backflow prevention installations, Performance Requirements for Outdoor Enclosures for backflow Prevention Assemblies, ASSE Standard 1060. The ASSE 1060 standard defines the performance required of prefabricated enclosures to adequately protect backflow preventers. The major enclosure performance elements include:

A. Freeze Protection for ambient temperatures down to minus 30' degrees Fahrenheit.

B. Structural strength of the enclosure to withstand 100 pounds per square foot vertical load.

C. Adequate reduced pressure drainage capability

D. Air inlet requirements for atmospheric vacuum breakers

E. Access for Testing and Maintenance

F. Hinged Panel Restraints

G. Security and Vandalism Features.

Many water utilities plan to modify their local ordinance controlling water service to include the requirement of (USC Foundation and/or ASSE) approved backflow prevention assemblies installed within ASSE 1060 approved enclosures. The adoption of these national technical standards and manufacturers recommendations simplifies the management task of the water purveyor, correctly specifies the type of backflow prevention equipment and installation that best serves the water consumer and property owner, and is the best risk management for the organization's legal liability.

"Water purveyors and engineers should specify and require design and installation to industry technical standards and manufacturers recommendations."



The First Cross Connection

Inspectors Column

By Dale Phelps Gatlinburg Utilities

Inspectors

Inspectors, Plumbing and

Mechanical Inspectors

Column

Cross Connection

Articles by

INSTALLATION INSANITY!

Not only are inspectors responsible for requiring backflow preventers to be installed where required, but also to insure that they are installed properly. A backflow preventer that is improperly installed may not provide the level of protection that is required. Certain operating conditions may cause excessive wear on the backflow preventer. Many important items must be considered for a good backflow prevention assembly installation, here are a few:

1. Use approved assemblies only. Tennessee is a USC Foundation approval state. If a backflow preventer is not fully USC Foundation approved and is not on the Tennessee Division of Water Supply Approved List, don't accept it. Some states accept only the ASSE approval, but not here in Tennessee, so require full USC and Tennessee approval on all testable backflow pre-

2. Follow industry-standard installation requirements regarding orientation, clearances, air-gap drains, bypass piping, etc. You do not have to re-invent the wheel here. Many established authorities have developed and printed excellent criteria. The USC Foundation 9th Edition Manual of Cross Connection

Control is one, and Tennessee has a Manual that includes installation criteria. Ask around and find out what other Districts or Cities are requiring and use what is best for your area. Strive to be uniform and consistent with your area if possible. but don't "dumb down" your program just because a neighboring water system has weak installation requirements or a non-existent pro-

gram. Once you have researched the subject and decided what your requirements will be, put them on paper, and use drawings and diagrams. Most of us understand the pictures and drawings better than a bunch of words on paper. Send your installation criteria information to all plumbers, contractors, engineers, architects, etc. Specify where you want the backflow preventer installed - at the property line outside or inside in a mechanical room. Also note where you require a pressure reducing valve to be, either before or after the backflow preventer. If you allow or specify installations inside buildings you should consider providing architects, engineers and property owners with information regarding reduced pressure relief valve discharge rates. Floor drain systems must be designed to carry the large amount of relief valve discharge from a backflow preventer. 3. Freeze and vandal protection

is a must. Your installation criteria should include a reminder that

freeze and vandal protection is the responsibility of the owner. Provide details about your enclosure requirements including approved enclosures, access for testing and mainte-

4. Testing and maintenance requirements should be spelled out in detail. Tell who will test and when. You may want to touch on proper repair and maintenance.

5. Thermal expansion must be explained in simple language. Thermal expansion may not be evident in all installations, but all property owners that have backflow preventers need to know about it.

6. Disclaimers are worth the paper they are written on. An accurate and properly worded disclaimer can be beneficial to your program. Some things to consider - let the customer or his engineer specify the size of the backflow preventer to meet the water demand - all installation and maintenance costs are the responsibility of the property owner - the water utility assumes no responsibility that may arise from property damage or business loss related to the operation or malfunction of the backflow preventer. You can most likely think of other "CYA" items to include here.

Include a name and phone number and address where you or someone responsible for the program can be reached for further information. Put it on paper!

Installations.....continued

(Continued from page 3) equipment large enough to lift and excavate a pit for the placement of a pre-cast vault as opposed to equipment required to excavate a pipe trench. (2) Providing a dump truck for removal of excess material and a larger crew required for the additional equipment involved with the large excavation job. Other considerations, typically overlooked, are additional shoring, potential complications of existing underground utilities, rock, and land-

scaping costs. And finally, a maior cost consideration for installing equipment above ground (not just backflow preventers) is that equipment installed in a pit typically remains under water for days, weeks, and even months at a time. This can cause premature failure and difficulty in the operation of valves, levers, and test cocks. A perfect example of this is the water meter. Consider the time and money wasted trying to get accurate meter readings from flooded meter pits. Then con-

sider all the money spent with the failed attempts of adapting electronics to existing meters. Some water purveyors committed to meter change-out programs in favor of the new electronic meters only to find that some of the electronics have trouble living up to claims of being waterproof. If the water purveyors installed large meters above ground they would solve most of these problems.

(Continued on page 9)

Specifying Above Ground Installations

Kurt Hartle, Sales Manager HydroCowl Enclosures

HISTORY

The prefabricated backflow enclosure is quickly becoming an integral component of backflow prevention assembly installations. But with this change, so comes the old question, "Why do we need enclosures and above ground installations? We never did before ... !" Until recently most backflow prevention assemblies were installed inside buildings or in below ground vaults. The water purveyor felt no compelling reason to consider access for testing and maintenance or problems associated with reduced pressure discharge. Unfortunately, many of these same water purveyors didn't understand or agree with the need for such backflow protection devices in the first place and consequently didn't establish maintenance programs, "out of sight, out of mind" and "if it ain't broke..." As more incidences of water contamination, personal injuries, and first floor office space getting washed away occurs, more attention is being focused on the proper installation of backflow prevention devices. Reduced pressure backflow preventers are specified more and more as they provide a much higher level of protection. Water

purveyors are focusing more on assessing the degree of hazard of different water users and subsequently the specification of the proper type of backflow prevention device. Major manufacturers of reduced pressure devices recommend above ground installation. There are several good reasons for this but first and foremost for optimum operation is avoiding the potential of becoming submerged (as is the probability with a pit installation). Valve vaults typically have poor drainage characteristics and submersion would cause a cross connection thus defeating the purpose of the unit. Double check valve assemblies are recommended for connections posing a low risk health hazard. This type device is typically installed in a valve vault. The double check has no dump (relief) valve very uncomfortable situation. so it does not cause a cross connection, right? Well... Normally ... I Usually... Most of the time ... ? Well ... Actually, It can! In a recent article published in the Autumn '97 issue of Cross Talk, USC reports that if submerged, the test cocks on a double check assembly become a direct cross connection. Test cocks are shutoff valves that are

not considered to be adequate

tion. USC recommends above

ground installations of both re-

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protection for backflow preven-

duced and double check backflow prevention assemblies.

SAFETY So if double checks are installed at locations that don't present serious health hazards, what's the problem? The hazard is in the run-off that fills up the valve pit. Weed killers, fertilizers, petroleum by-products and numerous other chemicals associated with the run-off from lawns, parking lots, golf courses, farms, and automotive repair shops. The contamination from run-off is usually worse than the hazard that a double check is installed to protect. The infiltration of runoff is present in virtually every below ground installation. It only takes one incident of illness or death to put you and your organization in the spotlight of a Sometimes careers are ruined. Much of this could be avoided with following the recommendations of the manufacturers and technical standards organizations - ABOVE GROUND IN-STALLATION. Perhaps the most important consideration for specification of above ground installation is safety of testing and maintenance personnel. There are numerous potential hazards inside a valve vault. These include: lack of oxygen, radon, physical hazards, sharp objects, engulfment, and electrical shock.

Underground utility contractor bid numbers indicate the cost of an above round installation with an enclosure can be anywhere from 15% to as much as 25% less than the cost of the below ground installation with a vault. The contractor's main considerations are: (1) The higher cost of transporting and operating

(Continued on page 8)

"15% to 20% less than the cost of the below ground installation with a vault"

Hydowcowl

Nashville,

Tennessee

Enclosures are

manufactured in

Page 8 WINTER '98/'99 Tennessee Backflow News Page 3

BMI Southeast Announces Operations

BMI Southeast has hit the ground running in Tennessee. Based in Nashville, Tennessee, BMI Southeast, LLC, is an alliance with Backflow Management of Portland, Oregon, and specializes in cross connection control management products and consulting services throughout the states of Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi and Florida.

BMI Southeast hopes to provide the professional support required to help systems with

little or no cross connection structure to start effective, basic programs. For systems with implemented programs, BMI Southeast hopes to provide the support needed to take these programs to the next level of improved public education, strengthened legal structures, fine-tuned management opportunities, and high end training for staff members.

In January 1999 BMI Southeast hosted a three-day management course titled "How to Implement and Maintain a Cost Effective Legally Defendable, Successful Program". The seminar was led by instructor Mary L. Howell, a nationally recognized expert in the field of cross connection control. The topics covered included ordinance writing and review, public education programs, educating boards and councils, legal responsibilities, regulations, surveys, and more.

For more information regarding the services of BMI Southeast, contact Gerald Pruitt at 615-259-9566.

Watts is Planning To Get The Lead Out

Watts Regulator has developed a new design in backflow assemblies utilizing tubular copper bodies instead of traditional bronze castings. The copper body with it's nickel plating is resistant to corrosion and nearly eliminates the concern of lead leaching from a traditional bronze body into the drinking water.

Watts calls this new line of assemblies the Copperhead, and has designed the assembly with a single top access cover and top mounted test cocks to simplify servicing. The body sports a straight-through water path to reduce pressure loss, and the check valve modules are threaded into the body, eliminating the need for a retainer. The result is a more compact body and lower pressure loss, and less lead concern.

The Copperhead series is not yet USC Foundation ap-

proved. It is anticipated that the 1" reduced pressure assembly may be the first to complete the approval process. Once the individual models and sizes are fully USC Foundation approved and Tennessee Division of Water Supply approved, they can be utilized in the State of Tennessee for the protection of the public water supply.

For more information, contact your local Watts Representative.

Recent USC Foundation Approved Assemblies

CONBRACO reports that it has recently received USC Foundation approval on a full line of backflow assemblies from 1/4" up to 6" in diameter. The 1/4" through 2" are top access and top testcock design.

FEBCO introduces it's 860U, a reduced pressure assembly ap-

proved in sizes 1/2" thru 2", and corresponding 850U, a double check assembly approved in sizes 1/2, 1-1/4, 1-1/2, and 2.

WATTS has a series of polymer coated 009 and 909 re assemblies that are just approved, and the (union ends) U909QT is approved in 3/4 and 1" vertical up.

AMES reports it's 2" double detector assembly is the 3000MB is approved in horizontal position and vertical up. Ames also has a new reduced pressure assembly to gain full USC approval, the 1" 4000BM2.

For more information regarding approved assemblies, contact your area Manufacturer's Representative, or the Tennessee Division of Water Supply

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Backflow Incidents Reported

Antifreeze in School Water South Ozone, New Hampshire

In a story that was reported by the local newspaper and picked up on the national news, City Health officials reported that a first grade classroom water fountain had extremely high levels of antifreeze recently in South Ozone Park P.S. 124. No illnesses were reported and all the water except for the toilets was shut off at the 1,000 student elementary school. School employees first noticed the problem when the water in a sink in the gymnasium was green and smelled funny. It was determined that a faulty valve allowed the antifreeze to enter the potable water system. Ingestion of

large amounts of antifreeze can be fatal, causing seizures and renal failure. The valve has been repaired.

(Thanks to Ned Towle for this information)

E Coli in Drinking Water Minden, Nevada

A faulty plumbing repair on the domestic water line to a wastewater treatment facility may have allowed sewage to enter into the plumbing line. After the repair to the water line, six people inside the plant became violently ill with severe bouts of diarrhea and vomiting. Samples of the potable water system were positive for E coli and total coliform bacteria. State officials would not allow the town to isolate the treatment facility

and the contaminated water by turning off the supply, apparently to protect the pumps from possible damage. The plumbing was treated by chlorination. Nevada Public Health Engineer Richard Drew stated "As long as Minden maintained water pressure in the distribution system, there is no threat to the town." Luckily, none of the contaminated water got into the town water supply.

The obvious question: What if a water main break or a fire occurred while the water in the plant's plumbing was known to be contaminated? Apparently there was no backflow assembly or air gap at the meter or service entrance to the wastewater plant.

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"..the water in a sink...was green and smelled funny"

Test & Repair Tips

Q: I test backflow preventers as a small business. Do I have any liability?

A: Certainly anyone who tests or repairs backflow preventers as a contractor assumes a certain amount of business and possibly even personal liability. A tester in business should obviously seek to reduce his or her exposure to liability. In addition to the obvious necessities of your business license and business liability insurance, two things are very important. (1) Foreseeable circumstances must be anticipated, and (2) Industry standards must be applied. A person should be aware of how his or her actions on the job

could affect the backflow assembly, the plumbing system, the physical operation and structure of the property where the assembly is located. and the customer's property. Being aware of all foreseeable circumstances that may occur as a result of your act of testing or repairing, and taking every precaution available to reduce or limit damage or disruption to the property owner should be an on-going effort. Industry standards are established by entities through large amounts of research and proven by time and implementation. Standards of operation and care include plumbing codes, EPA manuals, state regulations and

manuals, AWWA documents and manuals, USC Foundation manuals, and other industry documents and manuals. Municipal and corporate "Standard Operation Procedures" are also considered to be industry standards. When you have a full understanding of the foreseeable circumstances in the scope of your job duties, and you center your actions and operations in the comfort zone of recognized industry standards of operation, you then have provided reasonable care in your business and have created for yourself a defendable position. Now go and consult with your lawyer and your insurance agent!

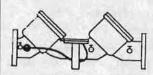
THE "WELL, DUH" COLUMN

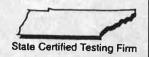
Always have with you when testing assemblies extra test cocks and test cock adapters. Test cocks are known to break off or split. Simple tools and an e-z out may be needed to remove broken testcock threads from the body of the device. A hand pump is handy to remove water from meter boxes where double checks may be located another reason to use industry standard aboveground enclosures!

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Tennessee Backflow News

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PUBLICATION PROFILE

BMI Publication: "Cross Connection From A to Z"

Backflow Management, Inc., (BMI) publishes a manual called "Cross Connection From A to Z, A comprehensive Guide to Cross Connection Control Programs". The manual is intended to be used as a reference and guide in establishing and maintaining a cross connection control program in water systems of all sizes.

Sections in the manual include setting up a program, safety as it relates to an inspector or worker, inspections, assembly specifics and other general information. The inspections section contains good information about plans review, fire protection systems,



high hazard type facilities, hospital inspections, and residential service connections. Also included in this section is a description of in-plant and premises isolation of hazardous facilities. Good information and detail about proper protection by device installation is included.

This manual has many illustrations and pictures to help in understanding the topic. Many forms and inspection reports are included that could be used a basis for your own report forms. This manual is highly recommended.

For more information on this manual and others in the BMI library, contact BMI Southeast, LLC at 615-259-9566.

Drinking Water & Backflow Prevention Magazine

Drinking Water & Backflow Prevention Magazine is published monthly by SFA Enterprises, Inc., in Denver Colorado. The publication is a color glossy magazine that contains articles on the topic of backflow prevention and water quality issues.

Regular article topics include: Industry News, Manufacturer's News, Training Events, and a "Test Your Skills" regular column. Backflow incidents are regularly printed in detail. A recent issue also contained an article on insurance needs for backflow testers, piping identification and cross connection control, a home show including a backflow preventer on a lawn sprinkler system, and a fall conference review.

Drinking Water & Backflow Prevention magazine is available by subscription by calling 1-800-728-3426, subscription rates are \$33.00 yearly.



"The Essentials of Cross Connection Control"

The University of Southern California Foundation for Cross Connection Control and Hydraulic Research has produced a graphic slide presentation titled "The Essentials of Cross-Connection Control". The 60-slide presentation is intended to help explain the essential elements of cross connection control to selected audiences. The presentation includes basic hydraulics, definitions of technical terms, types of backflow pre-

venters, and proper applications for backflow preventers including atmospheric vacuum breakers, pres-



sure vacuum breakers, the double check valve assembly, the reduced pressure assembly, the double check detector assembly, and the reduced pressure detector assembly. The slides and corresponding paper page representation of the slide are housed in a handy 3-ring binder.

You may order the slides and binder from the Foundation at: 1-213-740-2032, email inquiries to fccchr@usc.edu, and visit the website at www.usc.edu/dept/fccchr.

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