

Texas Commission on Environmental Quality
Cross-Connection Control Subcommittee
September 3, 2014
Building F, Room 2210
Time: 9:00 – 3:00

Meeting Summary

Announcements & Introductions

Mr. Al Fuentes

The next meeting of the TCEQ Cross-Connection Control Subcommittee will be held on December 3, 2014.

Comments were asked for on the previous meeting's summary. No comments were received and a motion and second were made to adopt the meeting summary. The vote was unanimous for adoption.

Irrigation Systems and OSSFs

Ms. Elizabeth Vanderwerken

Ms. Elizabeth Vanderwerken, TCEQ Landscape Irrigation Program (LIP), provided information regarding landscape irrigation systems on sites which also have On-Site Sewage Facilities (OSSF). The LIP regulations require that those irrigation systems installed on sites which are also serviced by an OSSF to be equipped with a reduced pressure principle backflow prevention assembly (RP). These regulations also allow those systems installed before 2009 to maintain their current form of backflow prevention (not necessarily an RP) as long as it is tested annually and found to be working properly. At the point when the backflow preventer can no longer be repaired in-line and must be replaced, it must be upgraded to the required RP.

This presents a challenge to public water suppliers (PWSs) in that they must identify the installation dates of irrigation systems and determine when the systems are being repaired and if the backflow preventers need to be replaced. More information regarding the rule on this topic can be found in the March 5, 2014 Meeting Summary located at: <http://www.tceq.texas.gov/drinkingwater/trot/cccgrou.html>

Ms. Vanderwerken also described a survey the LIP mailed to those PWSs with a population over 20,000. The survey covered topics such as Irrigation Inspectors, Violations cited by Irrigation Inspectors, Penalties, Local Ordinance, Funding, and Training. Preliminary indications are that public water suppliers have a minimal knowledge of the Chapter 344 regulations making it a challenge for them to comply with these regulations. In order to provide assistance, possible options for outreach to public water suppliers are being considered.

Supplemental Environmental Project

Mr. Joe Gildersleeve

Mr. Joe Gildersleeve, City of Arlington (City), provided a presentation on a Supplemental Environmental Project (SEP) conducted by the City. An SEP is an environmentally beneficial project used to offset assessed penalties in enforcement actions. The City, as part of an agreement with the TCEQ, offered a number of residents free testing and/or replacement of their irrigation backflow assemblies. For those systems that failed the backflow assembly testing requirements, the City would replace the backflow preventer free of charge. The number of residents identified were limited by the cost of testing/replacement. After an extensive bidding process, 27 residents with older irrigation systems were identified with a cost of approximately \$550/each for testing and replacement of the backflow preventer.

Of the 27 systems inspected, a significant number of them, **81%**, did not pass the inspection due to:

- Wrong backflow preventer;
- Backflow preventer missing;
- Damaged parts and;
- Obstructed test ports.

This indicates that many older backflow preventers on irrigation systems are not protecting the people at the site from backflow and ultimately the water distribution system is vulnerable to contamination from these systems.

Mr. Gildersleeve also presented information on the new Automated Metering Infrastructure (AMI) system the City is using. This system consists of installing water meters which can communicate electronically with the water utility allowing the City to detect backflow. The AMI system has been in use for only two months and approximately 30,000 meters have been installed. A Negative Consumption Report generated by the AMI system will identify when backflow of water at a volume of greater than 10 gallons occurs.

Backflow could potentially indicate:

- No backflow preventer installed;
- A failed backflow preventer;
- A broken meter;
- A leaking meter;
- Fire Hydrant usage;
- A main break or;
- The meter was installed backwards.

Mr. Gildersleeve will continue to monitor his system and provide more detailed information at a future date.

Study on Irrigation Systems

Mr. Joe Smolinski/Mr. Jeff Price

In an effort to better protect the potable water supply in the City of Mansfield (City), Mr. Joe Smolinski and Mr. Jeff Price provided a presentation on their efforts to have the backflow prevention assemblies on residential irrigation systems tested periodically. There are currently 1,937 assemblies installed on commercial irrigation systems and 12,000 assemblies installed on residential irrigation systems. This poses a significant risk to the health of those families with residential irrigation systems and knowing if the backflow prevention assemblies are working is critical.

Of the 12,000 assemblies in use in residential irrigation systems, the City tested 372 of them. Of these, 19.9% (74) failed the test and, as expected, the failure rate increased as the age of the assemblies increased. Mr. Smolinski also provided statistics from other cities which showed that 10-15% of assemblies failed in the first year of use. Statistics from a study in College Station were consistent with 24% failing the test in the first year of use. Members of the subcommittee confirmed that often, brand new assemblies failed the test right out of the box.

After the first year of use, statistics obtained from other studies showed that 2-5% of the assemblies tested failed the backflow test.

In order to better determine the risk posed by the water in irrigation systems and from water exposed to contaminants in the residential yards, Mr. Smolinski and Mr. Price sampled the water from 34 irrigation systems. This was standing water in the valve box in which the backflow prevention assembly was located and was a result of either the irrigation system leaking or run off from the yard. Of the 34 sites tested, 100%

(34) tested positive for Coliform bacteria and 72% (21) tested positive for E. Coli. A positive test for Coliform bacteria is an indicator of possible fecal contamination of the water while a positive test for E. Coli is confirmation of direct fecal contamination of the water. In the event of backflow, this contaminated water will either end up in the plumbing system of the residence and/or in the water main. It should be noted that these samples were not tested for contamination due to fertilizers, pesticides, herbicides, or other chemicals.

This study was conducted in order to provide support for a possible requirement from the City to have the backflow prevention assemblies on residential irrigation systems tested annually or, at a minimum, on a periodic basis. Some possible options provided by Mr. Smolinski were:

- Option 1: To not require the testing and, instead, educate customers on the hazards of irrigation systems and backflow.
- Option 2: To implement a requirement for annual testing and require the residents to have their backflow prevention assemblies tested and provide the test report to the water utility. This would require practices in place to notify residents of expired test dates, identify and track backflow prevention assemblies, a record retention system, and identifying qualified testers.
- Option 3: Similar to Option 2, to implement a requirement for annual testing and have the City conduct the tests. This might require additional fees applied to the customer and hiring additional staff to administer the testing program (notification, tracking, record retention).

Mr. Smolinski inquired of the subcommittee as to any regulatory support for the annual testing requirement and what experience other jurisdictions have had in implementing this requirement. The members of the subcommittee provided the following:

- TCEQ regulations require annual testing if the irrigation system has chemical additives or when a health hazard has been identified. This is especially relevant in those cases where there are animals on site, a home business (machine shop, beauty salon, painting), auxiliary water source (private well, rainwater harvesting, pump in lake), extensive gardening requiring gardening chemicals, etc. It should be noted that a health hazard is documented during a Customer Service Inspection and the results are reported to the local plumbing inspection department in addition to the water utility.
- The annual testing requirement has been established by other Cities who use the authority in their local ordinance to be more stringent than TCEQ regulations and require annual testing. A compromise several Cities have tried is to require periodic testing every 2 or 3 years.

The VEPO Electronic Record Keeping System

Mr. John DeCell

The TCEQ received a request from a training provider for a presentation of an electronic record keeping system tailored to Cross-Connection Control (CCC) Programs. Mr. John DeCell, VEPO L.L.C., a participant in the TCEQ Cross-Connection Control Subcommittee, provided a presentation on their software system. It is important to note that the purpose of this presentation was to provide general information on the features of a CCC software system used to meet the record keeping and retention requirements in TCEQ regulations. This does not in any way constitute endorsement by the TCEQ of any electronic record keeping system.

CCC software systems typically allow a BPAT to enter the results of testing a backflow prevention assembly (BPA) electronically (wirelessly or connection through a computer). Once entered, the information is available to the local water utility which can then provide a printout during a compliance inspection by TCEQ regional investigators.

Some of the information captured and tracked using these systems is:

- gauge calibration dates;
- license numbers and expiration dates;
- test due dates;
- test results;
- information on the tester;
- payment/receipt documentation;
- backflow test history;
- serial number identification;
- pass/fail reports.

Using a CCC software system is considered a different format from the forms in the TCEQ regulations and requires approval by TCEQ before use. This is specified in:

290.44(h)(4) (C) A test report must be completed by the recognized backflow prevention assembly tester for each assembly tested. The signed and dated original must be submitted to the public water supplier for recordkeeping purposes. Any form which varies from the format specified in Appendix F located in §290.47(f) of this title must be approved by the executive director prior to being placed in use.

More information on electronic record keeping can be found in the meeting summary of the June 4, 2014 meeting of the TCEQ Cross-Connection Control Subcommittee located at:

<http://www.tceq.texas.gov/drinkingwater/trot/cccgrou.html>

Leaded Hose Bibbs

Mr. Al Fuentes

Mr. Al Fuentes received a request for clarification on the use of hose bibbs that do not meet the lead free definition on residential sites. The definition of lead free is:

- (A) not containing more than 0.2 percent lead when used with respect to solder and flux; and
- (B) not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

The concern was that people use the water from these hose bibbs to fill water coolers, swimming pools (small or large), in outdoor kitchens, and often drink directly from the hose connected to them. This provides possible exposure to the lead in the hose bibb if the lead has been leached out by the water.

After discussion with Mr. Jeffrey Kempic, Environmental Protection Agency, the determination is; If the fixture (hose bibb) is not anticipated to provide water to be used for human consumption (outdoor watering) and, it is labeled as such, then it does not have to meet the definition of lead free.

Dedicated Fire Suppression Supply Lines

Mr. Al Fuentes

There is concern by public water suppliers (PWS) regarding the potential for backflow from dedicated fire suppression lines. The water in these lines (which can extend hundreds of feet long) stagnates due to the infrequent use creating a contamination hazard. The potable water supply is not protected from this stagnant water because, typically, the backflow prevention assembly is located within the building on the fire suppression system. During the general discussion, the following possible solutions were provided;

- Place the backflow prevention assembly in a vault closer to the meter;
- Implement a rule which limits the amount of water in a dedicated supply line before appropriate backflow controls must be put in place. The City of Austin (COA) has a 100 gallon maximum while other municipalities have a 50-foot (ft) rule;
- Develop a flushing strategy for these lines.

Backflow Protection on Carbonated Beverage Dispensers

General Discussion

Due to the hazard of copper poisoning posed by carbonated beverage dispensers, appropriate backflow prevention on the water supply line to these dispensers is required. More information regarding the rule on this topic can be found in the December 4, 2013 Meeting Summary located at: <http://www.tceq.texas.gov/drinkingwater/trot/cccgroup.html>

It is important that, in cases where there are several beverage dispensers in close vicinity to each other, each dispenser have a dedicated tap to the water supply line.

There are some plumbing set ups in which the backflow prevention assembly (BPA) is located on a supply line which supplies water to several different liquid vending machines (tea, coffee, sodas, juice). Because copper downstream of the CO₂ in the carbonated beverage dispenser will defeat the purpose of the backflow prevention assembly and will create a hazard where leached copper could contaminate the liquids downstream, the BPA must be located on the supply line to the carbonated beverage dispenser such that it is isolated from the other vending machines with its independent backflow protection.

Backflow Protection at Restricted Facilities

Mr. Kenny Dykes

Mr. Kenny Dykes, TCEQ Texas Optimization Program, led the discussion on conducting Customer Service Inspections (CSI) on restricted facilities. The backflow protection requirement is to consider restricted facilities as health hazards and have a reduced pressure principle backflow prevention assembly (RP) or an air gap at the meter. The CSI requirement is for public water suppliers to conduct or have conducted CSIs on new construction, when the plumbing on a site has been modified, or when there is reason to believe there is a contamination hazard on-site. This proves challenging when the site is a restricted facility such as:

- Universities;
- Detention facilities;
- Zoos;
- Manufacturing Plants; and,
- Military Bases.

An option that Mr. Dykes presented was, if the restricted facility does not allow the water utility personnel to go on-site to conduct the CSI, then it could require the site to have the CSI conducted in which case they can either hire a third party and allow them on-site to conduct the CSI or, they could have a licensed individual on staff conduct the CSI.

Automatic Flushing Devices in Distribution Systems

Mr. Kenny Dykes

Mr. Kenny Dykes also talked about the use of automatic flushing devices at dead-ends in a water distribution system. Often, these dead-ends are in remote locations and, due to their remoteness, get very little water flow. As a result the water stagnates and the water quality deteriorates creating a possible contamination hazard. Public water suppliers (PWS) are required to flush these dead ends to prevent this from happening. Some PWSs have turned to using automatic flushing devices. These devices flush the

water from a dead-end based on a time interval, chlorine residual, or other parameter. There is some concern regarding those devices which directly flush the water into a sewer line through an air gap. These devices are contained in a sealed box-type container which creates a hazard;

- if there is a blockage preventing adequate flow of the flushed water, the air gap could be breached creating a cross-connection;
- or if the sewer line backs up, then the fluids in the sewer as well as sewer gas could accumulate in the box overcoming the air gap creating a direct cross-connection to sewage.

Mr. Dykes has alerted the manufacturer of the particular device he observed. The manufacturer is currently making modifications to remedy the situation.

Changes to the WSPS Endorsement

Mr. Steve Davis/Mr. Calvin Day

Due to the adoption of rules governing rainwater harvesting, changes have been made to the requirements to obtain a Water Supply Protection Specialist endorsement by the Texas State Board of Plumbing Examiners (TSBPE). Mr. Steve Davis and Mr. Calvin Day provided information on the changes made to Title 22 of the Texas Administrative Code, Chapters 361, 363, 365, and 367 listed in italics below:

Sec. 361.1 Definitions

(41) The definition of Plumbing now includes, “*Plumbing includes the treatment of rainwater to supply a plumbing fixture or appliance.*”

(58) The definition of Water Supply Protection Specialist reads, “A Master or Journeyman Plumber who holds the Water Supply Protection Specialist Endorsement issued by the Board *to engage in customer service inspections, as defined by rule of the Texas Commission on Environmental Quality, and the installation, service, and repair of plumbing associated with the treatment, use, and distribution of rainwater to supply a plumbing fixture or appliance.*”

(59) The definition of Water Treatment now includes, “*The term does not include treatment of rainwater or the repair of systems for rainwater harvesting.*”

Sec. 363.1. Qualifications

(f) A Plumbing Inspector. Each applicant must:

(3)*complete the 24 hour Board approved Water Supply Protection Specialist endorsement training program;*

Mr. Davis cautioned the subcommittee that the above qualification for a plumbing inspector is subject to change.

(j) Water Supply Protection Specialist Endorsement. Each applicant must:

(1) hold a current Journeyman or Master Plumber License; and

(2) complete a Board approved training program *based on the Federal Safe Drinking Water Act and the Federal Clean Water Act, on-site wastewater and site evaluations and graywater re-use, water quality training and water treatment, water utilities systems and regulations, water conservation, rainwater harvesting systems, xeriscape irrigation, fire protection systems, backflow prevention, and state laws regulating lead contamination in drinking water.*

Sec. 363.11. Endorsement Training Programs

(c) Water Supply Protection Specialist Endorsement training programs

(1) *Before a Journeyman or Master Plumber may qualify to take the Water Supply Protection Specialist endorsement examination, the applicant must complete a training program approved*

by the Board, which pertains to subject matter applicable to the protection of public and private potable water supplies, as required by the plumbing codes, laws and regulations of this state. A portion of the training program shall include information specific to rainwater harvesting as outlined in the latest edition of the Texas Water Development Board's Rainwater Harvesting Manual and the latest edition of the Uniform Plumbing Code (UPC) Rainwater Harvesting Seminar Manual.

(2) Any person wishing to offer a Board approved training program in Water Supply Protection Specialist Endorsement to the public must submit a course outline, together with the number of hours of instruction, to the Board for approval.

(3) The training program must be at least 24 hours with a maximum of eight (8) hours of instruction per day and comply with the following minimum guidelines:

(A) a six (6) hour review of the significance of cross-connections, the principles of back pressure and back siphonage, thermal expansion, the acceptable devices and/or requirements for a public water supply system including, but not limited to, approved backflow protection devices, shut-off valves, water meters, and containment vessels;

(B) a two (2) hour review of the applicable standards, codes, and laws, including but not limited to the Plumbing License Law, Board rules, the Texas Commission on Environmental Quality rules relating to a public water supply and water reuse, as described in the Texas Water Development Board's Rainwater Harvesting Manual, and the Texas A&M AgriLife Extension Service recommendations;

(C) a four (4) hour review of the specific parts and terminology, and the concepts and components of a rainwater harvesting system, including proper sizing for all water reuse systems;

(D) an eight (8) hour review of the acceptable type, material, location, limitation, and correct installation of equipment related to the treatment and reuse of water;

(E) four (4) hours devoted to the elements of a proper customer service inspection as required by the Texas Commission on Environmental Quality;

(4) Board approved Course Providers and Course Instructors who are approved to provide and instruct Continuing Professional Education (CPE) courses, under Board Rule §365.14 (relating to Continuing Professional Education Programs), may utilize another governmental or industry recognized entity to provide a portion of the course instruction.

(5) The Board may require resubmission for approval of any previously approved Water Supply Protection Specialist endorsement training program to ensure that the program meets current requirements of the plumbing codes, laws, and regulations of the state which pertain to the protection of public and private potable water supplies.

Sec. 365.1. Licensing, Endorsement and Registration Categories; Description; Scope of Work Permitted.

(7) Water Supply Protection Specialist--An endorsement to a Journeyman or Master Plumber license that authorizes the individual to perform Customer Service Inspections as defined in the Texas Commission on Environmental Quality Rules and Regulations for Public Water Systems. A Water Supply Protection Specialist Endorsement shall not be used in lieu of a Plumbing Inspector license as required under §1301.351 of the Plumbing License Law to perform plumbing inspections required under §1301.255 and §1301.551 of the Plumbing License Law. The Water Supply Protection Specialist endorsement on a Journeyman or Master Plumber license authorizes the individual to perform, install, service, and repair plumbing associated with the use and distribution of rainwater to supply a plumbing fixture, appliance, or irrigation system:

(A) only under the general supervision of a Responsible Master Plumber who holds a Water Supply Protection Specialist endorsement on his or her Master Plumber license;

and

(B) only under contracts or agreements to perform, install, service, and repair plumbing associated with the use and distribution of rainwater to supply a plumbing fixture, appliance, or irrigation system secured by a Responsible Master Plumber who holds a Water Supply Protection Specialist endorsement on his or her Master Plumber license.

Sec. 367.2. Standards of Conduct.

(f) In addition to complying with the requirements of subsections (a) – (e) of this section, each Licensed Plumbing Inspector shall also comply with the following:

(10) Prior to performing rainwater harvesting system inspections, a Plumbing Inspector must complete the 24 hour Water Supply Protection Specialist endorsement training program.

The New Backflow Prevention Assembly Tester Exam

Ms. Linda Saladino

Ms. Linda Saladino, TCEQ Occupational Licensing Section, met with the members of the subcommittee to further develop the TCEQ written examination to obtain the BPAT license while also taking questions from current training providers related to implementation.