

Texas Commission on Environmental Quality

Cross-Connection Control Subcommittee/Backflow Prevention Assembly Tester Training Provider Workshop

September 1, 2010

Building A, Room 173

Time: 9:00 – 4:30

Meeting Summary

Welcome/Introductions/Announcements:

- The next meeting of the subcommittee will take place on Wednesday, December 1, 2010.
- Mr. Al Fuentes has joined the TCEQ Cross-Connection Control Program.
- The TCEQ Public Drinking Water (PDW) Awards for calendar year 2009 were presented at the TCEQ PDW Conference on August 10, 2010. Three public water systems were recognized as having outstanding Cross-Connection Control Programs:
 - City of Houston
 - City of Rockport
 - City of Richmond

Congratulations to these public water systems! For more information on this award, please see:

http://www.tceq.state.tx.us/permitting/water_supply/pdw/recognition/crossconnectioncontrol.html

- The comment period for the revised Total Coliform Rule (TCR) has been extended until October 13, 2010. To view and/or make comments on the draft revisions, visit:
<http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation.cfm#tcr1989>

Vote to adopt minutes from last meeting:

The meeting summary from the June 2, 2010 meeting was adopted without discussion.

Updates from last meeting:

Draft Guidance Document on Gauge Accuracy Checks

The draft guidance document on gauge accuracy checks prepared by Mr. Bill Hamrick, ATB Services, Inc., and Mr. Charles Ansley, Metroplex Training, was presented at the August 3, 2010 meeting of the Drinking Water Advisory Workgroup (DWA WG). No questions or comments were made regarding this document. Cross-Connection Control Program staff will proceed with publication of this document through coordination with TCEQ Agency Communications staff.

Bypass Arrangements at Critical Facilities – Coordination with Councils of Government (COGs)

At the last meeting, subcommittee members discussed the difficulties involved in shutting off the water to a critical facility during the test of a containment backflow prevention assembly if the facility has just one service connection and does not have a bypass arrangement for the backflow prevention assembly. Discussion on this topic included the need for multiple services or bypass arrangements at single services to be addressed during the design phase of facility construction. A recommendation was made for TCEQ staff to contact the Austin-area Council of Governments (COG) to begin a dialogue about this issue and the COG general design standards.

Mr. Al Fuentes had a discussion with Mr. David Fowler, Senior Planner, for the Capital Area COG on this topic. Mr. Fowler understood the subcommittee's concerns regarding this issue. He was asked if he or anyone at the Capital Area COG had any input into the design of critical facilities and he responded that there was not anyone there who dealt with the architecture or design of these facilities. He referred Mr. Fuentes to the Development Review departments of the municipalities that participate in the Capital Area COG.

A general discussion followed, and several suggestions were made regarding educating the architects and engineers involved in the design of critical facilities. TCEQ staff will explore coordination with the following groups to promote knowledge of the need for bypass arrangements and/or multiple service connections at critical facilities:

- American Society of Professional Engineers (ASPE)
- American Water Works Association (AWWA)
- International Association of Plumbing and Mechanical Officials (IAPMO)
- Association of Civil Engineers (ACE)
- Training providers for continuing education credits for engineers holding a Certification in Plumbing Engineering (CIPE)
- Engineering Departments at the University of Texas and Texas A&M University

Mr. Fred Baird, Bac-Flo Unlimited, has prepared a notice that backflow prevention assembly testers can use when testing backflow prevention assemblies at critical facilities. The notice is included with Mr. Baird's permission as "Attachment A" to this meeting summary.

Hydraulics and How Backflow Happens

Mr. Paul Schwartz, Chief Engineer, University of Southern California (USC) Foundation for Cross Connection Control and Hydraulic Research, gave a presentation on the hydraulics of backflow. Mr. Schwartz's presentation included information regarding the basics of back-siphonage and back-pressure, the principle of water flowing from high to low energy regions, hydraulics in check valves, and hydraulics in backflow prevention assemblies.

Mr. Schwartz also encouraged subcommittee members and workshop participants to comment on the draft revisions to the TCR. Mr. Schwartz hopes that federal regulations will one day include a requirement for states to require Cross-Connection Control programs.

Electronic Submittal of Backflow Prevention Assembly Test and Maintenance Report Forms

Mr. Joel Klumpp, TCEQ Cross-Connection Control Program, addressed the issue of submittal of Backflow Prevention Assembly Test and Maintenance Report Forms (T&M form) electronically. There was some concern as to whether submitting these forms electronically satisfies Title 30 of the Texas Administrative Code (TAC) §290.44 (h)(4)(C) which states that, “The signed and dated original must be submitted to the public water supplier for recordkeeping purposes.” TCEQ staff have determined that if a public water system establishes a username and password system for licensed Backflow Prevention Assembly Testers, that system is equivalent to the public water system receiving a signed original document.

Public water systems must ensure there is a provision for receiving paper copies of T&M forms for those testers who do not have the means to submit electronic T&M forms.

Public water systems wishing to implement electronic submittal of T&M forms must submit a copy of the form and a description of their electronic submittal process to TCEQ for approval. That information should be sent to:

TCEQ Cross-Connection Control Program (MC-159)
P.O. Box 13087
Austin, Texas 78711-3087

Mr. Cory Harmon, City of Austin, gave a demonstration of the City of Austin’s database that allows electronic submittal of T&M forms. The City of Austin received approval from the TCEQ to allow electronic submittal of T&M forms in April 2009. Mr. Harmon demonstrated many features of the City of Austin’s Water Environmental Integrated Recordkeeping System.

Mr. Harmon explained that the City of Austin charges \$2.32/month/backflow prevention assembly to every customer with a backflow prevention assembly installed which is required to be tested annually.

Mr. Harmon estimated that over two-thirds of licensed Backflow Prevention Assembly Testers working in the City of Austin’s service area utilize the electronic reporting system for T&M forms.

Presentation on Water Research Foundation Report: “Determining Vulnerability and Occurrence of Residential Backflow”

Mr. Klumpp presented a summary of the Water Research Foundation report published in 2010 titled “Determining Vulnerability and Occurrence of Residential Backflow.” His presentation included the following information about the report:

- Objective of study: Identify the most effective technologies for rapidly detecting residential backflow events.
- Approach of study:
 1. Determine what operational variables and physical characteristics make distribution systems vulnerable to pressure transients; resulted in development of a risk matrix.
 2. Available technologies that can be used to detect backflow were screened and selected technologies were evaluated in field and pilot testing.
 3. Evaluate how the different types of sensors can be placed most effectively in a distribution system (DS).
- Conclusions:
 - Backflow of water from residences into the DS is probably more widespread than currently thought and this is a potential public health concern.
 - Utilities should limit installation of backflow prevention assemblies to service connections that have a clear risk to public health based on the materials that could come in contact with the public water supply.
- Recommendations to Utilities:
 - Develop a Cross-Connection Control Program;
 - Evaluate DS using the risk matrix; and
 - Install backflow sensing meters.

Backflow Prevention Assembly Tester Training Provider Workshop

The Cross-Connection Control Subcommittee meeting concluded around 1:00 PM and the Backflow Prevention Assembly Tester (BPAT) Training Provider Workshop began.

This document will not cover the material covered during the workshop in detail. Specific information regarding the changes in field test procedures from the USC 9th edition to the USC 10th edition is available in a two-page document available through USC at: <http://www.usc.edu/dept/fccchr/FinalForms/9thvs10th.pdf>. Of particular interest is the change to the field test procedure for check valve No. 1 of the reduced-pressure principle backflow prevention assembly (RP). The acceptable results for the 10th edition field test procedure for the RP check valve No. 1 is a reading above the relief valve opening point and greater than or equal to 5.0 psi differential pressure. The field test procedures for the spill-resistant pressure vacuum breaker (SVB) were also significantly changed.

Participants engaged in a general discussion of how to correctly complete the TCEQ Backflow Prevention Assembly Test and Maintenance (T&M) Report form. It was noted that it is incorrect to enter a differential pressure value for check valve No. 2 during the standard field test procedures of the RP since the differential pressure gauge is never positioned to record this reading. Instead, the tester should only indicate whether check valve No. 2 closed tight or leaked when subjected to back-pressure. The USC 10th edition manual does include test procedures to determine the static pressure drop across check valve No. 2 as an appendix (Appendix A.2.2).

BPAT Training Providers were required to complete an affidavit and return the document to the TCEQ Training Evaluation and Exam Development Program. Each BPAT Training Provider will receive a letter from this program either re-authorizing the Training Provider's approval or requesting additional information. For questions regarding this, please contact Ms. Barbara Mendieta at 512-239-6086 or bmendiet@tceq.state.tx.us.

**Attachment A – Sample Notice from Backflow Prevention
Assembly Tester to Critical Service Facility Staff**

NOTICE: Please read the following and with your concurrence and understanding, **Name of Business**'s Backflow Service will proceed with testing the containment Backflow Prevention Assembly.

Dear Mr. **Customer**:

The following is in regard to the containment backflow prevention assembly (BFPA) installed on your incoming water service. The BFPA is installed on what is considered a critical service, i.e., continuous water service is considered imperative in the operation of the facility. The BFPA has no by-pass arrangement and therefore the water will have to be turned off to the facility in performing the test. This can take from 15 minutes to 30 minutes or longer. The time allocated is only an estimate and can vary with some installations. If a problem occurs while performing the test the BFPA could be off for an extended time for repairs.

Name of Business's Backflow Service will not be held liable or responsible for problems that can occur with turning the water off to test the backflow prevention assembly. It is the facility's responsibility to ensure all equipment and processes are placed in the appropriate position to allow for discontinuance of water service. Additionally, **Name of Business**'s Backflow Service will not be responsible or liable for any contamination events that occur inside the building due to the loss of water pressure and unprotected internal cross connections.

It is strongly recommended that a by-pass arrangement be installed around the containment BFPA. The size of the by-pass would be determined by the facility. The by-pass arrangement will also need a BFPA of the same type. Reduced pressure principle backflow prevention assemblies are capable of dumping an extreme amount of water and without a by-pass arrangement will interrupt water service to the facility.

Questions or comments can be directed to **Name of Business**'s Backflow Service @ **phone number** or your local water department.

Signature _____ Date _____

Print Name _____