PREC#44836

August 8, 2017

Richard A. Hyde, P.E.
Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087
Austin Texas, 78711-3087

Re: Petition for Rulemaking; Title 30, Texas Administrative Code (TAC)
Chapter 344, Rules for Landscape Irrigation

Mr. Hyde,

The TCEQ Irrigator Advisory Council (IAC) is composed of nine members appointed by the Commission. Six of the members are Licensed Irrigators experienced in the field of irrigation. The remaining three members are representatives of the public, not having an interest in the irrigation industry. The purpose of the council is to give the commission the benefit of the members' collective business, environmental, and technical expertise and experience with respect to matters relating to landscape irrigation.

The IAC respectfully submits the enclosed petition for rulemaking seeking revisions to Title 30, Texas Administrative Code (TAC) Chapter 344, Rules for Landscape Irrigation, section 344.50 pertaining to backflow prevention methods. The recommended revisions serve to align the TCEQ rules with current national and international standards.

Respectfully submitted for your consideration,

John DeCell, Chair
Irrigator Advisory Council

Petition for Adoption of Rules

The Irrigator Advisory Council (IAC) hereby petitions the Texas Commission on Environmental Quality (TCEQ) for adoption of rules to revise Title 30, Texas Administrative Code (TAC) Chapter 344, Rules for Landscape Irrigation, section §344.50 - Backflow Prevention Methods.

Name of Petitioner

Irrigator Advisory Council
John DeCell, Chair
25740 Century Oaks Blvd
Hockley, Texas 77447

Purpose of the Proposed Rule Changes

The purpose of the proposed rule changes is to bring the current TCEQ rules in line with existing national and international standards concerning the health hazard classification of irrigation systems, the backflow assemblies acceptable for use in protection against an irrigation system, and the terminology used to refer to a backflow prevention assembly.

Language suggested for removal or change is struck through and appears in red. Proposed additions or changes are underlined and appear in blue.

Text of Current and Proposed Rules and Explanations

344.50. Backflow Prevention Methods.

Current Rule

§344.50. Backflow Prevention Methods.

(a) Any irrigation system that is connected to a public or private potable water supply must be connected through a commission-approved backflow prevention method. The backflow prevention ~~device~~ must be approved by the American Society of Sanitary Engineers; or the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California; or the Uniform Plumbing Code; or any other laboratory that has equivalent capabilities for both the laboratory and field evaluation of backflow prevention assemblies. The backflow prevention ~~device~~ must be installed in accordance with the laboratory approval standards or if the approval does not include specific installation information, the manufacturer's current published recommendations.

IAC Proposed Rule Change

§344.50. Backflow Prevention Methods.

(a) Any irrigation system that is connected to a public or private potable water supply is considered to be a health hazard and must be connected through a commission-approved backflow prevention method. The backflow prevention assembly must be approved by the American Society of Sanitary Engineers; or the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California; or the Uniform Plumbing Code; or any other laboratory that has equivalent capabilities for both the laboratory and field evaluation of backflow prevention assemblies. The backflow prevention assembly must be installed in accordance with the laboratory approval standards or if the approval does not include specific installation information, the manufacturer's current published recommendations.

The reason for this recommendation: *A health hazard is defined in the Chapter 344 rules as "A cross-connection or potential cross-connection with an irrigation system that involves any substance that may, if introduced into the potable water supply, cause death or illness, spread disease, or have a high probability of causing such effects." The International Plumbing Code (IPC), Uniform Plumbing Code (UPC), University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USCFCCCHR), American Water Works Association (AWWA), and the American Backflow Prevention Association (ABPA) all consider irrigation, with or without chemical injection or additives, to be a health hazard due to the fecal material, fertilizers, herbicides, pesticides, and other chemical and biological contaminants that may exist within the piping system of both residential and commercial irrigation systems. On November 10, 2016, the Irrigator Advisory Council voted in favor of classifying landscape irrigation as a health hazard to stay consistent with these national and international standards. The attendees of the TCEQ Cross-Connection Control Subcommittee overwhelmingly voted in favor of classifying landscape irrigation systems as a health hazard on March 3, 2016 to keep in line with these subject matter experts. In the January 2017 issue of the TXIA quarterly newsletter, Dan Green, the President of the Texas Irrigation Association (TXIA) stated, "Those of us that work with these (irrigation) systems daily are aware of the many hazards that can be intentionally or non-intentionally introduced into our systems and it is hard to dispute the potential health hazard."*

Although this change may be met with some opposition, it is the right thing to do and it is the right time to do it. There will never be fewer irrigation systems installed in the state of Texas than there are right now. The nation often looks to the state of Texas for guidance. With the water issues that are facing the nation today, Texas should be in the lead for solving these issues. The protection of the water source is of the utmost importance. It is a matter of public health and safety.

The conversion of the irrigation classification from a non-health hazard to a health hazard has been done in the past. The city of Wichita, Kansas with a population of approximately 340,000 people made this conversion back in the 1990's. There have been ongoing discussions to devise a plan for this conversion here in Texas that will not place a major burden on the general public, or the water purveyors of the state.

One such plan allows for existing assemblies to be tested over a three-year period. Testing due dates are determined by zip code to help distribute the testing requirement over time, and to ease the burden of testing on Backflow Prevention Assembly Testers. If there is an inadequate assembly in place, as long as each assembly is tested annually, existing assemblies are allowed to remain in place until such time as they fail a test and can no longer be repaired.

This recommendation will also change the references to a backflow prevention "device" to a backflow prevention "assembly". The TCEQ follows the University of Southern California's (USC) Manual of Cross-Connection Control Tenth Edition for testing procedures and standards. The USC manual and the Foundation for Cross-Connection Control and Hydraulic Research refer to a backflow as an assembly. Although a backflow is often referred to as a "device" within the industry, it is actually an "assembly" of components. In the TCEQ Chapter 290, Rules and Regulations for Public Water Systems, a backflow is referred to as an assembly. This change will allow the Chapter 344 rules to stay consistent in language with the Chapter 290 rules and the University of Southern California.

Current Rule

(b) ~~If conditions that present a health hazard exist, o~~ne of the following methods must be used to prevent backflow;

(1) An air gap may be used if:

A there is an unobstructed physical separation; and

B the distance from the lowest point of the water supply outlet to the flood rim of the fixture or assembly into which the outlet discharges is at least one inch or twice the diameter of the water supply outlet, whichever is greater.

(2) Reduced pressure principle backflow prevention assemblies may be used if:

A the device is installed at a minimum of 12 inches above ground in a location that will ensure that the assembly will not be submerged; and

B drainage is provided for any water that may be discharged through the assembly relief valve.

(3) Pressure vacuum breakers may be used if:

A no back-pressure condition will occur; and

B the device is installed at a minimum of 12 inches above any downstream piping and the highest downstream opening. Pop-up sprinklers are measured from the retracted position from the top of the sprinkler.

~~(4) Atmospheric vacuum breakers may be used if:~~

~~A no back-pressure will be present;~~

~~B there are no shutoff valves downstream from the atmospheric vacuum breaker;~~

~~C the device is installed at a minimum of six inches above any downstream piping and the highest downstream opening.~~

~~Pop-up sprinklers are measured from the retracted position from the top of the sprinkler;~~

~~D there is no continuous pressure on the supply side of the atmospheric vacuum breaker for more than 12 hours in any 24-hour period; and~~

~~E a separate atmospheric vacuum breaker is installed on the discharge side of each irrigation control valve, between the valve and all the emission devices that the valve controls.~~

IAC Proposed Rule Change

(b) One of the following methods must be used to prevent backflow;

(1) An air gap may be used if:

A there is an unobstructed physical separation; and

B the distance from the lowest point of the water supply outlet to the flood rim of the fixture or assembly into which the outlet discharges is at least one inch or twice the diameter of the water supply outlet, whichever is greater.

(2) Reduced pressure principle backflow prevention assemblies may be used if:

A the device is installed at a minimum of 12 inches above ground in a location that will ensure that the assembly will not be submerged; and

B drainage is provided for any water that may be discharged through the assembly relief valve.

(3) Pressure vacuum breakers may be used if:

A no back-pressure condition will occur; and

B the device is installed at a minimum of 12 inches above any downstream piping and the highest downstream opening. Pop-up sprinklers are measured from the retracted position from the top of the sprinkler.

(4) Spill-resistant pressure vacuum breakers may be used if:

A no back-pressure condition will occur; and

B the assembly is installed at a minimum of 12 inches above any downstream piping and the highest downstream opening. Pop-up sprinklers are measured from the retracted position from the top of the sprinkler.

The reason for this recommendation: *All irrigation systems are required to be designed, installed, maintained, altered, repaired, serviced, and operated in a manner that will promote water conservation. One method of achieving this task is to install sprinkler bodies with installed check-valves. The check-valves will prevent water within the piping to drain from the lowest sprinkler when the irrigation system is shut off. This saves the water inside the piping where it can be used the next time the system is operated rather than running off onto a sidewalk, into the street, or deep percolating below the plant root zone. These "anti-drain sprinklers" are becoming more common and may be installed on a system at any point in time by a professional irrigator or a homeowner. Because the check-valves prevent the water from draining, the system may remain under pressure. An AVB must not remain under constant pressure for more than 12 hours in a 24-hour period. If the*

system remains under pressure, it is possible that the pressure in the system resulting from the check-valve installations could keep the air inlet of the AVB constantly closed and thereby susceptible to disc adhesion. An AVB with the inlet disc adhered to the seat will no longer operate as designed and will not provide any form of backflow prevention protection. The Irrigator Advisory Council voted in favor of removing the AVB as an approved backflow prevention assembly for landscape irrigation on August 18, 2016. The attendees of the TCEQ Cross-Connection Control Subcommittee also voted in favor of removing the AVB as an approved backflow prevention assembly for landscape irrigation on September 7, 2016.

The Irrigator Advisory Council recommends that the TCEQ recognize the spill-resistant pressure vacuum breaker assembly as an additional backflow prevention method for protection against irrigation systems. The spill-resistant vacuum breaker assembly is approved by the University of Southern California (USC) and is an approved assembly under the International Plumbing Code (IPC) and Uniform Plumbing Codes (UPC) for both health and non-health hazard protection. This will provide another option for the protection of the public water supply. Because the assembly is "spill-resistant", this will provide a good option for installing an assembly indoors in colder climates.

Current Rule

(c) Backflow prevention ~~devices~~ used in applications designated as health hazards must be tested upon installation and annually thereafter.

IAC Proposed Rule Change

(c) Backflow prevention assemblies used in applications designated as health hazards must be tested upon installation and annually thereafter. All backflow prevention assemblies shall be tested upon repair, replacement or relocation.

The reason for this recommendation: *This suggestion will change the reference to backflow prevention "devices" to backflow prevention "assemblies" to stay consistent with the Chapter 290 rules and the University of Southern California.*

Backflow prevention assemblies operate mechanically and are subject to failure. It's not a matter of if they are going to fail, but when they are going to fail. The manufacturers of the assemblies install test cocks on the assemblies for the purpose of ongoing testing procedures. The City of Mansfield performed an in-house study in 2009 and again in 2015. The study indicated that backflow assemblies that were newly installed up to 2 years old failed at a rate of around 11%. Assemblies that averaged 10 years old failed at a rate of 40%. Assemblies 15 years old failed at an increased rate of 65%. The older the assembly, the more likely it will fail a test.

The American Water Works Association (AWWA), the Uniform Plumbing Code (UPC), and the International Plumbing Code (IPC) all require backflow assemblies to be tested upon installation, immediately after repairs or relocation, and at least annually. This recommendation will keep the TCEQ rules in line with all national and international standards.

IAC Proposed Rule Change – Remove Original Rule No Longer Required

~~(d) If there are no conditions that present a health hazard double check valve backflow prevention assemblies may be used to prevent backflow if the device is tested upon installation and:~~

~~(1) a local regulatory authority does not prohibit the use of a double check valve;~~

~~(2) backpressure caused by an elevation of pressure in the discharge piping by pump or elevation of piping above the supply pressure which could cause a reversal of the normal flow of water or back-siphonage conditions caused by a reduced or negative pressure in the irrigation system exist; and~~

~~(3) test cocks are used for testing only.~~

~~(e) If a double check valve is installed below ground:~~

~~(1) test cocks must be plugged, except when the double check valve is being tested;~~

~~(2) test cock plugs must be threaded, water-tight, and made of nonferrous material;~~

~~(3) a y-type strainer is installed on the inlet side of the double check valve;~~

~~(4) there must be a clearance between any fill material and the bottom of the double check valve to allow space for testing and repair; and~~

~~(5) there must be space on the side of the double check valve to test and repair the double check valve.~~

The reason for this recommendation: *The double check valve assembly is the only backflow prevention assembly that is not approved for protection against a health hazard, and should therefore no longer be acceptable for use in irrigation. The double check valve has not been an acceptable assembly for protection of the water supply against irrigation in the International Plumbing Code (IPC) or the Universal Plumbing Code (UPC) for years.*

Statement of Statutory Authority

The Commission has authority to promulgate these rules under Texas Water Code §§ 5.013, 5.101-103, and 37.00-.015; Texas Occupations Code § 1903.053; and Texas Health and Safety Code §§ 341.033-034.

Injury or Inequity Resulting from Failure to Adopt the Proposed Rules

As previously stated, a health hazard is defined in the Chapter 344 rules as "A cross-connection or potential cross-connection with an irrigation system that involves any substance that may, if introduced into the potable water supply, cause death or illness, spread disease, or have a high probability of causing such effects." Water in irrigation systems, with or without chemical injection or additives, is known to be a health hazard due to the fecal material, fertilizers, herbicides, pesticides, and other chemical and biological contaminants that may exist within the piping system of both residential and commercial irrigation systems.

This contaminated water is easily brought back into the public water supply through back pressure, or back-siphonage from a broken city main, a pump failure, or a fire. This hazardous water is especially dangerous and potentially fatal to infants, small children, those fighting an illness, and the elderly.

An irrigation system is a luxury item. No one must have a landscape irrigation system for any reason other than convenience. An irrigation system owner should not have the right to potentially contaminate the public water supply from the lack of testing procedures on the backflow prevention assembly.

Failure to adopt the proposed amendments will continue to allow the citizens of the State of Texas to be exposed to water known and recognized as hazardous by the two plumbing codes approved by the State Plumbing Board, and virtually all other subject matter experts. The time has come for the TCEQ to properly classify irrigation as a health hazard, and require the annual testing of backflow prevention assemblies to protect the public from this known danger.